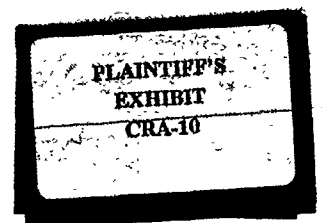


# Exhibit CRA-10

Hardbound Catalog, Crane Ltd. (UK), "Boilers,  
Radiators, and Radiator Accessories," - Catalogue  
No. 33, dated July 1938



**BOILERS  
RADIATORS  
ACCESSORIES**

**CRANE**

CRANE

# CRANE

RADIATORS, BOILERS  
AND  
RADIATOR ACCESSORIES

CATALOGUE No. 33

JULY 1938

# CRANE

LTD.

Telephone  
ROYAL 1212

HEAD OFFICE  
45-51 LEMAN STREET, E.1

Telegrams  
CRANELON, TELEX  
LONDON

LONDON SHOWROOMS: 118 WIGMORE STREET, W.1

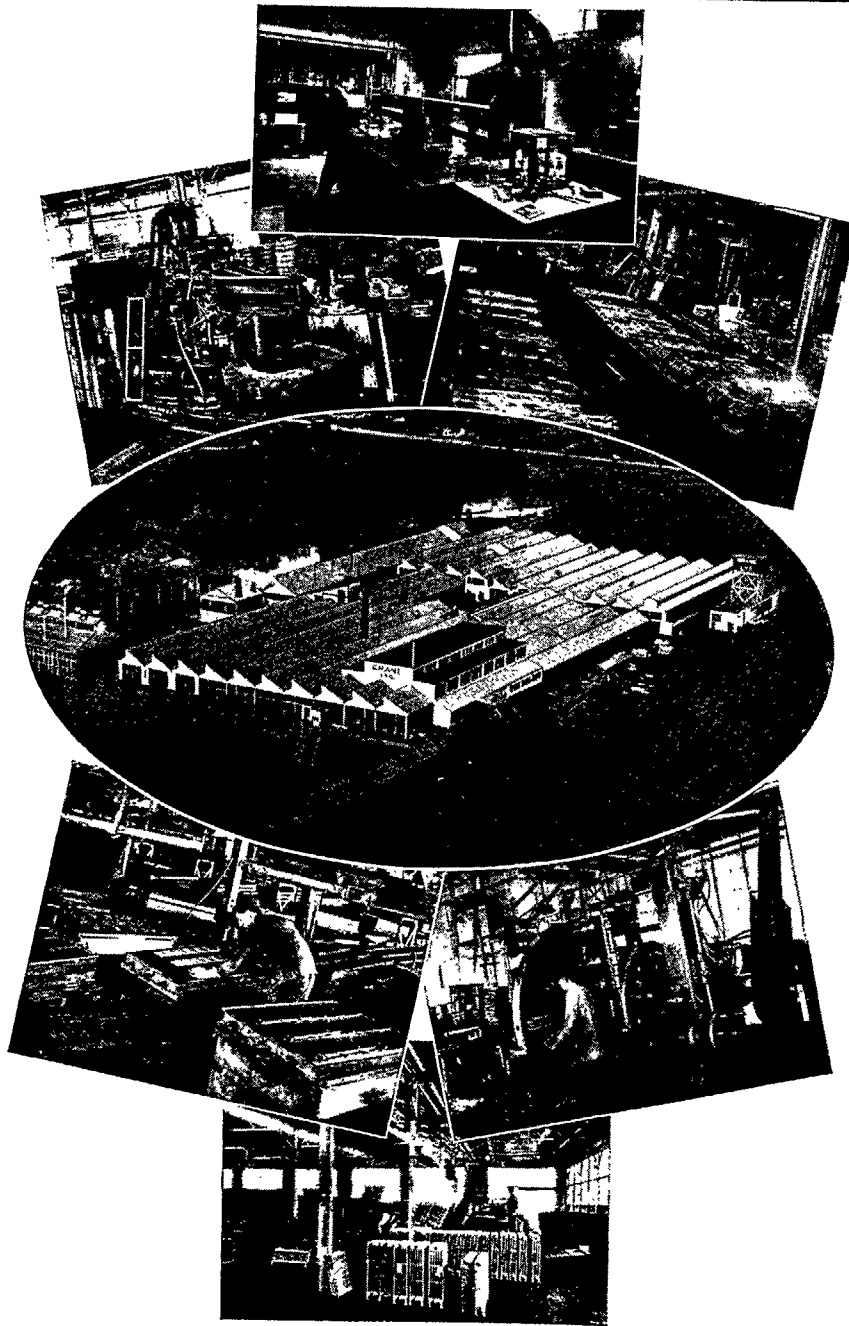
BRANCHES  
BIRMINGHAM, BRISTOL, GLASGOW, MANCHESTER

WORKS  
IPSWICH

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CRANE

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## FOREWORD

**T**HIS catalogue includes several additions to the range of heating equipment produced by Crane Ltd.

The aerial photograph opposite depicts the Ipswich Factory where Crane Radiators, Boilers, Valves, Malleable Fittings, etc., are manufactured. This Factory contains one of the most up-to-date and efficient foundries for the manufacture of Boilers and Radiators.

Although it is only eight years since the manufacture of these two products was commenced, after years of careful planning and research, it is noteworthy that in all quarters Crane Radiators and Boilers are accepted as at least equal in design and workmanship to any others obtainable. The aim of Crane Ltd. is to offer to their patrons heating goods which shall be a credit to their installations and provide an opportunity to stimulate sales by giving customers entirely new, outstandingly better product at no higher price.

CRANE BOILERS AND RADIATORS are not only employed by all the large Heating Engineers but are continually supplied to such public bodies as H.M. Office of Works, the Admiralty, the War Office, the London County Council, etc. In addition, some world-famous buildings have been, wholly or in part, equipped with Crane Radiators and Boilers. They are also regularly exported in large quantities to various parts of the British Empire and many foreign countries.

In this catalogue is offered a complete range of heating specialties as commonly used in modern heating and hot water systems, but in some sections additional sizes and types are depicted in our General Catalogue which also includes goods in general use for Steam, Sanitary, Gas and Oil pipelines.

ORDERS AND ENQUIRIES for prices or technical information should be addressed to Head Office, 45-51 Leman Street, London, E.1, rather than to the Factory, which involves delay.

## CRANE RADIATORS

**T**HERE are sound reasons for the widespread acceptance that has been accorded Crane Radiators by Architects and Engineers. Amongst these reasons, the following SEVEN are especially noteworthy:—

1. **The provision of the Crane patented deflecting Shield.**
2. **Strength, due to adequate and even metal thickness, solid metal feet, adequate sized nipples, etc.**
3. **Maximum radiant heat output, owing to the scientific design of the section of the waterway.**
4. **Conservative heating surface ratings and transmission ratings.**
5. **Standardised and easily remembered dimensions making for convenience and time saving by both designers and erectors.**
6. **High legs as Standard allowing adequate space beneath radiator for cleaning and sufficient height to connect to valves with ease.**
7. **Hospital Radiators and supports that are outstandingly "easy-clean" and smoothly cast.**

In addition to the foregoing the following details of the manufacturing processes demonstrate the extreme care that is taken to provide the best possible Radiator:—

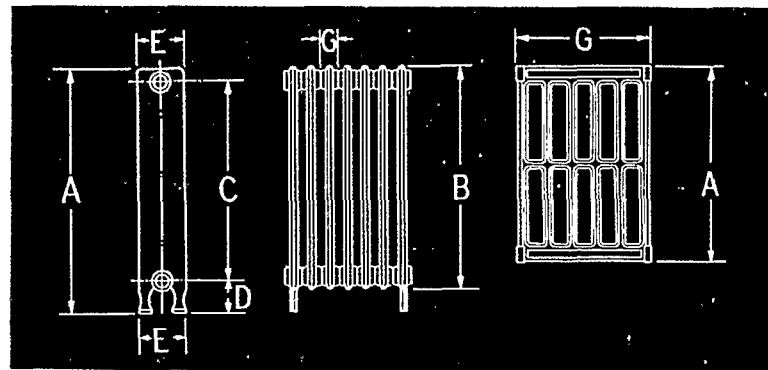
**MACHINING.** Sections are machined on specially designed patented tapping and screwing machines which bore, screw and face both sides of the section at one set-up, thus ensuring perfect alignment.

**TESTING.** Not only is every section tested to 100 lbs. pressure before machining, but the assembled Radiator is likewise tested to the same pressure. Certificates of Test can be furnished if desired.

**WASHING.** Every Crane Radiator is washed internally and externally in boiling water before painting in order to remove all grease, sand and other impurities which would not only spoil the appearance but injure Valves, Traps and other Fittings in the pipe line.

**PAINTING.** Crane Radiators are painted before leaving the factory with an exclusively developed paint capable of withstanding high temperatures without deteriorating, and also serving as an excellent priming coat to all the usual forms of decoration. Often one coat of Decorator's paint can be saved by the use of Crane Radiators having this factory grey primary paint.

# CRANE



| Pattern                | A                   | B                       | C                       | D*     | E        | G  | Heating<br>Surface<br>per<br>section | Water<br>Content<br>lbs.<br>per<br>sq. ft. | Maximum<br>size<br>Tappings<br>top and<br>bottom | B.T.U.<br>Trans. per<br>sq. ft.<br>100° Diff. |
|------------------------|---------------------|-------------------------|-------------------------|--------|----------|----|--------------------------------------|--------------------------------------------|--------------------------------------------------|-----------------------------------------------|
| 2 Column ..            | 18<br>24<br>30      | 15½<br>21½<br>27½       | 12½<br>18½<br>24½       | 4      | 2½       | 2½ | ¾<br>1<br>1½                         | ·7                                         | 1½                                               | 185                                           |
| 4 Column ..            | 18<br>24<br>30      | 15½<br>21½<br>27½       | 12½<br>18½<br>24½       | 4      | 5½       | 2½ | 1½<br>2<br>2½                        | ·7                                         | 1½                                               | 170                                           |
| 6 Column ..            | 18<br>24<br>30      | 15½<br>21½<br>27½       | 12½<br>18½<br>24½       | 4      | 8½       | 2½ | 2½<br>3<br>3½                        | ·7                                         | 1½                                               | 160                                           |
| Window ..              | 13                  | 11½                     | 8½                      | 3      | 13½      | 2½ | 2½                                   | ·8                                         | 1½                                               | 158                                           |
| 3 Hospital ..          | 18<br>24<br>30      | 15½<br>21½<br>27½       | 12½<br>18½<br>24½       | 4      | 3        | 2  | 1<br>1½<br>2                         | 1·2                                        | 1                                                | 185                                           |
| 5½ Hospital            | 18<br>24<br>30      | 15½<br>21½<br>27½       | 12½<br>18½<br>24½       | 4      | 5½       | 2½ | 1½<br>2<br>2½                        | 1·5                                        | 1½                                               | 158                                           |
| 7½ Hospital            | 18<br>24<br>30      | 15½<br>21½<br>27½       | 12½<br>18½<br>24½       | 4      | 7½       | 2½ | 2½<br>3<br>3½                        | 1·6                                        | 1½                                               | 151                                           |
| Wall ..                | 18<br>24<br>30      | —                       | 16<br>22<br>28          | —      | 2        | 16 | 5<br>6½<br>8½                        | ·7                                         | 1                                                | 171                                           |
| Concealed<br>Copper .. | —<br>24<br>30<br>36 | 11<br>21½<br>27½<br>33½ | 8½<br>18½<br>24½<br>30½ | —<br>4 | 3½<br>5½ | 2  | 1½<br>2<br>2½                        | ·7<br>1·3                                  | 1<br>1                                           | —<br>136                                      |

\* All "Pall Mall" Radiators excepting 2 Col., and Hospital, excepting 3 in. wide can be supplied with 6 in. high legs.

The STANDARDISATION of the dimensions of Crane Radiators will be noted from the above, simplifying labour in the office, and on the job.

All kinds and heights of radiators (excepting Window), dimension D is the same.

All kinds and heights of "Pall Mall" Radiators, dimension G is the same.

All internal nipples are 1½ in. size, excepting for Wall, 3 in. Hospital, Copper Radiators and Concealed Radiators, which have 1 in. nipples. All outside tappings are right-hand pipe thread.

Inside threads, flow end section, are right-hand for "Pall Mall" and Hospital, and left-hand for Wall.

Inside threads, return end section, are left-hand for "Pall Mall" and Hospital, and right-hand for Wall. Concealed Radiators may be either.

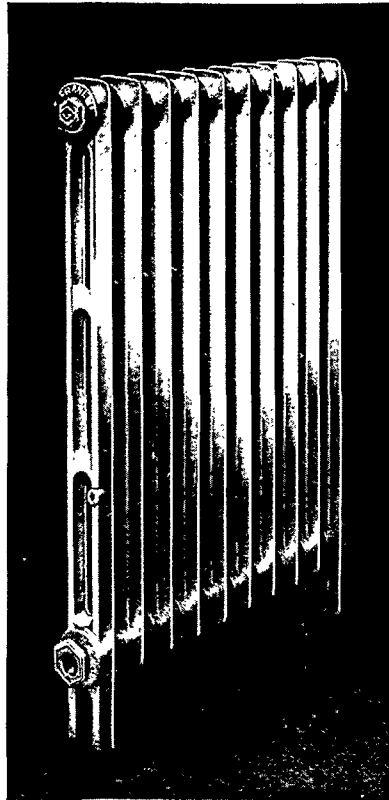
Air Vent, or Airlet Plug, is situated on return end section.

CRANE

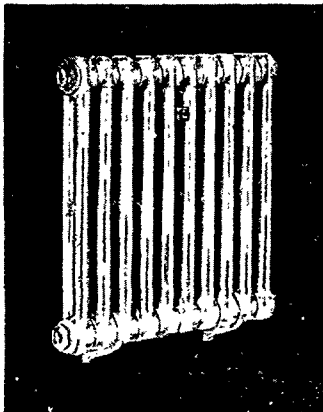
# THE TWO COLUMN

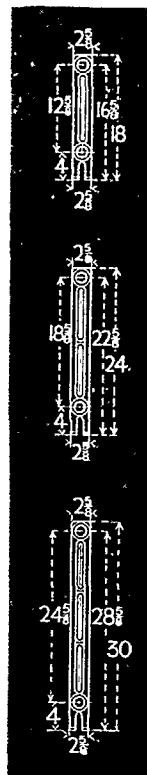
For Corridors and Bedrooms, or wherever radiators of only a small heating surface are required, the Two-column "Pall Mall" Radiator will be found most suitable.

The Two-column is also suitable where even distribution of heat is to be obtained by means of long Radiators, and can be supplied without feet for supporting on Wall Brackets.

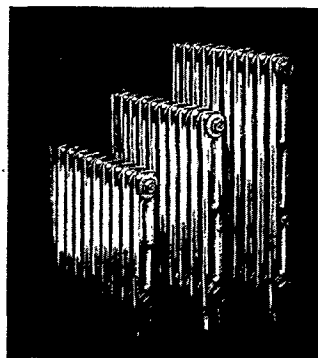


"PALL MALL" FOR WATER OR STEAM



THE TWO-COLUMN, 2 $\frac{5}{8}$  in. wide

Legless Radiators are 2 $\frac{3}{8}$  in. less in height than when with feet.



| Number of Sections | *Length, 2 $\frac{1}{2}$ in. per section | 30-in. Height<br>1 $\frac{1}{2}$ sq. ft. per section |                  | 24-in. Height<br>1 sq. ft. per section |                  |
|--------------------|------------------------------------------|------------------------------------------------------|------------------|----------------------------------------|------------------|
|                    |                                          | Heating Surface                                      | PRICE<br>£ s. d. | Heating Surface                        | PRICE<br>£ s. d. |
| 4                  | 9                                        | 5 $\frac{1}{2}$                                      | 10 2             | 4                                      | 7 11             |
| 5                  | 11 $\frac{1}{2}$                         | 6 $\frac{3}{4}$                                      | 12 8             | 5                                      | 9 11             |
| 6                  | 13 $\frac{1}{2}$                         | 8                                                    | 15 2             | 6                                      | 11 11            |
| 7                  | 15 $\frac{1}{2}$                         | 9 $\frac{1}{2}$                                      | 17 9             | 7                                      | 13 10            |
| 8                  | 18                                       | 10 $\frac{1}{2}$                                     | 1 0 3            | 8                                      | 15 10            |
| 9                  | 20 $\frac{1}{2}$                         | 12                                                   | 1 2 10           | 9                                      | 17 10            |
| 10                 | 22 $\frac{1}{2}$                         | 13 $\frac{1}{2}$                                     | 1 5 4            | 10                                     | 19 10            |
| 11                 | 24 $\frac{1}{2}$                         | 14 $\frac{1}{2}$                                     | 1 7 11           | 11                                     | 1 1 9            |
| 12                 | 27                                       | 16                                                   | 1 10 5           | 12                                     | 1 3 9            |
| 13                 | 29 $\frac{1}{2}$                         | 17 $\frac{1}{2}$                                     | 1 12 11          | 13                                     | 1 5 9            |
| 14                 | 31 $\frac{1}{2}$                         | 18 $\frac{1}{2}$                                     | 1 15 6           | 14                                     | 1 7 9            |
| 15                 | 33 $\frac{1}{2}$                         | 20                                                   | 1 18 0           | 15                                     | 1 9 8            |
| 16                 | 36                                       | 21 $\frac{1}{2}$                                     | 2 0 7            | 16                                     | 1 11 8           |
| 17                 | 38 $\frac{1}{2}$                         | 22 $\frac{1}{2}$                                     | 2 3 1            | 17                                     | 1 13 8           |
| 18                 | 40 $\frac{1}{2}$                         | 24                                                   | 2 5 7            | 18                                     | 1 15 8           |
| 19                 | 42 $\frac{1}{2}$                         | 25 $\frac{1}{2}$                                     | 2 8 2            | 19                                     | 1 17 7           |
| 20                 | 45                                       | 26 $\frac{1}{2}$                                     | 2 10 8           | 20                                     | 1 19 7           |
| 21                 | 47 $\frac{1}{2}$                         | 28                                                   | 2 13 3           | 21                                     | 2 1 7            |
| 22                 | 49 $\frac{1}{2}$                         | 29 $\frac{1}{2}$                                     | 2 15 9           | 22                                     | 2 3 7            |
| 23                 | 51 $\frac{1}{2}$                         | 30 $\frac{1}{2}$                                     | 2 18 4           | 23                                     | 2 5 6            |
| 24                 | 54                                       | 32                                                   | 3 0 10           | 24                                     | 2 7 6            |
| 25                 | 56 $\frac{1}{2}$                         | 33 $\frac{1}{2}$                                     | 3 3 4            | 25                                     | 2 9 6            |

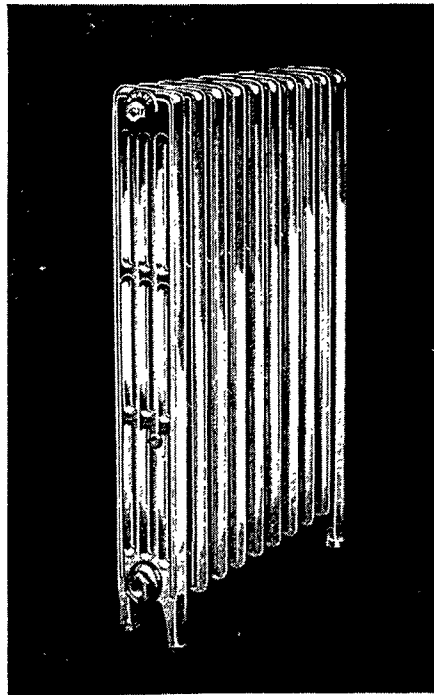
| Number of Sections | *Length, 2 $\frac{1}{2}$ in. per section | 18-in. Height<br>$\frac{3}{4}$ sq. ft. per section |                  |
|--------------------|------------------------------------------|----------------------------------------------------|------------------|
|                    |                                          | Heating Surface                                    | PRICE<br>£ s. d. |
| 4                  | 9                                        | 3                                                  | 6 3              |
| 5                  | 11 $\frac{1}{2}$                         | 3 $\frac{3}{4}$                                    | 7 10             |
| 6                  | 13 $\frac{1}{2}$                         | 4 $\frac{1}{2}$                                    | 9 5              |
| 7                  | 15 $\frac{1}{2}$                         | 5 $\frac{1}{2}$                                    | 10 11            |
| 8                  | 18                                       | 6                                                  | 12 6             |
| 9                  | 20 $\frac{1}{2}$                         | 6 $\frac{3}{4}$                                    | 14 1             |
| 10                 | 22 $\frac{1}{2}$                         | 7 $\frac{1}{2}$                                    | 15 8             |
| 11                 | 24 $\frac{1}{2}$                         | 8 $\frac{1}{2}$                                    | 17 2             |
| 12                 | 27                                       | 9                                                  | 18 9             |
| 13                 | 29 $\frac{1}{2}$                         | 9 $\frac{3}{4}$                                    | 1 0 4            |
| 14                 | 31 $\frac{1}{2}$                         | 10 $\frac{1}{2}$                                   | 1 1 11           |
| 15                 | 33 $\frac{1}{2}$                         | 11 $\frac{1}{2}$                                   | 1 3 5            |
| 16                 | 36                                       | 12                                                 | 1 5 0            |
| 17                 | 38 $\frac{1}{2}$                         | 12 $\frac{1}{2}$                                   | 1 6 7            |
| 18                 | 40 $\frac{1}{2}$                         | 13 $\frac{1}{2}$                                   | 1 8 2            |
| 19                 | 42 $\frac{1}{2}$                         | 14 $\frac{1}{2}$                                   | 1 9 8            |
| 20                 | 45                                       | 15                                                 | 1 11 3           |
| 21                 | 47 $\frac{1}{2}$                         | 15 $\frac{1}{2}$                                   | 1 12 10          |
| 22                 | 49 $\frac{1}{2}$                         | 16 $\frac{1}{2}$                                   | 1 14 5           |
| 23                 | 51 $\frac{1}{2}$                         | 17 $\frac{1}{2}$                                   | 1 15 11          |
| 24                 | 54                                       | 18                                                 | 1 17 6           |
| 25                 | 56 $\frac{1}{2}$                         | 18 $\frac{1}{2}$                                   | 1 19 1           |

\* Add 1 in. to length for bushings.  
Radiators are supplied for water unless ordered for steam. When ordered for steam, outlet bushing is supplied tapped eccentrically unless otherwise ordered.  
Radiators are fitted with Air Vent Plug unless ordered for steam.

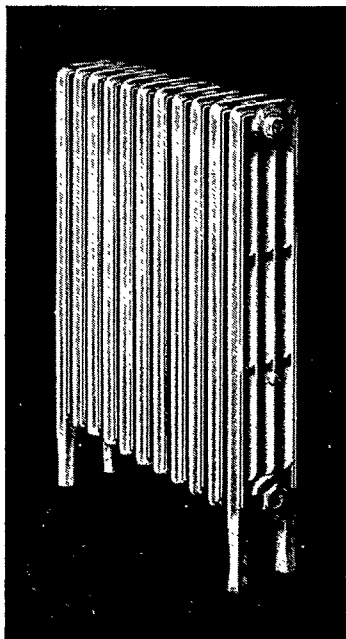
CRANE

# THE FOUR COLUMN

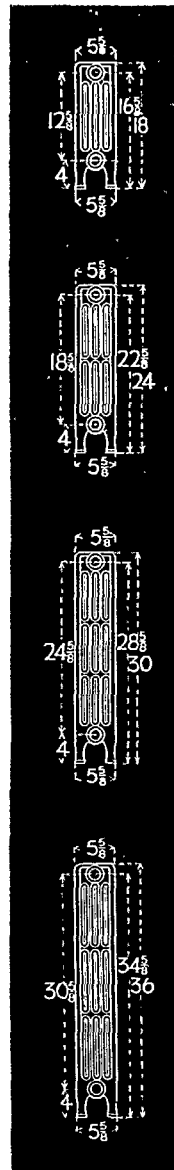
A radiator of graceful lines yet of sound and sturdy construction. When wall space and floor area call for a radiator neither too long nor too wide, the desired amount of heating surface is often best supplied by the Four-column "Pall Mall" Radiator.



"PALL MALL" FOR WATER OR STEAM



Four-column radiators can be supplied with 6 in. legs. Prices on page 32.

THE FOUR-COLUMN,  $5\frac{5}{8}$  in. wide

| Number of Sections | *Length, 2 $\frac{1}{2}$ in. per section | 36-in. Height<br>3 $\frac{3}{8}$ sq. ft. per section |                  | 30-in. Height<br>2 $\frac{7}{8}$ sq. ft. per section |                  |
|--------------------|------------------------------------------|------------------------------------------------------|------------------|------------------------------------------------------|------------------|
|                    |                                          | Heating Surface                                      | PRICE<br>£ s. d. | Heating Surface                                      | PRICE<br>£ s. d. |
| 4                  | 9                                        | 13 $\frac{7}{8}$                                     | 1 1 4            | 10 $\frac{5}{8}$                                     | 18 0             |
| 5                  | 11 $\frac{1}{2}$                         | 16 $\frac{7}{8}$                                     | 1 6 8            | 13 $\frac{7}{8}$                                     | 1 2 6            |
| 6                  | 13 $\frac{1}{2}$                         | 19 $\frac{7}{8}$                                     | 1 12 0           | 16 $\frac{7}{8}$                                     | 1 7 0            |
| 7                  | 15 $\frac{1}{2}$                         | 23 $\frac{7}{8}$                                     | 1 17 4           | 18 $\frac{7}{8}$                                     | 1 11 6           |
| 8                  | 18                                       | 26 $\frac{7}{8}$                                     | 2 2 8            | 21 $\frac{7}{8}$                                     | 1 16 0           |
| 9                  | 20 $\frac{1}{2}$                         | 29 $\frac{7}{8}$                                     | 2 8 0            | 24 $\frac{7}{8}$                                     | 2 0 6            |
| 10                 | 22 $\frac{1}{2}$                         | 33                                                   | 2 13 4           | 27                                                   | 2 5 0            |
| 11                 | 24 $\frac{1}{2}$                         | 36 $\frac{7}{8}$                                     | 2 18 7           | 29 $\frac{7}{8}$                                     | 2 9 6            |
| 12                 | 27                                       | 39 $\frac{7}{8}$                                     | 3 3 11           | 32 $\frac{7}{8}$                                     | 2 14 0           |
| 13                 | 29 $\frac{1}{2}$                         | 42 $\frac{7}{8}$                                     | 3 9 3            | 35 $\frac{7}{8}$                                     | 2 18 6           |
| 14                 | 31 $\frac{1}{2}$                         | 46 $\frac{7}{8}$                                     | 3 14 7           | 37 $\frac{7}{8}$                                     | 3 3 6            |
| 15                 | 33 $\frac{1}{2}$                         | 49 $\frac{7}{8}$                                     | 3 19 11          | 40 $\frac{7}{8}$                                     | 3 7 6            |
| 16                 | 36                                       | 52 $\frac{7}{8}$                                     | 4 5 3            | 43 $\frac{7}{8}$                                     | 3 12 0           |
| 17                 | 38 $\frac{1}{2}$                         | 56 $\frac{7}{8}$                                     | 4 10 7           | 45 $\frac{7}{8}$                                     | 3 16 6           |
| 18                 | 40 $\frac{1}{2}$                         | 59 $\frac{7}{8}$                                     | 4 15 11          | 48 $\frac{7}{8}$                                     | 4 1 0            |
| 19                 | 42 $\frac{1}{2}$                         | 62 $\frac{7}{8}$                                     | 5 1 3            | 51 $\frac{7}{8}$                                     | 4 5 6            |
| 20                 | 45                                       | 66                                                   | 5 6 7            | 54                                                   | 4 10 0           |
| 21                 | 47 $\frac{1}{2}$                         | 69 $\frac{7}{8}$                                     | 5 11 11          | 56 $\frac{7}{8}$                                     | 4 14 6           |
| 22                 | 49 $\frac{1}{2}$                         | 72 $\frac{7}{8}$                                     | 5 17 2           | 59 $\frac{7}{8}$                                     | 4 19 0           |
| 23                 | 51 $\frac{1}{2}$                         | 75 $\frac{7}{8}$                                     | 6 2 6            | 61 $\frac{7}{8}$                                     | 5 3 6            |
| 24                 | 54                                       | 79 $\frac{7}{8}$                                     | 6 7 10           | 64 $\frac{7}{8}$                                     | 5 8 0            |
| 25                 | 56 $\frac{1}{2}$                         | 82 $\frac{7}{8}$                                     | 6 13 3           | 67 $\frac{7}{8}$                                     | 5 12 6           |

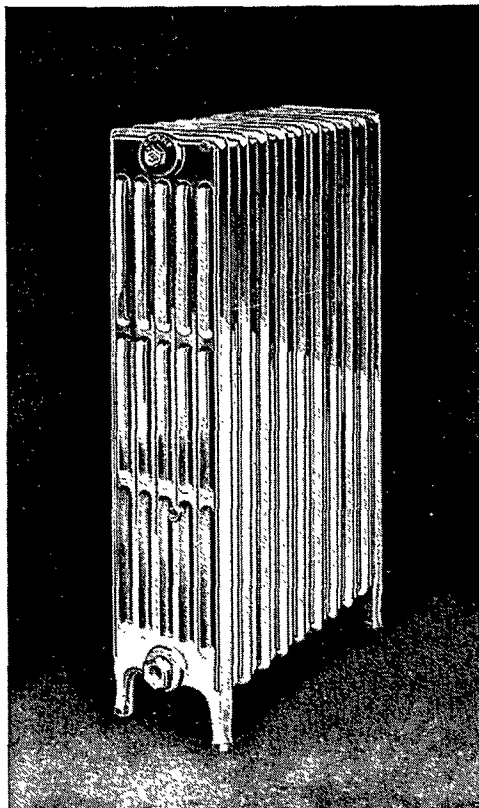
| Number of Sections | *Length, 2 $\frac{1}{2}$ in. per section | 24-in. Height<br>2 $\frac{1}{8}$ sq. ft. per section |                  | 18-in. Height<br>1 $\frac{1}{2}$ sq. ft. per section |                  |
|--------------------|------------------------------------------|------------------------------------------------------|------------------|------------------------------------------------------|------------------|
|                    |                                          | Heating Surface                                      | PRICE<br>£ s. d. | Heating Surface                                      | PRICE<br>£ s. d. |
| 4                  | 9                                        | 8 $\frac{5}{8}$                                      | 15 10            | 6                                                    | 11 7             |
| 5                  | 11 $\frac{1}{2}$                         | 11                                                   | 19 10            | 7 $\frac{1}{2}$                                      | 14 6             |
| 6                  | 13 $\frac{1}{2}$                         | 13 $\frac{1}{8}$                                     | 1 3 9            | 9                                                    | 17 4             |
| 7                  | 15 $\frac{1}{2}$                         | 15 $\frac{1}{8}$                                     | 1 7 9            | 10 $\frac{1}{2}$                                     | 1 0 3            |
| 8                  | 18                                       | 17 $\frac{1}{8}$                                     | 1 11 8           | 12                                                   | 1 3 2            |
| 9                  | 20 $\frac{1}{2}$                         | 19 $\frac{1}{8}$                                     | 1 15 7           | 13 $\frac{1}{2}$                                     | 1 6 1            |
| 10                 | 22 $\frac{1}{2}$                         | 22                                                   | 1 19 7           | 15                                                   | 1 8 11           |
| 11                 | 24 $\frac{1}{2}$                         | 24 $\frac{1}{8}$                                     | 2 3 6            | 16 $\frac{1}{2}$                                     | 1 11 9           |
| 12                 | 27                                       | 26 $\frac{1}{8}$                                     | 2 7 6            | 18                                                   | 1 14 8           |
| 13                 | 29 $\frac{1}{2}$                         | 28 $\frac{1}{8}$                                     | 2 11 5           | 19 $\frac{1}{2}$                                     | 1 17 7           |
| 14                 | 31 $\frac{1}{2}$                         | 30 $\frac{1}{8}$                                     | 2 15 5           | 21                                                   | 2 0 6            |
| 15                 | 33 $\frac{1}{2}$                         | 33                                                   | 2 19 3           | 22 $\frac{1}{2}$                                     | 2 3 4            |
| 16                 | 36                                       | 35 $\frac{1}{8}$                                     | 3 3 3            | 24                                                   | 2 6 3            |
| 17                 | 38 $\frac{1}{2}$                         | 37 $\frac{1}{8}$                                     | 3 7 2            | 25 $\frac{1}{2}$                                     | 2 9 2            |
| 18                 | 40 $\frac{1}{2}$                         | 39 $\frac{1}{8}$                                     | 3 11 2           | 27                                                   | 2 12 1           |
| 19                 | 42 $\frac{1}{2}$                         | 41 $\frac{1}{8}$                                     | 3 15 1           | 28 $\frac{1}{2}$                                     | 2 14 11          |
| 20                 | 45                                       | 44                                                   | 3 19 1           | 30                                                   | 2 17 10          |
| 21                 | 47 $\frac{1}{2}$                         | 46 $\frac{1}{8}$                                     | 4 3 0            | 31 $\frac{1}{2}$                                     | 3 0 9            |
| 22                 | 49 $\frac{1}{2}$                         | 48 $\frac{1}{8}$                                     | 4 7 0            | 33                                                   | 3 3 7            |
| 23                 | 51 $\frac{1}{2}$                         | 50 $\frac{1}{8}$                                     | 4 10 11          | 34 $\frac{1}{2}$                                     | 3 6 6            |
| 24                 | 54                                       | 52 $\frac{1}{8}$                                     | 4 14 11          | 36                                                   | 3 9 5            |
| 25                 | 56 $\frac{1}{2}$                         | 55                                                   | 4 18 10          | 37 $\frac{1}{2}$                                     | 3 12 4           |

\* Add 1 in. to length for bushings. Legless Radiators 2 $\frac{3}{4}$  in. less in height than when with feet.  
Radiators are supplied for water unless ordered for steam. When ordered for steam, outlet bushing is supplied tapped eccentrically unless otherwise instructed.  
Radiators are fitted with Air Vent Plug unless ordered for steam.

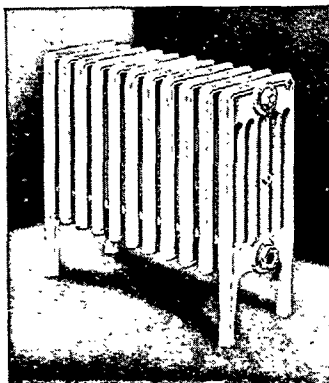
CRANE

# THE SIX COLUMN

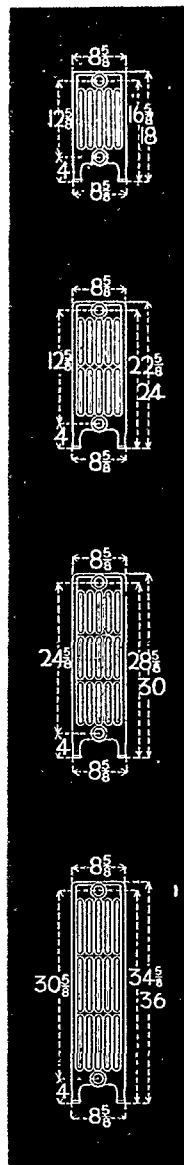
Only  $8\frac{5}{8}$  inches wide, the Six-column is a concentrated unit providing an unusual amount of heating surface per section. It fulfils the requirements of large rooms where available wall space is limited and unduly long or too many radiators are not desirable.



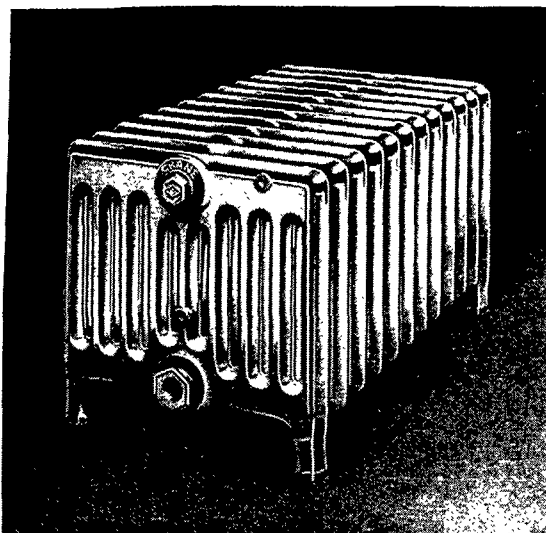
"FALL MALL" FOR WATER OR STEAM



Six-column radiators can be supplied with 6 in. legs. Prices on page 32.

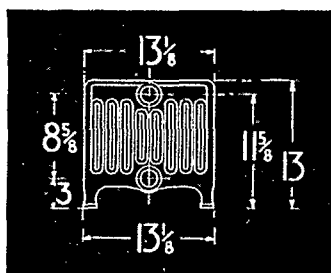
THE SIX-COLUMN, 8 $\frac{1}{8}$  in. wide

CRANE



## THE WINDOW RADIATOR

"PALL MALL" FOR WATER OR STEAM



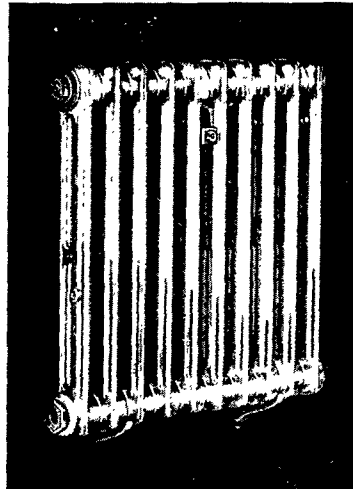
| Number<br>of<br>Sections | 13-in. Height<br>2 <sup>1</sup> / <sub>8</sub> sq. ft. per section |                                |                  | Number<br>of<br>Sections | 13-in. Height<br>2 <sup>1</sup> / <sub>8</sub> sq. ft. per section |                                |                  |
|--------------------------|--------------------------------------------------------------------|--------------------------------|------------------|--------------------------|--------------------------------------------------------------------|--------------------------------|------------------|
|                          | *Length,<br>2 <sup>1</sup> / <sub>8</sub> in.<br>per section       | Heating<br>Surface             | PRICE<br>£ s. d. |                          | *Length,<br>2 <sup>1</sup> / <sub>8</sub> in.<br>per section       | Heating<br>Surface             | PRICE<br>£ s. d. |
| 4                        | 9                                                                  | 10 <sup>1</sup> / <sub>8</sub> | 1 4 1            | 15                       | 33 <sup>1</sup> / <sub>8</sub>                                     | 39                             | 4 10 5           |
| 5                        | 11 <sup>1</sup> / <sub>8</sub>                                     | 13                             | 1 10 1           | 16                       | 36                                                                 | 41 <sup>1</sup> / <sub>8</sub> | 4 16 6           |
| 6                        | 13 <sup>1</sup> / <sub>8</sub>                                     | 15 <sup>1</sup> / <sub>8</sub> | 1 16 2           | 17                       | 38 <sup>1</sup> / <sub>8</sub>                                     | 44 <sup>1</sup> / <sub>8</sub> | 5 2 6            |
| 7                        | 15 <sup>1</sup> / <sub>8</sub>                                     | 18 <sup>1</sup> / <sub>8</sub> | 2 2 2            | 18                       | 40 <sup>1</sup> / <sub>8</sub>                                     | 46 <sup>1</sup> / <sub>8</sub> | 5 8 6            |
| 8                        | 18                                                                 | 20 <sup>1</sup> / <sub>8</sub> | 2 8 3            | 19                       | 42 <sup>1</sup> / <sub>8</sub>                                     | 49 <sup>1</sup> / <sub>8</sub> | 5 14 6           |
| 9                        | 20 <sup>1</sup> / <sub>8</sub>                                     | 23 <sup>1</sup> / <sub>8</sub> | 2 14 3           | 20                       | 45                                                                 | 52                             | 6 0 6            |
| 10                       | 22 <sup>1</sup> / <sub>8</sub>                                     | 26                             | 3 0 4            | 21                       | 47 <sup>1</sup> / <sub>8</sub>                                     | 54 <sup>1</sup> / <sub>8</sub> | 6 6 7            |
| 11                       | 24 <sup>1</sup> / <sub>8</sub>                                     | 28 <sup>1</sup> / <sub>8</sub> | 3 6 4            | 22                       | 49 <sup>1</sup> / <sub>8</sub>                                     | 57 <sup>1</sup> / <sub>8</sub> | 6 12 7           |
| 12                       | 27                                                                 | 31 <sup>1</sup> / <sub>8</sub> | 3 12 4           | 23                       | 51 <sup>1</sup> / <sub>8</sub>                                     | 59 <sup>1</sup> / <sub>8</sub> | 6 18 7           |
| 13                       | 29 <sup>1</sup> / <sub>8</sub>                                     | 33 <sup>1</sup> / <sub>8</sub> | 3 18 4           | 24                       | 54                                                                 | 62 <sup>1</sup> / <sub>8</sub> | 7 4 8            |
| 14                       | 31 <sup>1</sup> / <sub>8</sub>                                     | 36 <sup>1</sup> / <sub>8</sub> | 4 4 5            | 25                       | 56 <sup>1</sup> / <sub>8</sub>                                     | 65                             | 7 10 8           |

\* Add 1 in. to length for bushings.

Radiators are supplied for water unless ordered for steam. When ordered for steam, outlet bushing is supplied tapped eccentrically unless otherwise instructed.

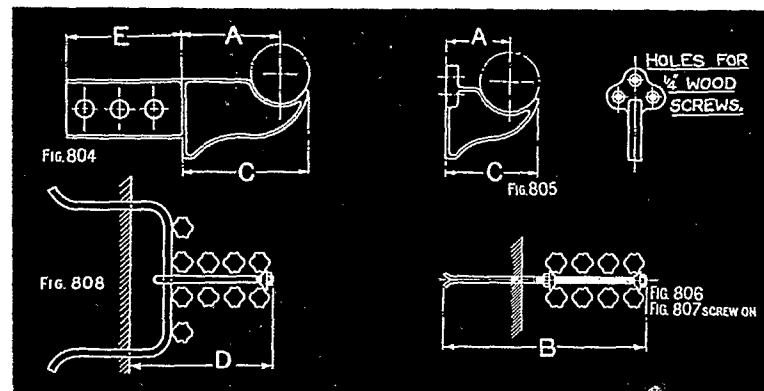
Radiators are fitted with Air Vent Plug unless ordered for steam.

# CRANE BRACKETS AND STAYS FOR "PALL MALL" RADIATORS



Dimensions of Standard Brackets give  $1\frac{3}{4}$  in. from back of radiator to finished wall surface. For Two-column Radiators, Brackets can also be supplied for 1 in. clearance. Orders should state if this last pattern is required.

The illustration shows a Two-column "Pall Mall" Radiator supported on Wall Brackets.



## MEASUREMENTS AND PRICES.

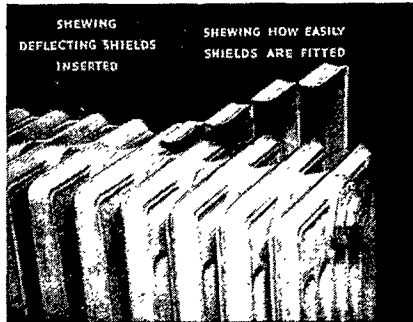
| For Radiators        | Dimensions in inches |    |                |    |                | PRICES                            |                                   |                                    |                                    |
|----------------------|----------------------|----|----------------|----|----------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|
|                      | A                    | B  | C              | D  | E              | Fig. 804<br>Bracket<br>(build in) | Fig. 805<br>Bracket<br>(screw on) | Fig. 806<br>Top Stay<br>(build in) | Fig. 808<br>Top Stay<br>(build in) |
| Pall Mall 2-Col. ... | $3\frac{7}{8}$       | 10 | $4\frac{1}{2}$ | 5  | $3\frac{1}{2}$ | -/9                               | -/9                               | -/7                                | -/11 $\frac{1}{2}$                 |
| Pall Mall 4-Col. ... | $4\frac{7}{8}$       | 13 | $5\frac{1}{2}$ | 8  | 5              | -/9                               | -/9                               | -/7                                | -/11 $\frac{1}{2}$                 |
| Pall Mall 6-Col. ... | $6\frac{7}{8}$       | 16 | $7\frac{1}{2}$ | 11 | 5              | $1/1\frac{1}{2}$                  | $1/1\frac{1}{2}$                  | -/7                                | -/11 $\frac{1}{2}$                 |

Fig. 807 top stay with back plate for screwing to wall, price 7d.

CRANE

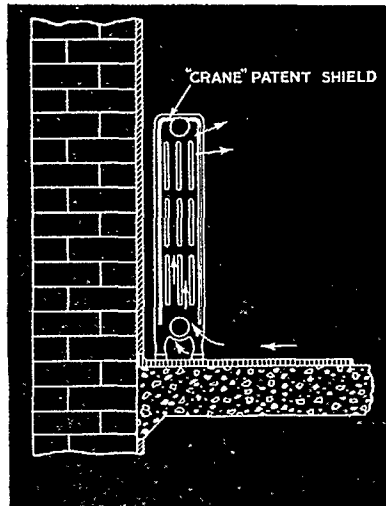
## THE CRANE INVISIBLE SHIELD

Patent Number 354051



Front view showing how Crane Invisible Deflecting Shields are inserted.

A SIMPLE DEVICE THAT PROTECTS WALLS AND HANGINGS.



The Invisible Shield consists of pressed steel plates which slide down specially cast grooves in the sections and form a metal curtain that fits snugly between each column, from top hub to the bottom of the castings, on the side of the radiator next to the wall; it makes little change in the radiator's appearance yet greatly increases its effectiveness.

Instead of permitting the heated air to rise straight up, it deflects it outward into the room, where most required. Thus it protects walls and plaster, largely eliminates blackened areas above a radiator, and guards against damage to draperies.

Furthermore, the Crane Shield has the notable effect of increasing the temperature of the air from the floor line up to about five feet above the floor, between which levels the heat is most required. This increase of temperature is gained at the expense of the temperature of the air below the ceiling. Therefore, for the same conditions of comfort to the occupants of the room, there is an appreciable saving in fuel consumption. Every Pall Mall radiator, except the Two-column, can be equipped with the Invisible Shield at the slight additional cost of 3d. per radiator section for "Pall Mall" Radiators.

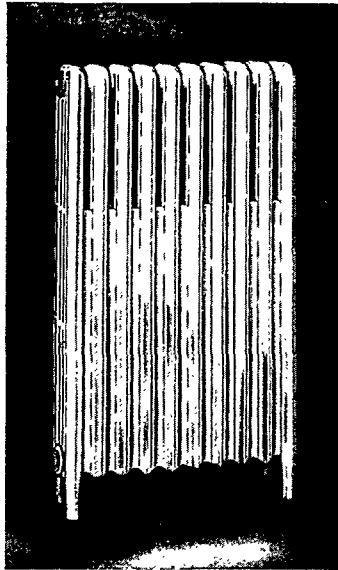
In the case of Radiators fitted with Deflecting Shields and required with blind nipple, customers should state whether flow is at right- or left-hand when radiator is in position.

Deflecting Shields should be ordered at the same time as the Radiators, and are fitted before despatch.

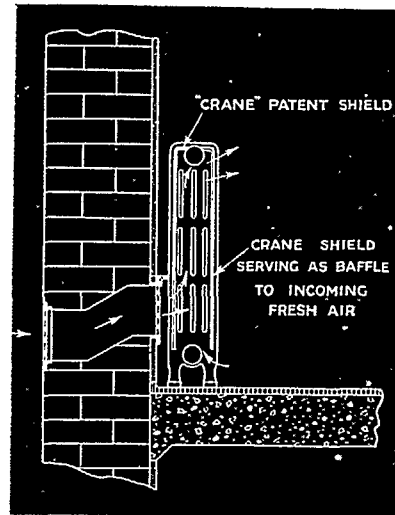
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## CRANE CRANE SHIELD AND BAFFLE PLATES

Patent Number 363777



THE DEVICE FOR RADIATORS  
WITH FRESH AIR INLET.



The Crane Shield and Baffle fitted to a Radiator with a fresh air inlet is particularly adaptable to Office and School Buildings, especially as a means of tempering the incoming air to rooms having a system of extract ventilation. By reason of the induced or "stack" effect, the efficiency of the radiator is increased.

The baffle is less expensive than the old style baffle plates, and moreover does not destroy the graceful lines of the radiator, furthermore it increases the radiant heat value. The baffle is easily removed for cleaning if desired.

Price  $6\frac{1}{2}$ d. per radiator section for "Pall Mall" Radiators for both Shield and Baffle.

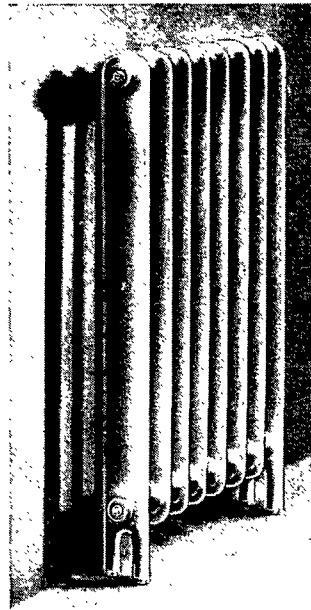
Crane Shield and baffles should be ordered at the same time as the radiators, and are fitted before despatch.

Cast Iron Plates for extending Shield and Baffles to floor line, where air inlet is through floor instead of wall, can be supplied on request for "Pall Mall" Radiators only. Price  $-\frac{1}{4}$  one side per section,  $-\frac{1}{6}$  two sides per section.

CRANE

# THE HOSPITAL RADIATOR

3" WIDE

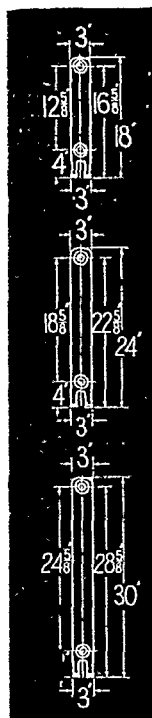


FOR WATER OR STEAM

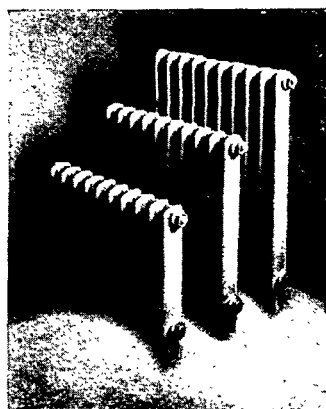
The 3-in.-wide Crane Hospital Radiator is designed for Schools, Hospitals and other situations where easy-clean Radiators of narrow width are desired.

The air space between the Sections is 1 in. and the thickness of the Section 1 in. Supplied with feet (standard height only) or without feet.

THE HOSPITAL RADIATOR, 3 in. wide



| Number of Sections | *Length, 2 in. per section | 30-in. Height<br>1 sq. ft. per section |                  | 24-in. Height<br>1 sq. ft. per section |                  |
|--------------------|----------------------------|----------------------------------------|------------------|----------------------------------------|------------------|
|                    |                            | Heating Surface                        | PRICE<br>£ s. d. | Heating Surface                        | PRICE<br>£ s. d. |
| 4                  | 8                          | 5 <sup>1</sup> / <sub>2</sub>          | 10 0             | 4                                      | 8 2              |
| 5                  | 10                         | 6 <sup>1</sup> / <sub>2</sub>          | 12 6             | 5                                      | 10 2             |
| 6                  | 12                         | 7 <sup>1</sup> / <sub>2</sub>          | 15 0             | 6                                      | 12 2             |
| 7                  | 14                         | 8 <sup>1</sup> / <sub>2</sub>          | 17 6             | 7                                      | 14 3             |
| 8                  | 16                         | 9 <sup>1</sup> / <sub>2</sub>          | 20 0             | 8                                      | 16 3             |
| 9                  | 18                         | 10 <sup>1</sup> / <sub>2</sub>         | 22 7             | 9                                      | 18 3             |
| 10                 | 20                         | 11 <sup>1</sup> / <sub>2</sub>         | 25 1             | 10                                     | 20 4             |
| 11                 | 22                         | 12 <sup>1</sup> / <sub>2</sub>         | 27 7             | 11                                     | 22 4             |
| 12                 | 24                         | 13 <sup>1</sup> / <sub>2</sub>         | 30 1             | 12                                     | 24 5             |
| 13                 | 26                         | 14 <sup>1</sup> / <sub>2</sub>         | 32 7             | 13                                     | 26 5             |
| 14                 | 28                         | 15 <sup>1</sup> / <sub>2</sub>         | 35 1             | 14                                     | 28 5             |
| 15                 | 30                         | 16 <sup>1</sup> / <sub>2</sub>         | 37 7             | 15                                     | 30 6             |
| 16                 | 32                         | 17 <sup>1</sup> / <sub>2</sub>         | 40 1             | 16                                     | 32 6             |
| 17                 | 34                         | 18 <sup>1</sup> / <sub>2</sub>         | 42 7             | 17                                     | 34 6             |
| 18                 | 36                         | 19 <sup>1</sup> / <sub>2</sub>         | 45 1             | 18                                     | 36 7             |
| 19                 | 38                         | 20 <sup>1</sup> / <sub>2</sub>         | 47 7             | 19                                     | 38 7             |
| 20                 | 40                         | 21 <sup>1</sup> / <sub>2</sub>         | 50 1             | 20                                     | 40 8             |
| 21                 | 42                         | 22 <sup>1</sup> / <sub>2</sub>         | 52 7             | 21                                     | 42 8             |
| 22                 | 44                         | 23 <sup>1</sup> / <sub>2</sub>         | 55 1             | 22                                     | 44 8             |
| 23                 | 46                         | 24 <sup>1</sup> / <sub>2</sub>         | 57 7             | 23                                     | 46 9             |
| 24                 | 48                         | 25 <sup>1</sup> / <sub>2</sub>         | 60 1             | 24                                     | 48 9             |
| 25                 | 50                         | 26 <sup>1</sup> / <sub>2</sub>         | 62 8             | 25                                     | 50 9             |



| Number of Sections | *Length, 2 in. per section | 18-in. Height<br>1 sq. ft. per section |                  |
|--------------------|----------------------------|----------------------------------------|------------------|
|                    |                            | Heating surface                        | PRICE<br>£ s. d. |
| 4                  | 8                          | 3                                      | 6 9              |
| 5                  | 10                         | 3 <sup>1</sup> / <sub>2</sub>          | 8 5              |
| 6                  | 12                         | 4 <sup>1</sup> / <sub>2</sub>          | 10 1             |
| 7                  | 14                         | 5 <sup>1</sup> / <sub>2</sub>          | 11 9             |
| 8                  | 16                         | 6                                      | 13 5             |
| 9                  | 18                         | 6 <sup>1</sup> / <sub>2</sub>          | 15 1             |
| 10                 | 20                         | 7 <sup>1</sup> / <sub>2</sub>          | 16 10            |
| 11                 | 22                         | 8 <sup>1</sup> / <sub>2</sub>          | 18 6             |
| 12                 | 24                         | 9                                      | 20 1             |
| 13                 | 26                         | 9 <sup>1</sup> / <sub>2</sub>          | 21 10            |
| 14                 | 28                         | 10 <sup>1</sup> / <sub>2</sub>         | 23 6             |
| 15                 | 30                         | 11 <sup>1</sup> / <sub>2</sub>         | 25 2             |
| 16                 | 32                         | 12                                     | 26 10            |
| 17                 | 34                         | 12 <sup>1</sup> / <sub>2</sub>         | 28 7             |
| 18                 | 36                         | 13 <sup>1</sup> / <sub>2</sub>         | 30 3             |
| 19                 | 38                         | 14 <sup>1</sup> / <sub>2</sub>         | 31 11            |
| 20                 | 40                         | 15                                     | 33 7             |
| 21                 | 42                         | 15 <sup>1</sup> / <sub>2</sub>         | 35 3             |
| 22                 | 44                         | 16 <sup>1</sup> / <sub>2</sub>         | 36 11            |
| 23                 | 46                         | 17 <sup>1</sup> / <sub>2</sub>         | 38 8             |
| 24                 | 48                         | 18                                     | 40 0             |
| 25                 | 50                         | 18 <sup>1</sup> / <sub>2</sub>         | 41 0             |

\* Add 1 in. to length for bushings.  
Radiators are supplied for water unless ordered for steam. When ordered for steam, outlet bushing is supplied tapped eccentrically unless otherwise ordered. Radiators are fitted with Air Vent Plug unless ordered for steam. Legless Radiators are 2 <sup>1</sup>/<sub>2</sub> in. less in height than when with feet.

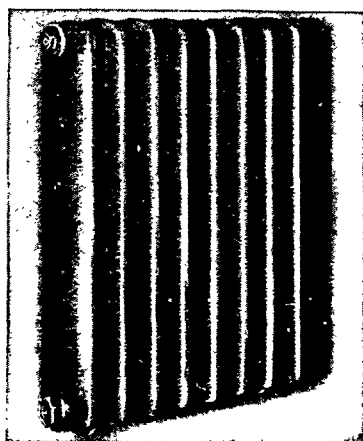
CRANE

# THE HOSPITAL RADIATOR

5 $\frac{1}{2}$ " WIDE



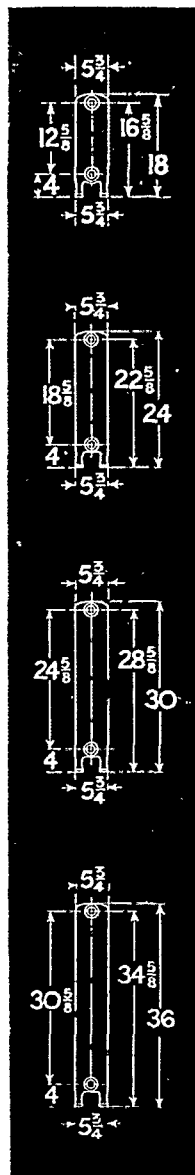
FOR WATER OR STEAM



The Crane Hospital Radiator is designed for those situations where scrupulous cleanliness is desired. Both the contours and the smoothness of the castings render the Radiator perfectly easy to clean.

The air space between sections is  $1\frac{1}{2}$  in. and the thickness of section  $1\frac{1}{8}$  in. Supplied with or without feet.

Hospital Radiators can be supplied with 6 in. legs. Prices on page 32.

THE HOSPITAL RADIATOR, 5 $\frac{3}{4}$  in. wide

| Number of Sections | *Length, 2 $\frac{3}{8}$ in. per section | 36-in. Height<br>3 sq. ft. per section |                  | 30-in. Height<br>2 $\frac{1}{2}$ sq. ft. per section |                  |
|--------------------|------------------------------------------|----------------------------------------|------------------|------------------------------------------------------|------------------|
|                    |                                          | Heating Surface                        | PRICE<br>£ s. d. | Heating Surface                                      | PRICE<br>£ s. d. |
| 4                  | 10 $\frac{1}{2}$                         | 12                                     | 1 1 7            | 10                                                   | 19 3             |
| 5                  | 13 $\frac{1}{2}$                         | 15                                     | 1 6 11           | 12 $\frac{1}{2}$                                     | 1 4 1            |
| 6                  | 15 $\frac{3}{4}$                         | 18                                     | 1 12 4           | 15                                                   | 1 8 11           |
| 7                  | 18 $\frac{3}{4}$                         | 21                                     | 1 17 9           | 17 $\frac{1}{2}$                                     | 1 13 9           |
| 8                  | 21                                       | 24                                     | 2 3 1            | 20                                                   | 1 18 6           |
| 9                  | 23 $\frac{3}{4}$                         | 27                                     | 2 8 6            | 22 $\frac{1}{2}$                                     | 2 3 4            |
| 10                 | 26 $\frac{1}{2}$                         | 30                                     | 2 13 11          | 25                                                   | 2 8 2            |
| 11                 | 28 $\frac{3}{4}$                         | 33                                     | 2 19 4           | 27 $\frac{1}{2}$                                     | 2 13 0           |
| 12                 | 31 $\frac{1}{2}$                         | 36                                     | 3 4 8            | 30                                                   | 2 17 10          |
| 13                 | 34 $\frac{1}{4}$                         | 39                                     | 3 10 1           | 32 $\frac{1}{2}$                                     | 3 2 8            |
| 14                 | 36 $\frac{3}{4}$                         | 42                                     | 3 15 6           | 35                                                   | 3 7 5            |
| 15                 | 39 $\frac{3}{8}$                         | 45                                     | 4 0 10           | 37 $\frac{1}{2}$                                     | 3 12 3           |
| 16                 | 42                                       | 48                                     | 4 6 3            | 40                                                   | 3 17 1           |
| 17                 | 44 $\frac{3}{4}$                         | 51                                     | 4 11 8           | 42 $\frac{1}{2}$                                     | 4 1 11           |
| 18                 | 47 $\frac{1}{2}$                         | 54                                     | 4 17 0           | 45                                                   | 4 6 9            |
| 19                 | 49 $\frac{3}{4}$                         | 57                                     | 5 2 5            | 47 $\frac{1}{2}$                                     | 4 11 6           |
| 20                 | 52 $\frac{1}{2}$                         | 60                                     | 5 7 10           | 50                                                   | 4 16 4           |
| 21                 | 55 $\frac{1}{2}$                         | 63                                     | 5 13 2           | 52 $\frac{1}{2}$                                     | 5 1 2            |
| 22                 | 57 $\frac{3}{4}$                         | 66                                     | 5 18 7           | 55                                                   | 5 6 0            |
| 23                 | 60 $\frac{3}{8}$                         | 69                                     | 6 4 0            | 57 $\frac{1}{2}$                                     | 5 10 10          |
| 24                 | 63                                       | 72                                     | 6 9 4            | 60                                                   | 5 15 7           |
| 25                 | 65 $\frac{3}{4}$                         | 75                                     | 6 14 9           | 62 $\frac{1}{2}$                                     | 6 0 5            |
| Number of Sections | *Length, 2 $\frac{3}{8}$ in. per section | 24-in. Height<br>2 sq. ft. per section |                  | 18-in. Height<br>1 $\frac{1}{2}$ sq. ft. per section |                  |
|                    |                                          | Heating Surface                        | PRICE<br>£ s. d. | Heating Surface                                      | PRICE<br>£ s. d. |
| 4                  | 10 $\frac{1}{2}$                         | 8                                      | 16 3             | 6                                                    | 13 5             |
| 5                  | 13 $\frac{1}{4}$                         | 10                                     | 1 0 4            | 7 $\frac{1}{2}$                                      | 16 10            |
| 6                  | 15 $\frac{1}{2}$                         | 12                                     | 1 4 5            | 9                                                    | 1 0 2            |
| 7                  | 18 $\frac{1}{4}$                         | 14                                     | 1 8 5            | 10 $\frac{1}{2}$                                     | 1 3 6            |
| 8                  | 21                                       | 16                                     | 1 12 6           | 12                                                   | 1 6 10           |
| 9                  | 23 $\frac{3}{4}$                         | 18                                     | 1 16 7           | 13 $\frac{1}{2}$                                     | 1 10 3           |
| 10                 | 26 $\frac{1}{2}$                         | 20                                     | 2 0 8            | 15                                                   | 1 13 7           |
| 11                 | 28 $\frac{3}{4}$                         | 22                                     | 2 4 8            | 16 $\frac{1}{2}$                                     | 1 16 11          |
| 12                 | 31 $\frac{1}{2}$                         | 24                                     | 2 8 9            | 18                                                   | 2 0 4            |
| 13                 | 34 $\frac{1}{4}$                         | 26                                     | 2 12 10          | 19 $\frac{1}{2}$                                     | 2 3 8            |
| 14                 | 36 $\frac{3}{4}$                         | 28                                     | 2 16 11          | 21                                                   | 2 7 0            |
| 15                 | 39 $\frac{3}{8}$                         | 30                                     | 3 0 11           | 22 $\frac{1}{2}$                                     | 2 10 5           |
| 16                 | 42                                       | 32                                     | 3 5 0            | 24                                                   | 2 13 10          |
| 17                 | 44 $\frac{3}{4}$                         | 34                                     | 3 9 1            | 25 $\frac{1}{2}$                                     | 2 17 2           |
| 18                 | 47 $\frac{1}{2}$                         | 36                                     | 3 13 2           | 27                                                   | 3 0 7            |
| 19                 | 49 $\frac{3}{4}$                         | 38                                     | 3 17 2           | 28 $\frac{1}{2}$                                     | 3 3 11           |
| 20                 | 52 $\frac{1}{2}$                         | 40                                     | 4 1 3            | 30                                                   | 3 7 3            |
| 21                 | 55 $\frac{1}{2}$                         | 42                                     | 4 5 4            | 31 $\frac{1}{2}$                                     | 3 10 8           |
| 22                 | 57 $\frac{3}{4}$                         | 44                                     | 4 9 5            | 33                                                   | 3 14 0           |
| 23                 | 60 $\frac{3}{8}$                         | 46                                     | 4 13 5           | 34 $\frac{1}{2}$                                     | 3 17 4           |
| 24                 | 63                                       | 48                                     | 4 17 6           | 36                                                   | 4 0 8            |
| 25                 | 65 $\frac{3}{4}$                         | 50                                     | 5 1 7            | 37 $\frac{1}{2}$                                     | 4 4 1            |

\* Add 1 in. to length for bushings.

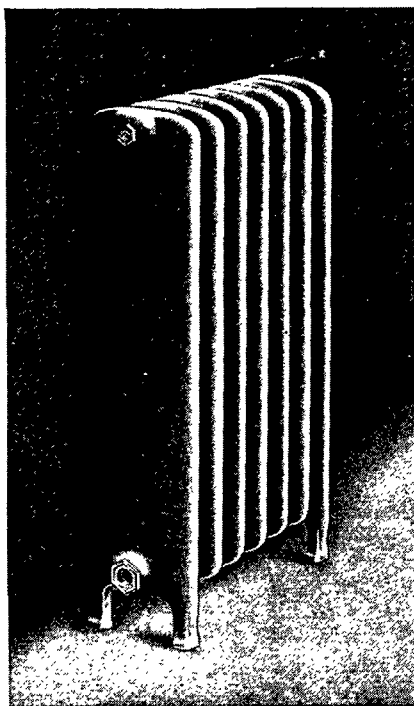
Legless Radiators are 2 $\frac{3}{8}$  in. less in height than when with feet.  
Radiators are supplied for water unless ordered for steam. When ordered for steam, outlet bushing is supplied tapped eccentrically unless otherwise instructed.

Radiators are fitted with Air Vent Plug unless ordered for steam.

CRANE

# THE HOSPITAL RADIATOR

7 $\frac{1}{8}$ " WIDE

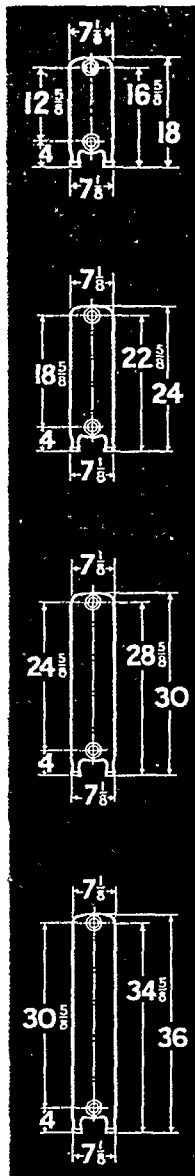


FOR WATER OR STEAM

Designed for situations where scrupulous cleanliness is desired, but the length of available space for the Radiator is limited. Both the contours and the smoothness of the castings render the Radiator perfectly easy to clean.

The air space between sections is  $1\frac{1}{2}$  in. and the thickness of section  $1\frac{3}{8}$  in. Supplied with or without feet.

Hospital Radiators can be supplied with 6 in. legs. Prices on page 32.

THE HOSPITAL RADIATOR,  $7\frac{1}{8}$  in. wide

| Number of Sections | *Length, 2 3/8 in. per section | 36-in. Height<br>3 7/8 sq. ft. per section |                  | 30-in. Height<br>3 1/8 sq. ft. per section |                  |
|--------------------|--------------------------------|--------------------------------------------|------------------|--------------------------------------------|------------------|
|                    |                                | Heating Surface                            | PRICE<br>£ s. d. | Heating Surface                            | PRICE<br>£ s. d. |
| 4                  | 10 1/2                         | 14 7/8                                     | 1 6 7            | 12 7/8                                     | 1 3 11           |
| 5                  | 13 1/4                         | 18 7/8                                     | 1 13 3           | 15 7/8                                     | 1 9 10           |
| 6                  | 15 3/4                         | 22 3/8                                     | 1 19 11          | 18 7/8                                     | 1 15 10          |
| 7                  | 18 1/8                         | 25 7/8                                     | 2 6 6            | 21 7/8                                     | 2 1 10           |
| 8                  | 21                             | 29 7/8                                     | 2 13 2           | 24 7/8                                     | 2 7 9            |
| 9                  | 23 3/8                         | 33 7/8                                     | 2 19 10          | 27 7/8                                     | 2 13 9           |
| 10                 | 26 1/4                         | 37                                         | 3 6 5            | 31                                         | 2 19 9           |
| 11                 | 28 7/8                         | 40 7/8                                     | 3 13 2           | 34 7/8                                     | 3 5 9            |
| 12                 | 31 1/2                         | 44 7/8                                     | 3 19 9           | 37 7/8                                     | 3 11 8           |
| 13                 | 34 3/8                         | 48 7/8                                     | 4 6 5            | 40 7/8                                     | 3 17 8           |
| 14                 | 36 3/4                         | 51 7/8                                     | 4 13 1           | 43 7/8                                     | 4 3 8            |
| 15                 | 39 3/8                         | 55 7/8                                     | 4 19 9           | 46 7/8                                     | 4 9 7            |
| 16                 | 42                             | 59 3/8                                     | 5 6 4            | 49 3/8                                     | 4 15 7           |
| 17                 | 44 3/8                         | 62 7/8                                     | 5 13 0           | 52 7/8                                     | 5 1 7            |
| 18                 | 47 1/4                         | 66 7/8                                     | 5 19 8           | 55 7/8                                     | 5 7 6            |
| 19                 | 49 3/8                         | 70 7/8                                     | 6 6 4            | 58 7/8                                     | 5 13 6           |
| 20                 | 52 1/2                         | 74                                         | 6 13 0           | 62                                         | 5 19 6           |
| 21                 | 55 1/8                         | 77 7/8                                     | 6 19 7           | 65 7/8                                     | 6 5 5            |
| 22                 | 57 3/4                         | 81 7/8                                     | 7 6 3            | 68 7/8                                     | 6 11 5           |
| 23                 | 60 3/8                         | 85 7/8                                     | 7 12 11          | 71 7/8                                     | 6 17 5           |
| 24                 | 63                             | 88 7/8                                     | 7 19 7           | 74 7/8                                     | 7 3 4            |
| 25                 | 65 3/8                         | 92 7/8                                     | 8 6 3            | 77 7/8                                     | 7 9 4            |

| Number of Sections | *Length, 2 3/8 in. per section | 24-in. Height<br>2 1/8 sq. ft. per section |                  | 18-in. Height<br>1 7/8 sq. ft. per section |                  |
|--------------------|--------------------------------|--------------------------------------------|------------------|--------------------------------------------|------------------|
|                    |                                | Heating Surface                            | PRICE<br>£ s. d. | Heating Surface                            | PRICE<br>£ s. d. |
| 4                  | 10 1/2                         | 9 7/8                                      | 19 6             | 7 7/8                                      | 16 2             |
| 5                  | 13 1/4                         | 12                                         | 1 4 5            | 9                                          | 1 0 2            |
| 6                  | 15 3/4                         | 14 7/8                                     | 1 9 3            | 10 7/8                                     | 1 4 2            |
| 7                  | 18 1/8                         | 16 7/8                                     | 1 14 2           | 12 7/8                                     | 1 8 3            |
| 8                  | 21                             | 19 7/8                                     | 1 19 0           | 14 7/8                                     | 1 12 3           |
| 9                  | 23 3/8                         | 21 7/8                                     | 2 3 11           | 16 7/8                                     | 1 16 3           |
| 10                 | 26 1/4                         | 24                                         | 2 8 9            | 18                                         | 2 0 4            |
| 11                 | 28 7/8                         | 26 7/8                                     | 2 13 8           | 19 7/8                                     | 2 4 5            |
| 12                 | 31 1/2                         | 28 7/8                                     | 2 18 6           | 21 7/8                                     | 2 8 5            |
| 13                 | 34 3/8                         | 31 7/8                                     | 3 3 5            | 23 7/8                                     | 2 12 5           |
| 14                 | 36 3/4                         | 33 7/8                                     | 3 8 4            | 25 7/8                                     | 2 16 6           |
| 15                 | 39 3/8                         | 36                                         | 3 13 2           | 27                                         | 3 0 6            |
| 16                 | 42                             | 38 7/8                                     | 3 18 0           | 28 7/8                                     | 3 4 6            |
| 17                 | 44 3/8                         | 40 7/8                                     | 4 2 11           | 30 7/8                                     | 3 8 7            |
| 18                 | 47 1/4                         | 43 7/8                                     | 4 7 9            | 32 7/8                                     | 3 12 7           |
| 19                 | 49 3/8                         | 45 7/8                                     | 4 12 8           | 34 7/8                                     | 3 16 7           |
| 20                 | 52 1/2                         | 48                                         | 4 17 6           | 36                                         | 4 0 8            |
| 21                 | 55 1/8                         | 50 7/8                                     | 5 2 5            | 37 7/8                                     | 4 4 8            |
| 22                 | 57 3/4                         | 52 7/8                                     | 5 7 3            | 39 7/8                                     | 4 8 9            |
| 23                 | 60 3/8                         | 55 7/8                                     | 5 12 2           | 41 7/8                                     | 4 12 9           |
| 24                 | 63                             | 57 7/8                                     | 5 17 1           | 43 7/8                                     | 4 16 9           |
| 25                 | 65 3/8                         | 60                                         | 6 1 11           | 45                                         | 5 0 10           |

\* Add 1 in. to length for bushings.

Legless Radiators are 2 3/4 in. less in height than when with feet.

Radiators are supplied for water unless ordered for steam. When ordered for steam, outlet bushing is supplied tapped eccentrically unless otherwise instructed.

Radiators are fitted with Air Vent Plug unless ordered for steam.

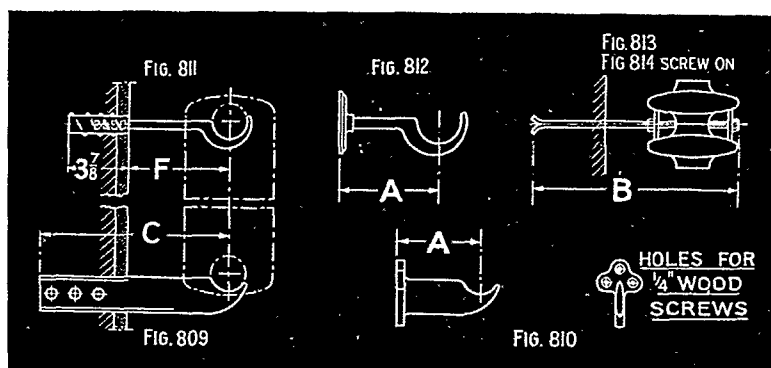
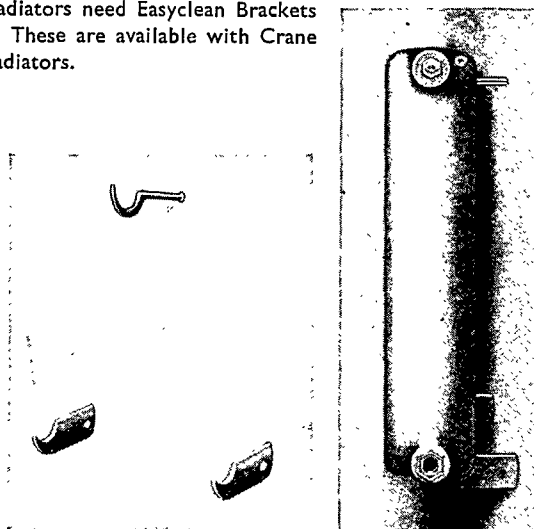
# CRANE BRACKETS AND STAYS FOR HOSPITAL RADIATORS

Registered Designs Nos. 772462, 772463

Hospital Radiators need Easyclean Brackets and Stays. These are available with Crane Hospital Radiators.

Dimension "F" can be adjusted between  $4\frac{7}{8}$  in. and  $6\frac{3}{8}$  in. permitting Radiators to be fixed at any distance from wall between  $1\frac{1}{2}$  in. and  $3\frac{1}{2}$  in. for the 3" wide, 2 in. and  $3\frac{1}{2}$  in. for the  $5\frac{3}{8}$  in. wide, and between 2 in. and 3 in. for the  $7\frac{1}{8}$  in. wide Radiator.

A Stay similar to Fig. 813 is supplied for screwing to wall to the fixed dimension "A": described as Fig. 814.

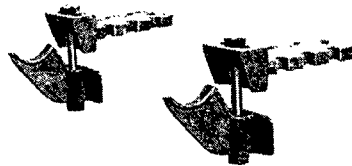


| For<br>Hospital<br>Radiators | Dimensions<br>in inches |                 |                 | PRICES                            |                                   |                                    |                                    |                                    |                                    |
|------------------------------|-------------------------|-----------------|-----------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                              | A                       | B               | C               | Fig. 809<br>Bracket<br>(build in) | Fig. 810<br>Bracket<br>(screw on) | Fig. 811<br>Top Stay<br>(build in) | Fig. 812<br>Top Stay<br>(screw on) | Fig. 813<br>Top Stay<br>(build in) | Fig. 814<br>Top Stay<br>(screw on) |
| 3 in. wide                   | $3\frac{7}{8}$          | $11\frac{1}{2}$ | $8\frac{1}{2}$  | —/9                               | —/9                               | 1/3                                | 1/3                                | —/7                                | —/7                                |
| $5\frac{1}{2}$ in. wide      | $4\frac{7}{8}$          | 13              | $9\frac{1}{2}$  | —/9                               | —/9                               | 1/5                                | 1/5                                | —/7                                | —/7                                |
| $7\frac{1}{8}$ in. wide      | $5\frac{1}{2}$          | 16              | $11\frac{1}{2}$ | 1/1 $\frac{1}{2}$                 | 1/1 $\frac{1}{2}$                 | 1/5                                | 1/5                                | —/7                                | —/7                                |

## RADIATOR BRACKETS

FOR H.M.O.W. AND COUNTY COUNCIL REQUIREMENTS  
ADJUSTABLE TOP PATTERN

Figs. 825/6



Top Brackets permit of an adjustment of one inch, both horizontally and vertically when fixing radiators.

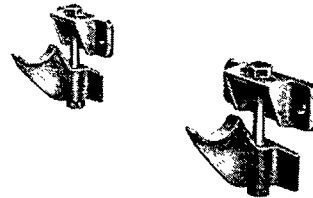


Fig. 825

Fig. 826

| Type of Radiator      | Space, Wall to back of Radiator | Height from centre of Wall portion to centre of top hub | PRICE each     |
|-----------------------|---------------------------------|---------------------------------------------------------|----------------|
| Pall Mall, 2 Col. ... | 2"                              | $\frac{1}{4}$ " min., $1\frac{1}{4}$ " max.             | $\frac{2}{3}$  |
| " " 4 " ...           | 2"                              | $\frac{1}{4}$ " " $1\frac{1}{4}$ " "                    | $\frac{2}{3}$  |
| " " 6 " ...           | 2"                              | $\frac{1}{4}$ " " $1\frac{1}{4}$ " "                    | $\frac{2}{10}$ |
| Hospital, 3" wide     | 2"                              | $1\frac{1}{8}$ " " $2\frac{1}{8}$ " "                   | $\frac{2}{3}$  |
| " $5\frac{3}{8}$ " "  | 2"                              | $\frac{1}{4}$ " " $1\frac{1}{4}$ " "                    | $\frac{2}{3}$  |
| " $7\frac{1}{8}$ " "  | 2"                              | $\frac{1}{4}$ " " $1\frac{1}{4}$ " "                    | $\frac{2}{10}$ |

## SUSPENDED ADJUSTABLE PATTERN

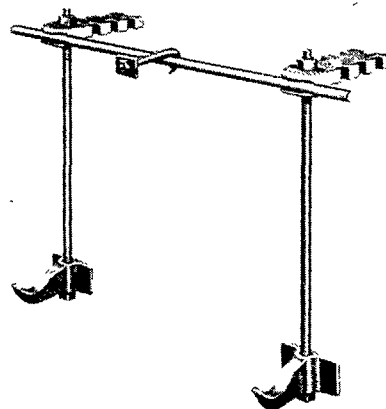


Fig. 827

Fig. 827. Suspended Brackets permit considerable Radiator movement due to pipe work expansion. The vertical adjustment is 3" and the space from wall to back of Radiator is 2" for all types.

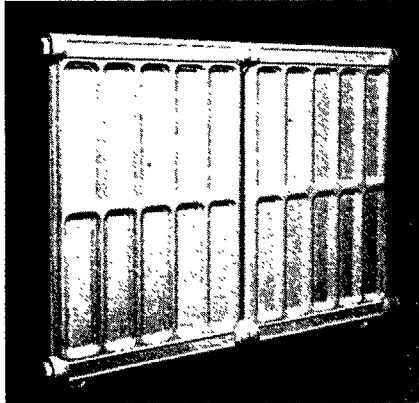
## PRICE

Complete as illustrated ... 8/4 per set.  
For all types of Pall Mall and Hospital Radiators.

The height and type of Radiator and centres of build-in portion must be stated when ordering.

See page 25 for adjustable Brackets for Wall Radiators.

CRANE



# THE WALL RADIATOR

FOR WATER OR STEAM

| Number<br>of<br>Sections | *Lengths<br>16 in.<br>per section | 30-in. Height<br>8½ sq. ft. per section |                  | 24-in. Height<br>6⅔ sq. ft. per section |                  | 18-in. Height<br>5 sq. ft. per section |                  |
|--------------------------|-----------------------------------|-----------------------------------------|------------------|-----------------------------------------|------------------|----------------------------------------|------------------|
|                          |                                   | Heating<br>Surface                      | PRICE<br>£ s. d. | Heating<br>Surface                      | PRICE<br>£ s. d. | Heating<br>Surface                     | PRICE<br>£ s. d. |
| 1                        | 16                                | 8½                                      | 15 11            | 6⅔                                      | 12 10            | 5                                      | 9 8              |
| 2                        | 32                                | 16½                                     | 1 11 10          | 13⅓                                     | 1 5 8            | 10                                     | 19 3             |
| 3                        | 48                                | 24¾                                     | 2 7 8            | 20                                      | 1 18 6           | 15                                     | 1 8 11           |
| 4                        | 64                                | 33                                      | 3 3 7            | 26⅔                                     | 2 11 5           | 20                                     | 1 18 7           |
| 5                        | † 81½                             | 41½                                     | 3 19 6           | 33⅓                                     | 3 4 3            | 25                                     | 2 8 2            |
| 6                        | † 96¾                             | 49½                                     | 4 15 5           | 40                                      | 3 17 1           | 30                                     | 2 17 10          |
| 7                        | † 113½                            | 57¾                                     | 5 11 3           | 46⅔                                     | 4 9 11           | 35                                     | 3 7 5            |
| 8                        | † 128¾                            | 66                                      | 6 7 2            | 53⅓                                     | 5 2 9            | 40                                     | 3 17 1           |
| 9                        | † 145½                            | 74½                                     | 7 3 1            | 60                                      | 5 15 7           | 45                                     | 4 6 9            |
| 10                       | † 161½                            | 82½                                     | 7 19 0           | 66⅔                                     | 6 8 6            | 50                                     | 4 16 4           |

\* Add 1 in. for plugs and bushings.

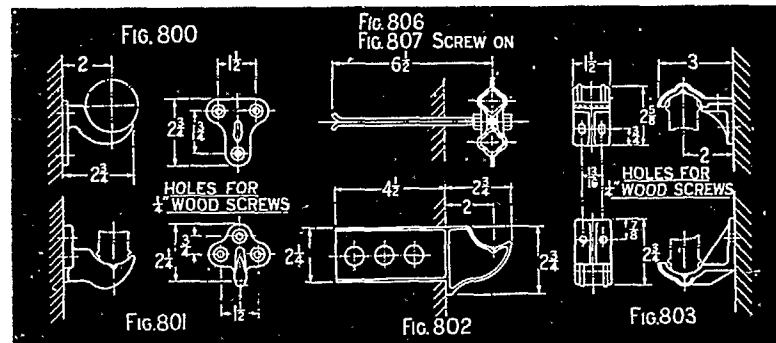
† Includes hexagon nipples.

Crane Wall Radiators are assembled with 1 in. right and left-hand screwed nipples, and are despatched assembled up to four sections. Radiators of five sections and over are despatched in two or more portions, together with the necessary hexagon right and left nipples for assembly.

|                                                        |     |     |     |     |     |            |            |            |
|--------------------------------------------------------|-----|-----|-----|-----|-----|------------|------------|------------|
| Height                                                 | ... | ... | ... | ... | ... | ins.<br>30 | ins.<br>24 | ins.<br>18 |
| Distance between centres of top and bottom<br>tappings | ... | ... | ... | ... | ... | 27½<br>16  | 21½<br>16  | 15½<br>16  |
| Width                                                  | ... | ... | ... | ... | ... | 2          | 2          | 2          |

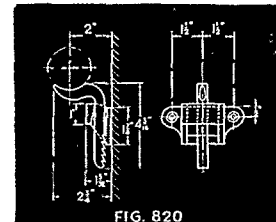
All Radiators are fitted with Air Vent Plugs unless ordered for steam.

## WALL RADIATOR BRACKETS



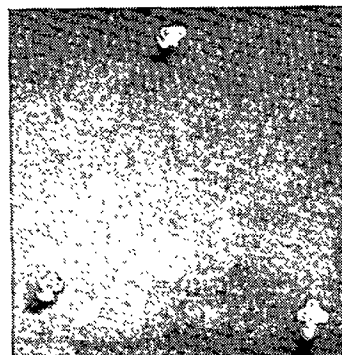
Prices of Brackets for Wall Radiators, all heights:—

|          |                                  |                  |
|----------|----------------------------------|------------------|
| Fig. 800 | Top Stays, screw on              | ... -/4½ each    |
| Fig. 806 | „ „ build-in                     | ... -/7 „        |
| Fig. 807 | „ „ screw on                     | ... -/7 „        |
| Fig. 801 | Bottom Brackets, screw on        | ... -/5½ „       |
| Fig. 802 | Brackets, built-in               | ... -/10 „       |
| Fig. 803 | Two-piece Brackets, screw on     | ... -/8 per pair |
| Fig. 820 | Adjustable Top Bracket, screw on | ... -/11½ each   |



One section radiators can be supported with one pair of Fig. 803 Brackets.

Two Bottom Brackets, Fig. 801, and one Top Stay, Fig. 800, are advised for Radiators up to four sections in length, and three Brackets and two Top Stays for Radiators of five sections and longer.



It will be noted that Fig. 800 Top Stay fits between the sections and is practically invisible when in position.

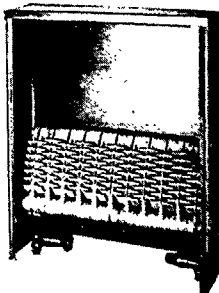
Dimensions of all Brackets and Stays provide for 2 ins. from wall to centre of Radiator. Fig. 802 Brackets can be supplied for 2½" centre to special order, for use with Figs. 806 and 807 stays.

Overall projection of Radiator from wall, with standard fixing, 3 ins.

# CRANE

## CRANE CONCEALED RADIATOR

(Patent applied for)



RADIATOR IN CABINET  
with front removed

HEATING SURFACE:

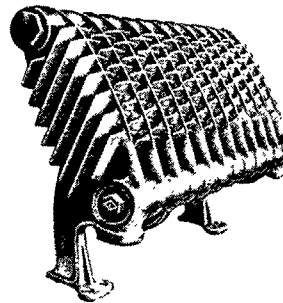
1½ sq. ft. per section.

LENGTH:

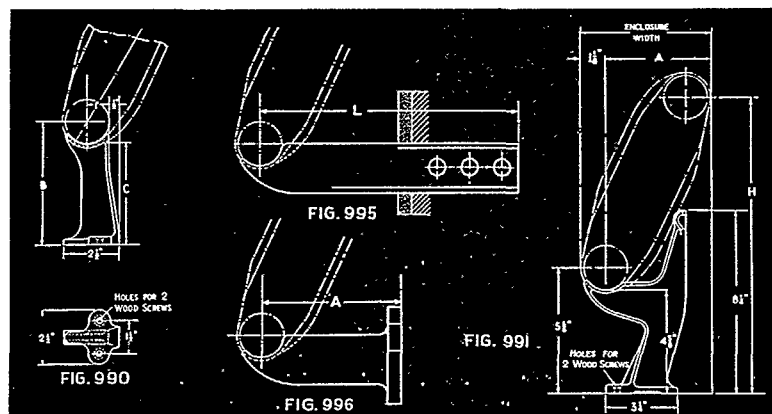
2" per section, plus 1½"

PRICE:

2/3 per sq. ft.



### SUPPORTING BRACKETS DIMENSIONS AND PRICES



| Enclosure Width | A   | B   | C   | L    | H    | Fig. 990 | Fig. 991 | Fig. 995 | Fig. 996 |
|-----------------|-----|-----|-----|------|------|----------|----------|----------|----------|
| 4½"             | 3½" | 4"  | 3"  | 8½"  | 13½" | -/9      | -/10     | -/9      | -/9      |
| 6"              | 4½" | 5½" | 4½" | 8½"  | 13½" | -/9      | -/10     | -/9      | -/9      |
| 8"              | 6½" | 4"  | 3"  | 10½" | 12½" | -/9      | -/11     | 1/1½     | 1/1½     |
| 9"              | 7½" | 5½" | 4½" | 11½" | 11"  | -/9      | 1/-      | 1/1½     | 1/1½     |

\* For four standard width enclosures only.

# CRANE CABINETS, FRONT PANELS & GRILLES

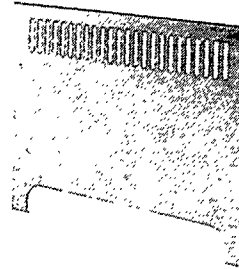


## CABINETS

Complete enclosure with the front removable. Standard enclosure is furnished with open inlet and slotted outlet grille, but louvred or other alternative designs can be supplied. This simple metal cabinet, appropriately decorated, will harmonise with any decorative scheme.

Made in four heights—18", 24", 30" and 36".  
Two widths—6" overall and 8".

## FRONT PANELS



Removable metal front panel with open inlet and slotted outlet grille. Usually applied flush with plaster and made to overlap recess at top and sides and is provided with screw holes for securing to wood grounds. If opening is formed in wood skirting, lower edge is supplied plain.

## HEIGHTS

|        |                                                 |
|--------|-------------------------------------------------|
| Recess | 18", 21", 24", 27", 30", 33", 36", 39".         |
| Front  | 19½", 22½", 25½", 28½", 31½", 34½", 37½", 40½". |

| Number of Sections | Length of Radiator Ins. | Cabinets            | Fronts and Grilles |                      |
|--------------------|-------------------------|---------------------|--------------------|----------------------|
|                    |                         | Overall Length Ins. | Recess Length Ins. | Length of Front Ins. |
| 6                  | 13½                     | 18½                 | 16½                | 19½                  |
| 7                  | 15½                     |                     | 20½                | 23½                  |
| 8                  | 17½                     |                     | 24½                | 27½                  |
| 9                  | 19½                     |                     | 28½                | 31½                  |
| 10                 | 21½                     | 22½                 | 32½                | 35½                  |
| 11                 | 23½                     | 26½                 | 36½                | 39½                  |
| 12                 | 25½                     |                     | 40½                | 43½                  |
| 13                 | 27½                     |                     | 44½                | 47½                  |
| 14                 | 29½                     |                     | 48½                | 51½                  |
| 15                 | 31½                     | 30½                 | 52½                | 55½                  |
| 16                 | 33½                     | 34½                 | 56½                | 59½                  |
| 17                 | 35½                     |                     | 60½                | 63½                  |
| 18                 | 37½                     |                     | 62½                | 65½                  |
| 19                 | 39½                     |                     |                    |                      |
| 20                 | 41½                     | 38½                 |                    |                      |
| 21                 | 43½                     | 42½                 |                    |                      |
| 22                 | 45½                     |                     |                    |                      |
| 23                 | 47½                     |                     |                    |                      |
| 24                 | 49½                     |                     |                    |                      |
| 25                 | 51½                     | 46½                 |                    |                      |
| 26                 | 53½                     | 50½                 |                    |                      |
| 27                 | 55½                     |                     |                    |                      |
| 28                 | 57½                     |                     |                    |                      |
| 29                 | 59½                     |                     |                    |                      |
| 30                 | 61½                     | 54½                 |                    |                      |
|                    |                         | 58½                 |                    |                      |
|                    |                         |                     |                    |                      |
|                    |                         |                     |                    |                      |
|                    |                         |                     |                    |                      |
|                    |                         | 62½                 |                    |                      |
|                    |                         |                     |                    |                      |
|                    |                         |                     |                    |                      |
|                    |                         |                     |                    |                      |

It is recommended that the use of long cabinets (for Radiators longer than 24 sections) be avoided if possible.

NOTE. The Standard Sheet Metal Enclosures illustrated above are not an essential of the Crane Concealed Radiator, which admirably lends itself to concealment behind marble, polished slate, plaster-board, plywood, etc.

Prices on application.

## GRILLES



The grille overlaps the outlet opening and is provided with screw holes for securing to wood grounds. Access doors furnished on application only and can be furnished at either or both ends of grille panel.

Height—8".  
Lengths—As for fronts.

## CRANE CONCEALED RADIATOR

Outputs in B.Th.U.s per hour with Gravity Hot Water at 160° F. Room temperature 65° F.\*

| Number of Sections | Overall Length Inches | Heating Surface Actual | 4 1/2" width enclosure |      |      | 6" width enclosure |      |      | 8" width enclosure |      |      | 9" width enclosure |      |      |
|--------------------|-----------------------|------------------------|------------------------|------|------|--------------------|------|------|--------------------|------|------|--------------------|------|------|
|                    |                       |                        | Height in inches       |      |      | Height in inches   |      |      | Height in inches   |      |      | Height in inches   |      |      |
|                    |                       |                        | 18"                    | 24"  | 30"  | 36"                | 18"  | 24"  | 30"                | 36"  | 18"  | 24"                | 30"  | 36"  |
| 6                  | 13 1/4                | 7 1/4                  | 970                    | 1060 | 1145 | 1230               | 1210 | 1310 | 1410               | 1490 | 1255 | 1360               | 1450 | 1550 |
| 7                  | 15 1/4                | 8 1/4                  | 1135                   | 1240 | 1335 | 1435               | 1415 | 1525 | 1645               | 1735 | 1465 | 1590               | 1695 | 1805 |
| 8                  | 17 1/4                | 10                     | 1295                   | 1415 | 1530 | 1640               | 1615 | 1745 | 1880               | 1985 | 1670 | 1815               | 1935 | 2065 |
| 9                  | 19 1/4                | 11 1/4                 | 1460                   | 1595 | 1720 | 1845               | 1820 | 1960 | 2115               | 2230 | 1880 | 2045               | 2180 | 2320 |
| 10                 | 21 1/4                | 12 1/4                 | 1620                   | 1770 | 1910 | 2050               | 2020 | 2180 | 2350               | 2480 | 2090 | 2270               | 2420 | 2580 |
| 11                 | 23 1/4                | 13 1/4                 | 1780                   | 1945 | 2100 | 2255               | 2225 | 2400 | 2585               | 2730 | 2300 | 2495               | 2660 | 2840 |
| 12                 | 25 1/4                | 15                     | 1945                   | 2125 | 2290 | 2460               | 2425 | 2615 | 2820               | 2975 | 2510 | 2725               | 2905 | 3095 |
| 13                 | 27 1/4                | 16 1/4                 | 2105                   | 2300 | 2485 | 2665               | 2625 | 2835 | 3055               | 3225 | 2715 | 2950               | 3170 | 3355 |
| 14                 | 29 1/4                | 17 1/4                 | 2270                   | 2480 | 2675 | 2870               | 2830 | 3050 | 3290               | 3470 | 2925 | 3180               | 3400 | 3580 |
| 15                 | 31 1/4                | 18 1/4                 | 2430                   | 2655 | 2865 | 3075               | 3030 | 3270 | 3525               | 3720 | 3185 | 3460               | 3695 | 3900 |
| 16                 | 33 1/4                | 20                     | 2590                   | 2830 | 3055 | 3280               | 3230 | 3490 | 3760               | 3970 | 3345 | 3630               | 3900 | 4050 |
| 17                 | 35 1/4                | 21 1/4                 | 2755                   | 3010 | 3245 | 3485               | 3435 | 3705 | 3995               | 4215 | 3555 | 3860               | 4155 | 4385 |
| 18                 | 37 1/4                | 22 1/4                 | 2915                   | 3185 | 3440 | 3690               | 3635 | 3925 | 4230               | 4465 | 3760 | 4085               | 4355 | 4645 |
| 19                 | 39 1/4                | 23 1/4                 | 3080                   | 3365 | 3630 | 3895               | 3840 | 4140 | 4465               | 4710 | 3970 | 4315               | 4585 | 4880 |
| 20                 | 41 1/4                | 25                     | 3240                   | 3540 | 3820 | 4100               | 4040 | 4360 | 4700               | 4960 | 4180 | 4540               | 4840 | 5130 |
| 21                 | 43 1/4                | 26 1/4                 | 3400                   | 3715 | 4010 | 4305               | 4240 | 4580 | 4935               | 5210 | 4390 | 4765               | 5080 | 5400 |
| 22                 | 45 1/4                | 27 1/4                 | 3565                   | 3895 | 4200 | 4510               | 4445 | 4795 | 5170               | 5455 | 4600 | 4995               | 5325 | 5670 |
| 23                 | 47 1/4                | 28 1/4                 | 3725                   | 4060 | 4395 | 4715               | 4645 | 5015 | 5405               | 5705 | 4805 | 5220               | 5565 | 5940 |
| 24                 | 49 1/4                | 30                     | 3890                   | 4240 | 4585 | 4920               | 4850 | 5230 | 5640               | 5950 | 5015 | 5450               | 5810 | 6210 |
| 25                 | 51 1/4                | 31 1/4                 | 4050                   | 4415 | 4775 | 5125               | 5050 | 5450 | 5875               | 6200 | 5225 | 5675               | 6050 | 6480 |
| 26                 | 53 1/4                | 32 1/4                 | 4210                   | 4590 | 4965 | 5330               | 5250 | 5670 | 6110               | 6450 | 5435 | 5900               | 6290 | 6720 |
| 27                 | 55 1/4                | 33 1/4                 | 4375                   | 4770 | 5155 | 5535               | 5455 | 5885 | 6345               | 6695 | 5645 | 6130               | 6535 | 6965 |
| 28                 | 57 1/4                | 35                     | 4535                   | 4945 | 5350 | 5745               | 5655 | 6105 | 6580               | 6945 | 5850 | 6355               | 6775 | 7225 |
| 29                 | 59 1/4                | 36 1/4                 | 4700                   | 5125 | 5540 | 5945               | 5860 | 6320 | 6815               | 7190 | 6060 | 6585               | 7020 | 7480 |
| 30                 | 61 1/4                | 37 1/4                 | 4860                   | 5300 | 5730 | 6150               | 6060 | 6540 | 7050               | 7440 | 6270 | 6810               | 7260 | 7740 |

\* Increase by 6% for 60° F. room temperature.  
See separate Folder for Outputs at intermediate heights.

# CRANE CONCEALED RADIATOR

Outputs in B.Th.U.s per hour with Accelerated Hot Water at 170° F. Room temperature 65° F.\*

| Number of Sections | Overall Length Inches | Heating Surface Actual | 4½" width enclosure |      |      | 6" width enclosure |      |      | 8" width enclosure |      |      | 9" width enclosure |      |      |
|--------------------|-----------------------|------------------------|---------------------|------|------|--------------------|------|------|--------------------|------|------|--------------------|------|------|
|                    |                       |                        | 18"                 | 24"  | 30"  | 36"                | 18"  | 24"  | 30"                | 36"  | 18"  | 24"                | 30"  | 36"  |
| 6                  | 13½                   | 7½                     | 1100                | 1195 | 1290 | 1385               | 1360 | 1470 | 1585               | 1675 | 1410 | 1530               | 1670 | 1780 |
| 7                  | 15½                   | 8½                     | 1280                | 1395 | 1505 | 1615               | 1590 | 1715 | 1850               | 1955 | 1645 | 1785               | 1945 | 2080 |
| 8                  | 17½                   | 10                     | 1465                | 1590 | 1720 | 1850               | 1815 | 1960 | 2110               | 2230 | 1880 | 2040               | 2225 | 2375 |
| 9                  | 19½                   | 11½                    | 1645                | 1790 | 1935 | 2080               | 2045 | 2205 | 2375               | 2510 | 2115 | 2295               | 2500 | 2675 |
| 10                 | 21½                   | 12½                    | 1830                | 1990 | 2150 | 2310               | 2270 | 2450 | 2640               | 2790 | 2350 | 2550               | 2780 | 2970 |
| 11                 | 23½                   | 13½                    | 2015                | 2190 | 2365 | 2540               | 2495 | 2695 | 2905               | 3070 | 2585 | 2805               | 3060 | 3265 |
| 12                 | 25½                   | 15                     | 2195                | 2390 | 2580 | 2770               | 2725 | 2940 | 3170               | 3350 | 2820 | 3060               | 3335 | 3565 |
| 13                 | 27½                   | 16½                    | 2380                | 2585 | 2795 | 3005               | 2950 | 3185 | 3430               | 3625 | 3055 | 3315               | 3570 | 3860 |
| 14                 | 29½                   | 17½                    | 2560                | 2785 | 3010 | 3235               | 3180 | 3430 | 3695               | 3905 | 3290 | 3570               | 3890 | 4160 |
| 15                 | 31½                   | 18½                    | 2745                | 2985 | 3225 | 3465               | 3405 | 3675 | 3960               | 4185 | 3525 | 3825               | 4170 | 4455 |
| 16                 | 33½                   | 20                     | 2930                | 3185 | 3440 | 3695               | 3630 | 3920 | 4225               | 4465 | 3760 | 4080               | 4450 | 4750 |
| 17                 | 35½                   | 21½                    | 3110                | 3385 | 3655 | 3925               | 3860 | 4165 | 4490               | 4745 | 3995 | 4335               | 4725 | 5050 |
| 18                 | 37½                   | 22½                    | 3295                | 3580 | 3870 | 4160               | 4085 | 4410 | 4750               | 5020 | 4230 | 4590               | 5005 | 5345 |
| 19                 | 39½                   | 23½                    | 3475                | 3780 | 4085 | 4390               | 4315 | 4655 | 5015               | 5300 | 4465 | 4845               | 5280 | 5645 |
| 20                 | 41½                   | 25                     | 3660                | 3980 | 4300 | 4620               | 4540 | 4900 | 5280               | 5580 | 4700 | 5100               | 5560 | 5940 |
| 21                 | 43½                   | 26½                    | 3845                | 4180 | 4515 | 4850               | 4765 | 5145 | 5545               | 5860 | 4935 | 5355               | 5840 | 6235 |
| 22                 | 45½                   | 27½                    | 4025                | 4380 | 4730 | 5080               | 4995 | 5390 | 5810               | 6140 | 5170 | 5610               | 6115 | 6535 |
| 23                 | 47½                   | 28½                    | 4210                | 4575 | 4945 | 5315               | 5220 | 5635 | 6070               | 6415 | 5405 | 5865               | 6395 | 6830 |
| 24                 | 49½                   | 30                     | 4390                | 4775 | 5160 | 5545               | 5450 | 5880 | 6335               | 6695 | 5640 | 6120               | 6670 | 7130 |
| 25                 | 51½                   | 31½                    | 4575                | 4975 | 5375 | 5775               | 5675 | 6125 | 6600               | 6975 | 5875 | 6375               | 6950 | 7425 |
| 26                 | 53½                   | 32½                    | 4760                | 5175 | 5590 | 6005               | 5900 | 6370 | 6865               | 7255 | 6110 | 6630               | 7230 | 7720 |
| 27                 | 55½                   | 33½                    | 4940                | 5375 | 5805 | 6235               | 6130 | 6615 | 7130               | 7535 | 6345 | 6885               | 7505 | 8020 |
| 28                 | 57½                   | 35                     | 5125                | 5570 | 6020 | 6470               | 6355 | 6860 | 7390               | 7810 | 6580 | 7140               | 7785 | 8315 |
| 29                 | 59½                   | 36½                    | 5305                | 5770 | 6235 | 6700               | 6585 | 7105 | 7655               | 8090 | 6815 | 7395               | 8060 | 8615 |
| 30                 | 61½                   | 37½                    | 5490                | 5970 | 6450 | 6930               | 6810 | 7350 | 7920               | 8370 | 7050 | 7650               | 8340 | 8910 |

\* Increase by 5% for 60° F. room temperature.  
See separate Folder for Outputs at intermediate heights.

# CRANE

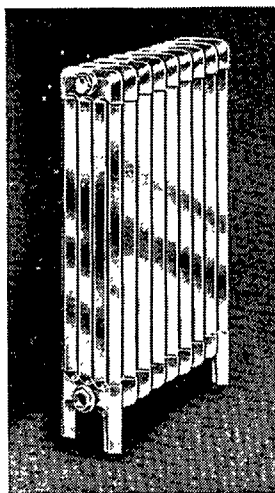
## CRANE CONCEALED RADIATOR

Outputs in B.Th.U.s per hour with Low Pressure Steam at 215° F. Room temperature 65° F.

| Number of Sections | Overall Length Inches | Heating Surface Actual | 4 1/4" width enclosure |      |       | 6" width enclosure |       |       | 8" width enclosure |       |       | 9" width enclosure |       |       |
|--------------------|-----------------------|------------------------|------------------------|------|-------|--------------------|-------|-------|--------------------|-------|-------|--------------------|-------|-------|
|                    |                       |                        | 18"                    | 24"  | 30"   | 18"                | 24"   | 30"   | 18"                | 24"   | 30"   | 18"                | 24"   | 30"   |
| 6                  | 13 1/2                | 7 1/2                  | 1740                   | 1900 | 2050  | 2160               | 2335  | 2515  | 2650               | 2840  | 3035  | 3260               | 3455  | 3680  |
| 7                  | 15 1/2                | 8 1/2                  | 2030                   | 2220 | 2395  | 2570               | 2755  | 2935  | 3115               | 3305  | 3495  | 3685               | 3875  | 4065  |
| 8                  | 17 1/2                | 10                     | 2320                   | 2535 | 2735  | 2935               | 3115  | 3305  | 3495               | 3685  | 3875  | 4065               | 4255  | 4445  |
| 9                  | 19 1/2                | 11 1/2                 | 2610                   | 2855 | 3080  | 3305               | 3505  | 3705  | 3905               | 4105  | 4305  | 4505               | 4705  | 4905  |
| 10                 | 21 1/2                | 12 1/2                 | 2900                   | 3170 | 3420  | 3670               | 3905  | 4105  | 4305               | 4505  | 4705  | 4905               | 5105  | 5305  |
| 11                 | 23 1/2                | 13 1/2                 | 3190                   | 3465 | 3760  | 4035               | 4280  | 4510  | 4740               | 4970  | 5200  | 5430               | 5660  | 5890  |
| 12                 | 25 1/2                | 15                     | 3480                   | 3805 | 4105  | 4405               | 4680  | 4945  | 5205               | 5465  | 5725  | 5985               | 6245  | 6505  |
| 13                 | 27 1/2                | 16 1/2                 | 3770                   | 4120 | 4445  | 4770               | 5045  | 5315  | 5585               | 5855  | 6125  | 6395               | 6665  | 6935  |
| 14                 | 29 1/2                | 17 1/2                 | 4060                   | 4440 | 4790  | 5140               | 5445  | 5745  | 6045               | 6345  | 6645  | 6945               | 7245  | 7545  |
| 15                 | 31 1/2                | 18 1/2                 | 4350                   | 4755 | 5130  | 5505               | 5835  | 6165  | 6495               | 6825  | 7155  | 7485               | 7815  | 8145  |
| 16                 | 33 1/2                | 20                     | 4640                   | 5070 | 5470  | 5870               | 6225  | 6575  | 6925               | 7275  | 7625  | 7975               | 8325  | 8675  |
| 17                 | 35 1/2                | 21 1/2                 | 4930                   | 5390 | 5815  | 6240               | 6615  | 6990  | 7365               | 7740  | 8115  | 8490               | 8865  | 9240  |
| 18                 | 37 1/2                | 22 1/2                 | 5220                   | 5705 | 6155  | 6605               | 7005  | 7405  | 7805               | 8205  | 8605  | 9005               | 9405  | 9805  |
| 19                 | 39 1/2                | 23 1/2                 | 5510                   | 6025 | 6500  | 6975               | 7390  | 7805  | 8210               | 8615  | 9020  | 9425               | 9830  | 10235 |
| 20                 | 41 1/2                | 25                     | 5800                   | 6345 | 6840  | 7340               | 7780  | 8230  | 8680               | 9130  | 9580  | 10030              | 10480 | 10930 |
| 21                 | 43 1/2                | 26 1/2                 | 6090                   | 6655 | 7180  | 7705               | 8170  | 8640  | 9110               | 9580  | 10050 | 10520              | 10990 | 11460 |
| 22                 | 45 1/2                | 27 1/2                 | 6380                   | 6975 | 7525  | 8075               | 8560  | 9050  | 9540               | 10030 | 10520 | 11010              | 11500 | 11990 |
| 23                 | 47 1/2                | 28 1/2                 | 6670                   | 7290 | 7865  | 8440               | 8945  | 9465  | 10000              | 10535 | 11070 | 11605              | 12140 | 12675 |
| 24                 | 49 1/2                | 30                     | 6960                   | 7610 | 8210  | 8810               | 9335  | 9875  | 10420              | 10965 | 11510 | 12055              | 12600 | 13145 |
| 25                 | 51 1/2                | 31 1/2                 | 7250                   | 7925 | 8550  | 9175               | 9725  | 10275 | 10830              | 11385 | 11940 | 12495              | 13050 | 13605 |
| 26                 | 53 1/2                | 32 1/2                 | 7540                   | 8240 | 8890  | 9540               | 10115 | 10695 | 11275              | 11855 | 12435 | 13015              | 13595 | 14175 |
| 27                 | 55 1/2                | 33 1/2                 | 7830                   | 8560 | 9235  | 9910               | 10505 | 11115 | 11725              | 12335 | 12945 | 13555              | 14165 | 14775 |
| 28                 | 57 1/2                | 35                     | 8120                   | 8875 | 9575  | 10275              | 10890 | 11510 | 12135              | 12760 | 13385 | 14010              | 14635 | 15260 |
| 29                 | 59 1/2                | 36 1/2                 | 8410                   | 9195 | 9920  | 10645              | 11280 | 11920 | 12565              | 13210 | 13855 | 14500              | 15145 | 15790 |
| 30                 | 61 1/2                | 37 1/2                 | 8700                   | 9510 | 10260 | 11010              | 11670 | 12330 | 12990              | 13650 | 14310 | 14970              | 15630 | 16290 |

See separate Folder for Outputs at intermediate heights.

# CRANE THE COPPER RADIATOR



For combined heating and domestic installations in soft water districts where the use of Cast Iron Radiators might discolour the water, the Copper Radiator is offered. Soundly constructed of Copper Tubes with gun metal headers, the Crane Copper Radiator is of attractive appearance.

THE COPPER RADIATOR,  $5\frac{3}{8}$  in. wide

| Number of Sections | *Length 2 in. per section | 36-in. Height<br>3 sq. ft. per section |                  | 30-in. Height<br>2½ sq. ft. per section |                  | 24-in. Height<br>2 sq. ft. per section |                  |
|--------------------|---------------------------|----------------------------------------|------------------|-----------------------------------------|------------------|----------------------------------------|------------------|
|                    |                           | Heating Surface                        | PRICE<br>£ s. d. | Heating Surface                         | PRICE<br>£ s. d. | Heating Surface                        | PRICE<br>£ s. d. |
| 4                  | 8                         | 12                                     | 5 19 0           | 10                                      | 5 13 4           | 8                                      | 5 3 4            |
| 5                  | 10                        | 15                                     | 7 8 9            | 12½                                     | 7 1 8            | 10                                     | 6 9 2            |
| 6                  | 12                        | 18                                     | 8 18 6           | 15                                      | 8 10 0           | 12                                     | 7 15 0           |
| 7                  | 14                        | 21                                     | 10 8 3           | 17½                                     | 9 18 4           | 14                                     | 9 0 10           |
| 8                  | 16                        | 24                                     | 11 18 0          | 20                                      | 11 6 8           | 16                                     | 10 6 8           |
| 9                  | 18                        | 27                                     | 13 7 9           | 22½                                     | 12 15 0          | 18                                     | 11 12 6          |
| 10                 | 20                        | 30                                     | 14 17 6          | 25                                      | 14 3 4           | 20                                     | 12 18 4          |
| 11                 | 22                        | 33                                     | 16 17 3          | 27½                                     | 15 11 8          | 22                                     | 14 4 2           |
| 12                 | 24                        | 36                                     | 17 17 0          | 30                                      | 17 0 0           | 24                                     | 15 10 0          |
| 13                 | 26                        | 39                                     | 19 6 9           | 32½                                     | 18 8 4           | 26                                     | 16 15 10         |
| 14                 | 28                        | 42                                     | 20 16 6          | 35                                      | 19 16 8          | 28                                     | 18 1 8           |
| 15                 | 30                        | 45                                     | 22 6 3           | 37½                                     | 21 5 0           | 30                                     | 19 7 6           |
| 16                 | 32                        | 48                                     | 23 16 0          | 40                                      | 22 13 4          | 32                                     | 20 13 4          |
| 17                 | 34                        | 51                                     | 25 5 9           | 42½                                     | 24 1 8           | 34                                     | 21 19 2          |
| 18                 | 36                        | 54                                     | 26 15 6          | 45                                      | 25 10 0          | 36                                     | 23 5 0           |
| 19                 | 38                        | 57                                     | 28 5 3           | 47½                                     | 26 18 4          | 38                                     | 24 10 10         |
| 20                 | 40                        | 60                                     | 29 15 0          | 50                                      | 28 6 8           | 40                                     | 25 16 8          |
| 21                 | 42                        | 63                                     | 31 4 9           | 52½                                     | 29 15 0          | 42                                     | 27 2 6           |
| 22                 | 44                        | 66                                     | 32 14 6          | 55                                      | 31 3 4           | 44                                     | 28 8 4           |
| 23                 | 46                        | 69                                     | 34 4 3           | 57½                                     | 32 11 8          | 46                                     | 29 14 2          |
| 24                 | 48                        | 72                                     | 35 14 0          | 60                                      | 34 0 0           | 48                                     | 31 0 0           |
| 25                 | 50                        | 75                                     | 37 3 9           | 62½                                     | 35 8 4           | 50                                     | 32 5 10          |

Prices of Radiators include Polished and Lacquered finish as illustrated.

Extra for Nickel Plating ... .. 2/3 per sq. ft.  
 „ „ Chromium Plating ... .. 3/- „ „ „

\* Add 1 in. to length for bushings. Legless Radiators  $2\frac{5}{8}$  in. less in height than when with feet. Radiators are tapped  $\frac{1}{8}$  in. for air cock for water. Maximum size of connections, 1 in.

## CRANE

### RADIATOR SUNDRIES

#### PEDESTALS

Fig. 830



#### PRICES per Set of Four. s. d.

|              |      |
|--------------|------|
| 1 in. ... .. | 2 0  |
| 2 in. ... .. | 2 2  |
| 3 in. ... .. | 2 7½ |
| 4 in. ... .. | 2 11 |

#### HIGH LEGS

"Pall Mall" (excepting 2-column) and Hospital Radiators (excepting 3 in. wide), can be supplied with 6 in. legs (floor to centre of bottom tappings) if required. Price, per Radiator, 4/6 (if with centre leg section, 6/9).

#### BLIND BOTTOM NIPPLE

Radiators can be furnished with blind nipple at bottom between supply and second section or second and third sections. Please state on order.

Price, per Radiator for 1" or 1¼" nipples ... .. 6d.

#### CRANE RADIATOR FITTINGS

|                              | 1"                  | 1¼" |
|------------------------------|---------------------|-----|
| Plugs, Cast Iron ... ..      | Price, each 3½d.    | 4d. |
| Bushings ... ..              | " " 5d.             | 6d. |
| Nipples, Mall. Iron ... ..   | " " 4½d.            | 5d. |
| Manilla Paper Washers ... .. | Price, per doz. 6d. | 6d. |
| Bellite Washers ... ..       | " " " 1/6           | 1/6 |

#### RADIATOR TOOLS

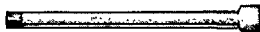


Fig. 831/2

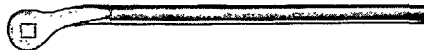


Fig. 833



Fig. 834

|                 | Length in inches                                                                                        | ...  | ...   | ... | 12  | 19  | 24  | 36  |      |
|-----------------|---------------------------------------------------------------------------------------------------------|------|-------|-----|-----|-----|-----|-----|------|
| <b>Fig. 831</b> | Nipple Wrench for $1\frac{1}{4}$ " nipples                                                              |      |       |     | 1/9 | —   | 2/6 | 3/3 | each |
| <b>Fig. 832</b> | " " " 1"                                                                                                |      |       |     | —   | 3/3 | —   | 3/3 | "    |
| <b>Fig. 833</b> | Key Wrench,                                                                                             | 10/3 | each. |     |     |     |     |     |      |
| <b>Fig. 834</b> | Plug and Bushing Wrench— $1\frac{1}{4}$ " For Pall Mall, $5\frac{3}{4}$ " and $7\frac{1}{8}$ " Hospital | 8/-  |       |     |     |     |     |     | "    |
|                 | 1" For Wall, Concealed, and 3" Hospital                                                                 | 7/6  |       |     |     |     |     |     | "    |

## RADIATOR DETAILS

STANDARD TAPPINGS (See separate list for Concealed Radiator details).

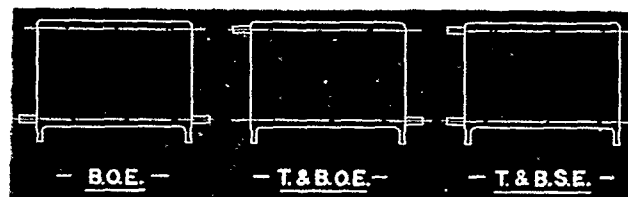
Unless otherwise ordered all Radiators are supplied tapped as under:

| Heating Surface         | Hot Water         | Steam                             |
|-------------------------|-------------------|-----------------------------------|
| 1 to 12 sq. feet .. ..  | $\frac{1}{2}$ "   | $\frac{1}{2}$ " × $\frac{1}{2}$ " |
| 13 to 30 sq. feet .. .. | $\frac{3}{4}$ "   | $\frac{3}{4}$ " × $\frac{1}{2}$ " |
| 31 to 50 sq. feet .. .. | 1"                | $\frac{3}{4}$ " × $\frac{1}{2}$ " |
| 51 and over .. ..       | $1\frac{1}{4}$ "* | 1" × $\frac{3}{4}$ "              |

\* Except for Wall 3" Hospital and copper Radiators, the maximum tapping for which is 1".

In the absence of instructions radiators will be assumed to be for Hot Water.

Radiators are despatched bushed top and bottom opposite ends in the absence of other instructions, but if required otherwise the connections should be described as under:



### ORDERING END SECTIONS

When ordering end sections, please state whether with or without feet, if for water or steam and whether flow end or return end. Inner screwing of flow sections is right hand and return sections left hand, excepting for Wall Radiators which are the reverse. Concealed Radiators may be either.

### TESTING

All radiators are twice tested to 100 lb. hydraulic pressure before leaving the factory. It is not recommended, however, that Radiators for Steam heating be used with a steam pressure exceeding 20 lb. (30 lb. for Concealed Radiators.)

### PAINTING

Radiators are painted at the Foundry one coat of grey protective paint which serves as a priming coat and will usually save one coat of decorators' paint.

### DESPATCHING LONG RADIATORS

Six-Column and  $5\frac{3}{8}$  in. or  $7\frac{1}{8}$  in. Hospital Radiators longer than 20 sections, Four-Column, Two-Column, 3 in. Hospital, and Window Radiators longer than 25 sections, and Concealed Radiators longer than 36 sections will ordinarily be despatched in two or more portions. All Radiators with feet, of 25 sections and longer, will be supplied with centre leg section. Wall Radiators longer than 4 sections are likewise sent in portions. Please state on order if nipple wrenches are required (see page 32).

## CRANE HEATING BOILERS

**RANGE.** The Heating Boilers described in the ensuing pages are suitable for all classes of buildings and include additional to previous lists a new design Carlton Boiler and a No. 4 series "Whitehall" Boiler.

**RATINGS.** The ratings in British Thermal Units per hour are based on the Boiler heating surface multiplied by the usual constant of 4,400 B.Th.U. per square foot of Boiler heating surface. Ratings in square feet of Cast Iron Radiation are based on 160 B.Th.U. per square foot of Radiator surface, and in accordance with general practice are gross values. A deduction for pipe losses, etc., should be made to obtain the nett.

**FUEL CAPACITIES.** The fuel capacities shown represent the capacity of the firebox up to the level of the centre line of the firing door.

**TAPPING DETAILS.** All screwed connections on Crane Heating Boilers are tapped British Standard Taper Pipe Thread. For details of the tappings, see pages 37 and 78.

**SMOKE PIPES.** All smoke outlets for Crane Heating Boilers are full area and to receive Pipes made to British Standard Specification No. 41. Boiler smoke outlets are Sockets.

**BOILER FORWARDING.** "Carlton" Boilers are despatched with the sections assembled but all "Whitehall" Boilers are forwarded with sections unassembled. Crates for Whitehall Jackets only are returnable if delivered to our Works carriage paid within 7 days.

**ERECTING INSTRUCTIONS.** Erecting instructions are sent with every Boiler but spare copies can be had on request.

**ENLARGING "WHITEHALL" SECTIONAL BOILERS.** Any "Whitehall" Boiler may be extended up to the limit of the catalogue capacity by the addition of new sections which may be fitted either at the front or the rear. In the absence of other instructions, sections and nipples only are despatched; customers should state if they require new tie rods, damper rods and jacket extension pieces.

## CARLTON BOILER

THE "Carlton" Boiler is regarded as the most successful effort to provide a Boiler combining a satisfactory appearance with an effective output. When supplied in vitreous enamel finish the Boiler is perfectly in keeping in a breakfast room, entrance hall, or other similar living room, yet internally, the arrangement of the heating surfaces is the acme of efficiency. This efficient design and the undermentioned **exclusive** features likewise contribute in producing "the Boiler that has set a new standard":—

### PATENT DESIGN

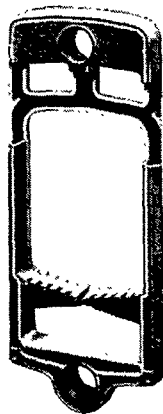
THE "Carlton" Boiler embodies the Crane Patent controlled water travel feature which directs a rapid water circulation over the fire box crown, thus achieving maximum heat transfer and prolonged life of the Boiler. (Patent No. 354545).



*Reveals the waterway top, the flues through which the gases travel before reaching the chimney, the water-cooled fire-bars and the water-way beneath the ash-pit.*

### WATER-COOLED GRATE BARS

THE water-cooled grate bars not only increase efficiency and reduce the formation of clinker but eliminate the continual expense of renewing burnt-out fire bars.



*Showing how "Controlled Water Travel" is attained by baffles directing the water flow over the fire box crown.*

### LOOSE SOLID GRILL BARS

LOOSE solid grill bars can be supplied instead of water-cooled if it is desired to convert to special systems of firing later.

### PRE-HEATED SECONDARY AIR

MAXIMUM combustion of the fuel and gases is obtained by the entrance of secondary air above the fire bed; this air supply is under control and pre-heated by the special design of door and baffle.

## CRANE

### ACCURATE MACHINING AND STRENGTH

**E**VEN metal thickness, strength and accurate machining, all are found in the "Carlton" Boiler. The more than usually adequate metal thickness ensures a wide margin of safety for all possible conditions and guards against fire box corrosion. The surfaces of all sections are ground true to give smoke-tight joints.

### STOKING PERIODS

**A**DEQUATE fuel capacities are provided to avoid the necessity for too frequent stoking, and so that the boiler can easily be kept alight throughout the night hours.

### LOW RETURN TAPPING

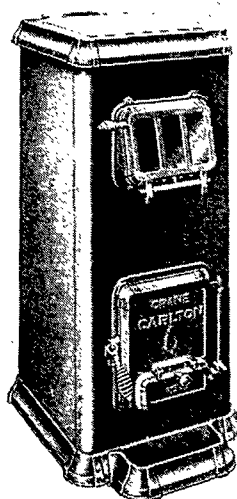
**T**HE exceptionally low level of the main return enables radiators to be fixed at the same level as the Boiler.

### OIL FIRING

**T**HE design of the "Carlton" Boiler is especially suitable for oil firing, for which purpose the boiler can be supplied without the water-cooled grate bars.

### ROOM MODEL AND BASEMENT MODEL

**T**HE "Carlton" Boiler is supplied in two styles, the Room Model and the Basement Model, the latter for the Heating Chamber, Basement or Scullery, without the moulded top and floor ash tray which are supplied with the Room Model. Bosses for Mountings are provided on the Basement Model, and in the other case it is assumed the mountings will be attached to the pipework in inconspicuous positions.



*Room Model with Jacket.  
Green or brown vitreous  
enamelled.*

### JACKETS

**J**ACKETS are machine made of the highest quality sheet steel and included in the price is the moulded base illustrated. The Room Model has an uninsulated sheet steel Jacket enamelled the same colour as the Boiler when enamel finish is ordered, but the Jacket used with the Basement Boiler is a really efficient heat conserver, being lined with asbestos on sides, top and back.

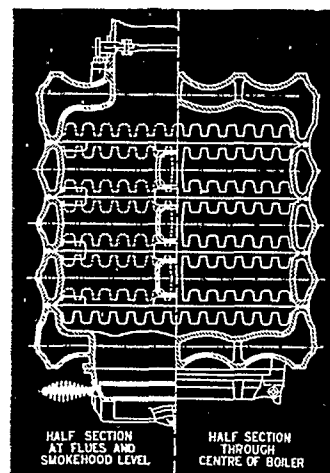
## HOT WATER SUPPLY

IN conjunction with a Crane Indirect Cylinder, the "Carlton" Boiler is most suitable for providing domestic hot water in addition to the radiator heating. The Boiler is provided with two separate flow tappings and an additional tapping can be provided on either side of the boiler for the return from the Indirect Cylinder.

## FIVE DIFFERENT STYLES

THERE are no less than five styles in which the "Carlton" Boiler is regularly supplied.

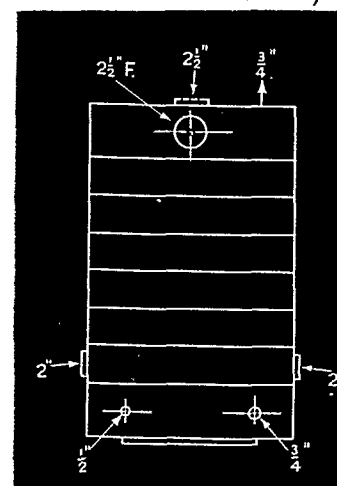
1. Room Model, black finish.
  2. Room Model, with platework vitreous enamelled plain green or plain brown and boiler body finished in heat resisting paint to match.
  3. Room Model with jacket, all vitreous enamelled mottled grey, plain green, or plain brown as standard.
  4. Basement Model, black finish.
  5. Basement Model, with asbestos lined galvanized sheet steel jackets.
- (Sizes 108 and 109 are not supplied in Room Model finishes.)



Plan view showing the efficient arrangement of heating surfaces, and the adequate waterways. The corrugated surfaces of the front and back of the fire box give increased transmission and additional strength.

## TAPPING DETAILS

NO. 10 "Carlton" Boilers, 107 and longer are provided with additional returns on both sides of second section without extra charge and the arrangement of flow and return tappings illustrated in the diagram, viz., flows and returns at opposite ends, is recommended with boilers longer than six sections. If it is thought necessary to connect to the rear section one return requiring a low level of tapping, then another return should preferably be connected to the second section of the boiler.

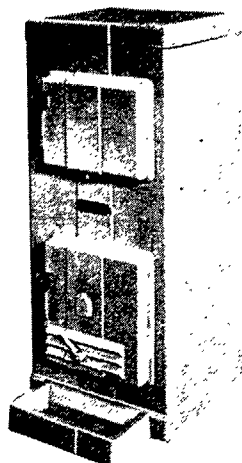


CRANE

## THE NEW CARLTON BOILER

Registered Design No. 829725

ROOM  
MODEL



WITH  
ENAMELLED  
JACKET

### RATING AND CAPACITIES

| No. | B.Th.U.s<br>per hour | Heating<br>Power C.I.<br>Radiation<br>sq. ft.<br>(gross) | External<br>Surface*<br>B.Th.U.s<br>per hour | Boiler<br>Heating<br>Surface<br>sq. ft. | Fuel<br>capacity<br>cu. ft. | Grate<br>area<br>sq. ft. | Water<br>Content<br>gallons |
|-----|----------------------|----------------------------------------------------------|----------------------------------------------|-----------------------------------------|-----------------------------|--------------------------|-----------------------------|
| 3   | 32,500               | 205                                                      | 2,800                                        | 7.40                                    | 0.87                        | 0.70                     | 4.5                         |
| 4   | 42,000               | 265                                                      | 3,000                                        | 9.55                                    | 1.05                        | 0.80                     | 5.2                         |
| 5   | 51,500               | 325                                                      | 3,300                                        | 11.70                                   | 1.35                        | 1.05                     | 5.9                         |
| 6   | 61,000               | 385                                                      | 3,600                                        | 13.85                                   | 1.65                        | 1.30                     | 6.6                         |

### PRICES

| No. | Room Model |         |                                                   | Basement Model |                                          | Stoking<br>Tools |
|-----|------------|---------|---------------------------------------------------|----------------|------------------------------------------|------------------|
|     | Boiler     | Jacket  | Vitreous Enamel<br>Finish extra†<br>(Grey Mottle) | Boiler‡        | Insulated<br>Galvanized<br>Steel Jacket, |                  |
|     | £ s. d.    | £ s. d. | £ s. d.                                           | £ s. d.        | £ s. d.                                  | s. d.            |
| 3   | 7 5 6      | 1 1 6   | 2 0 0                                             | 7 3 6          | 2 9 6                                    | 9 0              |
| 4   | 8 14 6     | 1 5 0   | 2 3 0                                             | 8 12 6         | 2 13 0                                   | 9 0              |
| 5   | 10 3 6     | 1 8 6   | 2 6 0                                             | 10 1 6         | 2 16 6                                   | 9 9              |
| 6   | 11 12 6    | 1 12 0  | 2 9 0                                             | 11 10 6        | 3 0 0                                    | 9 9              |

\* Without Jacket.

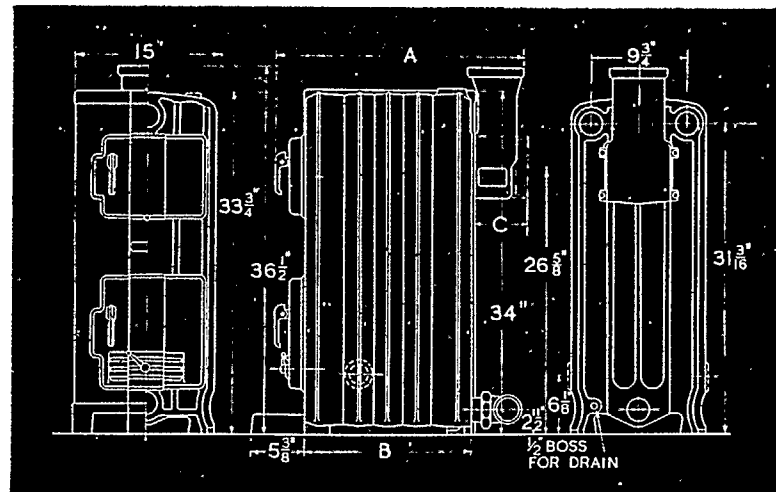
† Exposed portions of boiler and jacket enamelled same colour. Prices are for Mottled Grey: plain Dark Green, Dark Brown 25% extra: Cream and Black 50% extra.

‡ Extra for Ash Tray, if required, 2/—.

|| Lined with sheet asbestos.

Both Room and Basement Models can be supplied unjacketed, enamelled plain Green or Brown, Boiler in heat-resisting enamel, Platework in vitreous enamel, at the above enamelling prices.

# THE NEW CARLTON BOILER



DIMENSIONS

| Boiler No. | A<br>Overall Length | B<br>Length of Boiler | Smoke Pipe Size | Tappings at Back |         |
|------------|---------------------|-----------------------|-----------------|------------------|---------|
|            |                     |                       |                 | Flow*            | Return† |
| 3          | 20 1/2"             | 12 1/2"               | 4 1/2"          | Two 2"           | One 2"  |
| 4          | 22"                 | 14"                   | 4 1/2"          | Two 2"           | One 2"  |
| 5          | 25"                 | 17"                   | 5"              | Two 2"           | One 2"  |
| 6          | 28"                 | 20"                   | 5"              | Two 2"           | One 2"  |

\* One additional FLOW tapping 2" Size is provided on top of rear section of Basement Model only.

Front section (Basement Model only) is provided with 1/2" and 3/4" tappings for Thermometer and Safety Valve.

† Additional 1 1/2" RETURN tappings can be furnished at either side to special order, 1/6 each nett extra.

Damper Regulator when supplied operates check draught on right-hand side of smoke hood.

Boilers can be supplied with smoke outlet looking upwards or to the back. The former are supplied unless otherwise instructed.

Smoke outlets are sockets.

All boilers are delivered with sections assembled.

Dimensions and Prices of Smoke Pipes and Fittings shown on pages 96 and 97.

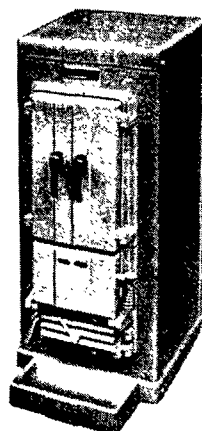
See pages 100-106 for MOUNTINGS.

CRANE

## THE NEW CARLTON BOILER

OPEN FIRE

Registered Design No. 829726



ROOM  
MODEL

WITH  
ENAMELLED  
JACKET

| No. | B.Th.U.s<br>per hour | Heating Power<br>C.I. Radiation<br>sq. ft.<br>(gross) | External<br>Surface<br>B.Th.U.s*<br>per hour | Grate<br>Area<br>sq. ft. | Fuel<br>Capacity<br>cu. ft. | Water<br>Content<br>Gallons |
|-----|----------------------|-------------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------|-----------------------------|
| 3OF | 32,500               | 205                                                   | 3,000                                        | 0.70                     | 0.87                        | 4.5                         |
| 4OF | 42,000               | 265                                                   | 3,200                                        | 0.82                     | 1.05                        | 5.2                         |
| 5OF | 51,500               | 325                                                   | 3,500                                        | 1.06                     | 1.35                        | 5.9                         |
| 6OF | 61,000               | 385                                                   | 3,800                                        | 1.30                     | 1.65                        | 6.6                         |

### PRICES

| No. | Room Model |         |                                                    | Basement Model |                                         | Stoking<br>Tools |
|-----|------------|---------|----------------------------------------------------|----------------|-----------------------------------------|------------------|
|     | Boiler     | Jacket  | Vitreous Enamel<br>Finish extra†<br>(grey mottled) | Boiler‡        | Insulated<br>Galvanized<br>Steel Jacket |                  |
|     | £ s. d.    | £ s. d. | £ s. d.                                            | £ s. d.        | £ s. d.                                 | s. d.            |
| 3OF | 7 5 6      | 1 1 6   | 2 0 0                                              | 7 3 6          | 2 9 6                                   | 9 0              |
| 4OF | 8 14 6     | 1 5 0   | 2 3 0                                              | 8 12 6         | 2 13 0                                  | 9 0              |
| 5OF | 10 3 6     | 1 8 6   | 2 6 0                                              | 10 1 6         | 2 16 6                                  | 9 9              |
| 6OF | 11 12 6    | 1 12 0  | 2 9 0                                              | 11 10 6        | 3 0 0                                   | 9 9              |

\* Without Jacket.

† Exposed portions of boiler and jacket enamelled same colour. Prices are for Mottled Grey: plain Dark Green and Dark Brown 25% extra.

‡ Extra for Ash Tray, if required, 2/-.

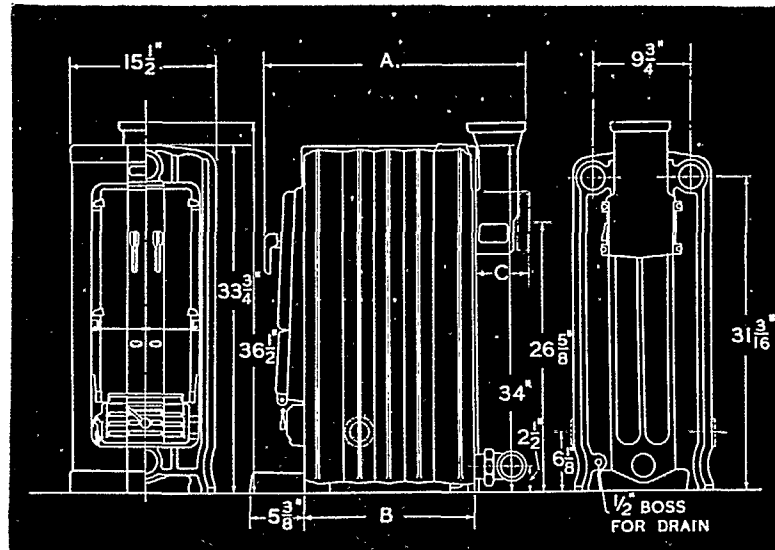
|| Lined with sheet asbestos.

Both Room and Basement Models can be supplied unjacketed, enamelled plain Green or Brown, Boiler in heat-resisting enamel, Platework in vitreous enamel, at the above enamelling prices.

CRANE

# THE NEW CARLTON BOILER

OPEN FIRE



DIMENSIONS

| Boiler No. | A<br>Overall Length | B<br>Length of Boiler | C      | Smoke Pipe Size | Tappings |          |             |
|------------|---------------------|-----------------------|--------|-----------------|----------|----------|-------------|
|            |                     |                       |        |                 | Flow*    |          | Return      |
|            |                     |                       |        |                 | Room     | Basement | Both Models |
| 3OF        | 21"                 | 12 1/2"               | 5"     | 4 1/2"          | Two 2"   | One 2"   | One 2"      |
| 4OF        | 22 1/2"             | 14"                   | 5"     | 4 1/2"          | Two 2"   | One 2"   | One 2"      |
| 5OF        | 25 1/2"             | 17"                   | 5 3/8" | 5"              | Two 2"   | One 2"   | One 2"      |
| 6OF        | 28 1/2"             | 20"                   | 5 3/8" | 5"              | Two 2"   | One 2"   | One 2"      |

\* Basement Boiler is regularly supplied in addition with the two 2" flows on face of back section plugged.

Additional 1 1/2" RETURN Tappings can be furnished at either side to special order at 1/6 each nett extra.

Front section (Basement Model only) is regularly provided with 1/2" and 3/4" tappings for Thermometer and Safety Valve respectively.

Damper Regulator when supplied operates on check draught on right hand side of smoke hood.

Boilers are supplied with Smoke Hood with outlet pointing upwards or to back. The former is supplied unless otherwise instructed.

Smoke outlets are sockets.

All Boilers are delivered with sections assembled unless otherwise instructed.

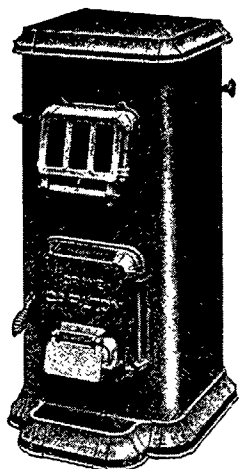
Dimensions and Prices of Smoke Pipe and Fittings shown on pages 96 and 97.

See pages 100-106 for MOUNTINGS.

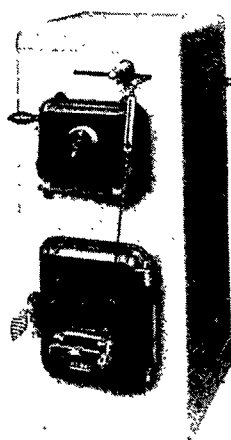
CRANE

## THE CARLTON BOILER

SERIES No. O



ROOM MODEL  
WITH ENAMELLED JACKET



BASEMENT MODEL  
WITH ASBESTOS LINED JACKET

### RATING AND CAPACITIES

| No. | B.Th.U.s<br>per hour | Heating<br>Power C.I.<br>Radiation<br>sq. ft.<br>(gross) | *External<br>Surface<br>B.Th.U.s<br>per hour | Boiler<br>Heating<br>Surface<br>sq. ft. | Fuel<br>Capacity<br>cub. ft. | Grate<br>Area<br>sq. ft. | Water<br>Content<br>gallons |
|-----|----------------------|----------------------------------------------------------|----------------------------------------------|-----------------------------------------|------------------------------|--------------------------|-----------------------------|
| 03  | 32,000               | 200                                                      | 2,800                                        | 7.25                                    | 0.73                         | 0.63                     | 5.85                        |
| 04  | 41,000               | 250                                                      | 3,000                                        | 9.35                                    | 0.84                         | 0.75                     | 6.25                        |
| 05  | 50,000               | 310                                                      | 3,300                                        | 11.35                                   | 1.11                         | 0.97                     | 7.10                        |
| 06  | 59,000               | 370                                                      | 3,600                                        | 13.40                                   | 1.36                         | 1.21                     | 7.95                        |
| 07  | 68,000               | 425                                                      | 3,900                                        | 15.45                                   | 1.62                         | 1.44                     | 8.75                        |

### PRICES

| No. | Room Model |         |                                     | Basement Model |                                          |  | Stoking<br>Tools |
|-----|------------|---------|-------------------------------------|----------------|------------------------------------------|--|------------------|
|     | Boiler     | Jacket  | Vitreous<br>Enamel Finish<br>Extra† | Boiler‡        | Insulated<br>Galvanized<br>Steel Jacket¶ |  |                  |
|     | £ s. d.    | £ s. d. | £ s. d.                             | £ s. d.        | £ s. d.                                  |  | s. d.            |
| 03  | 7 7 6      | 1 0 9   | 1 17 10                             | 7 5 0          | 2 9 2                                    |  | 9 0              |
| 04  | 8 13 6     | 1 4 0   | 2 1 0                               | 8 11 3         | 2 12 6                                   |  | 9 0              |
| 05  | 9 19 6     | 1 7 3   | 2 4 2                               | 9 17 6         | 2 15 10                                  |  | 9 9              |
| 06  | 11 5 6     | 1 10 6  | 2 7 4                               | 11 3 9         | 2 19 2                                   |  | 9 9              |
| 07  | 12 11 6    | 1 13 9  | 2 10 6                              | 12 10 0        | 3 2 6                                    |  | 9 9              |

\* Without jacket.

† Exposed portions of boiler and jacket enamelled same colour. Prices are for Mottled Grey: plain Dark Green and Dark Brown 25% extra: Cream and Black 50% extra.

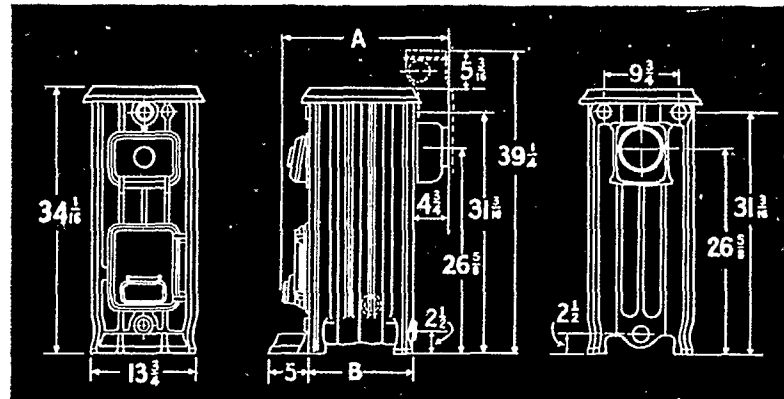
‡ Extra for Ash Tray, if required, 2/-

¶ Lined with sheet asbestos.

Both Room and Basement Models can be supplied unjacketed, enamelled plain Green or Brown, Boiler in heat-resisting enamel, Platework in vitreous enamel, at the above enamelling prices.

# THE CARLTON BOILER

SERIES No. O



## DIMENSIONS

| Boiler No. | A<br>Overall Length | B<br>Length of Boiler | Smoke Pipe Size | Tappings at Back |         |
|------------|---------------------|-----------------------|-----------------|------------------|---------|
|            |                     |                       |                 | Flow*            | Return† |
| 03         | 20 1/2"             | 12 3/8"               | 5"              | Two 2"           | One 2"  |
| 04         | 22"                 | 13 7/8"               | 5"              | Two 2"           | One 2"  |
| 05         | 25"                 | 16 7/8"               | 5"              | Two 2"           | One 2"  |
| 06         | 28"                 | 19 7/8"               | 5"              | Two 2"           | One 2"  |
| 07         | 31"                 | 22 7/8"               | 5"              | Two 2"           | One 2"  |

\* One additional FLOW tapping 1 1/2" Size can be furnished on top (Basement Model only) to special order, 1/6 nett extra.

Front section (Basement Model only) can be provided with 1/2" and 3/4" tappings for Thermometer and Safety Valve to order.

† Additional 1 1/2" RETURN tappings can be furnished at either side to special order, 1/6 each nett extra.

All boilers tapped 3/4" at front for Damper Regulator and plugged when Regulator not required.

Boilers can be supplied with smoke outlet looking upwards or to the back. The former is supplied unless otherwise instructed.

Smoke outlets are sockets.

All boilers are delivered with sections assembled.

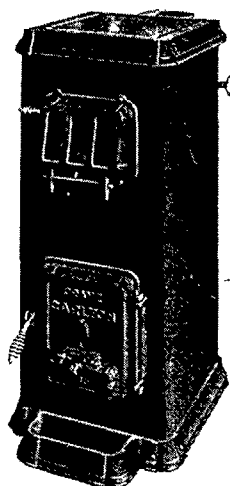
Dimensions and Prices of Smoke Pipes and Fittings shown on pages 96 and 97.

See pages 100-106 for MOUNTINGS.

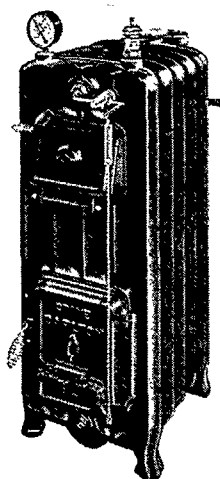
CRANE

## THE CARLTON BOILER

SERIES No. 10



ROOM MODEL  
WITH ENAMELLED JACKET



BASEMENT MODEL  
WITHOUT JACKET

### RATINGS AND CAPACITIES

| No. | B.Th.U.s<br>per hour | Heating<br>Power C.I.<br>Radiation<br>sq. ft.<br>(gross) | External<br>Surface*<br>B.Th.U.s<br>per hour | Boiler<br>Heating<br>Surface<br>sq. ft. | Fuel<br>Capacity<br>cu. ft. | Grate<br>Area<br>sq. ft. | Water<br>Content<br>gallons |
|-----|----------------------|----------------------------------------------------------|----------------------------------------------|-----------------------------------------|-----------------------------|--------------------------|-----------------------------|
| 104 | 70,000               | 440                                                      | 5,200                                        | 15.90                                   | 1.61                        | 1.01                     | 9.35                        |
| 105 | 85,500               | 535                                                      | 6,100                                        | 19.40                                   | 2.09                        | 1.32                     | 10.79                       |
| 106 | 101,000              | 630                                                      | 7,000                                        | 23.00                                   | 2.58                        | 1.63                     | 12.23                       |
| 107 | 116,500              | 730                                                      | 7,900                                        | 26.50                                   | 3.04                        | 1.94                     | 13.67                       |
| 108 | 132,000              | 825                                                      | 8,800                                        | 30.00                                   | 3.53                        | 2.25                     | 15.12                       |
| 109 | 147,000              | 920                                                      | 9,700                                        | 33.50                                   | 4.00                        | 2.56                     | 16.57                       |

### PRICES

| No. | Room Model        |                   |                                                | Basement Model     |                                                     | Stoking<br>Tools |
|-----|-------------------|-------------------|------------------------------------------------|--------------------|-----------------------------------------------------|------------------|
|     | Boiler<br>£ s. d. | Jacket<br>£ s. d. | Vitreous<br>Enamel Finish<br>extra†<br>£ s. d. | Boiler‡<br>£ s. d. | Insulated<br>Galvanized<br>Steel Jacket!<br>£ s. d. |                  |
| 104 | 13 5 4            | 1 16 9            | 2 15 6                                         | 13 0 0             | 3 2 0                                               | 9 9              |
| 105 | 15 16 0           | 2 2 9             | 3 2 0                                          | 15 9 6             | 3 6 4                                               | 9 9              |
| 106 | 18 6 8            | 2 8 6             | 3 8 6                                          | 17 19 0            | 3 10 8                                              | 14 3             |
| 107 | 20 17 4           | 2 14 6            | 3 15 0                                         | 20 8 6             | 3 15 0                                              | 14 3             |
| 108 | —                 | —                 | —                                              | 23 18 0            | 3 19 4                                              | 14 3             |
| 109 | —                 | —                 | —                                              | 25 7 6             | 4 3 8                                               | 14 3             |

\* Without jacket.

† Exposed portions of boiler and jacket enamelled same colour. Prices are for Mottled Grey: plain Dark Green and Dark Brown 25% extra: Cream and Black 50% extra.

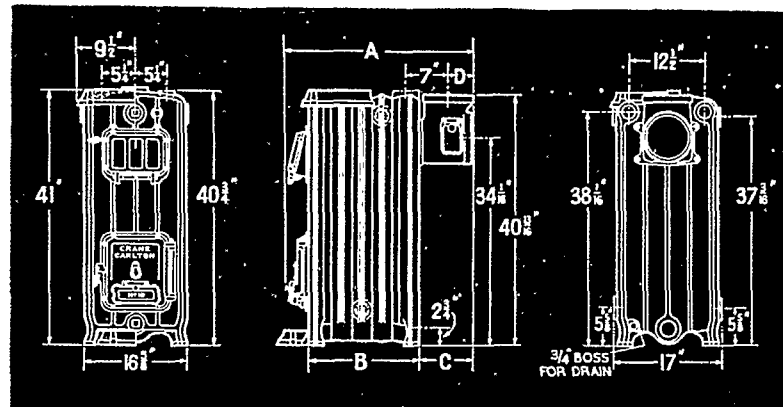
‡ Extra for Ash Tray, if required, 2/6.

|| Lined with sheet asbestos.

Both Room and Basement Models can be supplied unjacketed, enamelled plain Green or Brown, Boiler in heat-resisting enamel, Platework in vitreous enamel, at the above enamelling prices.

# THE CARLTON BOILER

SERIES No. 10



DIMENSIONS

| Boiler No. | A<br>Overall Length | B<br>Length of Boiler | C      | D      | Smoke Pipe Size | Tappings   |            |
|------------|---------------------|-----------------------|--------|--------|-----------------|------------|------------|
|            |                     |                       |        |        |                 | Flow*      | Return†    |
| 104        | 26 5/8"             | 14 3/8"               | 7 7/8" | 3 1/2" | 6"              | Two 2"     | One 2 1/2" |
| 105        | 29 7/8"             | 17 5/8"               | 7 7/8" | 3 1/2" | 6"              | Two 2"     | One 2 1/2" |
| 106        | 33 1/8"             | 20 7/8"               | 7 7/8" | 3 1/2" | 6"              | Two 2"     | One 2 1/2" |
| 107        | 37 1/2"             | 24 1/4"               | 9"     | 4 1/8" | 7"§             | Two 2"     | One 2 1/2" |
| 108        | 40 3/4"             | 27 1/2"               | 9"     | 4 1/8" | 7"§             | One 2 1/2" | One 2 1/2" |
| 109        | 44"                 | 30 3/4"               | 9"     | 4 1/8" | 7"§             | One 2 1/2" | One 2 1/2" |

\* Basement Boiler (all sizes) is regularly supplied with 2 1/2" flow on top of rear section and the two 2" flows on face of back section plugged.

Additional 2" FLOW Tappings can be furnished at either side to special order at 2/- each nett extra.

† Additional 2" RETURN Tappings can be furnished at either side to special order 2/- each nett extra except where returns are provided free (see page 37).

Front section (Basement Model only) is regularly provided with 1/2" and 3/4" tappings for Thermometer and Safety Valves respectively.

All Boilers tapped 3/4" at front for Damper Regulator and plugged when regulator not required.

§ No. 107 and 109 can be supplied with 6" smoke hood if specified on order, but 7" is advised for these sizes. (No. 107 has 6" smoke pipe when supplied as Room Model.)

Boilers are supplied with Smoke Hood providing outlet pointing upwards or to back. Smoke outlets are sockets.

All Boilers are delivered with sections assembled unless otherwise instructed.

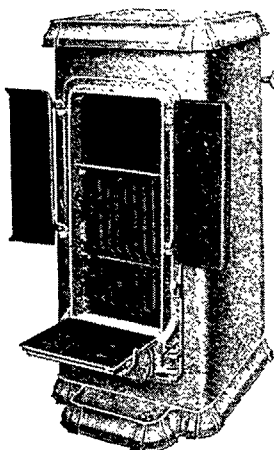
Dimensions and Prices of Smoke Pipe and Fittings shown on pages 96 and 97.

See pages 100-106 for MOUNTINGS.

CRANE

## THE CARLTON BOILER

SERIES No. 10—OPEN FIRE



ROOM MODEL  
WITH ENAMELLED JACKET

| No. | B.Th.U.s.<br>per hour | Heating Power C.I.<br>Radiation sq. ft.<br>(gross) | *External<br>Surface<br>B.Th.U.s<br>per hour | Grate<br>Area<br>sq. ft. | Fuel<br>capacity<br>cu. ft. |
|-----|-----------------------|----------------------------------------------------|----------------------------------------------|--------------------------|-----------------------------|
| 104 | 70,000                | 440                                                | 5,200                                        | 1.01                     | 1.61                        |
| 105 | 85,500                | 535                                                | 6,100                                        | 1.32                     | 2.09                        |
| 106 | 101,000               | 630                                                | 7,000                                        | 1.63                     | 2.58                        |
| 107 | 116,500               | 730                                                | 7,900                                        | 1.94                     | 3.04                        |

### PRICES

| No. | Room Model |         |                                                    | Basement Model |                                          | Stoking<br>Tools<br><br>s. d. |
|-----|------------|---------|----------------------------------------------------|----------------|------------------------------------------|-------------------------------|
|     | Boiler     | Jacket  | Vitreous Enamel<br>Finish extra†<br>(grey mottled) | Boiler‡        | Insulated<br>Galvanized<br>Steel Jacket! |                               |
|     | £ s. d.    | £ s. d. | £ s. d.                                            | £ s. d.        | £ s. d.                                  |                               |
| 104 | 13 5 4     | 1 16 9  | 2 15 6                                             | 13 0 0         | 3 2 0                                    | 9 9                           |
| 105 | 15 16 0    | 2 2 8   | 3 2 0                                              | 15 9 6         | 3 6 4                                    | 9 9                           |
| 106 | 18 6 8     | 2 8 6   | 3 8 6                                              | 17 19 0        | 3 10 8                                   | 14 3                          |
| 107 | 20 17 4    | 2 14 6  | 3 15 0                                             | 20 8 6         | 3 15 0                                   | 14 3                          |

\* Without Jacket.

† Exposed portions of boiler and Jacket enamelled same colour. Prices are for Mottled Grey: plain Dark Green or Dark Brown 25% extra. Cream and Black 50% extra.

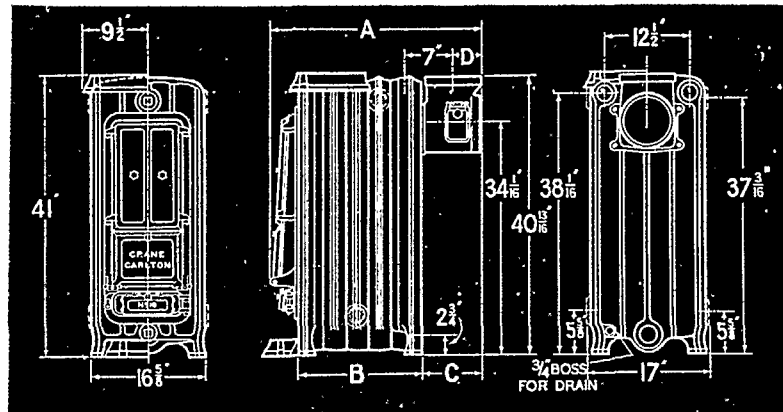
‡ Extra for Ash Tray, if required, 2/6.

|| Lined with sheet asbestos.

Both Room and Basement Models can be supplied unjacketed, enamelled plain Green or Brown, Boiler in heat-resting enamel, Platework in vitreous enamel, at the above enamelling prices.

# THE CARLTON BOILER

SERIES No. 10



## DIMENSIONS

| Boiler No. | A<br>Overall Length | B<br>Length of Boiler | C      | D      | Smoke Pipe* Size | Tappings |            |             |
|------------|---------------------|-----------------------|--------|--------|------------------|----------|------------|-------------|
|            |                     |                       |        |        |                  | Flow†    |            | Return      |
|            |                     |                       |        |        |                  | Room     | Basement   | Both Models |
| 104        | 26 5/8"             | 14 3/8"               | 7 7/8" | 3 1/2" | 6"               | Two 2"   | One 2 1/2" | One 2 1/2"  |
| 105        | 29 7/8"             | 17 3/8"               | 7 7/8" | 3 1/2" | 6"               | Two 2"   | One 2 1/2" | One 2 1/2"  |
| 106        | 33 1/8"             | 20 7/8"               | 7 7/8" | 3 1/2" | 6"               | Two 2"   | One 2 1/2" | One 2 1/2"  |
| 107        | 37 1/2"             | 24 1/4"               | 9"     | 4 1/8" | 7"               | Two 2"   | One 2 1/2" | One 2 1/2"  |

\* No. 107 has 6" Smoke Pipe when supplied as Room Model.

† Basement Boiler is regularly supplied in addition with the two 2" flows on face of back section plugged.

Additional 2" FLOW and RETURN Tappings can be furnished at either side to special order. Price 2/- each nett extra, except where returns provided free (see page 37).

Front section (Basement Model only) is regularly provided with 1/2" and 3/4" tappings for Thermometer and Safety Valve respectively.

Damper Regulator operates on check draught on right-hand side of smoke hood.

Boilers are supplied with Smoke Hood providing outlet pointing upwards or to back.

Smoke outlets are sockets.

All Boilers are delivered with sections assembled unless otherwise instructed.

Dimensions and Prices of Smoke Pipe and Fittings shown on pages 96 and 97.

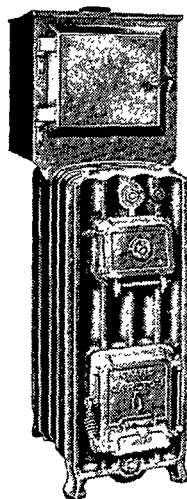
See pages 100-106 for MOUNTINGS.

CRANE

## THE CARLTON BOILER

WITH OVEN (*Patent applied for*)

FOR RURAL SCHOOLS, WORKS, CANTEENS, Etc.



The Carlton Boiler, fitted with oven, is very effective for warming milk or keeping food hot, but is not intended for cooking.

The oven is insulated on the top and sides and is provided with two cast iron shelves and guides.

Supplied unjacketed only.

### RATINGS AND PRICES

| No. | B.Th.U.s<br>per hour | Heating Power<br>C.I. Radiation<br>sq. ft. (gross) | Boiler* |    |    | Vitreous Enamel<br>Finish extra† |    |    | Stoking<br>Tools |    |
|-----|----------------------|----------------------------------------------------|---------|----|----|----------------------------------|----|----|------------------|----|
|     |                      |                                                    | £       | s. | d. | £                                | s. | d. | s.               | d. |
| 104 | 70,000               | 440                                                | 20      | 10 | 0  | 2                                | 15 | 6  | 9                | 9  |
| 105 | 85,500               | 535                                                | 22      | 19 | 6  | 3                                | 2  | 0  | 9                | 9  |
| 106 | 101,000              | 630                                                | 25      | 9  | 0  | 3                                | 8  | 6  | 14               | 3  |
| 107 | 116,500              | 730                                                | 27      | 18 | 6  | 3                                | 15 | 0  | 14               | 3  |
| 108 | 132,000              | 825                                                | 30      | 8  | 0  | 4                                | 1  | 6  | 14               | 3  |
| 109 | 147,000              | 920                                                | 32      | 17 | 6  | 4                                | 8  | 0  | 14               | 3  |

\* Black finish.

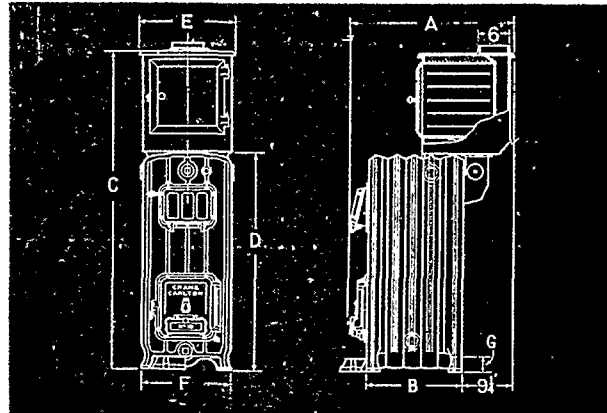
Bright parts chromium plated 3/- extra.

† Supplied unjacketed, enamelled (plain, not mottled) Green or Brown, Boiler Body and Oven in heat-resisting enamel paint, Platework in vitreous enamel.

CRANE

# THE CARLTON BOILER

WITH OVEN



## DIMENSIONS\*

| Boiler No. | A<br>Overall<br>Length | B<br>Length of<br>Boiler | Smoke<br>Pipe<br>Size | Tappings at back |                       |
|------------|------------------------|--------------------------|-----------------------|------------------|-----------------------|
|            |                        |                          |                       | Flow             | Return                |
| 104        | 28"                    | 14 $\frac{3}{8}$ "       | 6"                    | Two 2"           | One 2 $\frac{1}{2}$ " |
| 105        | 31 $\frac{1}{4}$ "     | 17 $\frac{5}{8}$ "       | 6"                    | Two 2"           | One 2 $\frac{1}{2}$ " |
| 106        | 34 $\frac{1}{2}$ "     | 20 $\frac{7}{8}$ "       | 6"                    | Two 2"           | One 2 $\frac{1}{2}$ " |
| 107        | 37 $\frac{3}{4}$ "     | 24 $\frac{1}{4}$ "       | 6"                    | Two 2"           | One 2 $\frac{1}{2}$ " |
| 108        | 41"                    | 27 $\frac{1}{2}$ "       | 6"                    | Two 2"           | One 2 $\frac{1}{2}$ " |
| 109        | 44 $\frac{1}{4}$ "     | 30 $\frac{3}{4}$ "       | 6"                    | Two 2"           | One 2 $\frac{1}{2}$ " |

\* Dimensions C, D, E, F and G are 60", 41", 18 $\frac{1}{2}$ ", 16 $\frac{5}{8}$ " and 2 $\frac{3}{4}$ " respectively.

Additional 2" FLOW and RETURN Tappings can be furnished at either side to special order at 2/- each nett extra, excepting where returns are provided free (see page 37).

All Boilers tapped  $\frac{3}{4}$ " at front for Damper Regulator and plugged when regulator not required.

Thermometer and Safety Valve should be fitted on Flow-pipe.

All Boilers are delivered with sections assembled unless otherwise instructed.

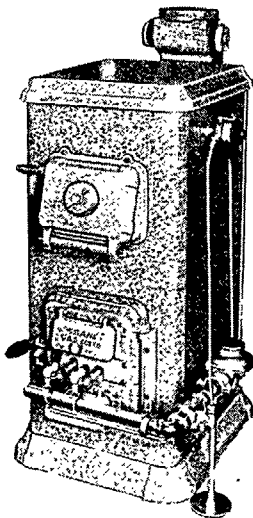
Dimensions and Prices of Smoke Pipe and Fittings shown on pages 96 and 97.

See pages 100-106 for MOUNTINGS.

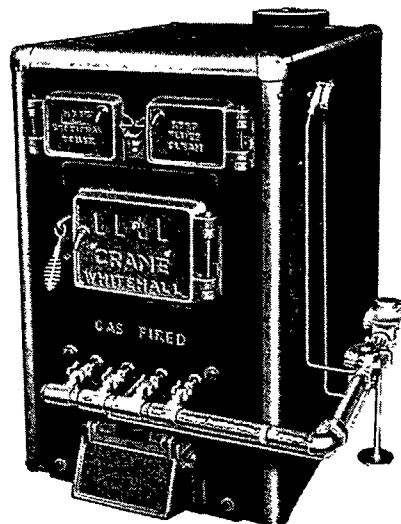
CRANE

## CRANE GAS-FIRED BOILERS

FOR CENTRAL HEATING OR INDIRECT HOT WATER SUPPLY



No. 03G—No. 107G  
VITREOUS ENAMELLED  
FINISH



No. 14G—No. 416G  
INSULATED JACKET  
GREEN CELLULOSE FINISH

### SPECIFICATION:

Boilers are fitted with a complete set of Barber-Duoflam Gas Burners with Pilot Jet and Cock.

The equipment includes: Sizes 03G to 107G—Grey Mottled Enamelled Jacket; Size 108G—Galvanized Insulated Steel Jacket, with Grey Mottled Enamelled Platework; Boilers size 14G upwards have Asbestos Lined Jacket finished in two-tone Green. Solid fire-bars are included throughout for the purpose of supporting the burners and possible conversion to coke firing.

Mountings include: Thermostat and Thermostat Valve with nickel plated copper tube connections, Gas Governor, chromium plated Gas Cocks on branches to burners.

### CONVERSION TO SOLID FUEL

Boilers are so supplied that they can be converted to solid fuel firing simply by removal of the burner and sheet metal baffles, and the substitution of the standard clinker door for the special lower platework illustrated.

For sizes of pipe connections and flue outlets, refer to ordinary solid fuel boilers.

# GAS-FIRED BOILERS

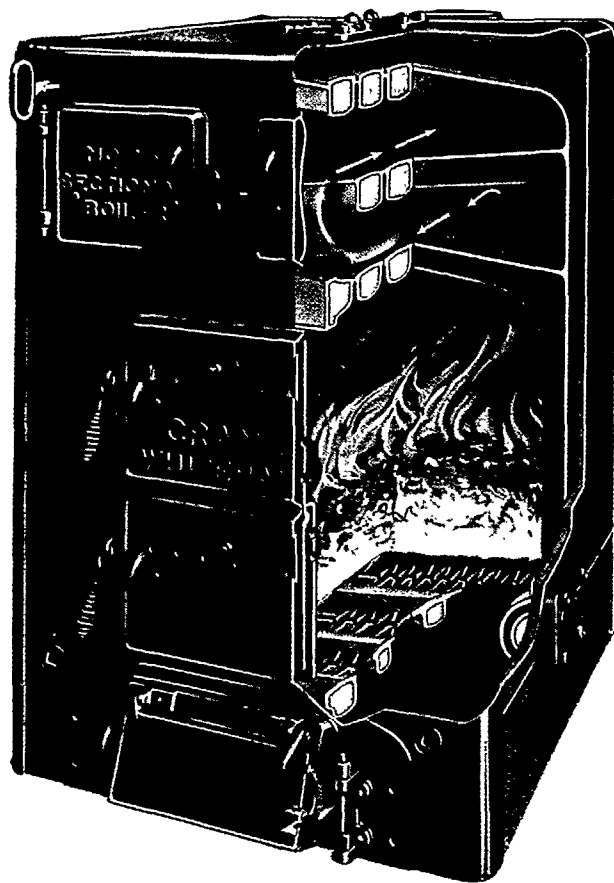
FOR CENTRAL HEATING OR INDIRECT HOT WATER SUPPLY

| No.  | Rating<br>B.Th.U.s<br>per hour | Heating Power<br>C.I., Radiation<br>sq. ft. (gross) | Gas Consump-<br>tion, cubic feet<br>per hour* | Size of<br>Gas<br>Supply | Price<br>£ s. d. |
|------|--------------------------------|-----------------------------------------------------|-----------------------------------------------|--------------------------|------------------|
| 03G  | 32,000                         | 200                                                 | 80                                            | 1/2"                     | 17 11 0          |
| 04G  | 41,000                         | 255                                                 | 103                                           | 3/4"                     | 19 10 0          |
| 05G  | 50,000                         | 310                                                 | 125                                           | 1"                       | 21 19 0          |
| 06G  | 59,000                         | 370                                                 | 148                                           | 1 1/4"                   | 23 12 0          |
| 07G  | 68,000                         | 425                                                 | 170                                           | 1 1/2"                   | 25 13 0          |
| 104G | 63,000                         | 395                                                 | 158                                           | 3/4"                     | 27 6 0           |
| 105G | 77,000                         | 480                                                 | 193                                           | 1"                       | 30 7 0           |
| 106G | 91,000                         | 570                                                 | 228                                           | 1 1/4"                   | 34 8 0           |
| 107G | 105,000                        | 655                                                 | 263                                           | 1 1/2"                   | 39 0 0           |
| 108G | 119,000                        | 745                                                 | 298                                           | 2"                       | 41 5 0           |
| 14G  | 93,000                         | 580                                                 | 233                                           | 3/4"                     | 33 7 0           |
| 15G  | 117,000                        | 730                                                 | 293                                           | 1"                       | 39 12 0          |
| 16G  | 141,000                        | 880                                                 | 353                                           | 1 1/4"                   | 43 5 0           |
| 17G  | 165,000                        | 1,030                                               | 413                                           | 1 1/2"                   | 49 16 0          |
| 24G  | 163,000                        | 1,020                                               | 408                                           | 1 1/2"                   | 53 14 0          |
| 25G  | 205,000                        | 1,280                                               | 513                                           | 2"                       | 59 8 0           |
| 26G  | 247,000                        | 1,540                                               | 618                                           | 2 1/4"                   | 69 4 0           |
| 27G  | 289,000                        | 1,800                                               | 723                                           | 2 1/2"                   | 77 13 0          |
| 28G  | 331,000                        | 2,060                                               | 828                                           | 3"                       | 87 17 0          |
| 35G  | 322,000                        | 2,000                                               | 805                                           | 1 1/2"                   | 92 16 0          |
| 36G  | 389,000                        | 2,430                                               | 973                                           | 2"                       | 101 5 0          |
| 37G  | 456,000                        | 2,850                                               | 1,141                                         | 2 1/4"                   | 124 3 0          |
| 38G  | 523,000                        | 3,280                                               | 1,309                                         | 2 1/2"                   | 137 16 0         |
| 39G  | 590,000                        | 3,690                                               | 1,477                                         | 3"                       | 148 8 0          |
| 310G | 657,000                        | 4,100                                               | 1,645                                         | 3 1/2"                   | 161 9 0          |
| 47G  | 629,000                        | 3,930                                               | 1,572                                         | 2"                       | 163 0 0          |
| 48G  | 721,500                        | 4,500                                               | 1,804                                         | 2 1/4"                   | 182 0 0          |
| 49G  | 814,000                        | 5,100                                               | 2,035                                         | 2 1/2"                   | 201 0 0          |
| 410G | 906,500                        | 5,670                                               | 2,266                                         | 3"                       | 221 0 0          |
| 411G | 999,000                        | 6,240                                               | 2,497                                         | 3 1/4"                   | 240 0 0          |
| 412G | 1,091,500                      | 6,850                                               | 2,729                                         | 3 1/2"                   | 259 0 0          |
| 413G | 1,184,000                      | 7,400                                               | 2,960                                         | 4"                       | 278 0 0          |
| 414G | 1,276,500                      | 8,000                                               | 3,191                                         | 4 1/4"                   | 297 0 0          |
| 415G | 1,369,000                      | 8,550                                               | 3,422                                         | 4 1/2"                   | 316 0 0          |
| 416G | 1,461,500                      | 9,100                                               | 3,654                                         | 5"                       | 335 0 0          |

\* Based on 500 B.Th.U.s per hour calorific value of gas.

Automatic Air Supply Control Valve, for Boilers No. 14G—No. 416G, £3 10 0 extra.  
It is recommended that the gas supply be one size larger than the size above indicated.  
Room Thermostat £1 18 6, Clock Control, details on application.  
Prices for Conversion Sets for existing Crane Boilers on application.  
The calorific value, supply pressure and the specific gravity of the gas supply should be mentioned when ordering.

CRANE



## THE WHITEHALL SECTIONAL BOILER

(Patent No. 354545)

THE "Whitehall" jacketed Sectional Boiler depicted above, for hot water, burns coke, anthracite or oil, and is manufactured in sizes to fit buildings of all types: "Whitehall" Boilers are abreast of the latest developments. These Boilers, made in our Ipswich Works, offer to the heating trade easier, more economical assembly, a better installation and an opportunity to stimulate sales by giving customers entirely new, outstandingly better products at **no higher price**. To the public is offered better heating efficiency and consequent fuel saving; the durability of fine engineering and a compact, neat beauty helping to abolish the ugly "stoke-hole" of the past.

## WHITEHALL BOILERS

### EXCLUSIVE POINTS OF IMPROVEMENT

**T**HE efficient transfer of heat from fuel to the heating medium is the primary consideration in designing a boiler. Crane designers have accomplished this by the following three EXCLUSIVE features:—

- (a) Controlled WATER TRAVEL.
- (b) Increased "CEILING" Heating Surface.
- (c) Restricted area high velocity gas flues.

By these and other means every effort has been made to extract the maximum heat units from the fuel consumed so as to give lowest possible flue outlet temperatures.

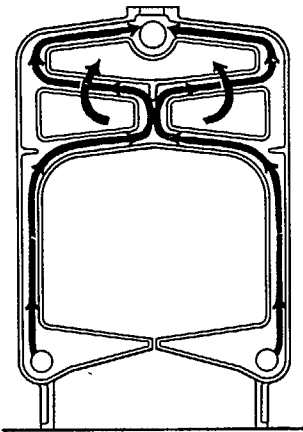
### CONTROLLED WATER TRAVEL

**T**HIS outstanding feature is the direction of the water in the boiler over definite paths to absorb the maximum amount of heat.

Water rising up each leg is turned across the top of the combustion chamber by baffles. Here it rises through a passage formed by the inner sides of the first pass flues where the stream is divided and flows outwardly to each side of the boiler. It then rises to the top of the section and through the nipple ports to the flow outlets. Areas of water passages are proportioned to suit water flow.

Consequently the major proportion of the water circulating through the boiler is directed over that most vulnerable part of the Boiler, the furnace crown, resulting in the highest rate of transmission and tending to reduce "steaming" and the possible formation of scale.

Secondly, the water passing over these most efficient heating surfaces travels a greater distance and at a higher rate of flow, with a scrubbing action that breaks down insulating film.



*This diagram visualizes the Controlled Water Travel as shown in the Nos. 2, 3, and 4 "Whitehall" Sectional Boilers.*

## CRANE

### INCREASED "CEILING" HEATING SURFACE

**O**N the Nos. 2, 3 and 4 Boilers the elongated gas flues of both the first and second pass present a maximum of "ceiling" heating surface, those horizontal surfaces at the top of the flues which being above the flue gases absorb greater heat than the side walls.

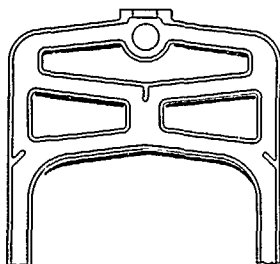


Diagram illustrating the large proportion of "ceiling" heating surface.

There is approximately 50 per cent. more "ceiling" heating surface in Whitehall Boilers than in other similar boilers.

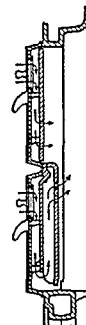
### SCIENTIFICALLY DESIGNED GAS FLUES

**F**LUES of restricted area not only result in higher velocity gas flow giving increased transmission, but the whole area of each is traversed by the hot gases, instead of just the centre as with large sluggish flues.

### PREHEATED SECONDARY AIR

**A**NOTHER noteworthy feature is the provision made to ignite the gases given off above the firebed by means of a preheated supply of secondary air applicable either to firing with a thin fire or when the boiler is banked.

The air supply which is *under control* by means of hit and miss regulators passes *twice* over the baffle deflectors, thus absorbing the maximum heat and preventing the outer baffle from being burned through and becoming preheated at the same time.



### WATER COOLED GRATES

**W**ATER cooled grate bars, provided on all sizes of "Whitehall" Boilers, assist in obtaining maximum efficiency and reduce the formation of clinker. They also save the building owner the expense and annoyance of continually renewing burnt out firebars. Boilers can be supplied fitted with loose grill bars, if a future change over to oil or an automatic stoker is contemplated.

### ATTENDANT'S WORK IS MADE EASIER

**T**ENDING has been made easier in a number of ways. The broad flat surfaces of gas flues have less tendency to collect efficiency-impairing soot, and they afford ready access for cleaning. The smoke damper with positive indicator on front of boiler has a locking spring which holds it in position when adjusted.

MANUFACTURING PRECISION MEANS A NEATER,  
BETTER JOB, AND LOW COST INSTALLATION

**S**TILL more EXCLUSIVE features which demonstrate the superiority of CRANE "WHITEHALL" BOILERS:—

New Patented method of Assembly reduces labour and installation costs by one-third. (Patent No. 415007.)

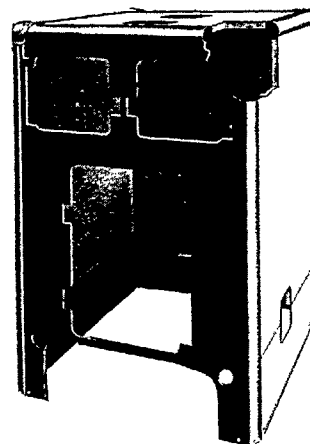
Flat surfaces of all sections are accurately ground by specially designed machines to give a tight, true fit. Putty groove gives added safeguard against air or gas leakage.

All doors and dampers have accurately ground flat surfaces which permit them to shut tight, without air or dust leaks. Corresponding parts are interchangeable.

Fittings secured to Boiler by means of loose bolts easily removed, instead of studs likely to break off.

All Boilers assembled at Factory and tested hydraulically before despatch.

Two-tone green jacket which effectively insulates and gives the Crane Boiler the appeal of beauty.



**W**HITEHALL Boilers are provided with Jackets which are a marked advance on those obtainable elsewhere. Consulting and Heating Engineers have in the past preferred plastic asbestos, desiring an efficiently insulated boiler, although acknowledging the superior appearance and convenience of the sheet metal casing. Crane jackets conserve heat as much as does  $1\frac{1}{2}$  in. thickness of plastic asbestos, for the top, sides and back of the boiler are first protected with a 1 in. thick slab of high efficiency asbestos, guaranteed not to char or powder, and encasing this a machine-made steel jacket, tastefully finished in colour, giving permanence and a worth-while finish.

**T**HE jacket has been planned for exactness in fit and ease of installation. After the boiler is installed and tested, the panels are simply set in place and four screws at the top corners inserted and tightened. The jacket need never be marred in making adjustments.

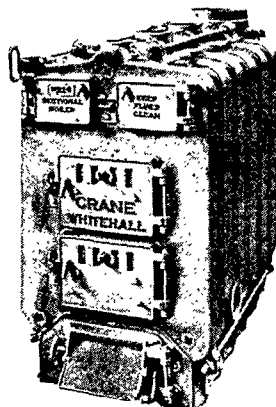
To meet the requirements of those who wish for a metal casing only, without insulation, a competitive jacket of galvanized sheet steel is also offered but the **insulated** jacket is recommended.

Jackets can be supplied for the Nos. 2, 3 and 4 "Whitehall" Boilers fixed in battery form.

CRANE

## THE No. 1 WHITEHALL BOILER

FOR SOLID FUEL (with water cooled Firebars)



See page 74 for  
Boilers with loose  
solid Firebars.

See page 66 for  
No. 1 Boiler for  
Stoker Firing.

### RATINGS

| No. | Boiler Heating<br>Surface<br>sq. ft. | Heating Power<br>C.I. Radiation<br>sq. ft. (gross) | B.Th.U.s<br>per hour | Fuel<br>Capacity<br>cu. ft. | Grate<br>Area<br>sq. ft. | Water<br>Content<br>galls. |
|-----|--------------------------------------|----------------------------------------------------|----------------------|-----------------------------|--------------------------|----------------------------|
| 14  | 23.5                                 | 650                                                | 104,000              | 2.6                         | 2.32                     | 15.8                       |
| 15  | 29.5                                 | 815                                                | 130,000              | 3.5                         | 3.10                     | 19.2                       |
| 16  | 35.5                                 | 975                                                | 156,000              | 4.4                         | 3.90                     | 22.7                       |
| 17  | 41.5                                 | 1,140                                              | 182,000              | 5.3                         | 4.68                     | 26.1                       |
| 18  | 47.5                                 | 1,300                                              | 208,000              | 6.2                         | 5.47                     | 29.6                       |

### PRICES

| No. | Number<br>of<br>Sections | B.Th.U.s<br>per hour | Boiler  | Stoking<br>Tools | Insulated<br>Jacket in<br>Colour | Non-insulated<br>Galvanized<br>Jacket |
|-----|--------------------------|----------------------|---------|------------------|----------------------------------|---------------------------------------|
|     |                          |                      | £ s. d. | £ s. d.          | £ s. d.                          | £ s. d.                               |
| 14  | 4                        | 104,000              | 19 2 0  | 19 0             | 3 11 0                           | 2 13 9                                |
| 15  | 5                        | 130,000              | 22 11 6 | 19 0             | 4 1 0                            | 3 1 6                                 |
| 16  | 6                        | 156,000              | 26 1 0  | 1 1 3            | 4 11 0                           | 3 9 3                                 |
| 17  | 7                        | 182,000              | 29 10 6 | 1 1 3            | 5 1 0                            | 3 17 0                                |
| 18  | 8                        | 208,000              | 33 0 0  | 1 4 0            | 5 11 0                           | 4 4 9                                 |

Stoking Tools and one  $\frac{3}{4}$ " size emptying cock sent with boiler unless otherwise instructed.  
Extra Intermediate Sections with Nipples for extending Boiler ... each £3 9 6

Prices for new tie rods and damper rods on application.

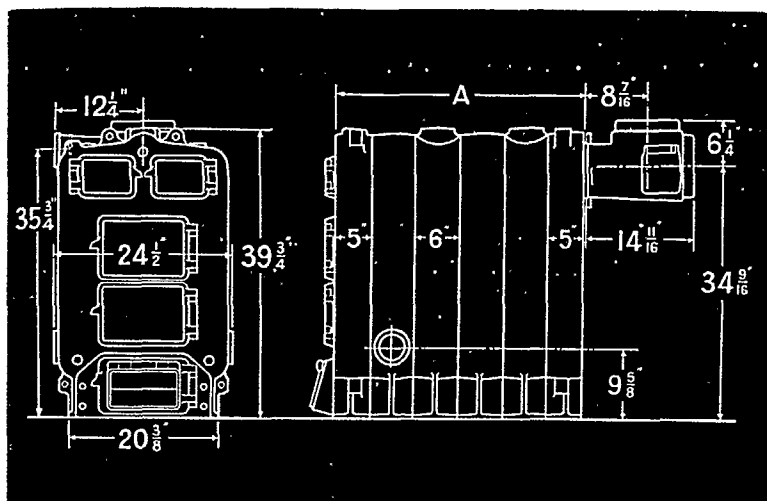
Jacket extension pieces, non insulated ... per section 9 0  
" " insulated ... " 13 3

The No. 1 "Whitehall" Boiler can be supplied with or without loose grill bars instead of water cooled grates for Automatic Stoker Firing. Ratings and Prices on pages 66 and 74.

CRANE

# THE No. 1 WHITEHALL BOILER

FOR SOLID FUEL (Patent No. 354545)



## DIMENSIONS

| No. | Number of Sections | Length of Boiler A | Smoke Pipe Size | Screwed Tappings* |                 |
|-----|--------------------|--------------------|-----------------|-------------------|-----------------|
|     |                    |                    |                 | Flows on Top†     | Returns at Side |
| 14  | 4                  | 22"                | 8"              | One 3"            | One 3"          |
| 15  | 5                  | 28"                | 8"              | One 3"            | One 3"          |
| 16  | 6                  | 34"                | 8"              | Two 3"            | Two 3"          |
| 17  | 7                  | 40"                | 8"              | Two 3"            | Two 3"          |
| 18  | 8                  | 46"                | 8"              | Two 3"            | Two 3"          |

See page 80 for dimensions of ashpit

\* Indicates the number of tappings included in price. See page 78 for standard positions of tappings.

† 2" tapping can be provided on top of rear section for open vent or flow  
Price 2/- net

In addition all boilers have one 2" and two 1" tappings for mountings and two 1 1/4" for emptying.

Special intermediate sections can be supplied with 3" screwed horizontal flow, height from floor to centre 35 3/4".

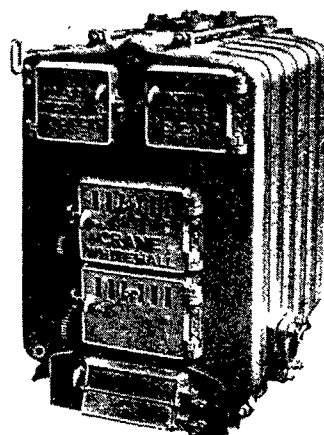
Customers should send sketch with order indicating desired position of tappings.

Measurements and Prices of Boiler Fittings shown on pages 98 and 99.

CRANE

## THE No. 2 WHITEHALL BOILER

FOR SOLID FUEL (with water cooled Firebars)



See page 74 for  
Boilers with  
loose solid firebars

See page 68 for  
No. 2 Boilers  
for Stoker Firing

### RATINGS

| No. | Boiler Heating Surface sq. ft. | Heating Power C.I. Radiation sq. ft. (gross) | B.Th.U.s per hour | Fuel Capacity cu. ft. | Grate Area sq. ft. | Water Content galls. |
|-----|--------------------------------|----------------------------------------------|-------------------|-----------------------|--------------------|----------------------|
| 24  | 40.0                           | 1,100                                        | 176,000           | 4.20                  | 3.40               | 28.8                 |
| 25  | 50.7                           | 1,390                                        | 223,000           | 5.55                  | 4.48               | 35.1                 |
| 26  | 61.4                           | 1,690                                        | 270,000           | 6.90                  | 5.56               | 41.4                 |
| 27  | 72.1                           | 1,980                                        | 317,000           | 8.25                  | 6.64               | 47.7                 |
| 28  | 82.8                           | 2,280                                        | 364,000           | 9.60                  | 7.72               | 54.0                 |
| 29  | 93.5                           | 2,570                                        | 411,000           | 10.95                 | 8.80               | 60.3                 |

### PRICES

| No. | Number of Sections | B.Th.U.s per hour | Boiler |    |    | Stoking Tools |    |    | Insulated Jacket in Colour |    |    | Non-Insulated Galvanized Jacket |    |    |
|-----|--------------------|-------------------|--------|----|----|---------------|----|----|----------------------------|----|----|---------------------------------|----|----|
|     |                    |                   | £      | s. | d. | £             | s. | d. | £                          | s. | d. | £                               | s. | d. |
| 24  | 4                  | 176,000           | 30     | 13 | 0  |               | 19 | 0  | 5                          | 2  | 0  | 3                               | 14 | 6  |
| 25  | 5                  | 223,000           | 36     | 9  | 6  |               | 19 | 0  | 5                          | 14 | 0  | 4                               | 4  | 0  |
| 26  | 6                  | 270,000           | 42     | 6  | 0  | 1             | 1  | 3  | 6                          | 6  | 0  | 4                               | 13 | 6  |
| 27  | 7                  | 317,000           | 48     | 2  | 6  | 1             | 1  | 3  | 6                          | 18 | 0  | 5                               | 3  | 0  |
| 28  | 8                  | 364,000           | 53     | 19 | 0  | 1             | 4  | 0  | 7                          | 10 | 0  | 5                               | 12 | 6  |
| 29  | 9                  | 411,000           | 59     | 15 | 6  | 1             | 4  | 0  | 8                          | 2  | 0  | 6                               | 2  | 0  |

Stoking Tools and one  $\frac{3}{4}$ " size emptying cock sent with boiler unless otherwise instructed.  
Extra Intermediate Sections with Nipples for extending Boiler each £5 16 6

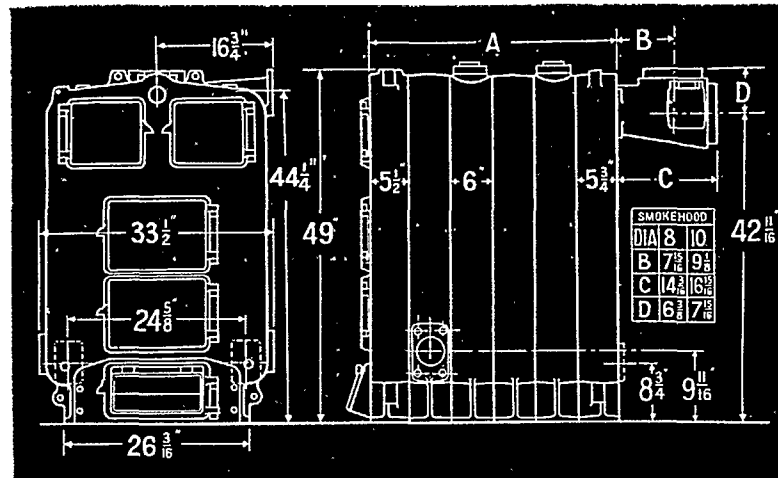
Prices for new tie rods and damper rods on application.

Jacket extension pieces, non-insulated ... .. per section 11 0  
" " insulated ... .. " 13 9

"The No. 2 'Whitehall' Boiler can be supplied with or without loose grill bars instead of water cooled grates for Automatic Stoker Firing. Ratings and Prices on pages 68 and 74

# THE No. 2 WHITEHALL BOILER

FOR SOLID FUEL (Patent No. 354545)



## DIMENSIONS

| No. | Number of Sections | Length of Boiler A | Smoke Pipe Size | Screwed Flanges* |                 |
|-----|--------------------|--------------------|-----------------|------------------|-----------------|
|     |                    |                    |                 | Flows on Top†    | Returns at Side |
| 24  | 4                  | 23 1/2"            | 8"              | One 4"           | One 4"          |
| 25  | 5                  | 29 1/4"            | 8"              | Two 4"           | Two 4"          |
| 26  | 6                  | 35 1/2"            | 8"              | Two 4"           | Two 4"          |
| 27  | 7                  | 41 1/2"            | 8"              | Three 4"         | Three 4"        |
| 28  | 8                  | 47 1/4"            | 10"             | Three 4"         | Three 4"        |
| 29  | 9                  | 53 1/2"            | 10"             | Three 4"         | Three 4"        |

See page 80 for dimensions of ashpit.

\* Indicates the number of tappings included in price. See page 78 for standard positions of tappings.

† 2" tapping can be provided on top of rear section for open vent or flow. Price 2/- nett. In addition all boilers have one 2" and two 1" tappings for mountings and two 1 1/4" for emptying.

On special order, two 4" flanged return connections can be provided on face of back section; dimensions on diagram above.

Special intermediate sections can be supplied with 4" flanged horizontal flow, height from floor to centre 44 1/4".

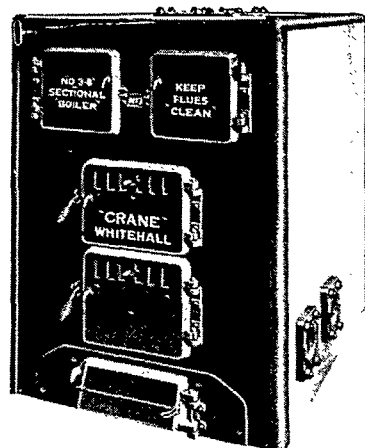
Customers should send sketch with order indicating desired position of tappings.

A battery of two or more Boilers of the same length may be enclosed in a single jacket, centre to centre of Boilers 32 3/8".

CRANE

## THE No. 3 WHITEHALL BOILER

FOR SOLID FUEL (with water cooled Firebars)



See page 74 for  
Boilers with loose  
solid Firebars

See page 70 for  
No. 3 Boiler for  
Stoker Firing

### RATINGS

| No. | Boiler Heating Surface sq. ft. | Heating Power C.I. Radiation sq. ft. (gross) | B.Th.U.s per hour | Fuel Capacity cu. ft. | Grate Area sq. ft. | Water Content galls. |
|-----|--------------------------------|----------------------------------------------|-------------------|-----------------------|--------------------|----------------------|
| 35  | 78.18                          | 2,150                                        | 344,000           | 10.7                  | 6.53               | 66.9                 |
| 36  | 94.32                          | 2,590                                        | 415,000           | 13.2                  | 8.06               | 78.6                 |
| 37  | 110.45                         | 3,040                                        | 486,000           | 15.7                  | 9.59               | 90.3                 |
| 38  | 126.60                         | 3,480                                        | 557,000           | 18.2                  | 11.12              | 102.0                |
| 39  | 142.73                         | 3,930                                        | 628,000           | 20.7                  | 12.65              | 113.7                |
| 310 | 158.87                         | 4,370                                        | 699,000           | 23.2                  | 14.18              | 125.4                |
| 311 | 175.00                         | 4,810                                        | 770,000           | 25.7                  | 15.71              | 137.1                |
| 312 | 191.13                         | 5,260                                        | 841,000           | 28.2                  | 17.24              | 148.8                |

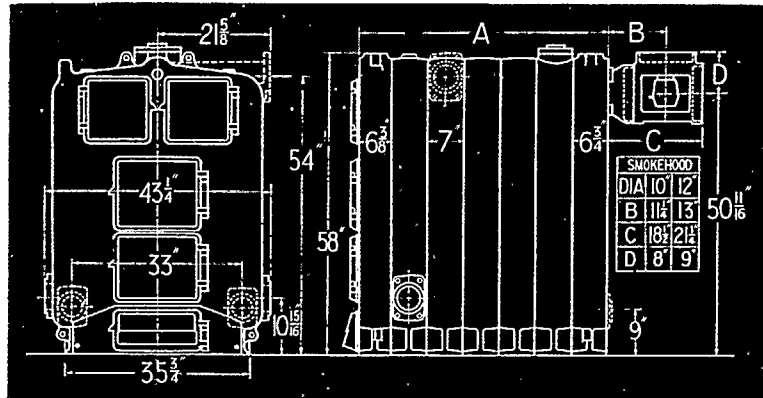
### PRICES

| No. | Number of Sections | B.Th.U.s per hour | Boiler £ s. d. | Stoking Tools £ s. d. | Insulated Jacket in Colour £ s. d. | Non-Insulated Galvanized Jacket £ s. d. |
|-----|--------------------|-------------------|----------------|-----------------------|------------------------------------|-----------------------------------------|
| 35  | 5                  | 344,000           | 54 6 0         | 1 2 6                 | 7 4 0                              | 5 6 6                                   |
| 36  | 6                  | 415,000           | 62 7 0         | 1 2 6                 | 8 4 6                              | 6 1 3                                   |
| 37  | 7                  | 486,000           | 70 8 0         | 1 6 0                 | 9 5 0                              | 6 16 0                                  |
| 38  | 8                  | 557,000           | 78 9 0         | 1 6 0                 | 10 5 6                             | 7 10 9                                  |
| 39  | 9                  | 628,000           | 86 10 0        | 1 11 6                | 11 6 0                             | 8 5 6                                   |
| 310 | 10                 | 699,000           | 94 11 0        | 1 11 6                | 12 6 6                             | 9 0 3                                   |
| 311 | 11                 | 770,000           | 102 12 0       | 1 13 6                | 13 7 0                             | 9 15 0                                  |
| 312 | 12                 | 841,000           | 110 13 0       | 1 13 6                | 14 7 6                             | 10 9 9                                  |

Stoking Tools and one  $\frac{3}{4}$ " size emptying cock sent with boiler unless otherwise instructed.  
Extra Intermediate Section with Nipples for extending Boiler ... each £8 1 0  
Prices for new tie rods and damper rods on application.  
Jacket extension pieces, non-insulated ... .. per section 16 0  
" " insulated ... .. " 1 0 0  
The No. 3 "Whitehall" Boiler can be supplied with or without loose grill bars instead of water cooled grates for Automatic Stoker Firing. Ratings and Prices on pages 70 and 74.

# THE No. 3 WHITEHALL BOILER

FOR SOLID FUEL (Patent No. 354545)



## DIMENSIONS

| No. | Number of Sections | Length of Boiler A | Smoke Pipe Size | Screwed Flanges*† |                 |
|-----|--------------------|--------------------|-----------------|-------------------|-----------------|
|     |                    |                    |                 | Flows on Top‡     | Returns at Side |
| 35  | 5                  | 34"                | 10"             | Two 4"            | Two 4"          |
| 36  | 6                  | 41"                | 10"             | Two 4"            | Two 4"          |
| 37  | 7                  | 48"                | 10"             | Two 4"            | Two 4"          |
| 38  | 8                  | 55"                | 12"             | Three 4"          | Three 4"        |
| 39  | 9                  | 62"                | 12"             | Three 4"          | Three 4"        |
| 310 | 10                 | 69"                | 12"             | Three 4"          | Three 4"        |
| 311 | 11                 | 76"                | 12"             | Three 4"          | Three 4"        |
| 312 | 12                 | 83"                | 12"             | Three 4"          | Three 4"        |

See page 80 for dimensions of ashpit.

The No. 3 "Whitehall" has Universal Smoke Hood.

\* 5" Screwed Flanges for Flows and Returns can be supplied if required.

† Indicates the number of tappings included in price. See page 78 for standard positions of tappings.

‡ 2" tapping can be provided on top of rear section for open vent or flow. Price 2/- nett. In addition all boilers have one 2" and two 1" tappings for mountings and two 1 1/4" for emptying.

On special order, two 4" flanged return connections can be provided on face of back section. Dimensions as diagram above.

One or more special intermediate sections can be supplied with horizontal flow connection with 4" or 5" screwed flange.

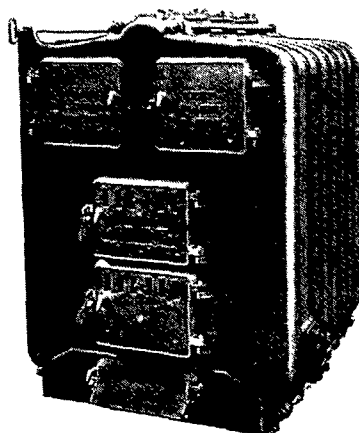
Customers should send sketch with order indicating desired position of tappings.

A battery of two or more Boilers of the same length may be enclosed in a single jacket, centre to centre of Boilers 42".

CRANE

## THE No. 4 WHITEHALL BOILER

FOR SOLID FUEL (with water cooled Firebars)



See page 74 for  
Boilers with loose  
solid Firebars

See page 72 for  
No. 4 Boiler for  
Stoker Firing

### RATINGS

| No. | Boiler Heating<br>Surface<br>sq. ft. | Heating Power<br>C.I. Radiation<br>sq. ft. (gross) | B.Th.U.s<br>per hour | Fuel<br>Capacity<br>cu. ft. | Grate<br>Area<br>sq. ft. | Water<br>Content<br>galls. |
|-----|--------------------------------------|----------------------------------------------------|----------------------|-----------------------------|--------------------------|----------------------------|
| 47  | 148                                  | 4,060                                              | 650,000              | 20.19                       | 11.92                    | 136                        |
| 48  | 170                                  | 4,680                                              | 748,000              | 23.43                       | 13.86                    | 154                        |
| 49  | 192                                  | 5,290                                              | 846,000              | 26.67                       | 15.80                    | 172                        |
| 410 | 215                                  | 5,900                                              | 944,000              | 29.91                       | 17.74                    | 190                        |
| 411 | 237                                  | 6,510                                              | 1,042,000            | 33.15                       | 19.68                    | 208                        |
| 412 | 259                                  | 7,130                                              | 1,140,000            | 36.39                       | 21.62                    | 226                        |
| 413 | 282                                  | 7,740                                              | 1,238,000            | 39.63                       | 23.56                    | 244                        |
| 414 | 304                                  | 8,350                                              | 1,336,000            | 42.87                       | 25.50                    | 262                        |
| 415 | 326                                  | 8,960                                              | 1,434,000            | 46.11                       | 27.44                    | 280                        |

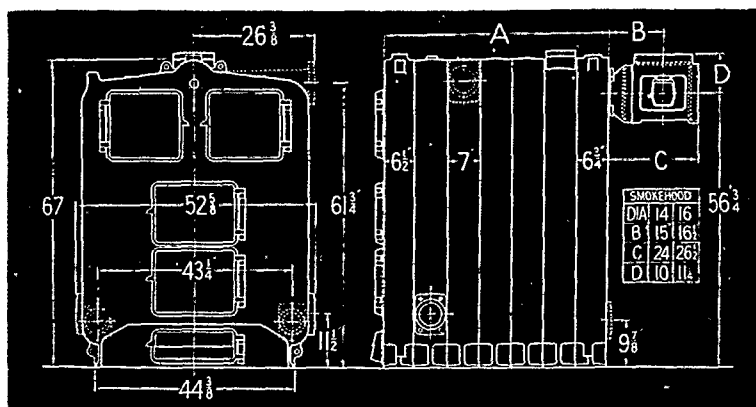
### PRICES

| No. | Number<br>of<br>Sections | B.Th.U.s<br>per hour | Boiler |    |    | Stoking<br>Tools |    |    | Insulated<br>Jacket in<br>Colour |    |    | Non-insulated<br>Galvanized<br>Jacket. |    |    |
|-----|--------------------------|----------------------|--------|----|----|------------------|----|----|----------------------------------|----|----|----------------------------------------|----|----|
|     |                          |                      | £      | s. | d. | £                | s. | d. | £                                | s. | d. | £                                      | s. | d. |
| 47  | 7                        | 650,000              | 93     | 5  | 0  | 1                | 8  | 0  | 11                               | 5  | 0  | 8                                      | 3  | 0  |
| 48  | 8                        | 748,000              | 106    | 17 | 0  | 1                | 8  | 0  | 12                               | 7  | 0  | 8                                      | 17 | 9  |
| 49  | 9                        | 846,000              | 120    | 9  | 0  | 1                | 12 | 6  | 13                               | 9  | 0  | 9                                      | 12 | 6  |
| 410 | 10                       | 944,000              | 134    | 1  | 0  | 1                | 12 | 6  | 14                               | 11 | 0  | 10                                     | 7  | 3  |
| 411 | 11                       | 1,042,000            | 147    | 13 | 0  | 1                | 14 | 0  | 15                               | 13 | 0  | 11                                     | 2  | 0  |
| 412 | 12                       | 1,140,000            | 161    | 5  | 0  | 1                | 14 | 0  | 16                               | 15 | 0  | 11                                     | 16 | 9  |
| 413 | 13                       | 1,238,000            | 174    | 17 | 0  | 1                | 14 | 0  | 17                               | 17 | 0  | 12                                     | 11 | 6  |
| 414 | 14                       | 1,336,000            | 188    | 9  | 0  | 1                | 14 | 0  | 18                               | 19 | 0  | 13                                     | 6  | 3  |
| 415 | 15                       | 1,434,000            | 202    | 1  | 0  | 1                | 14 | 0  | 20                               | 1  | 0  | 14                                     | 1  | 0  |

Stoking Tools and two 1" size emptying cocks sent with boiler unless otherwise instructed.  
Extra Intermediate Section with Nipples for extending Boiler ... each £13 12 0  
Jacket extension pieces, non-insulated ... .. per section 18 0  
" insulated ... .. " 14 0  
The No. 4 "Whitehall" Boiler can be supplied with or without loose grill bars instead  
of water cooled grates for Automatic Stoker Firing. Ratings and Prices on pages 72 and 74.

# CRANE THE No. 4 WHITEHALL BOILER

FOR SOLID FUEL (Patent No. 354545)



DIMENSIONS

| No. | Number of Sections | Length of Boiler A | Smoke Pipe Size | Screwed Flanges * † |                 |
|-----|--------------------|--------------------|-----------------|---------------------|-----------------|
|     |                    |                    |                 | Flows on Top §      | Returns at Side |
| 47  | 7                  | 48"                | 14"             | Two 4"              | Two 4"          |
| 48  | 8                  | 55"                | 14"             | Two 4"              | Two 4"          |
| 49  | 9                  | 62"                | 14"             | Three 4"            | Three 4"        |
| 410 | 10                 | 69"                | 14"             | Three 4"            | Three 4"        |
| 411 | 11                 | 76"                | 14"             | Four 4"             | Four 4"         |
| 412 | 12                 | 83"                | 14"             | Four 4"             | Four 4"         |
| 413 | 13                 | 90"                | 16"             | Four 4"             | Four 4"         |
| 414 | 14                 | 97"                | 16"             | Four 4"             | Four 4"         |
| 415 | 15                 | 104"               | 16"             | Four 4"             | Four 4"         |

See page 80 for dimensions of ashpit.

The No. 4 "Whitehall" has Universal Smoke Hood.

\* 5" Screwed Flanges for Flows and Returns can be supplied if required.

† Indicates the number of tappings included in price. See pages 78 and 79 for standard positions.

§ 2" tapping can be provided on top of rear section for open vent or flow. Price 2/- nett. In addition all boilers have one 2" and two 1 1/2" tappings for mountings and two 1 1/4" for emptying.

On special order, two 4" flanged return connections can be provided on face of back section. Dimensions as diagram above.

One or more special intermediate sections can be supplied with horizontal flow connection with 4" or 5" screwed flange.

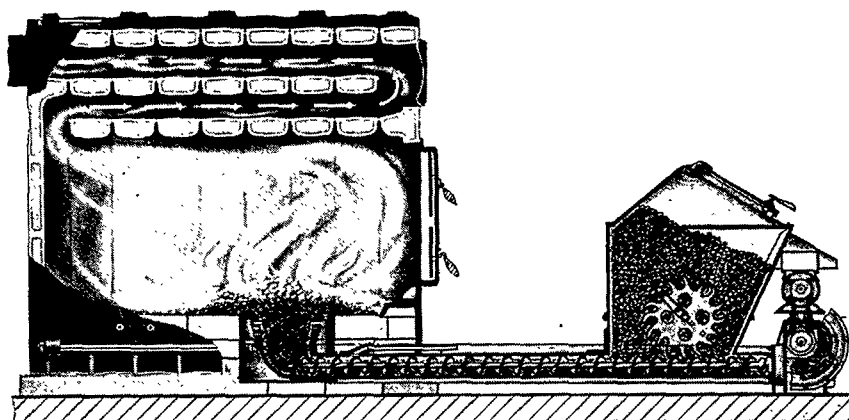
Customers should send sketch with order indicating desired position of tappings.

A Battery of two or more Boilers of the same length may be enclosed in a single jacket. Centre to centre of Boilers, 52 1/2".

CRANE

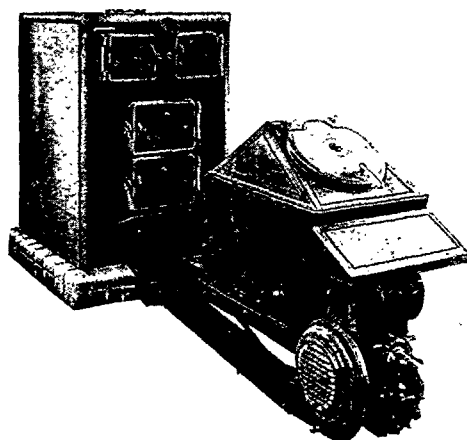
## THE WHITEHALL BOILERS

FOR AUTOMATIC STOKER FIRING



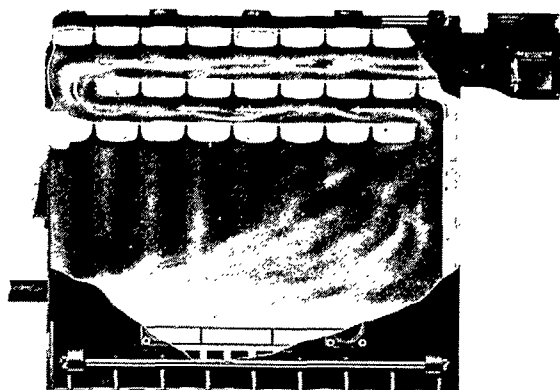
THE outstanding features of the design of the "Whitehall" Sectional Boiler render it peculiarly suitable for firing by a mechanical stoker.

The illustration shows a well-known type burning a low-price Bituminous Coal in conjunction with a "Whitehall" Boiler. The advantage of the elongated two-pass gas flues, obtainable only in Crane boilers, is apparent. Ratings, capacities, and prices are as on pages 66 to 73; minimum length of Boiler, 5 sections. Enquiries should state the make of Stoker it is proposed to instal. "Whitehall" Boilers are suitable for firing by means of any of the well-known Automatic Stokers.



## THE WHITEHALL BOILER

FOR OIL BURNING



THE Crane "Whitehall" Boilers are especially suited for Oil Burning. In the Nos. 2, 3, and 4 "Whitehall" Boilers the gases cannot pass direct from the burner to the chimney. The elongated two-pass flues ensure the longest possible travel for the gases and the machine-faced, smoke-tight joints of the sections effectively prohibit short circuiting.

In fact all of the advantages already described on pages 52 to 54 likewise fully apply to the Oil Burning Boiler. In addition the ample and even thickness of the metal in the sections is of greatest value in resisting corrosion and ensures long life.

The Boiler is ordinarily supplied without water-cooled grates. Provision is made for supporting ordinary firebars if it is desired to change to solid fuel.

Prices of "Whitehall" Oil Burning Boilers are without firebars and include front plate to suit all well known Burners

The top hung door is fitted with a sight hole of fireproof glass having protector inside.

The Damper is fitted with locking device for setting in any desired position and no damper control rod is therefore supplied with the Boiler.

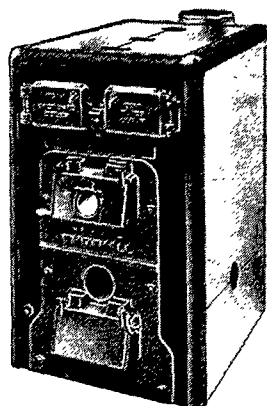
A  $\frac{3}{4}$ " boss is provided on the smokehood for flue-stat or gauge.

CRANE

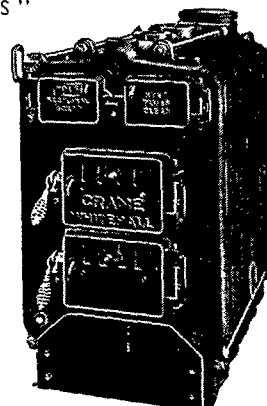
# THE No. 1 WHITEHALL BOILER

FOR OIL BURNING OR AUTOMATIC STOKER

SERIES "L" & "LS"



SERIES "L"  
(With Jacket)  
FOR OIL BURNING  
Front plate to suit Burner



SERIES "LS"  
(Without Jacket)  
FOR AUTOMATIC STOKER  
Front ashpit panel to suit Stoker

## RATINGS

| No.          | †Boiler Heating Surface sq. ft. | Heating Power C.I. Radiation sq. ft. (gross) | †Combustion Space cu. ft. | B.Th.U.s per hour | *Burner Capacity lbs. Oil per hour |
|--------------|---------------------------------|----------------------------------------------|---------------------------|-------------------|------------------------------------|
| 14 L         | 21.0                            | 625                                          | 3½                        | 100,000           | 7.0                                |
| 15 L & 15 LS | 26.5                            | 790                                          | 4½                        | 126,000           | 9.0                                |
| 16 L & 16 LS | 32.0                            | 950                                          | 6½                        | 152,000           | 10.8                               |
| 17 L & 17 LS | 37.5                            | 1,110                                        | 7½                        | 178,000           | 12.7                               |
| 18 L & 18 LS | 43.0                            | 1,275                                        | 8½                        | 204,000           | 14.5                               |
| 19 L & 19 LS | 48.5                            | 1,440                                        | 9½                        | 230,000           | 16.4                               |

† Above normal grate level.

\* Based on 14,000 B.Th.U.s net per lb. of fuel oil per hour.

‡ Represents Heating surface without water cooled grates.

## PRICES

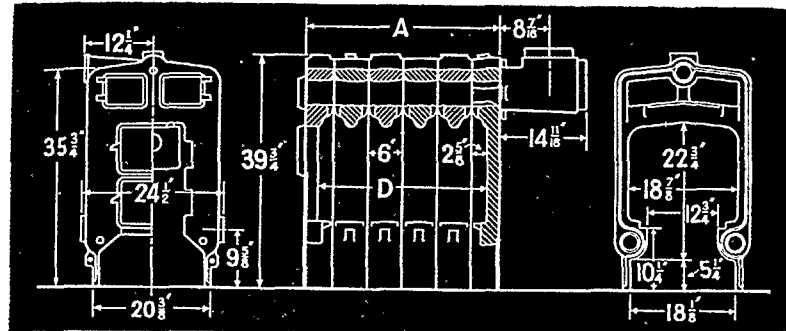
| No.          | Number of Sections | B.Th.U.s per hour | Boiler £ s. d. | Insulated Jacket in Colour £ s. d. | Non-insulated Galvanized Jacket £ s. d. |
|--------------|--------------------|-------------------|----------------|------------------------------------|-----------------------------------------|
| 14 L         | 4                  | 100,000           | 18 6 9         | 3 11 0                             | 2 13 9                                  |
| 15 L & 15 LS | 5                  | 126,000           | 21 11 3        | 4 1 0                              | 3 1 6                                   |
| 16 L & 16 LS | 6                  | 152,000           | 24 15 9        | 4 11 0                             | 3 9 3                                   |
| 17 L & 17 LS | 7                  | 178,000           | 28 0 3         | 5 1 0                              | 3 17 0                                  |
| 18 L & 18 LS | 8                  | 204,000           | 31 4 9         | 5 11 0                             | 4 4 9                                   |
| 19 L & 19 LS | 9                  | 230,000           | 34 9 3         | 6 1 0                              | 4 12 6                                  |

Extra Intermediate Sections, with nipples ... each £3 4 6

# CRANE THE No. 1 WHITEHALL BOILER

FOR OIL BURNING OR AUTOMATIC STOKER

(Patent No. 354545)



## DIMENSIONS

| No.          | Number of Sections | Length of Boiler A | Length of Combustion Chamber D | Smoke Pipe Size | Screwed Flanges* |                 |
|--------------|--------------------|--------------------|--------------------------------|-----------------|------------------|-----------------|
|              |                    |                    |                                |                 | Flows on Top     | Returns at Side |
| 14 L         | 4                  | 22"                | 17 1/2"                        | 8"              | One 3"           | One 3"          |
| 15 L & 15 LS | 5                  | 28"                | 23 1/2"                        | 8"              | One 3"           | One 3"          |
| 16 L & 16 LS | 6                  | 34"                | 29 1/2"                        | 8"              | Two 3"           | Two 3"          |
| 17 L & 17 LS | 7                  | 40"                | 35 1/2"                        | 8"              | Two 3"           | Two 3"          |
| 18 L & 18 LS | 8                  | 46"                | 41 1/2"                        | 8"              | Two 3"           | Two 3"          |
| 19 L & 19 LS | 9                  | 52"                | 47 1/2"                        | 8"              | Three 3"         | Three 3"        |

See page 80 for dimensions of ashpit.

\* Indicates the number of tappings included in price. See page 78 for standard positions of tappings.

In addition all boilers have one 2" and two 1" tappings for mountings and two 1 1/4" for emptying.

Special intermediate section can be supplied with 3" screwed horizontal flow, height from floor to centre 35 3/4".

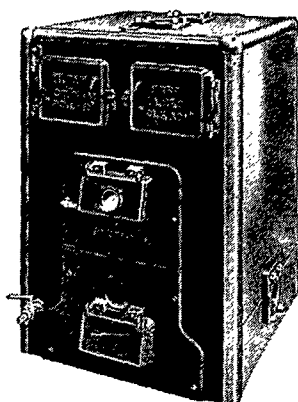
Customers should send sketch with order indicating desired position of tappings.

Measurements and Prices of Boiler Fittings shown on pages 98 and 99.

CRANE

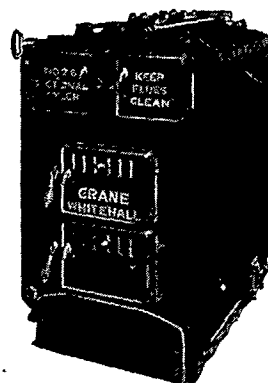
## THE No. 2 WHITEHALL BOILER

FOR OIL BURNING OR AUTOMATIC STOKER



SERIES "L"  
(With Jacket)  
FOR OIL BURNING  
Front plate to suit Burner

SERIES  
"L" & "LS"



SERIES "LS"  
(Without Jacket)  
FOR AUTOMATIC STOKER  
Front ashpit panel to suit Stoker

### RATINGS

| No.            | †Boiler Heating Surface sq. ft. | Heating Power C.I. Radiation sq. ft. (gross) | †Combustion Space cu. ft. | B.Th.U.s per hour | *Burner Capacity lbs. Oil per hour |
|----------------|---------------------------------|----------------------------------------------|---------------------------|-------------------|------------------------------------|
| 24 L           | 37.0                            | 1,110                                        | 6                         | 177,000           | 12.7                               |
| 25 L & 25 LS   | 46.5                            | 1,390                                        | 8                         | 222,000           | 16.0                               |
| 26 L & 26 LS   | 55.0                            | 1,670                                        | 10                        | 267,000           | 19.0                               |
| 27 L & 27 LS   | 64.5                            | 1,950                                        | 12                        | 312,000           | 22.3                               |
| 28 L & 28 LS   | 74.0                            | 2,230                                        | 14                        | 357,000           | 25.5                               |
| 29 L & 29 LS   | 83.5                            | 2,510                                        | 16                        | 402,000           | 28.7                               |
| 210 L & 210 LS | 93.0                            | 2,790                                        | 18                        | 447,000           | 32.0                               |
| 211 L & 211 LS | 102.5                           | 3,080                                        | 20                        | 492,000           | 35.0                               |

† Above normal grate level.

\* Based on 14,000 B.Th.U.s net per lb. of fuel oil per hour.

† Represents Heating surface without water cooled grates.

### PRICES

| No.            | Number of Sections | B.Th.U.s per hour | Boiler £ s. d. | Insulated Jacket in Colour £ s. d. | Non-insulated Galvanized Jacket £ s. d. |
|----------------|--------------------|-------------------|----------------|------------------------------------|-----------------------------------------|
| 24 L           | 4                  | 177,000           | 29 18 0        | 5 2 0                              | 3 14 6                                  |
| 25 L & 25 LS   | 5                  | 222,000           | 35 4 0         | 5 14 0                             | 4 4 0                                   |
| 26 L & 26 LS   | 6                  | 267,000           | 40 10 0        | 6 6 0                              | 4 13 6                                  |
| 27 L & 27 LS   | 7                  | 312,000           | 45 16 0        | 6 18 0                             | 5 3 0                                   |
| 28 L & 28 LS   | 8                  | 357,000           | 51 2 0         | 7 10 0                             | 5 12 6                                  |
| 29 L & 29 LS   | 9                  | 402,000           | 56 8 0         | 8 2 0                              | 6 2 0                                   |
| 210 L & 210 LS | 10                 | 447,000           | 61 14 0        | 8 14 0                             | 6 11 6                                  |
| 211 L & 211 LS | 11                 | 492,000           | 67 0 0         | 9 6 0                              | 7 1 0                                   |

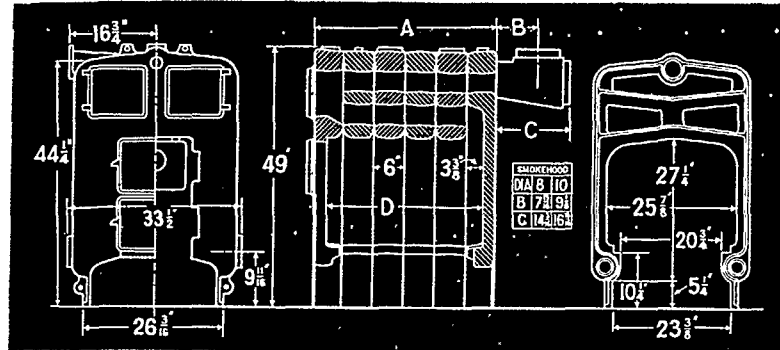
Extra Intermediate Sections, with nipples ... .. each £5 6 0

CRANE

# THE No. 2 WHITEHALL BOILER

FOR OIL BURNING OR AUTOMATIC STOKER

(Patent No. 354545)



## DIMENSIONS

| No.            | Number of Sections | Length of Boiler A | Length of Combustion Chamber D | Smoke Pipe Size | Screwed Flanges* |                 |
|----------------|--------------------|--------------------|--------------------------------|-----------------|------------------|-----------------|
|                |                    |                    |                                |                 | Flows on Top     | Returns at Side |
| 24 L           | 4                  | 23 1/2"            | 18 1/2"                        | 8"              | One 4"           | One 4"          |
| 25 L & 25 LS   | 5                  | 29 1/2"            | 24 1/2"                        | 8"              | Two 4"           | Two 4"          |
| 26 L & 26 LS   | 6                  | 35 1/2"            | 30 1/2"                        | 8"              | Two 4"           | Two 4"          |
| 27 L & 27 LS   | 7                  | 41 1/2"            | 36 1/2"                        | 8"              | Three 4"         | Three 4"        |
| 28 L & 28 LS   | 8                  | 47 1/2"            | 42 1/2"                        | 10"             | Three 4"         | Three 4"        |
| 29 L & 29 LS   | 9                  | 53 1/2"            | 48 1/2"                        | 10"             | Three 4"         | Three 4"        |
| 210 L & 210 LS | 10                 | 59 1/2"            | 54 1/2"                        | 10"             | Three 4"         | Three 4"        |
| 211 L & 211 LS | 11                 | 65 1/2"            | 60 1/2"                        | 10"             | Three 4"         | Three 4"        |

See page 80 for dimensions of ashpit.

\* Indicates the number of tappings included in price. See page 78 for standard positions of tappings.

In addition all boilers have one 2" and two 1" tappings for mountings and two 1 1/4" for emptying.

Two 4" flanged return connections are provided on face of back section and coupling headers supplied free of charge (see page 81).

Special Intermediate section can be supplied with 4" flanged horizontal flow, height from floor to centre 44 1/4".

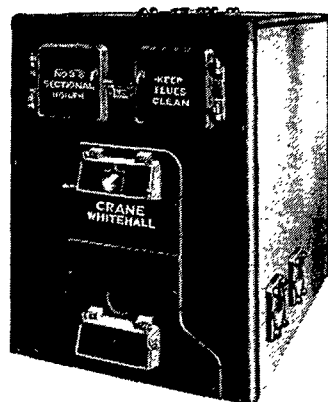
Customers should send sketch with order indicating desired position of tappings.

A battery of two or more boilers of the same length can be enclosed in a single jacket centre to centre of boilers 32 3/8".

CRANE

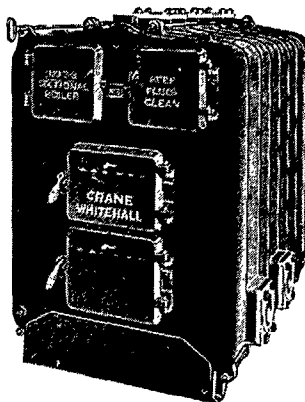
# THE No. 3 WHITEHALL BOILER

FOR OIL BURNING OR AUTOMATIC STOKER



SERIES " L "   
 (With Jacket)   
 FOR OIL BURNING   
 Front plate to suit Burner

SERIES   
 " L " & " LS "



SERIES " LS "   
 (Without Jacket)   
 FOR AUTOMATIC STOKER   
 Front ashpit panel to suit Stoker

## RATINGS

| No.            | Boiler Heating Surface sq. ft. | Heating Power C.I. Radiation sq. ft. (gross) | Combustion Space cu. ft. | B.Th.U.s per hour | *Burner Capacity lbs. Oil per hour |
|----------------|--------------------------------|----------------------------------------------|--------------------------|-------------------|------------------------------------|
| 35 L & 35 LS   | 73.2                           | 2,160                                        | 12                       | 346,000           | 24.7                               |
| 36 L & 36 LS   | 88.4                           | 2,610                                        | 14 $\frac{3}{4}$         | 418,000           | 29.3                               |
| 37 L & 37 LS   | 103.6                          | 3,060                                        | 17 $\frac{1}{2}$         | 490,000           | 35.0                               |
| 38 L & 38 LS   | 118.8                          | 3,510                                        | 20 $\frac{3}{4}$         | 562,000           | 40.0                               |
| 39 L & 39 LS   | 134.0                          | 3,960                                        | 23                       | 634,000           | 45.3                               |
| 310 L & 310 LS | 149.2                          | 4,410                                        | 25 $\frac{3}{4}$         | 706,000           | 50.4                               |
| 311 L & 311 LS | 164.4                          | 4,860                                        | 28 $\frac{1}{2}$         | 778,000           | 55.6                               |
| 312 L & 312 LS | 179.6                          | 5,310                                        | 31                       | 850,000           | 60.7                               |
| 313 L & 313 LS | 194.8                          | 5,760                                        | 33 $\frac{1}{2}$         | 922,000           | 66.0                               |
| 314 L & 413 LS | 210.0                          | 6,210                                        | 36                       | 994,000           | 71.0                               |

† Above normal grate level.

\* Based on 14,000 B.Th.U.s net per lb. of fuel oil per hour.

‡ Represents Heating surface without water cooled grates.

## PRICES

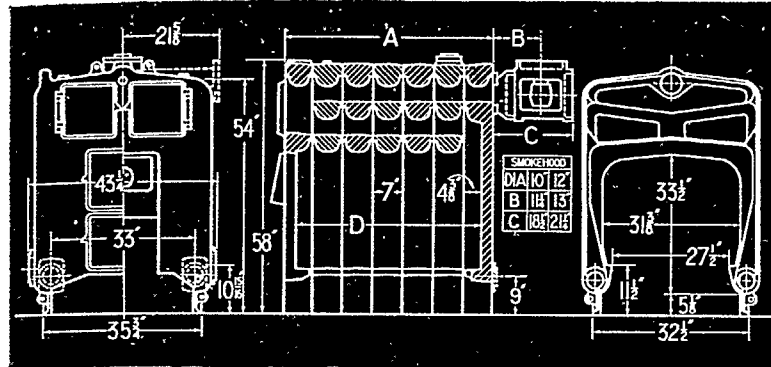
| No.            | Number of Sections | B.Th.U.s per hour | Boiler £ s. d. | Insulated Jacket in Colour £ s. d. | Non-insulated Galvanized Jacket £ s. d. |
|----------------|--------------------|-------------------|----------------|------------------------------------|-----------------------------------------|
| 35 L & 35 LS   | 5                  | 346,000           | 53 0 0         | 7 4 0                              | 5 6 6                                   |
| 36 L & 36 LS   | 6                  | 418,000           | 60 19 6        | 8 4 6                              | 6 1 3                                   |
| 37 L & 37 LS   | 7                  | 490,000           | 68 19 0        | 9 5 0                              | 6 16 0                                  |
| 38 L & 38 LS   | 8                  | 562,000           | 76 18 6        | 10 5 6                             | 7 10 9                                  |
| 39 L & 39 LS   | 9                  | 634,000           | 84 18 0        | 11 6 0                             | 8 5 6                                   |
| 310 L & 310 LS | 10                 | 706,000           | 92 17 6        | 12 6 6                             | 9 0 3                                   |
| 311 L & 311 LS | 11                 | 778,000           | 100 17 0       | 13 7 0                             | 9 15 0                                  |
| 312 L & 312 LS | 12                 | 850,000           | 108 16 6       | 14 7 6                             | 10 9 9                                  |
| 313 L & 313 LS | 13                 | 922,000           | 116 16 0       | 15 8 0                             | 11 4 6                                  |
| 314 L & 314 LS | 14                 | 994,000           | 124 15 6       | 16 8 6                             | 11 19 3                                 |

Extra Intermediate Sections, with nipples ... .. each £7 19 6

# CRANE THE No. 3 WHITEHALL BOILER.

FOR OIL BURNING OR AUTOMATIC STOKER

(Patent No. 354545)



## DIMENSIONS

| No.            | Number of Sections | Length of Boiler A | Length of Combustion Chamber D | Smoke Pipe Size | Screwed Flanges* |                 |
|----------------|--------------------|--------------------|--------------------------------|-----------------|------------------|-----------------|
|                |                    |                    |                                |                 | Flows on Top     | Returns at Side |
| 35 L & 35 LS   | 5                  | 34"                | 29 1/2"                        | 10"             | Two 4"           | Two 4"          |
| 36 L & 36 LS   | 6                  | 41"                | 36 1/2"                        | 10"             | Two 4"           | Two 4"          |
| 37 L & 37 LS   | 7                  | 48"                | 43 1/2"                        | 10"             | Two 4"           | Two 4"          |
| 38 L & 38 LS   | 8                  | 55"                | 50 1/2"                        | 12"             | Three 4"         | Three 4"        |
| 39 L & 39 LS   | 9                  | 62"                | 57 1/2"                        | 12"             | Three 4"         | Three 4"        |
| 310 L & 310 LS | 10                 | 69"                | 64 1/2"                        | 12"             | Three 4"         | Three 4"        |
| 311 L & 311 LS | 11                 | 76"                | 71 1/2"                        | 12"             | Three 4"         | Three 4"        |
| 312 L & 312 LS | 12                 | 83"                | 78 1/2"                        | 12"             | Three 4"         | Three 4"        |
| 313 L & 313 LS | 13                 | 90"                | 85 1/2"                        | 12"             | Three 4"         | Three 4"        |
| 314 L & 314 LS | 14                 | 97"                | 92 1/2"                        | 12"             | Three 4"         | Three 4"        |

See page 80 for dimensions of ashpit.

The No. 3 Whitehall has Universal Smokehood.

\* Indicates the number of tappings, included in price. See page 78 for standard positions of tappings.

In addition all boilers have one 2" and two 1" tappings for mountings and two 1 1/4" for emptying.

Two 4" flanged return connections are provided on face of back section and coupling headers provided free of charge. (See page 81).

Customers should send sketch with order indicating desired position of tappings.

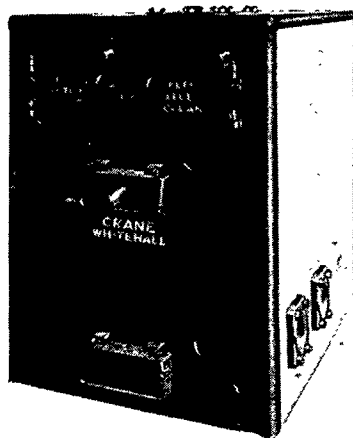
A battery of two or more boilers of the same length can be enclosed in a single jacket centre to centre of boilers 42".

CRANE

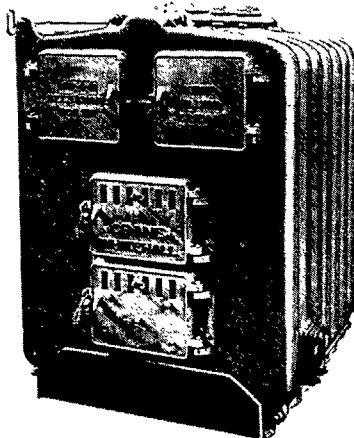
# THE No. 4 WHITEHALL BOILER

FOR OIL BURNING OR AUTOMATIC STOKER

SERIES "L" & "LS"



SERIES "L"  
(With Jacket)  
FOR OIL BURNING  
Front plate to suit Burner



SERIES "LS"  
(Without Jacket)  
FOR AUTOMATIC STOKER  
Front ashpit panel to suit Stoker

## RATINGS

| No.            | Boiler Heating Surface sq. ft. | Heating Power C.I. Radiation sq. ft. (gross) | Combustion Space cu. ft. | B.Th.U.s per hour | *Burner Capacity lbs. Oil per hour |
|----------------|--------------------------------|----------------------------------------------|--------------------------|-------------------|------------------------------------|
| 47 L & 47 LS   | 136.1                          | 4,030                                        | 22.5                     | 645,000           | 45                                 |
| 48 L & 48 LS   | 156.6                          | 4,640                                        | 26.2                     | 742,000           | 52                                 |
| 49 L & 49 LS   | 177.1                          | 5,240                                        | 29.9                     | 839,000           | 59                                 |
| 410 L & 410 LS | 197.6                          | 5,850                                        | 33.6                     | 936,000           | 66                                 |
| 411 L & 411 LS | 218.1                          | 6,450                                        | 37.3                     | 1,033,000         | 73                                 |
| 412 L & 412 LS | 238.6                          | 7,060                                        | 41.0                     | 1,130,000         | 80                                 |
| 413 L & 413 LS | 258.7                          | 7,670                                        | 44.7                     | 1,227,000         | 87                                 |
| 414 L & 414 LS | 279.2                          | 8,270                                        | 48.4                     | 1,324,000         | 94                                 |
| 415 L & 415 LS | 299.7                          | 8,880                                        | 52.1                     | 1,421,000         | 101                                |
| 416 L & 416 LS | 320.2                          | 9,490                                        | 55.8                     | 1,518,000         | 108                                |
| 417 L & 417 LS | 340.7                          | 10,090                                       | 59.5                     | 1,615,000         | 115                                |

† Above normal grate level.

\* Based on 14,000 B.Th.U.s net per lb. of fuel oil per hour.

‡ Represents Heating surface without water cooled grates.

## PRICES

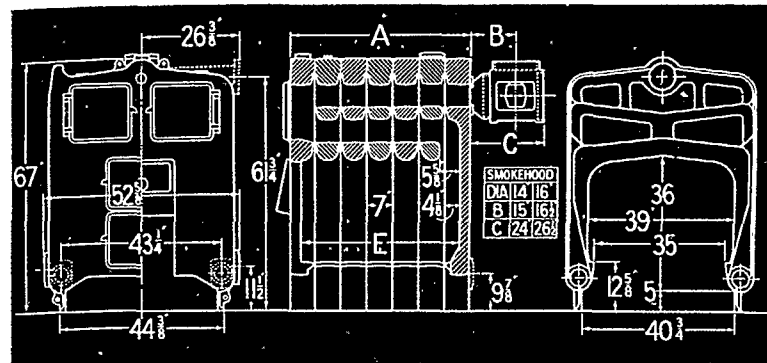
| No.            | Number of Sections | B.Th.U.s per hour | Boiler £ s. d. | Insulated Jacket in Colour £ s. d. | Non-insulated Galvanized Jacket £ s. d. |
|----------------|--------------------|-------------------|----------------|------------------------------------|-----------------------------------------|
| 47 L & 47 LS   | 7                  | 645,000           | 88 10 0        | 11 5 0                             | 8 3 0                                   |
| 48 L & 48 LS   | 8                  | 742,000           | 101 10 0       | 12 7 0                             | 8 17 9                                  |
| 49 L & 49 LS   | 9                  | 839,000           | 114 10 0       | 13 9 0                             | 9 12 6                                  |
| 410 L & 410 LS | 10                 | 936,000           | 127 10 0       | 14 11 0                            | 10 7 3                                  |
| 411 L & 411 LS | 11                 | 1,033,000         | 140 10 0       | 15 13 0                            | 11 2 0                                  |
| 412 L & 412 LS | 12                 | 1,130,000         | 153 10 0       | 16 15 0                            | 11 16 9                                 |
| 413 L & 413 LS | 13                 | 1,227,000         | 166 10 0       | 17 17 0                            | 12 11 6                                 |
| 414 L & 414 LS | 14                 | 1,324,000         | 179 10 0       | 18 19 0                            | 13 6 3                                  |
| 415 L & 415 LS | 15                 | 1,421,000         | 192 10 0       | 20 1 0                             | 14 1 0                                  |
| 416 L & 416 LS | 16                 | 1,518,000         | 205 10 0       | 21 3 0                             | 14 15 9                                 |
| 417 L & 417 LS | 17                 | 1,615,000         | 218 10 0       | 22 5 0                             | 15 10 6                                 |

Extra Intermediate Sections, with nipples ... .. £13 0 0

# THE No. 4 WHITEHALL BOILER

FOR OIL BURNING OR AUTOMATIC STOKER

(Patent No. 354545)



## DIMENSIONS

| No.            | Number of Sections | Length of Boiler A | Length of Combustion Chamber E | Smoke Pipe Size | Screwed Flanges*† |                 |
|----------------|--------------------|--------------------|--------------------------------|-----------------|-------------------|-----------------|
|                |                    |                    |                                |                 | Flows on Top      | Returns at Side |
| 47 L & 47 LS   | 7                  | 48"                | 42 3/4"                        | 14"             | Two 4"            | Two 4"          |
| 48 L & 48 LS   | 8                  | 55"                | 49 3/4"                        | 14"             | Two 4"            | Two 4"          |
| 49 L & 49 LS   | 9                  | 62"                | 56 3/4"                        | 14"             | Three 4"          | Three 4"        |
| 410 L & 410 LS | 10                 | 69"                | 63 3/4"                        | 14"             | Three 4"          | Three 4"        |
| 411 L & 411 LS | 11                 | 76"                | 70 3/4"                        | 14"             | Four 4"           | Four 4"         |
| 412 L & 412 LS | 12                 | 83"                | 77 3/4"                        | 14"             | Four 4"           | Four 4"         |
| 413 L & 413 LS | 13                 | 90"                | 84 3/4"                        | 16"             | Four 4"           | Four 4"         |
| 414 L & 414 LS | 14                 | 97"                | 91 3/4"                        | 16"             | Four 4"           | Four 4"         |
| 415 L & 415 LS | 15                 | 104"               | 98 3/4"                        | 16"             | Four 4"           | Four 4"         |
| 416 L & 416 LS | 16                 | 111"               | 105 3/4"                       | 16"             | Four 4"           | Four 4"         |
| 417 L & 417 LS | 17                 | 118"               | 112 3/4"                       | 16"             | Four 4"           | Four 4"         |

See page 80 for dimensions of ashpit

The No. 4 Whitehall has Universal Smokehood.

\* 5" screwed flanges for Flows and Returns can be supplied if required.

† Indicates the number of tappings included in price. See pages 78 and 79 for standard positions.

In addition all boilers have one 2" and two 1 1/2" tappings for mountings and two 1 1/4" for emptying.

Two 4" flanged return connections are provided on face of back section and coupling headers provided free of charge. (See page 81.)

Customers should send sketch with order indicating desired position of tappings.

A Battery of two or more Boilers of the same length may be enclosed in one jacket, centre to centre of boilers 52 1/4".

CRANE

# WHITEHALL BOILERS

SERIES "LW"

WITH LOOSE SOLID FIREBARS INSTEAD OF WATER COOLED GRATES

FOR SUBSEQUENT CONVERSION TO OIL BURNING OR AUTOMATIC STOKER FIRING

| No.     | Boiler Heating surface sq. ft. | B.Th.U.s per hour | C.I. Radiation sq. ft. | Boiler |    |    | Stoking Tools |    |    | Insulated Jacket in Colour |    |    | Non-insulated Galvanized Jacket |    |    |
|---------|--------------------------------|-------------------|------------------------|--------|----|----|---------------|----|----|----------------------------|----|----|---------------------------------|----|----|
|         |                                |                   |                        | £      | s. | d. | £             | s. | d. | £                          | s. | d. | £                               | s. | d. |
| 14 LW.  | 21.0                           | 93,000            | 580                    | 17     | 12 | 0  | 19            | 0  |    | 3                          | 11 | 0  | 2                               | 13 | 9  |
| 15 LW.  | 26.5                           | 117,000           | 730                    | 20     | 15 | 0  | 19            | 0  |    | 4                          | 1  | 0  | 3                               | 1  | 6  |
| 16 LW.  | 32.0                           | 141,000           | 880                    | 23     | 18 | 0  | 1             | 1  | 3  | 4                          | 11 | 0  | 3                               | 9  | 3  |
| 17 LW.  | 37.5                           | 165,000           | 1,030                  | 27     | 1  | 0  | 1             | 1  | 3  | 5                          | 1  | 0  | 3                               | 17 | 0  |
| 18 LW.  | 43.0                           | 189,000           | 1,180                  | 30     | 4  | 0  | 1             | 4  | 0  | 5                          | 11 | 0  | 4                               | 4  | 9  |
| 19 LW.  | 48.5                           | 213,000           | 1,330                  | 33     | 5  | 0  | 1             | 4  | 0  | 6                          | 1  | 0  | 4                               | 12 | 6  |
| 24 LW.  | 37.0                           | 163,000           | 1,020                  | 28     | 17 | 0  | 19            | 0  |    | 5                          | 2  | 0  | 3                               | 14 | 6  |
| 25 LW.  | 46.5                           | 205,000           | 1,280                  | 34     | 2  | 0  | 19            | 0  |    | 5                          | 14 | 0  | 4                               | 4  | 0  |
| 26 LW.  | 55.0                           | 247,000           | 1,540                  | 39     | 7  | 0  | 1             | 1  | 3  | 6                          | 6  | 0  | 4                               | 13 | 6  |
| 27 LW.  | 64.5                           | 289,000           | 1,810                  | 44     | 12 | 0  | 1             | 1  | 3  | 6                          | 18 | 0  | 5                               | 3  | 0  |
| 28 LW.  | 74.0                           | 331,000           | 2,070                  | 49     | 17 | 0  | 1             | 4  | 0  | 7                          | 10 | 0  | 5                               | 12 | 6  |
| 29 LW.  | 83.5                           | 373,000           | 2,330                  | 55     | 2  | 0  | 1             | 4  | 0  | 8                          | 2  | 0  | 6                               | 2  | 0  |
| 210 LW. | 93.0                           | 415,000           | 2,590                  | 60     | 7  | 0  | 1             | 4  | 0  | 8                          | 14 | 0  | 6                               | 11 | 6  |
| 35 LW.  | 73.2                           | 322,000           | 2,010                  | 50     | 13 | 0  | 1             | 2  | 6  | 7                          | 4  | 0  | 5                               | 6  | 6  |
| 36 LW.  | 88.4                           | 389,000           | 2,430                  | 58     | 8  | 0  | 1             | 2  | 6  | 8                          | 4  | 6  | 6                               | 1  | 3  |
| 37 LW.  | 103.6                          | 456,000           | 2,850                  | 66     | 3  | 0  | 1             | 6  | 0  | 9                          | 5  | 0  | 6                               | 16 | 0  |
| 38 LW.  | 118.8                          | 523,000           | 3,270                  | 73     | 18 | 0  | 1             | 6  | 0  | 10                         | 5  | 6  | 7                               | 10 | 9  |
| 39 LW.  | 134.0                          | 590,000           | 3,690                  | 81     | 13 | 0  | 1             | 11 | 6  | 11                         | 6  | 0  | 8                               | 5  | 6  |
| 310 LW. | 149.2                          | 657,000           | 4,110                  | 89     | 8  | 0  | 1             | 11 | 6  | 12                         | 6  | 6  | 9                               | 0  | 3  |
| 311 LW. | 164.4                          | 724,000           | 4,530                  | 97     | 3  | 0  | 1             | 13 | 6  | 13                         | 7  | 0  | 9                               | 15 | 0  |
| 312 LW. | 179.6                          | 791,000           | 4,950                  | 104    | 18 | 0  | 1             | 13 | 6  | 14                         | 7  | 6  | 10                              | 9  | 9  |
| 313 LW. | 194.0                          | 858,000           | 5,360                  | 112    | 13 | 0  | 1             | 13 | 6  | 15                         | 8  | 0  | 11                              | 4  | 6  |
| 47 LW.  | 140.0                          | 616,000           | 3,850                  | 87     | 18 | 0  | 1             | 8  | 0  | 11                         | 5  | 0  | 8                               | 3  | 0  |
| 48 LW.  | 161.0                          | 708,000           | 4,430                  | 100    | 14 | 0  | 1             | 8  | 0  | 12                         | 7  | 0  | 8                               | 17 | 9  |
| 49 LW.  | 182.0                          | 801,000           | 5,010                  | 113    | 10 | 0  | 1             | 12 | 6  | 13                         | 9  | 0  | 9                               | 12 | 6  |
| 410 LW. | 203.0                          | 893,000           | 5,580                  | 126    | 6  | 0  | 1             | 12 | 6  | 14                         | 11 | 0  | 10                              | 7  | 3  |
| 411 LW. | 224.0                          | 986,000           | 6,160                  | 139    | 2  | 0  | 1             | 14 | 0  | 15                         | 13 | 0  | 11                              | 2  | 0  |
| 412 LW. | 245.0                          | 1,078,000         | 6,740                  | 151    | 18 | 0  | 1             | 14 | 0  | 16                         | 15 | 0  | 11                              | 16 | 9  |
| 413 LW. | 266.0                          | 1,171,000         | 7,320                  | 164    | 14 | 0  | 1             | 14 | 0  | 17                         | 17 | 0  | 12                              | 11 | 6  |
| 414 LW. | 287.0                          | 1,263,000         | 7,890                  | 177    | 10 | 0  | 1             | 14 | 0  | 18                         | 19 | 0  | 13                              | 6  | 3  |
| 415 LW. | 308.0                          | 1,356,000         | 8,470                  | 190    | 6  | 0  | 1             | 14 | 0  | 20                         | 1  | 0  | 14                              | 1  | 0  |
| 416 LW. | 329.0                          | 1,448,000         | 9,050                  | 203    | 2  | 0  | 1             | 14 | 0  | 21                         | 3  | 0  | 14                              | 15 | 9  |

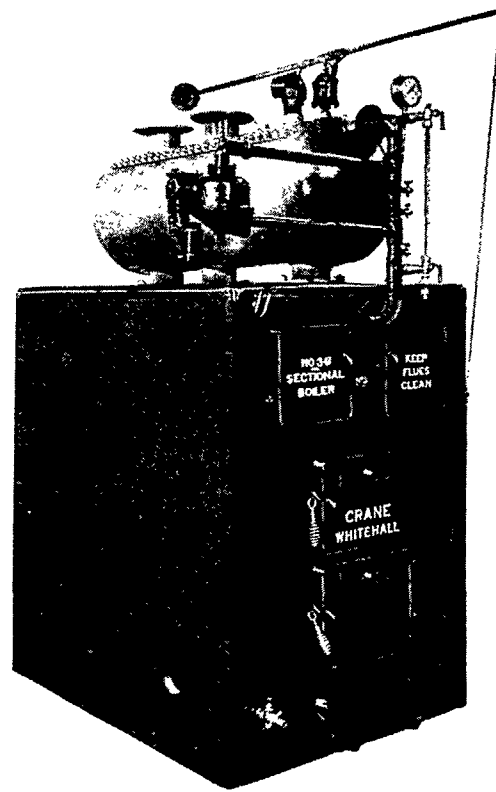
Series "LW" Whitehall Boilers have no waterway across front section opening and Nos. 2, 3 and 4 Boilers are provided with a special connecting header at back. (See page 81.)

The Boilers are easily converted for Oil Burning or Automatic Stoker Firing by the removal of front platework and firebars and fitting with the requisite front. The damper rod can be removed and damper locking feature substituted.

## WHITEHALL BOILERS

FOR LOW PRESSURE STEAM

With Mild Steel Steam Drum which ensures dry steam and effectively checks priming



Boiler is fitted with a  $\frac{3}{4}$ " size Fusible Plug as required by the Factory Act.

CRANE

## WHITEHALL BOILERS

With water cooled grates and for hand firing.  
For low pressure steam up to and including 15 lb. per sq. in.  
working pressure. Drum tested 30 lb.

| No. | B.Th.U.s<br>per hour | Heating Power<br>C.I. Radiation<br>sq. ft. | Overall<br>Height | Height to<br>Water Level | Price<br>£ s. d. |
|-----|----------------------|--------------------------------------------|-------------------|--------------------------|------------------|
| 15  | 130,000              | 510                                        | 61"               | 50"                      | 44 10 0          |
| 16  | 156,000              | 610                                        | 61"               | 50"                      | 50 0 0           |
| 17  | 182,000              | 710                                        | 61"               | 50"                      | 55 10 0          |
| 18  | 208,000              | 810                                        | 61"               | 50"                      | 61 0 0           |
| 25  | 223,000              | 870                                        | 71"               | 56"                      | 62 10 0          |
| 26  | 270,000              | 1,055                                      | 71"               | 56"                      | 71 0 0           |
| 27  | 317,000              | 1,240                                      | 71"               | 56"                      | 79 10 0          |
| 28  | 364,000              | 1,420                                      | 71"               | 56"                      | 88 0 0           |
| 29  | 411,000              | 1,605                                      | 71"               | 56"                      | 97 10 0          |
| 35  | 344,000              | 1,340                                      | 84½"              | 68"                      | 87 0 0           |
| 36  | 415,000              | 1,620                                      | 84½"              | 68"                      | 100 0 0          |
| 37  | 486,000              | 1,900                                      | 84½"              | 68"                      | 113 0 0          |
| 38  | 557,000              | 2,180                                      | 84½"              | 68"                      | 127 10 0         |
| 39  | 628,000              | 2,450                                      | 84½"              | 68"                      | 139 15 0         |
| 310 | 699,000              | 2,730                                      | 84½"              | 68"                      | 152 15 0         |
| 311 | 770,000              | 3,010                                      | 84½"              | 68"                      | 167 17 0         |
| 312 | 841,000              | 3,290                                      | 84½"              | 68"                      | 183 0 0          |
| 47  | 650,000              | 2,600                                      | 97"               | 78"                      | 146 0 0          |
| 48  | 748,000              | 3,000                                      | 97"               | 78"                      | 166 5 0          |
| 49  | 846,000              | 3,400                                      | 97"               | 78"                      | 183 15 0         |
| 410 | 944,000              | 3,780                                      | 97"               | 78"                      | 203 0 0          |
| 411 | 1,042,000            | 4,170                                      | 97"               | 78"                      | 225 10 0         |
| 412 | 1,140,000            | 4,550                                      | 97"               | 78"                      | 245 15 0         |
| 413 | 1,238,000            | 4,950                                      | 97"               | 78"                      | 268 5 0          |
| 414 | 1,336,000            | 5,350                                      | 97"               | 78"                      | 289 10 0         |
| 415 | 1,434,000            | 5,750                                      | 97"               | 78"                      | 311 0 0          |
| 416 | 1,532,000            | 6,100                                      | 97"               | 78"                      | 333 0 0          |

Price includes steam mountings, comprising water gauge, pressure gauge, safety valve, draw off cock, and automatic damper regulator.

See page 107 for price of Automatic Boiler Feeder.

Price of stoking tools and jackets as on page 74.

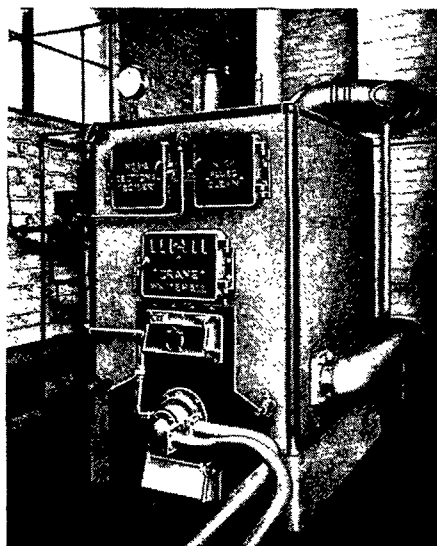
## WHITEHALL BOILERS FOR SPECIAL SYSTEMS

In addition to the standard boilers illustrated on the foregoing pages, Whitehall Boilers are frequently supplied for other methods of firing. The exclusive advantages of the controlled water travel, and also the two-pass flues which prohibit short-circuiting the products of combustion to the chimney, cause the Whitehall Boiler to be much in demand, especially for various gaseous forms of combustion.

The following are some examples of special systems which can be quoted for:

### GAS FIRED STEAM BOILERS

The Whitehall Boilers for low pressure steam can readily be supplied gas fired. Quotations will include the appropriate controls, either pressure operated or electrically operated as required. When sending specification, please state required working pressure, and if electrical controls are required, the voltage.



### OIL FIRED STEAM BOILERS

Many successful installations of this boiler have been effected and enquiries are invited. Again, working pressure and details of the electrical supply should be stated.

### WHITEHALL BOILERS FOR PULVERIZED FUEL

The design of the flues of the Nos. 2, 3, and 4 Whitehall Boilers render the boiler particularly suitable for this form of firing. The illustration shows one of a large group of factory installations, but this method of firing is equally suitable for cinemas and blocks of flats.

### BOILER ASSEMBLIES LONGER THAN STANDARD

Whitehall Boilers are frequently called for in longer assemblies than those listed in the foregoing pages. No difficulty arises in supplying boilers as long as 18 or 19 sections. Here again, the design of the boiler makes it appropriate for these conditions. Prices and Outputs on Application.

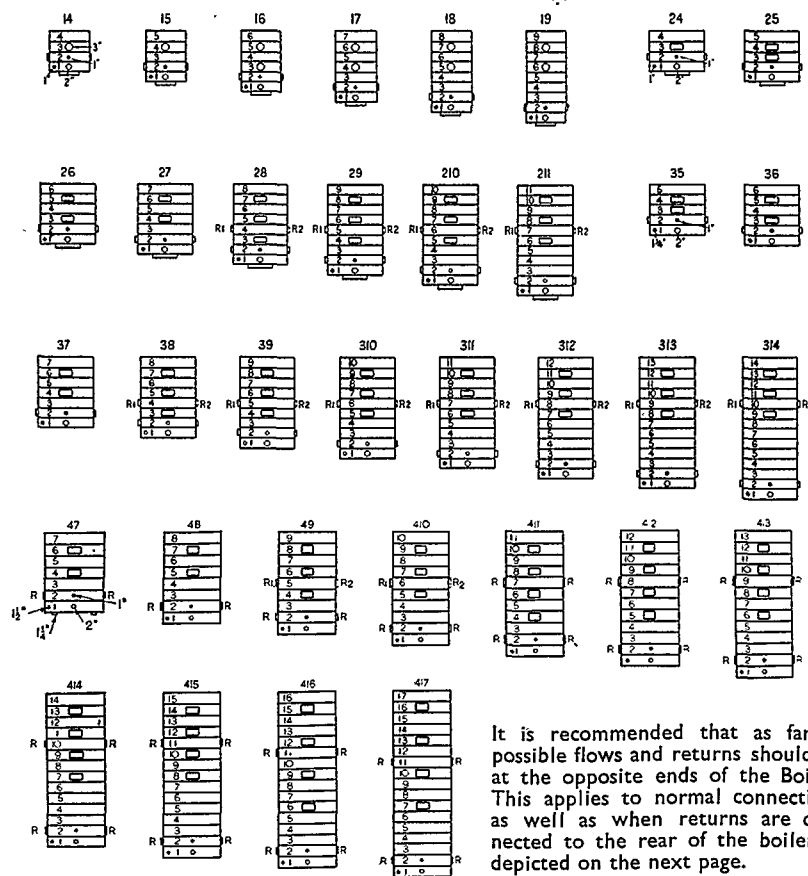
## CRANE

# WHITEHALL BOILER TAPPING DETAILS

**T**HE number of Tappings included in the price of the "Whitehall" Boilers and **standard** positions for Tappings are shown below.

The positions may be varied to suit customers' requirements, although the standard positions as under are advised to avoid delays. Additional flow and return tappings can be provided on all but front and rear sections.

R1 and R2 are alternative positions for the third return tapping.



It is recommended that as far as possible flows and returns should be at the opposite ends of the Boiler. This applies to normal connections as well as when returns are connected to the rear of the boiler as depicted on the next page.

The front sections of all Boilers are tapped for mountings as follows:—see above drawings of Boilers:—

**Emptying**, 2—1½" on face. **Damper Regulator**, 2" on top, in centre.

**Safety Valve**, 1" for Nos. 1 and 2 Boilers, 1½" for No. 3 Boiler, and 1½" for No. 4 Boiler, on left. (Additional tapping of same size can be provided on right if desired. *Price 1/6 nett*) The second sections of Boilers ordered with Damper Regulator are tapped 1" for thermometer.

## WHITEHALL BOILER TAPPING DETAILS

**Standard connections are.**—No. 1 Boiler, bosses tapped 3" (bushed down if required); Nos. 2, 3, and 4 Boilers, counter flanges tapped up to 4" B.S. Pipe Thread (No. 3 and 4 tapped 5" to order).

To special order 4" returns can be provided in the face of rear section of Nos. 2, 3, and 4 Boilers. See pages 59, 61, and 63.

Special intermediate sections can be supplied having horizontal flow outlet on side of Boiler. See pages 57, 59, 61, and 63.

Extra tappings (where obtainable) on top, side or back of Boiler are charged as follows:—  
On No. 1 Boiler, extra 3" flow or return tappings ... *Price, each tapping, 3/- nett*

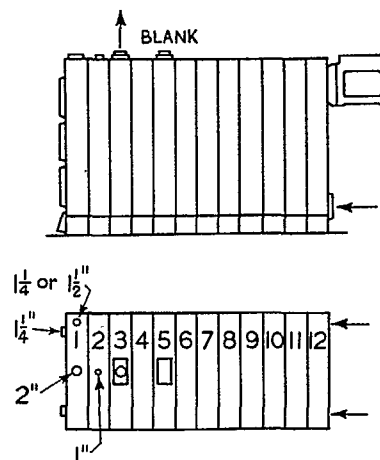
On Nos. 2, 3, and 4 Boilers, extra 4" (or 5" on No. 3 and 4) tapped flanges  
*Price, each tapping, 5/- nett*

### OPEN VENT PIPE

A tapped boss can be provided on top of rear section for open vent pipe up to 2" size  
*Price 2/6 nett*

### REAR RETURNS

When return tappings are used on the rear of the Boiler (obtainable on Nos. 2, 3, and 4 Boilers) the flow outlet should be as near the front of the boiler as possible, and at least as far forward as the third section. Any additional flows should likewise be as near to the front of the boiler as possible. Not only is more efficient heat transfer secured but overheating of individual sections avoided.



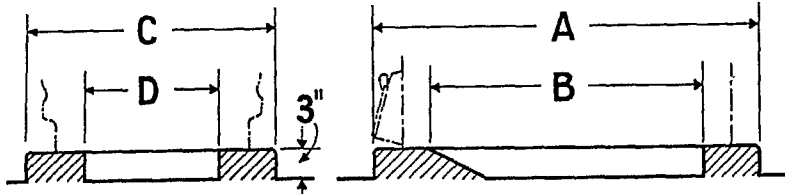
The diagram above indicates the application of the foregoing and also the standard tapping arrangement for boilers with rear returns.

See page 81 for particulars of cast-iron headers.

# CRANE

## THE WHITEHALL BOILERS

### BASE AND ASHPIT DIMENSIONS



**A**N ashpit should be provided with all "Whitehall" Boilers for solid fuel and where height is not limited a raised base as shown above is recommended for oil-burning boilers also, in order to protect the feet of the sections from damp and to allow ashpit door to open freely.

The top of the base should be rendered perfectly level and smooth. Boilers for Automatic Stoker firing should have  $4\frac{1}{2}$ " or 6" high base.

### DIMENSIONS IN INCHES

|              | No. of Sections | A   | B   | C  | D                |
|--------------|-----------------|-----|-----|----|------------------|
| No. 1 BOILER | 4               | 29  | 17  | 28 | 14               |
|              | 5               | 35  | 23  | 28 | 14               |
|              | 6               | 41  | 29  | 28 | 14               |
|              | 7               | 47  | 35  | 28 | 14               |
|              | 8               | 53  | 41  | 28 | 14               |
|              | 9               | 59  | 47  | 28 | 14               |
| No. 2 BOILER | 4               | 30  | 18  | 36 | 22               |
|              | 5               | 36  | 24  | 36 | 22               |
|              | 6               | 42  | 30  | 36 | 22               |
|              | 7               | 48  | 36  | 36 | 22               |
|              | 8               | 54  | 42  | 36 | 22               |
|              | 9               | 60  | 48  | 36 | 22               |
| No. 3 BOILER | 10              | 66  | 54  | 36 | 22               |
|              | 11              | 72  | 60  | 36 | 22               |
|              | 5               | 42  | 26  | 48 | 29 $\frac{1}{2}$ |
|              | 6               | 49  | 33  | 48 | 29 $\frac{1}{2}$ |
|              | 7               | 56  | 40  | 48 | 29 $\frac{1}{2}$ |
|              | 8               | 63  | 47  | 48 | 29 $\frac{1}{2}$ |
| No. 4 BOILER | 9               | 70  | 54  | 48 | 29 $\frac{1}{2}$ |
|              | 10              | 77  | 61  | 48 | 29 $\frac{1}{2}$ |
|              | 11              | 84  | 68  | 48 | 29 $\frac{1}{2}$ |
|              | 12              | 91  | 75  | 48 | 29 $\frac{1}{2}$ |
|              | 13              | 98  | 82  | 48 | 29 $\frac{1}{2}$ |
|              | 14              | 105 | 89  | 48 | 29 $\frac{1}{2}$ |
| No. 4 BOILER | 7               | 57  | 41  | 58 | 36               |
|              | 8               | 64  | 48  | 58 | 36               |
|              | 9               | 71  | 55  | 58 | 36               |
|              | 10              | 78  | 62  | 58 | 36               |
|              | 11              | 85  | 69  | 58 | 36               |
|              | 12              | 92  | 76  | 58 | 36               |
| No. 4 BOILER | 13              | 99  | 83  | 58 | 36               |
|              | 14              | 106 | 90  | 58 | 36               |
|              | 15              | 113 | 97  | 58 | 36               |
|              | 16              | 120 | 104 | 58 | 36               |
|              | 17              | 127 | 111 | 58 | 36               |

# WHITEHALL BOILER SUNDRIES

## BACK RETURN HEADERS

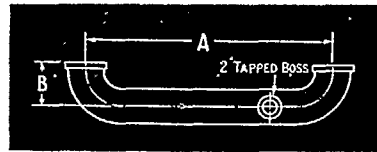
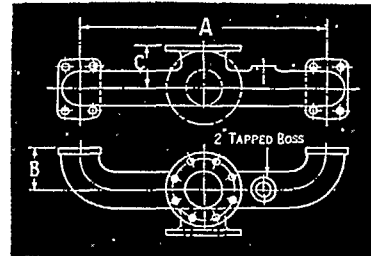


Fig. 970/1/2. Plain.

Fig. 974/5/6. With tapped boss as drawing



## FLOW AND RETURN HEADERS

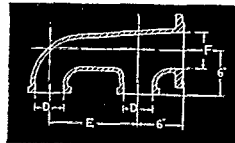


Fig. 987/8/9. Headers connecting flanged outlets of two alternate sections of Nos. 2, 3 and 4 Boilers.

Fig. 978/9/80. With 5" outlet flange.

Fig. 982/3/4. With 5" outlet flange and boss as drawing.

When ordering state if required with flange looking up as drawn or to the rear as shown dotted.

Outlet flanges are to British Standard Table "D" particulars. For Prices of Counter flanges—see page 139

## DIMENSIONS AND PRICES\*

| Fig. No. | Size for Whitehall Boiler | A                  | B                 | C                 | D  | E   | F  | Price |
|----------|---------------------------|--------------------|-------------------|-------------------|----|-----|----|-------|
| 970      | 4" for No. 2 ...          | 24 $\frac{5}{8}$ " | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 31/-  |
| 971      | 4" " " 3 ...              | 33"                | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 34/-  |
| 972      | 4" " " 4 ...              | 43 $\frac{1}{4}$ " | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 36/-  |
| 974      | 4" " " 2 ...              | 24 $\frac{5}{8}$ " | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 33/-  |
| 975      | 4" " " 3 ...              | 33"                | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 36/-  |
| 976      | 4" " " 4 ...              | 43 $\frac{1}{4}$ " | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 38/-  |
| 978      | 4" " " 2 ...              | 24 $\frac{5}{8}$ " | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 38/-  |
| 979      | 4" " " 3 ...              | 33"                | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 41/-  |
| 980      | 4" " " 4 ...              | 43 $\frac{1}{4}$ " | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 43/-  |
| 982      | 4" " " 2 ...              | 24 $\frac{5}{8}$ " | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 40/-  |
| 983      | 4" " " 3 ...              | 33"                | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 43/-  |
| 984      | 4" " " 4 ...              | 43 $\frac{1}{4}$ " | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —  | —   | —  | 45/-  |
| 985      | For No. 3 or No. 4        | —                  | —                 | —                 | 5" | 21" | 6" | 50/-  |
| 986      | " " " "                   | —                  | —                 | —                 | 5" | 21" | 5" | 50/-  |
| 987      | For No. 2 ...             | —                  | —                 | —                 | 4" | 12" | 5" | 46/-  |
| 988      | " No. 3 or No. 4          | —                  | —                 | —                 | 5" | 14" | 5" | 46/-  |
| 989      | " " " "                   | —                  | —                 | —                 | 5" | 14" | 6" | 46/-  |

\*Fig. 970/1/2

supplied free of charge with series

"L," "LS"

and "LW"

Whitehall

Boilers Nos.

2, 3 and 4

Difference in price will be charged on these boilers when other Headers are supplied.

## CRANE

### BOILER SUNDRIES

#### SPANNERS AND ASSEMBLY TOOLS FOR CRANE HEATING BOILERS

|                                                                                                                                                                                                                           |                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NEW CARLTON AND No 0 CARLTON</b><br>1—2" Key Spanner<br>1—1½" " "<br>1—¾" " "<br>1—2" Hex. Plug Ring Spanner<br>1—½" Standard Box Spanner<br>1—1 lb. Hammer<br>1—¾" Assembly Tool<br>Price per set ... 21/-            | <b>No. 10 CARLTON</b><br>1—2" Key Spanner<br>1—¾" " "<br>1—¾" " "<br>1—2" Hex. Plug Ring Spanner<br>1—½" Box Spanner<br>1—1 lb. Hammer<br>1—½" Assembly Tool<br>Price per set ... 24/6                                  |
| <b>No. 1 WHITEHALL</b><br>1—¾" Whitworth Box Spanner<br>1—1½" & ¾" Double Ended Spanner<br>1—¾" Fig. 840 Wrench<br>1—1¼" Key Spanner for C'sunk Plug<br>1—2 lb. Hammer<br>Price per set ... 18/6                          | <b>No. 2 WHITEHALL</b><br>1—1½" & ¾" Double Ended Spanner<br>1—¾" " "<br>1—¾" Box Spanner<br>1—¾" Fig. 840 Wrench<br>1—1¼" Key Spanner for C'sunk Plug<br>1—2 lb. Hammer<br>Price per set ... 20/-                      |
| <b>No. 3 WHITEHALL</b><br>1—¾" Whitworth Box Spanner<br>1—1½" & ¾" Double Ended Spanner<br>1—¾" Fig. 840 Wrench<br>1—¾" Open End Spanner<br>1—1¼" Key Spanner for C'sunk Plug<br>1—2 lb. Hammer<br>Price per set ... 20/- | <b>No. 4 WHITEHALL</b><br>1—1½" & ¾" Double Ended Spanner<br>1—¾" Open End Spanner<br>1—¾" " "<br>1—¾" Box Spanner<br>1—¾" Fig. 840 Wrench<br>1—Spanner for 1¼" C'sunk Plug<br>1—2 lb. Hammer<br>Price per set ... 21/6 |

See page 189 for illustrations of the above-mentioned Key Spanners and Fig. 840 Wrench.

#### MUDHOLE JOINT RINGS FOR DOMESTIC BOILERS

| Boiler              | No.<br>per boiler | PRICE<br>per set | Boiler              | No.<br>per boiler | PRICE<br>per set |
|---------------------|-------------------|------------------|---------------------|-------------------|------------------|
| Ipswich No. 00 & 01 | 1                 | 1/6              | Circular No. 8C ... | 7                 | 4/9              |
| " No. 1 ...         | 2                 | 2/-              | " No. 9C ...        | 7                 | 4/9              |
| " No. 2 ...         | 2                 | 2/-              | Sectional No. 3 ... | 16                | 9/3              |
| " No. 3 ...         | 4                 | 3/6              | " No. 4 ...         | 20                | 10/-             |
| Regent No. 4 ...    | 5                 | 4/-              | " No. 5 ...         | 24                | 11/-             |
| " No. 5 ...         | 5                 | 4/-              | " No. 6 ...         | 28                | 11/9             |
| Circular No. 4C ... | 5                 | 4/-              | " No. 7 ...         | 32                | 14/-             |
| " No. 5C ...        | 5                 | 4/-              | " No. 8 ...         | 36                | 16/3             |

#### MICA PANELS FOR IPSWICH BOILERS

Per set of 6 for Nos. 01, 1, 2, and 3 Boilers ... Price per set 10d.

#### BOILER CEMENT

For jointing Smoke Pipes and Furnace Fittings  
 2 lb. tin, Price 1/-      5 lb. tin, Price 2/-

## CRANE DOMESTIC BOILERS

**RANGE.** The range of Domestic Boilers described in the following pages includes Boilers suitable for all buildings from the smallest villa or bungalow up to the largest buildings usually served by Cast Iron Domestic Boilers.

**RATINGS.** All Crane Domestic Boilers are based for rating on the actual Boiler heating surface above grate level multiplied by the following constants:—

“Ipswich” Domestic Boilers, 10,000 B.Th.U.s per square foot of Boiler heating surface.

“Regent” and Circular Domestic Boilers, 11,000 B.Th.U.s per square foot of Boiler heating surface.

Sectional Domestic Boilers, 8,000 B.Th.U.s per square foot for normal firing and 11,000 B.Th.U.s per square foot for heavy firing.

The above transmissions of 10,000 and 11,000 B.Th.U.s per square foot are for short periods of high output as normally occur in residences. But for a continuous duty the British Standards Institution recommends a transmission of 6,000 B.Th.U.s be employed.

**TAPPING DETAILS.** All Crane Domestic Boilers are tapped British Standard Taper Pipe Thread.

**ENAMEL FINISHES.** “Ipswich,” “Regent” and the 4c and 5c Circular Domestic Boilers are supplied in vitreous enamel finishes, the standard colour being grey mottled. Other mottled and plain colours can be supplied on request.

“Ipswich” Boilers can be supplied in cream and black vitreous enamel.

**BOILER FORWARDING.** “Ipswich” Domestic Boilers for the home market are delivered assembled in readiness for fixing.

“Regent” and Circular Domestic Boilers are delivered as fire pots with plate work packed in open crate.

Sectional Domestic Boilers are delivered unassembled with plate work packed in open crate.

**WORKING INSTRUCTIONS.** Working instruction-cards sent with every Boiler, but additional copies may be had on request. Erecting instructions can be supplied if called for.

CRANE

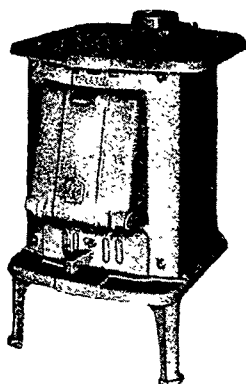
# THE IPSWICH DOMESTIC BOILER

OPEN FIRE

FOR HOT WATER SUPPLY

No. 00

Registered Design  
No. 829723



No. 00

ENAMELLED FINISH

## RATINGS

| Size No. | Fuel Capacity cu. ft. | Heating Surface sq. ft. | B.Th.U.s per hour for Hot Water Supply only | Gallons per hour maximum |            |            |
|----------|-----------------------|-------------------------|---------------------------------------------|--------------------------|------------|------------|
|          |                       |                         |                                             | 50-110° F.               | 50-130° F. | 50-150° F. |
| 00       | 50                    | 2.00                    | 20,000                                      | 33                       | 25         | 20         |

## PRICES

| Size No. | All Black Finish<br>£ s. d. | Black finish with polished top*<br>£ s. d. | Grey Mottled enamel finish (firepot painted aluminium)†<br>£ s. d. | Extra for Enamelled Sideplates<br>s. d. | Extra for Bower-Barffing Firepot<br>£ s. d. | Extra for Shaking Grate<br>s. d. |
|----------|-----------------------------|--------------------------------------------|--------------------------------------------------------------------|-----------------------------------------|---------------------------------------------|----------------------------------|
| 00       | 3 3 0                       | 3 5 0                                      | 3 16 6                                                             | 5 4                                     | 1 5 0                                       | 3 3                              |

Price of Boiler includes base feet and ash pan.

Stoking Tools 1/4 extra

\* Hotplate dull nickel plated 7/9 extra.

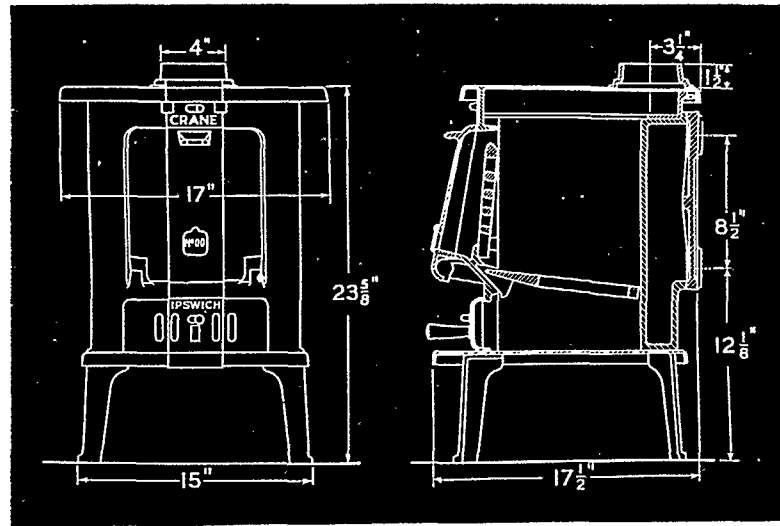
† Hotplate can be supplied ground and polished instead of enamelled at same price. Extra for dull nickel plated hotplate with enamelled boiler 7/9.

CRANE

# THE IPSWICH DOMESTIC BOILER

OPEN FIRE

FOR HOT WATER SUPPLY



## DIMENSIONS

| Size No. | Height to Hotplate | Size of Hotplate | Overall projection, back to front | Height to centre of Tapping |         | Tappings at Back* | Smoke Pipe size |
|----------|--------------------|------------------|-----------------------------------|-----------------------------|---------|-------------------|-----------------|
|          |                    |                  |                                   | FLOW                        | RETURN  |                   |                 |
| 00       | 23 5/8"            | 17" x 15"        | 17 1/2"                           | 20 3/8"                     | 12 1/8" | Two 1 1/4"        | 4"              |

\*Alternatively 4—1 1/4" Tappings can be provided at sides to special order, price 3/- extra.

The No. 00 Ipswich Boiler is suitable for hot water storage up to 25 gallons, and a Towel Airing may be added.

To ensure fuel economy it is not recommended that this duty be increased.

Stoking Tools and 1/2" Draw-off Cock sent with Boiler unless otherwise ordered.

See pages 96 and 97 for Measurements and Prices of Smoke Pipe and Fittings in Black and Enamel finish.

For MOUNTINGS see pages 100-104.

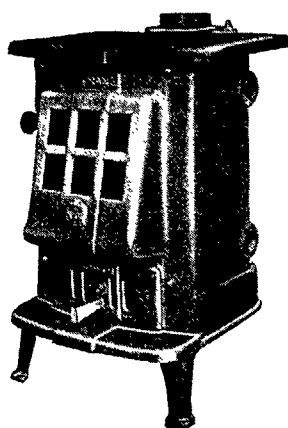
CRANE

# THE IPSWICH DOMESTIC BOILER OPEN FIRE

FOR HOT WATER SUPPLY

No. 01

Registered Design  
No. 829724



No. 01

ENAMELLED FINISH  
WITH SIDE PLATES

## RATINGS

| Size No. | Fuel Capacity cu. ft. | Heating Surface sq. ft. | B.Th.U.s per hour for Hot Water Supply only | Gallons per hour maximum |            |            |
|----------|-----------------------|-------------------------|---------------------------------------------|--------------------------|------------|------------|
|          |                       |                         |                                             | 50-110° F.               | 50-130° F. | 50-150° F. |
| 01       | .55                   | 2.25                    | 22,500                                      | 38                       | 28         | 23         |

## PRICES

| Size No. | Black finish with polished top | Black Finish with nickel-plated top.* | Grey Mottled enamel finish (firepot painted aluminium)† | Extra for Enamel Sideplates | Extra for Bower-Barffing Firepot | Extra for Shaking Grate |
|----------|--------------------------------|---------------------------------------|---------------------------------------------------------|-----------------------------|----------------------------------|-------------------------|
|          | £ s. d.                        | £ s. d.                               | £ s. d.                                                 | s. d.                       | £ s. d.                          | s. d.                   |
| 01       | 4 10 0                         | 4 18 0                                | 6 0 0                                                   | 6 0                         | 1 7 6                            | 3 3                     |

Price of Boiler includes base, feet and ash pan.

Stoking Tools 1/6 extra

\* Dull nickel plated.

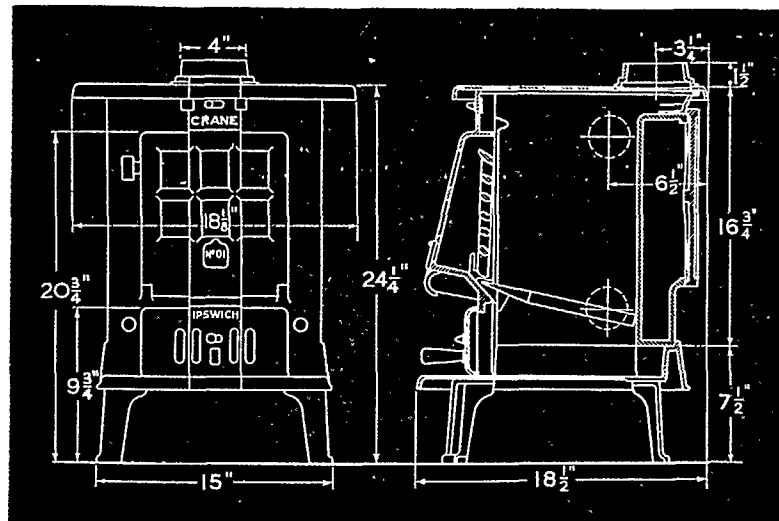
† Hotplate can be supplied ground and polished instead of enamelled at same price.

Extra for dull nickel plated hotplate with enamelled boiler, 8/6.

Boilers can be supplied in Cream Enamelled finish and with Black Enamel hotplate. Price 15/- extra.

# CRANE THE IPSWICH DOMESTIC BOILER

OPEN FIRE  
FOR HOT WATER SUPPLY



## DIMENSIONS

| Size No. | Height to Hotplate | Size of Hotplate | Overall projection, back to front | Height to centre of Tapping |        | Tappings at side | Smoke Pipe Size |
|----------|--------------------|------------------|-----------------------------------|-----------------------------|--------|------------------|-----------------|
|          |                    |                  |                                   | FLOW                        | RETURN |                  |                 |
| 01       | 24 1/4"            | 18" x 16 1/2"    | 18 1/2"                           | 20 3/4"                     | 9 3/4" | Four 1 1/4"      | 4"              |

The No. 01 Ipswich Boiler is suitable for a 25-gallon hot water storage with a Towel Airer, and will also comfortably heat a Radiator up to 17 sq. ft.

To ensure fuel economy it is not recommended that the above duties be increased.

Stoking Tools and 1/2" Draw-off Cock are sent with Boilers unless otherwise instructed.

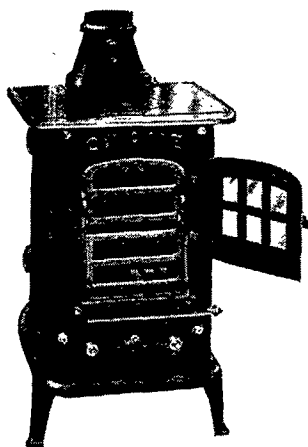
See pages 96 and 97 for Measurements and Prices of Smoke Pipe and Fittings in Black and Enamel finish.

For MOUNTINGS see pages 100-104.

CRANE

## THE IPSWICH DOMESTIC BOILER

OPEN FIRE  
FOR HOT WATER SUPPLY  
Nos. 1, 2 and 3



**No. 1**  
BLACK FINISH, WITH  
POLISHED TOP



**No. 1**  
ENAMELLED FINISH, WITH  
SIDE PLATES

### RATINGS

| Size No. | Fuel Capacity cu. ft. | Heating Surface sq. ft. | B.Th.U.s per hour for Hot Water Supply only* | Gallons per hour maximum |            |            |
|----------|-----------------------|-------------------------|----------------------------------------------|--------------------------|------------|------------|
|          |                       |                         |                                              | 50-110° F.               | 50-130° F. | 50-150° F. |
| 1        | .65                   | 2.80                    | 28,000                                       | 47                       | 35         | 28         |
| 2        | .95                   | 4.00                    | 40,000                                       | 66                       | 50         | 40         |
| 3        | 1.35                  | 5.00                    | 50,000                                       | 84                       | 63         | 50         |

\* If used for Heating only the ratings are 12,500, 18,000 and 22,000 B.Th.U.s per hour respectively.

### PRICES

| Size No. | Black finish with polished top | Black finish with nickel plated top | Grey Mottled enamel finish (firepot painted aluminium)* | Extra for Enamel Sideplates | Extra for Bower-Barffed Rustless Firepot | Extra for Shaking Grate† |
|----------|--------------------------------|-------------------------------------|---------------------------------------------------------|-----------------------------|------------------------------------------|--------------------------|
|          | £ s. d.                        | £ s. d.                             | £ s. d.                                                 | s. d.                       | £ s. d.                                  | s. d.                    |
| 1        | 5 16 3                         | 6 7 3                               | 7 14 9                                                  | 7 0                         | 1 14 9                                   | 4 3                      |
| 2        | 8 12 6                         | 9 3 3                               | 10 7 6                                                  | 8 6                         | 2 1 3                                    | 5 4                      |
| 3        | 11 10 0                        | 12 5 0                              | 14 0 0                                                  | 14 0                        | 2 15 0                                   | —                        |

\* Hotplate can be supplied nickel plated instead of enamelled at same price.

† Shaking Grate fitted on all No. 3 Boilers.

Prices of Boilers Nos. 1 and 2 include base and feet. No 3 Boiler has base but no feet.

Stoking Tools, Nos. 1 and 2, 2/6, No. 3, 4/- per set.

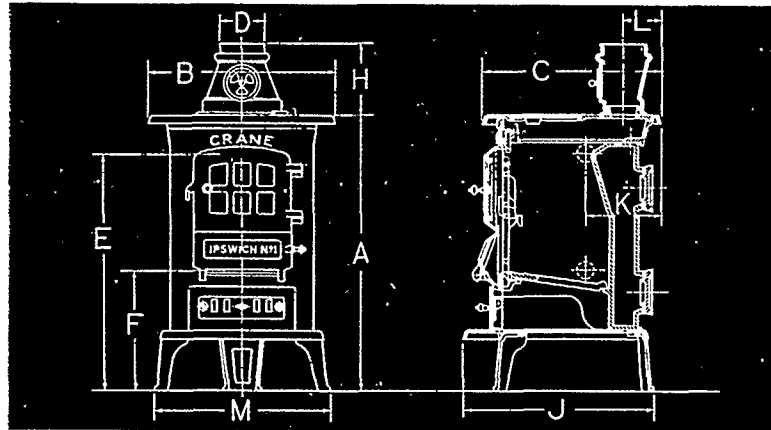
Boilers can be supplied in Cream Enamel finish with Black Enamelled hotplate. Prices on application.

CRANE

# THE IPSWICH DOMESTIC BOILER

## OPEN FIRE

### FOR HOT WATER SUPPLY



#### DIMENSIONS

| Size No. | Size of Hotplate | A    | B    | C    | D   | E    | F    | H   | J    | K    | L   | M    | Tappings at Side* | Smoke Pipe size |
|----------|------------------|------|------|------|-----|------|------|-----|------|------|-----|------|-------------------|-----------------|
| 1        | 18½" × 16½"      | 27"  | 18¼" | 17½" | 4½" | 23¼" | 11¾" | 7¼" | 18¾" | 7¾"  | 3¼" | 17"  | Four 1¼"          | 4½"             |
| 2        | 20" × 19½"       | 29¼" | 20"  | 19"  | 4½" | 25¼" | 9¼"  | 7¼" | 20"  | 8½"  | 4¼" | 18¼" | Four 1¼"          | 4½"             |
| 3        | 20" × 19¾"       | 29¼" | 20⅝" | 20⅞" | 4½" | 24¾" | 5⅝"  | 7"  | 26¼" | 10⅜" | 2⅞" | 18"  | Four 1½"          | 4½"             |

\* 1½" Tappings can be supplied to order on Nos. 1 and 2 Boilers.

The No. 1 Ipswich Boiler is suitable for up to 30 gallons hot water storage or 25 gallons storage and Radiators up to 30 sq. ft., and the No. 2, 40 gallons storage or 30 gallons and up to about 35 sq. ft.

The No. 3 Ipswich Boiler is suitable for up to 50 gallons hot water storage or 35 gallons storage and Radiators up to 35 sq. ft.

To ensure fuel economy it is not recommended that the above duties be increased.

Stoking Tools and ½" Draw-off Cock are sent with Boilers unless otherwise instructed.

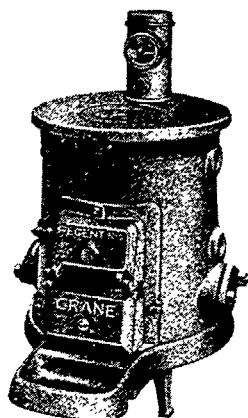
See pages 96 and 97 for Measurements and Prices of Smoke Pipe and Fittings in Black and Enamel finish.

For MOUNTINGS see pages 100-104.

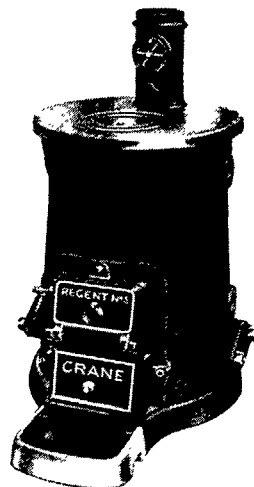
CRANE

## REGENT DOMESTIC BOILER

FOR HOT WATER SUPPLY



**No. 4**  
ENAMELLED FINISH,  
AND WITH FEET



**No. 5**  
BLACK, WITH POLISHED  
HOTPLATE

### RATINGS

| No. | Heating<br>Surface<br>sq. ft. | Fuel<br>Capacity<br>cu. ft. | Water<br>Content<br>galls. | B.Th.U.s*<br>per hour<br>for Hot Water<br>Supply only | Gallons per hour |            |            |
|-----|-------------------------------|-----------------------------|----------------------------|-------------------------------------------------------|------------------|------------|------------|
|     |                               |                             |                            |                                                       | 50-110° F.       | 50-130° F. | 50-150° F. |
| 4   | 3.63                          | .65                         | 6                          | 40,000                                                | 67               | 50         | 40         |
| 5   | 4.55                          | .81                         | 8                          | 50,000                                                | 84               | 63         | 50         |

\* If used for Heating only the ratings are 16,000 B.Th.U.s per hour and 20,000 B.Th.U.s per hour respectively.

### PRICES

| No. | Boiler<br>with<br>polished top | Boiler<br>with nickel<br>plated top | Grey Mottled<br>Enamel<br>Finish† | Baseplate | Grey Mottled<br>Enamelled<br>Baseplate | Extra for<br>Bower-Barffed<br>Rustless Firepot |
|-----|--------------------------------|-------------------------------------|-----------------------------------|-----------|----------------------------------------|------------------------------------------------|
|     | £ s. d.                        | £ s. d.                             | £ s. d.                           | s. d.     | £ s. d.                                | £ s. d.                                        |
| 4   | 5 10 6                         | 6 4 0                               | 8 10 6                            | 12 6      | 1 3 3                                  | 2 9 0                                          |
| 5   | 6 6 0                          | 6 19 9                              | 9 19 6                            | 12 6      | 1 3 3                                  | 2 12 0                                         |

\* Hot plate can be supplied nickel plated instead of enamelled at same price.

Detachable feet for No. 4 Boiler (as illustrated): Black, 5/-; Enamelled, 10/-.

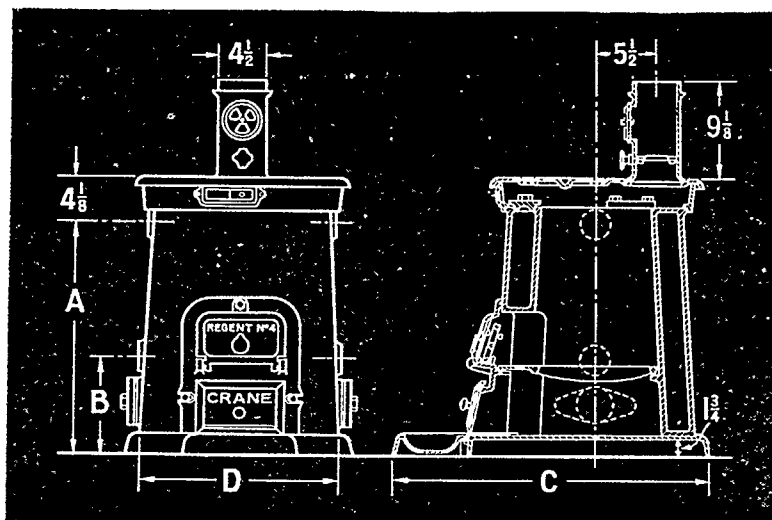
Stoking Tools, 4/- extra.

Cleaning Chisel, 5/10

Boilers ordered for Damper Regulator have lifting ashpit draught door and  $\frac{3}{4}$ " tapped boss on right-hand side of Boiler.

# REGENT DOMESTIC BOILER

FOR HOT WATER SUPPLY



## DIMENSIONS

| No. | *Height to Hotplate | Diameter of Hotplate | Overall Diameter of Baseplate | A       | B  | C       | D       | Size of Smoke Pipe | Tappings    |
|-----|---------------------|----------------------|-------------------------------|---------|----|---------|---------|--------------------|-------------|
| 4   | 21 3/4"             | 19 1/2"              | 20 1/2"                       | 17 5/8" | 9" | 28 1/4" | 18 5/8" | 4 1/2"             | Four 1 1/2" |
| 5   | 25 3/4"             | 19 1/2"              | 20 1/2"                       | 21 5/8" | 9" | 28 1/4" | 18 5/8" | 4 1/2"             | Four 1 1/2" |

\* Including Baseplate. Legs for No. 4 increase height 4 1/2".

All Boilers have two 3 1/2" dia. clean-out openings at bottom and three 2" dia. on top.

## APPROXIMATE DUAL CAPACITIES

The No. 4 Regent Boiler is suitable for up to 50 gallons hot water storage or 40 gallons storage and Radiators up to 35 sq. ft., and the No. 5 for up to 65 gallons hot water storage or 50 gallons and up to 40 sq. ft.

Stoking Tools and one 1/2" Draw-off Cock sent with Boiler unless otherwise instructed.

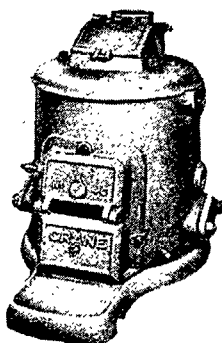
See pages 96 and 97 for Measurements and Prices of Smoke Pipe and Fittings in Black and Enamel finish.

For MOUNTINGS see pages 100-104.

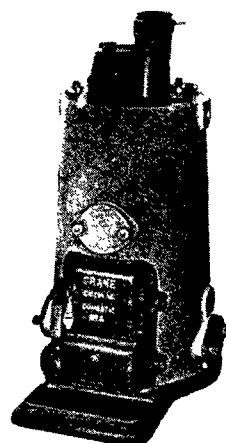
CRANE

## THE CIRCULAR DOMESTIC BOILER

FOR HOT WATER SUPPLY  
OR CENTRAL HEATING



Nos. 4C and 5C  
ENAMELLED FINISH



Nos. 8C and 9C

### RATINGS

| No. | Heating Surface sq. ft. | Fuel Capacity cu. ft. | Water Content galls. | B.Th.U.s per hour for Hot Water Supply only* | Gallons per hour |            |            |
|-----|-------------------------|-----------------------|----------------------|----------------------------------------------|------------------|------------|------------|
|     |                         |                       |                      |                                              | 50-110° F.       | 50-130° F. | 50-150° F. |
| 4C  | 3.63                    | .65                   | 6                    | 40,000                                       | 67               | 50         | 40         |
| 5C  | 4.55                    | .81                   | 8                    | 50,000                                       | 84               | 63         | 50         |
| 8C  | 6.35                    | 1.20                  | 12                   | 70,000                                       | 117              | 88         | 70         |
| 9C  | 9.10                    | 2.00                  | 17                   | 100,000                                      | 167              | 125        | 100        |

\* If used for Heating only the ratings are 16,000, 20,000, 28,000 and 40,000 B.Th.U.s per hour respectively.

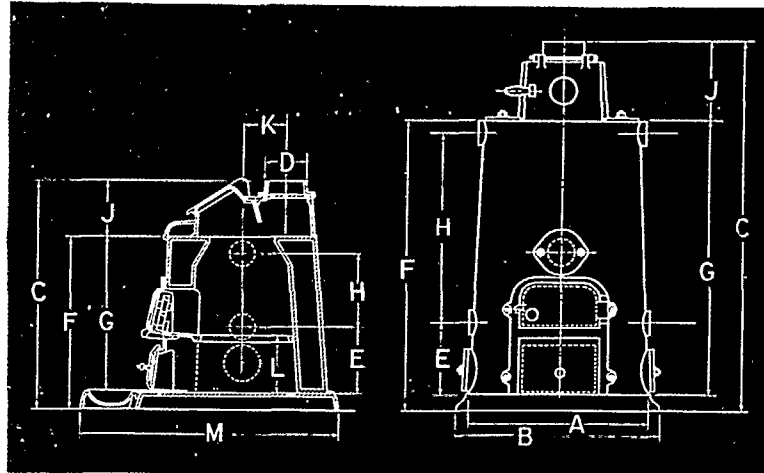
### PRICES

| No. | Boiler only | Grey Mottled Enamel Finish | Baseplate | Grey Mottled Enamel Baseplate | Extra for Bower-Barffed Rustless Firepot | Stoking Tools |
|-----|-------------|----------------------------|-----------|-------------------------------|------------------------------------------|---------------|
|     | £ s. d.     | £ s. d.                    | £ s. d.   | £ s. d.                       | £ s. d.                                  | s. d.         |
| 4C  | 5 10 6      | 8 10 6                     | 12 6      | 1 3 3                         | 2 9 0                                    | 4 0           |
| 5C  | 6 6 0       | 9 19 6                     | 12 6      | 1 3 3                         | 2 12 0                                   | 4 0           |
| 8C  | 8 2 9       | —                          | 12 6      | —                             | 3 3 9                                    | 4 0           |
| 9C  | 12 5 0      | —                          | 1 1 0     | —                             | 4 14 6                                   | 10 0          |

All sizes can be fitted with lifting ashpit draught door for Damper Regulator.

When ordered for Damper Regulator Nos. 4C and 5C, Boilers are provided with  $\frac{3}{4}$ " tapped boss on right-hand side.

# CRANE CIRCULAR DOMESTIC BOILER



*Boilers 4C and 5C have circular waterway baffle overhanging fire.*

## DIMENSIONS

| No. | A                  | B                  | C   | D                 | E                 | F                  | G                  | H                  | J                 | K                 | L                 | M                  |
|-----|--------------------|--------------------|-----|-------------------|-------------------|--------------------|--------------------|--------------------|-------------------|-------------------|-------------------|--------------------|
| 4C  | 18 $\frac{5}{8}$ " | 20 $\frac{3}{4}$ " | 25" | 4 $\frac{1}{2}$ " | 7 $\frac{1}{4}$ " | 21"                | 19 $\frac{1}{4}$ " | 8 $\frac{5}{8}$ "  | 4 $\frac{1}{4}$ " | 5"                | 6 $\frac{1}{2}$ " | 28 $\frac{1}{4}$ " |
| 5C  | 18 $\frac{5}{8}$ " | 20 $\frac{3}{4}$ " | 29" | 4 $\frac{1}{2}$ " | 7 $\frac{1}{4}$ " | 25"                | 23 $\frac{1}{4}$ " | 12 $\frac{5}{8}$ " | 4 $\frac{1}{4}$ " | 5"                | 6 $\frac{1}{2}$ " | 28 $\frac{1}{4}$ " |
| 8C  | 19"                | 22"                | 43" | 4 $\frac{1}{2}$ " | 7 $\frac{1}{4}$ " | 32 $\frac{1}{4}$ " | 31 $\frac{1}{4}$ " | 22 $\frac{1}{2}$ " | 12"               | 7 $\frac{5}{8}$ " | 7"                | 34"                |
| 9C  | 22 $\frac{3}{4}$ " | 25 $\frac{3}{4}$ " | 49" | 5"                | 9"                | 36 $\frac{1}{4}$ " | 35"                | 24"                | 14"               | 9"                | 9"                | 34"                |

*Stoking Tools and  $\frac{1}{2}$ " Draw-off Cock sent with Boiler unless otherwise instructed.*

## TAPPINGS AND MUDHOLES

| No. | Number and Size       |                       |          |                       |                       |
|-----|-----------------------|-----------------------|----------|-----------------------|-----------------------|
|     | Tappings              |                       | Mudholes |                       |                       |
|     | Flow                  | Return                | Top      | Bottom                | Front                 |
| 4C  | Two 1 $\frac{1}{2}$ " | Two 1 $\frac{1}{2}$ " | Three 2" | Two 3 $\frac{1}{2}$ " | —                     |
| 5C  | Two 1 $\frac{1}{2}$ " | Two 1 $\frac{1}{2}$ " | Three 2" | Two 3 $\frac{1}{2}$ " | —                     |
| 8C  | Two 1 $\frac{1}{2}$ " | Two 1 $\frac{1}{2}$ " | Four 2"  | Two 3 $\frac{1}{2}$ " | One 3 $\frac{1}{2}$ " |
| 9C  | Two 2"                | Two 2"                | Four 2"  | Two 3 $\frac{1}{2}$ " | One 3 $\frac{1}{2}$ " |

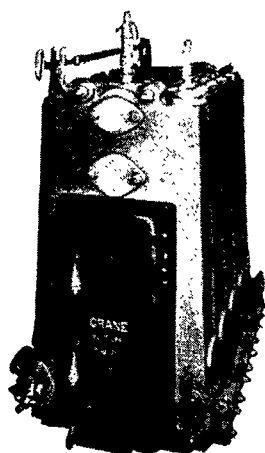
See pages 96 and 97 for Measurements and Prices of Smoke Pipe and Fittings in Black and Enamel finish.

For MOUNTINGS see pages 100-104.

CRANE

## SECTIONAL DOMESTIC BOILER

FOR SOLID FUEL



### RATINGS

| No. | Boiler Heating Surface sq. ft. | Heavy Firing<br>(At 11,000 B.Th.U.s per sq. ft.) |                  | Normal Firing<br>(At 8,000 B.Th.U.s per sq. ft.) |                                        |
|-----|--------------------------------|--------------------------------------------------|------------------|--------------------------------------------------|----------------------------------------|
|     |                                | B.Th.U.s per hour for Hot Water Supply           | Gallons per hour |                                                  | B.Th.U.s per hour for Hot Water Supply |
|     |                                |                                                  | 50-100° F.       | 50-150° F.                                       |                                        |
| 3   | 13.5                           | 148,500                                          | 300              | 150                                              | 108,000                                |
| 4   | 18                             | 198,000                                          | 400              | 200                                              | 144,000                                |
| 5   | 22.5                           | 247,500                                          | 500              | 250                                              | 180,000                                |
| 6   | 27                             | 297,000                                          | 600              | 300                                              | 216,000                                |
| 7   | 31.5                           | 346,500                                          | 700              | 350                                              | 252,000                                |
| 8   | 36                             | 396,000                                          | 800              | 400                                              | 288,000                                |

### PRICES

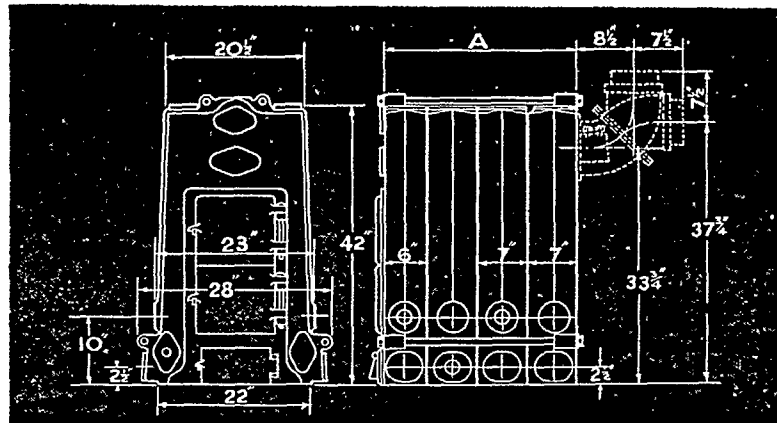
| No. | Price of Boiler | Extra for Bower-Barff Rustless Process | Galvanized Insulated Jacket | Stoking Tools |
|-----|-----------------|----------------------------------------|-----------------------------|---------------|
|     | £ s. d.         | £ s. d.                                | £ s. d.                     | s. d.         |
| 3   | 23 19 0         | 7 19 0                                 | 3 11 6                      | 3 6           |
| 4   | 31 17 6         | 9 18 0                                 | 4 1 6                       | 13 6          |
| 5   | 39 16 0         | 11 17 0                                | 4 11 6                      | 16 4          |
| 6   | 47 14 6         | 13 16 0                                | 5 1 6                       | 16 4          |
| 7   | 55 13 0         | 15 15 0                                | 5 11 6                      | 19 0          |
| 8   | 63 11 6         | 17 14 0                                | 6 1 6                       | 19 0          |

Prices of Oil Burning Boilers on application.

Extra Middle Sections and Nipples for extending Boilers ... each £7 18 0  
Jacket Extension Pieces ... per section 19/-

## SECTIONAL DOMESTIC BOILER

FOR SOLID FUEL



DIMENSIONS

| No. | Length of Boiler A | Water Content gallons | Fuel Capacity cu. ft. | Grate Area sq. ft. | Smoke Pipe Size | Screwed Tappings | Mudholes            |
|-----|--------------------|-----------------------|-----------------------|--------------------|-----------------|------------------|---------------------|
| 3   | 20 1/2"            | 27.0                  | 2.4                   | 1.45               | 7"              | Four 3"          | Sixteen 4 1/2"      |
| 4   | 27 3/4"            | 34.8                  | 3.8                   | 2.23               | 7"              | Four 3"          | Twenty 4 1/2"       |
| 5   | 35"                | 41.6                  | 5.0                   | 3.0                | 7"              | Four 3"          | Twenty-four 4 1/2"  |
| 6   | 42 1/4"            | 48.3                  | 6.3                   | 3.8                | 8"              | Four 3"          | Twenty-eight 4 1/2" |
| 7   | 49 1/2"            | 55.0                  | 7.65                  | 4.6                | 8"              | Four 3"          | Thirty-two 4 1/2"   |
| 8   | 56 3/4"            | 61.8                  | 8.85                  | 5.4                | 8"              | Four 3"          | Thirty-six 4 1/2"   |

All mudhole covers have joints made with india-rubber rings.

Low return tappings can be supplied screwed up to 2" giving 2 1/2" from floor to centre.

Heavy and normal firing ratings are listed so that boiler may be selected according to the requirements of the installation as regards stoking attention, efficiency, etc. The normal rating is based on 8,000 B.Th.U.s per sq. ft. boiler surface, and heavy firing on 11,000 B.Th.U.s per sq. ft.

Stoking Tools and one 3/4" Draw-off Cock sent with Boiler unless otherwise instructed.

See pages 96 and 97 for Measurements and Prices of Smoke Pipes and Fittings.

For MOUNTINGS see pages 100-104.

CRANE

## CAST IRON SMOKE PIPES



COWL



COLLAR



### DIMENSIONS

|        |                           | Ins.            | Ins.            | Ins.            | Ins.             | Ins.              | Ins.              | Ins.               | Ins.               | Ins.               | Ins.             |
|--------|---------------------------|-----------------|-----------------|-----------------|------------------|-------------------|-------------------|--------------------|--------------------|--------------------|------------------|
| PIPE   | Internal diameter ...     | 3 $\frac{7}{8}$ | 4 $\frac{3}{8}$ | 5               | 6                | 7                 | 8                 | 10                 | 12                 | 14                 | 16               |
|        | Approx. external diameter | 4 $\frac{1}{8}$ | 4 $\frac{5}{8}$ | 5 $\frac{1}{4}$ | 6 $\frac{5}{16}$ | 7 $\frac{3}{8}$   | 8 $\frac{7}{16}$  | 10 $\frac{9}{16}$  | 12 $\frac{5}{8}$   | 14 $\frac{11}{16}$ | 16 $\frac{3}{4}$ |
|        | Diameter of Spigot Band   | —               | —               | 5 $\frac{3}{8}$ | 6 $\frac{7}{16}$ | 7 $\frac{1}{2}$   | 8 $\frac{9}{16}$  | 10 $\frac{13}{16}$ | 12 $\frac{3}{8}$   | 15 $\frac{1}{8}$   | 17 $\frac{1}{8}$ |
| SOCKET | Internal diameter ...     | 4 $\frac{3}{8}$ | 4 $\frac{7}{8}$ | 5 $\frac{5}{8}$ | 6 $\frac{3}{4}$  | 7 $\frac{13}{16}$ | 8 $\frac{15}{16}$ | 11 $\frac{1}{4}$   | 12 $\frac{5}{16}$  | 15 $\frac{9}{16}$  | 17 $\frac{5}{8}$ |
|        | Internal depth ...        | 3 $\frac{1}{8}$ | 3 $\frac{1}{4}$ | 3 $\frac{1}{4}$ | 3 $\frac{1}{2}$  | 3 $\frac{3}{4}$   | 4                 | 4 $\frac{1}{4}$    | 4 $\frac{1}{4}$    | 4 $\frac{1}{2}$    | 4 $\frac{1}{2}$  |
|        | Diameter of Bends ...     | 5 $\frac{1}{8}$ | 5 $\frac{3}{4}$ | 6 $\frac{3}{8}$ | 7 $\frac{3}{8}$  | 8 $\frac{13}{16}$ | 10 $\frac{1}{16}$ | 12 $\frac{9}{16}$  | 14 $\frac{13}{16}$ | 17 $\frac{1}{8}$   | 19 $\frac{1}{4}$ |

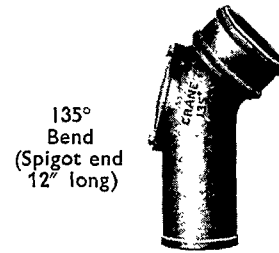
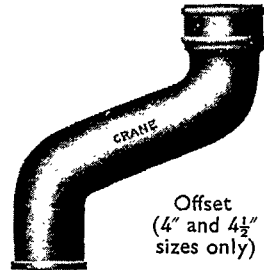
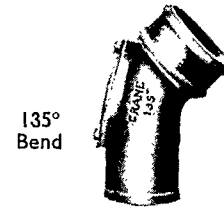
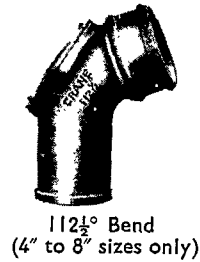
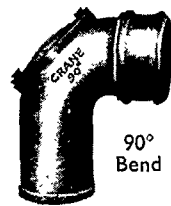
### PRICES

|                                  |          | BLACK               |                   |       |       |      |      |      |      |       |       |
|----------------------------------|----------|---------------------|-------------------|-------|-------|------|------|------|------|-------|-------|
|                                  |          | 4"                  | 4 $\frac{1}{2}$ " | 5"    | 6"    | 7"   | 8"   | 10"  | 12"  | 14"   | 16"   |
| 2 ft. length, plain              | ... each | 3/1                 | 3/4               | 4/5   | 4/11  | 7/6  | 8/-  | 15/1 | 19/9 | 36/11 | 40/6  |
| 3 ft. " "                        | ... "    | 4/7                 | 5/-               | 6/3   | 7/5   | 11/3 | 12/- | 22/7 | 29/8 | 55/4  | 60/9  |
| 4 ft. " "                        | ... "    | 6/1                 | 6/8               | 9/11  | 10/-  | 15/8 | 16/- | 30/1 | 39/7 | 73/9  | 94/-  |
| 6 ft. " "                        | ... "    | 8/10                | 9/4               | 11/7  | 14/2  | 21/3 | 22/2 | 41/0 | 54/8 | 93/10 | 116/8 |
| 2 ft. " with Check draught, etc. | ... "    | 6/7                 | 7/6               | —     | —     | —    | —    | —    | —    | —     | —     |
| 3 ft. " "                        | ... "    | 7/5                 | 7/11              | 10/11 | 11/2  | —    | —    | —    | —    | —     | —     |
| 4 ft. " "                        | ... "    | 9/-                 | 9/6               | 13/7  | 13/8  | —    | —    | —    | —    | —     | —     |
| Collar for Covering Plate        | ... "    | 1/8                 | 1/11              | 2/-   | 2/1   | 2/2  | —    | —    | —    | —     | —     |
| Cowl with Socket                 | ... "    | 4/10                | 5/8               | 6/7   | 9/1   | 9/5  | 11/3 | 15/1 | 19/5 | —     | —     |
|                                  |          | VITREOUS ENAMELLED* |                   |       |       |      |      |      |      |       |       |
| 2 ft. length, plain              | ... each | 7/1                 | 8/7               | 12/6  | 12/10 | —    | —    | —    | —    | —     | —     |
| 3 ft. " "                        | ... "    | 10/8                | 12/11             | 18/9  | 19/3  | —    | —    | —    | —    | —     | —     |
| 4 ft. " "                        | ... "    | 14/3                | 17/3              | 25/-  | 25/8  | —    | —    | —    | —    | —     | —     |
| 6 ft. " "                        | ... "    | 19/4                | 25/2              | 37/6  | 38/-  | —    | —    | —    | —    | —     | —     |
| 2 ft. " with Check draught, etc. | ... "    | 10/8                | 13/7              | —     | —     | —    | —    | —    | —    | —     | —     |
| 3 ft. " "                        | ... "    | 14/8                | 17/9              | 24/1  | 25/4  | —    | —    | —    | —    | —     | —     |
| 4 ft. " "                        | ... "    | 17/10               | 22/1              | 31/3  | 31/9  | —    | —    | —    | —    | —     | —     |
| Collar for Covering Plate        | ... "    | 2/5                 | 2/7               | 3/1   | 3/3   | —    | —    | —    | —    | —     | —     |

Smoke Pipes 5" to 12" inclusive, are manufactured to British Standard Specification No. 41.

\* See note at foot of page 97.

## CAST IRON SMOKE BENDS



## DIMENSIONS

| ELBOWS WITH SOCKETS ONLY.               |     |     |     |     |     |      |      |      |      |      |
|-----------------------------------------|-----|-----|-----|-----|-----|------|------|------|------|------|
| Internal diameter                       | 4"  | 4½" | 5"  | 6"  | 7"  | 8"   | 10"  | 12"  | 14"  | 16"  |
| Face of socket to centre of spigot only | 7½" | 8½" | 7½" | 8½" | 9½" | 10½" | 12½" | 13½" | 14½" | 16½" |
| Face of spigot to centre of spigot      | 7½" | 8"  | 10" | 11" | 12" | 13"  | 15"  | 17"  | 19"  | 21"  |
| Centre to centre of offset              | 6"  | 6"  | —   | —   | —   | —    | —    | —    | —    | —    |
| Internal diameter of socket             | 4½" | 5½" | 5½" | 6½" | 7½" | 8½"  | 11½" | 13½" | 15½" | 17½" |
| Internal depth of socket                | 3"  | 3"  | 3½" | 3½" | 3½" | 4"   | 4½"  | 4½"  | 4½"  | 4½"  |

## PRICES

|                                              | BLACK |     |      |      |      |      |      |      |      |       | ENAMELLED* |      |      |       |
|----------------------------------------------|-------|-----|------|------|------|------|------|------|------|-------|------------|------|------|-------|
|                                              | 4"    | 4½" | 5"   | 6"   | 7"   | 8"   | 10"  | 12"  | 14"  | 16"   | 4"         | 4½"  | 5"   | 6"    |
| Bends (90°) with door .. ..                  | 4/10  | 5/8 | 6/11 | 8/5  | 11/3 | 11/8 | 25/9 | 36/3 | 56/6 | 94/10 | 9/6        | 10/6 | 12/6 | 15/11 |
| " " with 2 spigot ends .. ..                 | —     | —   | 10/3 | 13/4 | —    | —    | —    | —    | —    | —     | —          | —    | 17/1 | 21/4  |
| " (135°) with door .. ..                     | 4/10  | 5/8 | 6/11 | 8/5  | 11/3 | 11/8 | 25/9 | 36/3 | 56/6 | 94/10 | 9/6        | 10/6 | 12/6 | 15/11 |
| " " with spigot end 12" lg.                  | 7/6   | 8/9 | —    | —    | —    | —    | —    | —    | —    | —     | 12/6       | 14/1 | —    | —     |
| " " with two spigot ends, one 12" long .. .. | —     | —   | 14/2 | 18/2 | —    | —    | —    | —    | —    | —     | —          | —    | 21/2 | 26/1  |
| " (112½°) with door .. ..                    | 4/10  | 5/8 | 6/11 | 8/5  | 11/3 | 13/2 | —    | —    | —    | —     | 9/6        | 10/6 | 12/6 | 15/11 |
| " " with spigot end 12" lg.                  | 7/6   | 8/9 | —    | —    | —    | —    | —    | —    | —    | —     | 12/6       | 14/1 | —    | —     |
| " " with two spigot ends, one 12" long .. .. | —     | —   | 14/2 | 18/2 | —    | —    | —    | —    | —    | —     | —          | —    | 21/2 | 26/1  |
| Offsets, 6" projection .. ..                 | 5/1   | 5/8 | —    | —    | —    | —    | —    | —    | —    | —     | 10/4       | 11/6 | —    | —     |
| Adaptor to 6" size .. ..                     | —     | 2/1 | —    | —    | —    | —    | —    | —    | —    | —     | —          | 3/9  | —    | —     |

\* Prices for enamelled smoke fittings are for Grey Mottle only  
Plain green, plain brown and black 25% extra on Enamelling Charge.

# CRANE

## BOILER FITTINGS

### SOCKET OUTLETS



**Figs. 842, 843 and 844**  
HOT WATER SOCKET  
ELBOW, FLANGED, FLOW  
TO SIDE OR VERTICAL  
RETURN



**Figs. 845, 846 and 847**  
HOT WATER SOCKET  
STAND-PIPE, FLANGED,  
FLOW OR RETURN



**Figs. 848, 849 and 850**  
HOT WATER SOCKET  
ELBOW, FLANGED, FLOW  
TO REAR OR HORIZON-  
TAL RETURN



**Fig. 851**  
HOT WATER STRAIGHT  
SOCKET, SCREWED

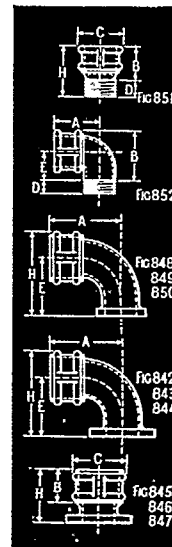


**Fig. 852**  
HOT WATER ELBOW  
SOCKET, SCREWED

### DIMENSIONS AND PRICES

| Fig No. | Size for "Whitehall" Boiler | A                 | B                 | C                 | D  | E                 | H                  | Price |
|---------|-----------------------------|-------------------|-------------------|-------------------|----|-------------------|--------------------|-------|
| 842     | 4" for No. 2                | 8 $\frac{1}{2}$ " | —                 | —                 | —  | 4"                | 7 $\frac{3}{8}$ "  | 10/8  |
| 843     | 4" " No. 3 & 4              | 8 $\frac{1}{2}$ " | —                 | —                 | —  | 4 $\frac{5}{8}$ " | 7 $\frac{9}{16}$ " | 10/8  |
| 844     | 5" " " "                    | —                 | —                 | —                 | —  | —                 | —                  | 14/1  |
| 845     | 4" " No. 2                  | —                 | 4"                | 6 $\frac{3}{8}$ " | —  | —                 | 6 $\frac{1}{2}$ "  | 7/2   |
| 846     | 4" " No. 3 & 4              | —                 | 4"                | 6 $\frac{3}{8}$ " | —  | —                 | 6 $\frac{1}{2}$ "  | 7/2   |
| 847     | 5" " " "                    | —                 | —                 | —                 | —  | —                 | —                  | 10/8  |
| 848     | 4" " No. 2                  | 8 $\frac{1}{2}$ " | —                 | —                 | —  | 4"                | 7 $\frac{3}{8}$ "  | 10/8  |
| 849     | 4" " No. 3 & 4              | 8 $\frac{1}{2}$ " | —                 | —                 | —  | 4 $\frac{5}{8}$ " | 7 $\frac{9}{16}$ " | 10/8  |
| 850     | 5" " " "                    | —                 | —                 | —                 | —  | —                 | —                  | 14/1  |
| 851     | 3" " No. 1                  | —                 | 4"                | 5 $\frac{3}{8}$ " | 2" | —                 | 6"                 | 4/3   |
| 852     | 3" " No. 1                  | 5 $\frac{3}{4}$ " | 5 $\frac{3}{4}$ " | —                 | 2" | 3 $\frac{1}{4}$ " | —                  | 6/7   |

The above prices are for these fittings when supplied separately. In the case of Series Nos. 2, 3 and 4 Whitehall Boilers, when ordered in lieu of ordinary tapped flanges Fig. Nos. 845, 846 and 847, are supplied at no extra charge, and Figs. 842, 843, 844, 848, 849 and 850 are supplied at 50 % of the above prices.



## BOILER FITTINGS

## FLANGED OUTLETS

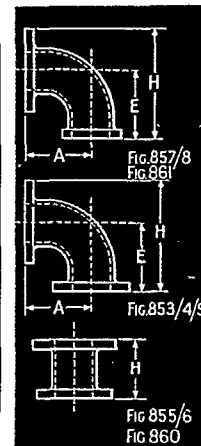
Figs. 853,  
854 and 859FLANGED ELBOW, SIDE  
FLOW OR VERTICAL  
RETURNFigs. 855,  
856 and 860

FLANGED STAND-PIPE

Figs. 857,  
858 and 861FLANGED ELBOW, FLOW  
TO REAR OR HORIZON-  
TAL RETURN.

## DIMENSIONS AND PRICES

| Fig.<br>No. | Size for<br>"Whitehall" Boiler | A  | E  | H       | Price |
|-------------|--------------------------------|----|----|---------|-------|
| 853         | 4" for No. 2                   | 7" | 7" | 11 1/4" | 14/-  |
| 854         | 4" „ No. 3 & 4                 | 8" | 8" | 12 1/4" | 14/-  |
| 859         | 5" „ No. 3 & 4                 | 8" | 8" | 13"     | 25/-  |
| 855         | 4" „ No. 2                     | —  | —  | 6"      | 11/-  |
| 856         | 4" „ No. 3 & 4                 | —  | —  | 5"      | 11/-  |
| 860         | 5" „ No. 3 & 4                 | —  | —  | 6"      | 14/6  |
| 857         | 4" „ No. 2                     | 7" | 7" | 11 1/4" | 14/-  |
| 858         | 4" „ No. 3 & 4                 | 8" | 8" | 12 1/4" | 14/-  |
| 861         | 5" „ No. 3 & 4                 | 8" | 8" | 13"     | 25/-  |
| 862         | 3" „ No. 1                     | —  | —  | —       | 4/3   |



All outlet flanges are to British Standard Table D

3" C.I. THREADED FLANGE  
FOR No. 1 WHITEHALL BOILERS

Fig. 862

## CRANE

### CRANE SPRING RELIEF VALVES



Fig. H231

Suitable for use with all hot water heating and hot water supply boilers. Valve and seat of non-corrosive metal.

#### DESCRIPTION

Full bore lock-up spring relief valve suitable for both hot water heating and hot water supply boilers.

Constructed of gun metal with stainless steel spring.

Valve guide is situated well above inlet and is therefore unaffected by scale.

The valve can be tested by rotating or lifting and a  $\frac{1}{4}$ " tapped boss is provided for draining above seat.

NOTE.—Tank height must be specified when ordering.

| Sizes:     | $\frac{3}{4}$ "        | 1"                     | 1 $\frac{1}{4}$ "        | 1 $\frac{1}{2}$ "        | 2"                       |
|------------|------------------------|------------------------|--------------------------|--------------------------|--------------------------|
| Ratings .. | up to 400,000 B.Th.U.s | up to 800,000 B.Th.U.s | up to 1,200,000 B.Th.U.s | up to 1,500,000 B.Th.U.s | above 1,500,000 B.Th.U.s |
| Prices ..  | £1 13 6                | £1 15 6                | £2 5 0                   | £2 16 0                  | £3 17 6                  |

### GUN METAL SAFETY VALVES

| Sizes:                                                    | $\frac{3}{4}$ " | 1"   | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " | 2"   |
|-----------------------------------------------------------|-----------------|------|-------------------|-------------------|------|
| Standard Pattern to blow off at 30 feet head              | 14/-            | 16/- | 20/3              | 24/-              | 33/9 |
| Extra for Weights to increase resistance by 5 feet ... .. | -/6             | -/8  | -/9               | 1/-               | 1/3  |

#### DEADWEIGHT PATTERN CAST IRON WEIGHTS



Fig. H242

FOR PRESSURES FROM 30 FT. TO 45 FT. HEAD OF WATER

#### SPRING PATTERN

#### G.L.C. PATTERN

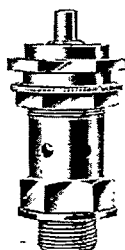


Fig. H226

DESIGNED TO LIFT AT 28 LBS. PRESSURE



Fig. H225

DESIGNED TO LIFT AT 25 LBS. AND 50 LBS.

| Size: | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"  |
|-------|-----------------|-----------------|-----|
| H 226 | 3/6             | 3/9             | 4/7 |
| H 225 | —               | 12/6            | —   |

CRANE

# "NABIC" ENCLOSED DEADWEIGHT SAFETY VALVES



FOR HEATING AND  
HOT WATER BOILERS

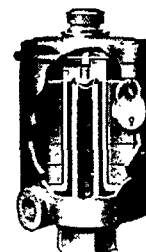


Fig. H 245

| Size No. | Socket Screwed Gas | Tank Height in feet | Radiating Capacity in sq. ft. | Price of Valve<br>£ s. d. | Price of Valve with Padlock<br>£ s. d. |
|----------|--------------------|---------------------|-------------------------------|---------------------------|----------------------------------------|
| 1        | 1"                 | 35                  | 50                            | 1 14 6                    | 1 15 6                                 |
| 1a       | 1"                 | 50                  | to                            | 1 14 6                    | 1 15 6                                 |
| 1b       | 1"                 | 70                  | 700                           | 1 19 6                    | 2 0 6                                  |
| 2        | 1"                 | 60                  | 700                           | 2 11 6                    | 2 12 6                                 |
| 2a       | 1"                 | 80                  | to                            | 2 11 6                    | 2 12 6                                 |
| 2b       | 1"                 | 110                 | 3,000                         | 2 15 6                    | 2 16 6                                 |
| X3       | 1"                 | 60                  | 3,000                         | 4 5 6                     | 4 6 6                                  |
| X3a      | 1"                 | 80                  | to                            | 4 5 6                     | 4 6 6                                  |
| X3b      | 1"                 | 110                 | 6,000                         | 4 12 6                    | 4 13 6                                 |
| 3        | 1"                 | 60                  | 6,000                         | 5 5 6                     | 5 6 6                                  |
| 3a       | 1"                 | 80                  | to                            | 5 5 6                     | 5 6 6                                  |
| 3b       | 1"                 | 110                 | 8,000                         | 5 16 0                    | 5 17 0                                 |
| X4       | 1 1/4"             | 60                  | 8,000                         | 7 13 0                    | 7 14 0                                 |
| X4a      | 1 1/4"             | 80                  | to                            | 7 13 0                    | 7 14 0                                 |
| X4b      | 1 1/4"             | 110                 | 11,000                        | 8 18 0                    | 8 19 0                                 |
| 4        | 1 1/2"             | 60                  | 11,000                        | 9 19 0                    | 10 0 0                                 |
| 4a       | 1 1/2"             | 80                  | to                            | 9 19 0                    | 10 0 0                                 |
| 4b       | 1 1/2"             | 110                 | 16,000                        | 11 16 0                   | 11 17 0                                |

## "NABIC" ENCLOSED SPRING SAFETY VALVES



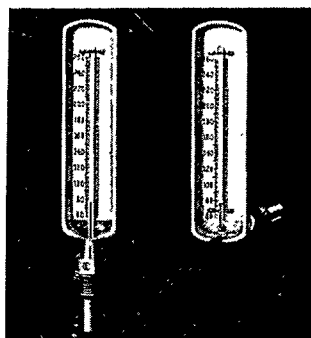
Fig. H 234

| Size | Size of Inlet and Outlet | Radiating capacity of Boiler for which Valve is suitable | Price of Valve with Padlock<br>£ s. d. |
|------|--------------------------|----------------------------------------------------------|----------------------------------------|
| 17   | 1" gas thread            | Up to 100,000 B.Th.U.s                                   | 1 6 0                                  |
| 18   | 1" "                     | " " 500,000 "                                            | 1 13 0                                 |
| 19   | 1" "                     | " " 900,000 "                                            | 2 7 0                                  |
| 20   | 1 1/4" "                 | " " 1,300,000 "                                          | 2 14 0                                 |
| 21   | 1 1/2" "                 | " " 1,800,000 "                                          | 4 4 0                                  |
| 22   | 2" "                     | " " 3,200,000 "                                          | 5 2 0                                  |

Note.—Tank height must be specified when ordering.  
See page 107 for Safety Valves for Low-Pressure Steam Heating Boilers.

CRANE

## THERMOMETERS

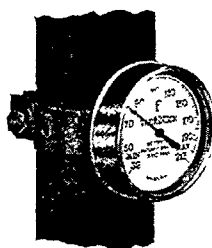


**Fig. E170.** Straight.  
8/- each.  
Iron—White enamelled.  
Screwed  $\frac{1}{4}$ " male. Scale—6".

**Fig. E171.** Angle.  
9/- each.  
Iron—White enamelled.  
Screwed  $\frac{1}{4}$ " male. Scale—6".

Angle Thermometers similar to E173 but with scale at side:—

Fig. E195, left hand } Price  
Fig. E196, right hand } 19/6  
each.



"THERINDEX"

**Fig. E204.**

Price 12/6  
Diameter  $2\frac{3}{4}$ ".

For clipping to flow-pipe near boiler. Supplied nickel plated complete with bolt and nut and adjusting key. In sizes for pipes up to 2", 3" and 4".

MERCURY  
WELL



**Fig. E191.**

For use with figs. E176, E177 and E178.

Screwed male 1"  
Female  $\frac{1}{2}$ ".

Price 5/6 each.



**Fig. E172.**

Straight.

12/- each

Polished brass case with Opal scale.

Screwed  $\frac{1}{2}$ " male.  
Scale—5".



**Fig. E173.**

Angle

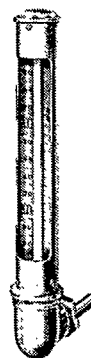
17/- each.



**Fig. E176.**  
Straight.

**Fig. E177.** both above with revolving shield.

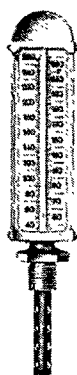
**E176** 20/-  
**E177** 22/-  
**E186** 32/-  
**E187** 34/-



**Fig. E186.**  
Angle.

**Fig. E187.** both above with revolving shield.

**E186** 24/-  
**E187** 27/-  
**E186** 36/-  
**E187** 39/-



**E178**

19/3

New H.M.O.W. Pattern.

$5\frac{1}{2}$ " Cast Brass Frame.

Opal Scale.

Range

40/260° Fahr.



**E188**

26/6

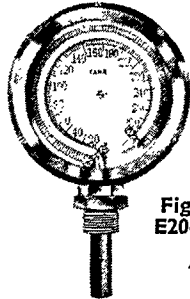
NOTE.—It is necessary to fit a mercury well (Fig. E191) with Figs. E176, E177, and E178

## THERMOMETERS

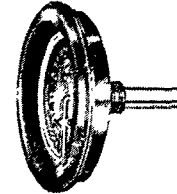
BRASS CASE

CIRCULAR DIAL

MERCURIAL PATTERN

Fig.  
E200.

Angle Pattern is fitted with  $\frac{1}{2}$ " Patent Detachable Brass Cup Sockets which allow the Thermometer to be screwed into position without removing the Dial.

Fig.  
E201.

4" Dial reading from 30 to 260° Fahr. 6" Dial reading from 30 to 260° or up to 500° Fahr.

## PRICES

| Fig. No. | Description                                                               | Dial: | 4"   | 6"   |
|----------|---------------------------------------------------------------------------|-------|------|------|
| E200     | Vertical Pattern with 1" steel Mercury Well ...                           |       | 44/- | 59/- |
| E201     | Angle Pattern with $\frac{1}{2}$ " Patent Detachable Brass Cup Socket ... |       | 35/6 | 51/6 |

## ALTITUDE GAUGES

COMBINED ALTITUDE GAUGE AND THERMOMETER

H.M.O.W. TYPE ALTITUDE GAUGE

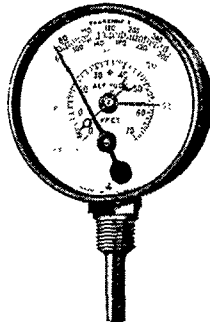


Fig. E210.

Diameter of dial ...  $3\frac{1}{2}$ "  
Screwed  $\frac{1}{2}$ "

Price ... 18/6 each

Temperature range 60°F. to 260°F.  
Graduated up to 70 ft. head.

Can be supplied for any greater head at slightly increased charge.

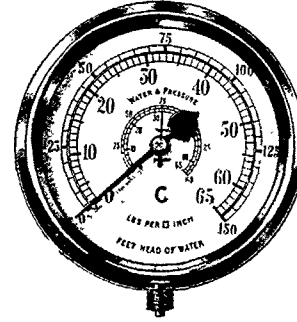


Fig. E215.

Diameter of dial ... 6"  
Brass Case with flanged back, H.M.O.W.

Specification, screwed  $\frac{3}{8}$ "

Price ... 30/- each

Cock, Fig. E97, 3/10 extra

Marked in feet head of water and lbs. per square inch, can be supplied graduated to 40 ft., 70 ft., 100 ft., or 150 ft.

See General Catalogue for additional altitude and vacuum gauges.

CRANE

## DRAW-OFF COCKS

PLUG COCKS  
GUN METAL  
MALE AND HOSE UNION

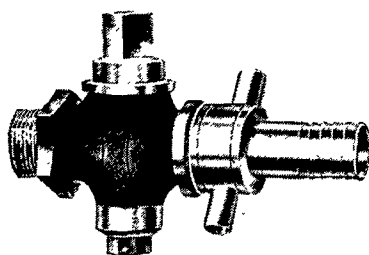


Fig. D342.

GLAND COCKS\*  
GUN METAL  
FEMALE AND HOSE UNION

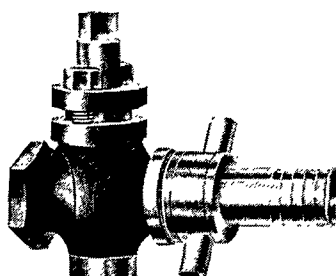


Fig. D344.

| Sizes ins. ... | $\frac{1}{2}$ | $\frac{3}{4}$ | 1    | $1\frac{1}{4}$ | $1\frac{1}{2}$ |
|----------------|---------------|---------------|------|----------------|----------------|
| Fig. D342 ...  | 4/-           | 5/-           | 8/-  | —              | —              |
| „ D344 ...     | 7/-           | 9/-           | 11/- | 16/3           | 24/6           |
| „ D345 ...     | 7/-           | 9/-           | 11/- | 16/3           | 24/6           |
| „ D343 ...     | 1/10          | —             | —    | —              | —              |

Prices for stamping Fig. D345 are extra—  
see separate price list

Fig. D345 Stamped "M.W.B."

DRAW-OFF PLUGS  
BRASS

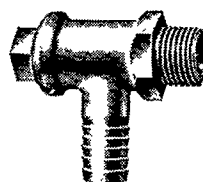


Fig. D343  
Size  $\frac{1}{2}$ "

## GAS POKERS

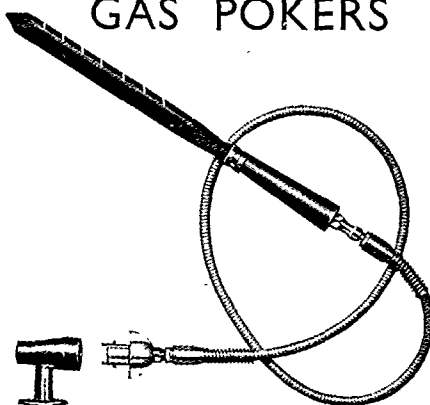


Fig. 995

Fig. 995. Gas Poker for Crane Ipswich and Carlton Boilers, complete with length of flexible tube and rubber connection

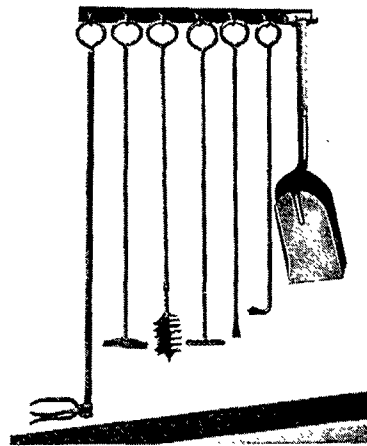
Price each - 4/6

Fig. 996. Connecting Plug and Socket, as shown on the left, recommended instead of the rubber connection.

Price each - 7/10

\* See page 123 for female end gland cocks.

## CRANE STOKING TOOLS



For Whitehall Boiler with Rack.

Crane specially designed  
hardened Scraper for  
Whitehall Boilers.  
PRICES AS TABLE



Clinker Tongs  
for Small Boilers.  
Small, 1' 10" long, 2/3 each.  
Large, 2' 3" long, 3/- each.



Spare Flue-brush  
Heads.  
No. 1 and 2  
Whitehall  
Boilers, 2/6 each  
No. 3 and 4  
Whitehall  
Boilers, 3/- each

## HEATING BOILERS

| Boilers No.     | CARLTON |       |         | WHITEHALL                                |                                          |                                       |                    |
|-----------------|---------|-------|---------|------------------------------------------|------------------------------------------|---------------------------------------|--------------------|
|                 | 03—05   | 06—07 | 106—109 | 14—15<br>14LW—15LW<br>24—25<br>24LW—25LW | 16—17<br>16LW—17LW<br>26—27<br>26LW—27LW | 18<br>18LW—19LW<br>28—29<br>28LW—29LW | 35—36<br>35LW—36LW |
|                 | s. d.   | s. d. | s. d.   | s. d.                                    | s. d.                                    | s. d.                                 | s. d.              |
| Shovel ..       | 2 0     | 2 0   | 5 0     | 6 9                                      | 6 9                                      | 6 9                                   | 9 0                |
| Poker ..        | 1 6     | 1 9   | 2 3     | 1 8                                      | 2 10                                     | 4 6                                   | 2 7                |
| Slicer ..       | 1 6     | 1 9   | 2 3     | 1 8                                      | 2 10                                     | 4 6                                   | 2 7                |
| Flue Brush ..   | 2 6     | 2 6   | 2 6     | 3 6                                      | 3 11                                     | 4 3                                   | 3 9                |
| Scraper ..      | —       | —     | —       | 2 2                                      | 2 8                                      | 3 6                                   | 2 2                |
| Clinker Hook .. | —       | —     | —       | 5 0                                      | 5 0                                      | 5 0                                   | 5 0                |
| Hoe ..          | 1 6     | 1 9   | 2 3     | 1 8                                      | 2 10                                     | 4 6                                   | 2 7                |
| Complete Set    | 9 0     | 9 9   | 14 3    | 19 0                                     | 21 3                                     | 24 0                                  | 22 6               |

| Boilers No.     | WHITEHALL          |                      | WHITEHALL              |                    | WHITEHALL            |                        |
|-----------------|--------------------|----------------------|------------------------|--------------------|----------------------|------------------------|
|                 | 37—38<br>37LW—38LW | 39—310<br>39LW—310LW | 311—312<br>311LW—312LW | 47—48<br>47LW—48LW | 49—410<br>49LW—410LW | 411—415<br>411LW—415LW |
|                 | s. d.              | s. d.                | s. d.                  | s. d.              | s. d.                | s. d.                  |
| Shovel ..       | 9 0                | 9 0                  | 9 0                    | 9 0                | 9 0                  | 9 0                    |
| Poker ..        | 4 6                | 6 6                  | 6 6                    | 5 0                | 6 6                  | 6 6                    |
| Slicer ..       | 4 6                | 6 6                  | 6 6                    | 5 0                | 6 6                  | 6 6                    |
| Flue Brush* ..  | 4 0                | 5 9                  | 7 0                    | 4 9                | 6 6                  | 7 0                    |
| Scraper ..      | 3 6                | 5 0                  | 6 0                    | 4 3                | 5 9                  | 6 0                    |
| Clinker Hook .. | 5 0                | 5 0                  | 5 0                    | 5 0                | 5 0                  | 5 0                    |
| Hoe ..          | 4 6                | 6 6                  | 6 6                    | 5 0                | 6 6                  | 6 6                    |
| Complete Set    | 26 0               | 31 6                 | 33 6                   | 28 0               | 32 6                 | 34 0                   |

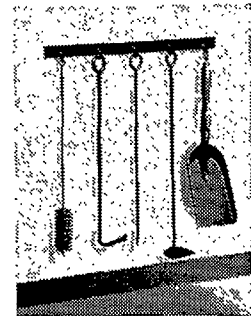
\* With the Nos. 3 and 4 Whitehall Boilers a second flue head is provided without extra charge.

## DOMESTIC BOILERS

| Boilers No.     | 00  | 01   | 1—2 | 3—5<br>1c.5c. | 8c. | 9c.  | Sect.<br>3—5 | Sect.<br>6—7 | Sect.<br>8 |
|-----------------|-----|------|-----|---------------|-----|------|--------------|--------------|------------|
| Shovel ..       | -/8 | -/10 | 1/2 | 1/2           | 1/2 | 4/8  | 6/9          | 6/9          | 6/9        |
| Poker ..        | -/8 | -/8  | -/8 | -/8           | -/8 | 1/5  | 3/3          | 4/-          | 5/6        |
| Slicer ..       | —   | —    | -/8 | -/8           | -/8 | 1/3  | —            | —            | —          |
| Clinker Tool .. | —   | —    | —   | 1/6           | —   | —    | 3/3          | 4/-          | 5/6        |
| Hoe ..          | —   | —    | —   | —             | 1/6 | 2/8  | 3/3          | 4/-          | 5/6        |
| Complete Set    | 1/4 | 1/6  | 2/6 | 4/-           | 4/- | 10/- | 13/6         | 16/4         | 19/-       |

## STOKING TOOL RACKS

For Whitehall Boilers .. .. . 8/6 each.  
" Carlton .. .. . 7/- "

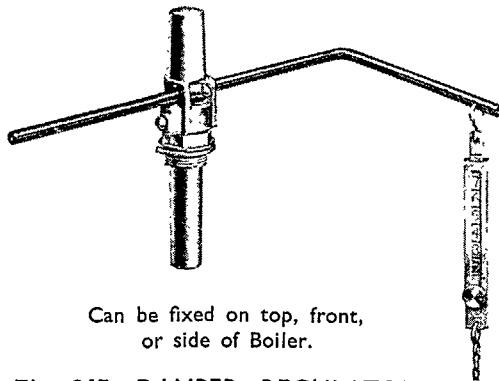


For Carlton Boiler

CRANE

## CRANE DAMPER REGULATORS

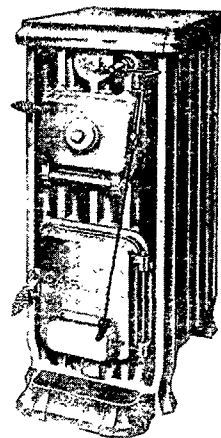
FOR HEATING AND  
HOT WATER SUPPLY BOILERS



Can be fixed on top, front,  
or side of Boiler.

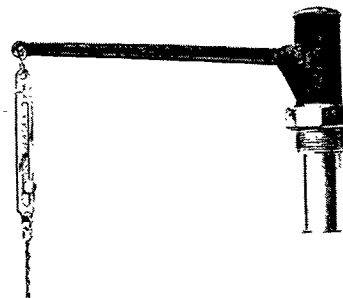
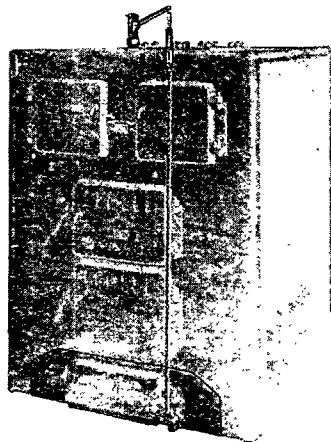
**Fig. 865 DAMPER REGULATOR**  
(Patent No. 387,897)

Screwed  $\frac{3}{4}$ ". Price complete £1 4 6  
Chromium Plated, 2/6 extra.



### PROVISION FOR FIG. 865 REGULATOR ON BOILERS

Carlton Boilers have  $\frac{3}{4}$ " tapping on face of front section.  
Regent Boilers have  $\frac{3}{4}$ " boss on right-hand side of boiler.  
Circular Domestic Boilers have a  $\frac{3}{4}$ " tapping in clean-out cover.



**Fig. 866**  
**DAMPER REGULATOR**  
(Screwed  $1\frac{1}{2}$ ")

Price complete - £1 8 6  
Range 100°F-240°F.  
Chromium Plated 3/6 extra

CRANE

## CRANE DAMPER REGULATOR

FOR LOW PRESSURE STEAM BOILERS

This Regulator is designed for opening and closing the ashpit draught door alone, or together with the smokehood check draught on Low-Pressure Steam Boilers. Can be adjusted to operate at any pressure between zero and the pressures per square inch given below.

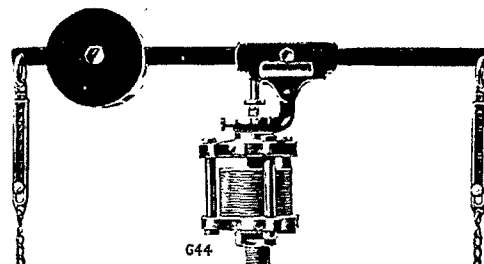


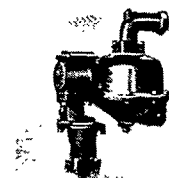
Fig. 868, Screwed 1", for pressures up to 10 lbs.

Price ... £2 10 0

Fig. 869, " 3/4", " " " 15 lbs.

Price ... £3 9 0

## AUTOMATIC BOILER FEEDER



The McDonald Miller Automatic Boiler Feeder has a considerable advantage over other types in that the raw feed water does not come in contact, under heat, with the valve seat. Thus possibility of scale causing failure of operation is eliminated

Size of inlet from cold supply ... 1/2"

Connections to Boiler ... 1"

Price ... £6 13 6

## "POP" SAFETY VALVES

FOR LOW PRESSURE STEAM HEATING BOILERS

MALLEABLE IRON BODY. GUN METAL SEAT AND DISC

SET TO LIFT AT 5, 10, OR 15 LBS. PRESSURE



Fig. H211

| Size ins. | 3/4" | 1"   | 1 1/4" | 1 1/2" | 2"   | 2 1/2" |
|-----------|------|------|--------|--------|------|--------|
| Fig. H211 | —    | 18/9 | 21/-   | 25/6   | 34/6 | —      |
| Fig. H213 | 16/- | 18/- | 21/-   | 25/6   | 33/- | 57/6   |



Fig. H213.

These Safety Valves were specially designed for use on low-pressure steam heating boilers, and are widely employed for this purpose.

Please state required pressure when ordering

## TOWEL AIRERS

CHROMIUM PLATED

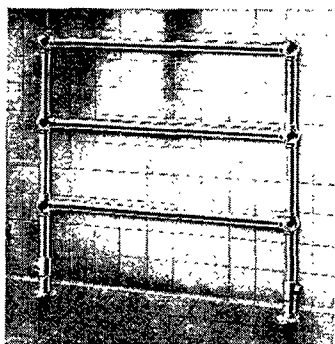


Fig. 870

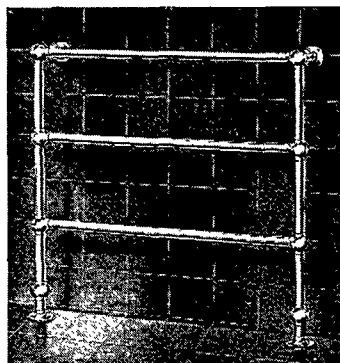


Fig. 871

| <i>Dia. of Tube<br/>in.</i> | <i>Width<br/>in.</i> | <i>Height<br/>in.</i> | <b>Fig. 870</b><br>£ s. d. | <b>Fig. 871</b><br>£ s. d. |
|-----------------------------|----------------------|-----------------------|----------------------------|----------------------------|
| 1                           | 30                   | 36                    | 2 11 3                     | 2 19 3                     |
| 1                           | 36                   | 36                    | 2 12 9                     | 3 0 9                      |
| 1                           | 42                   | 36                    | 2 14 3                     | 3 2 3                      |
| $1\frac{1}{4}$              | 30                   | 36                    | 2 16 6                     | 3 4 9                      |
| $1\frac{1}{4}$              | 36                   | 36                    | 2 18 3                     | 3 6 6                      |
| $1\frac{1}{4}$              | 42                   | 36                    | 3 0 0                      | 3 8 3                      |
| $1\frac{1}{2}$              | 30                   | 36                    | 3 10 3                     | 4 0 3                      |
| $1\frac{1}{2}$              | 36                   | 36                    | 3 13 3                     | 4 3 3                      |
| $1\frac{1}{2}$              | 42                   | 36                    | 3 16 3                     | 4 6 3                      |

Made from 18G. Solid Drawn Brass Tube and tested 100 lbs. Hydraulic.  
Nickel Plated before Chromium Plating is applied.

Height to bottom tappings 4", tappings supplied  $\frac{3}{4}$ " size pointing outward  
unless otherwise instructed.

Diameter of floor flanges,  $3\frac{1}{4}$ " on 1",  $3\frac{1}{2}$ " on  $1\frac{1}{4}$ ", 4" on  $1\frac{1}{2}$ ".

Distance from wall to centre of rail, Fig. 871, 6".

NOTE.—Towel Airers of similar design to Fig. 870, constructed of Galvanized Tubes  
with ball fittings can also be supplied. Prices on application.

## TOWEL AIRERS

CHROMIUM PLATED

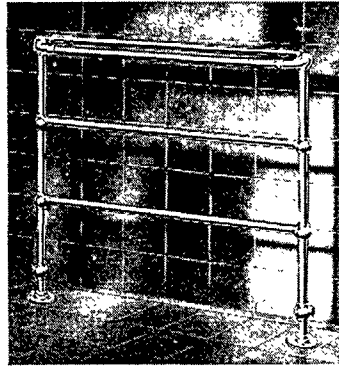


Fig. 872

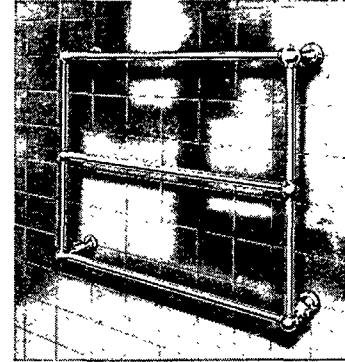


Fig. 873

| <i>Dia. of Tube<br/>in.</i> | <i>Width<br/>in.</i> | <i>Height<br/>in.</i> | <b>Fig. 872</b><br>£ s. d. | <b>Fig. 873</b><br>£ s. d. |
|-----------------------------|----------------------|-----------------------|----------------------------|----------------------------|
| 1                           | 30                   | 36                    | 3 2 3                      | —                          |
| 1                           | 36                   | 36                    | 3 4 3                      | —                          |
| 1                           | 42                   | 36                    | 3 6 3                      | —                          |
| 1                           | 36                   | 24                    | —                          | 3 0 3                      |
| 1                           | 36                   | 30                    | —                          | 3 1 3                      |
| 1 ¼                         | 30                   | 36                    | 3 9 3                      | —                          |
| 1 ¼                         | 36                   | 36                    | 3 12 0                     | —                          |
| 1 ¼                         | 42                   | 36                    | 3 14 9                     | —                          |
| 1 ¼                         | 36                   | 24                    | —                          | 3 10 0                     |
| 1 ¼                         | 36                   | 30                    | —                          | 3 11 3                     |
| 1 ½                         | 30                   | 36                    | 4 9 3                      | —                          |
| 1 ½                         | 36                   | 36                    | 4 13 3                     | —                          |
| 1 ½                         | 42                   | 36                    | 4 17 3                     | —                          |

Made from 18G. Solid Drawn Brass Tube and tested 100 lbs. Hydraulic. Nickel Plated before Chromium Plating is applied.

Height to bottom tappings 4" on Fig. 872, tappings supplied ¾" size pointing outward unless otherwise instructed.

Diameter of floor flanges, 3 ¼" on 1", 3 ½" on 1 ¼", 4" on 1 ½".

Distance from wall to centre of rail is 6" on Fig. 873.

CRANE

## TOWEL AIRERS

CHROMIUM PLATED

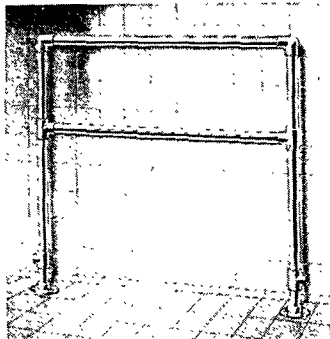


Fig. 874

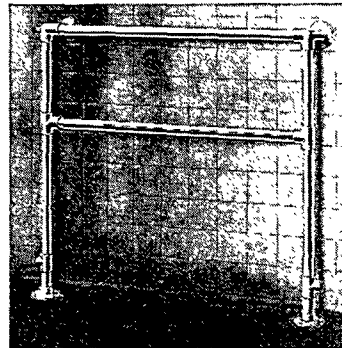


Fig. 879

| <i>Dia. of Tube<br/>in.</i> | <i>Width<br/>in.</i> | <i>Height<br/>in.</i> | <b>Fig. 874</b><br>£ s. d. | <b>Fig. 879</b><br>£ s. d. |
|-----------------------------|----------------------|-----------------------|----------------------------|----------------------------|
| 1                           | 30                   | 36                    | 1 17 9                     | 2 3 9                      |

Made from 18G. Solid Drawn Brass Tube and tested 100 lbs. Hydraulic.  
Nickel Plated before Chromium Plating is applied.  
Height to bottom tapping 4", tassings supplied  $\frac{3}{4}$ " size pointing outward  
unless otherwise instructed.  
Diameter of floor flanges,  $3\frac{1}{4}$ ".

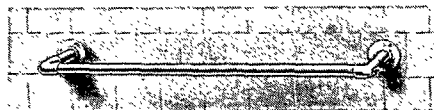


Fig. 875

| <i>TYPE</i>            | <i>Dia. of Tube<br/>in.</i> | <i>Width<br/>in.</i> | <b>Fig. 875</b><br>£ s. d. |
|------------------------|-----------------------------|----------------------|----------------------------|
| Circulating ... ..     | 1                           | 36                   | 1 0 6                      |
| Non-circulating ... .. | 1                           | 36                   | 17 9                       |

With circulating type,  $\frac{3}{4}$ " size connections are provided through wall.  
Distance from wall to centre of rail is 6" on Fig. Nos. 875 and 879.

## TOWEL AIRERS

CHROMIUM PLATED

HEXAGONAL TUBES

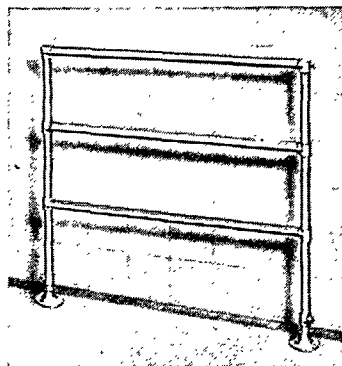


Fig. 876

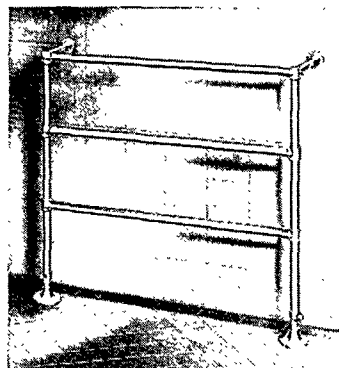


Fig. 878

Fig. 877 as Fig. 876 but with double top similar to Fig. 872.

| Across<br>Flats<br>in. | Width<br>in. | Height<br>in. | Fig. 876<br>£ s. d. | Fig. 877<br>£ s. d. | Fig. 878<br>£ s. d. |
|------------------------|--------------|---------------|---------------------|---------------------|---------------------|
| 1 $\frac{1}{4}$        | 30           | 36            | 5 8 3               | 6 14 9              | 6 3 9               |
| 1 $\frac{1}{4}$        | 36           | 36            | 5 12 0              | 6 19 9              | 6 7 3               |
| 1 $\frac{1}{4}$        | 42           | 36            | 5 15 6              | 7 4 9               | 6 11 0              |

Made from Solid Drawn Brass Tube and heavy cast gun metal fittings.

Nickel Plated before Chromium Plating is applied.

Height to bottom tappings 4", tappings supplied  $\frac{3}{4}$ " size pointing outwards unless otherwise instructed.

Diameter of floor flanges, 3  $\frac{7}{8}$ ".

Distance from wall to centre of rail is 6" on Fig. 878.

CRANE

## RADIATOR TOWEL AIRERS

CHROMIUM PLATED

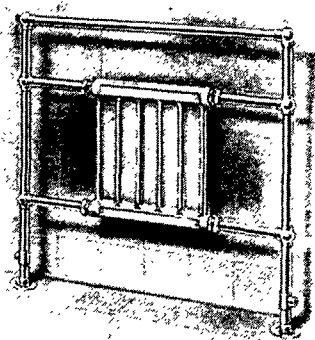


Fig. 886

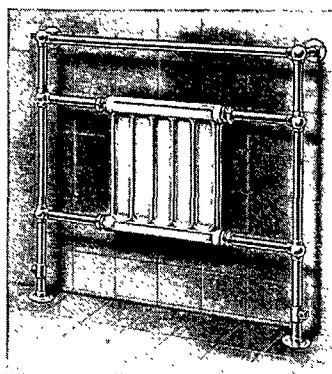


Fig. 887

| <i>Dia. of<br/>Tube<br/>in.</i> | <i>Width<br/>in.</i> | <i>Height<br/>in.</i> | <i>Approx.<br/>Heating<br/>Surface</i> | <i>Fig. 886<br/>£ s. d.</i> | <i>Fig. 887<br/>£ s. d.</i> |
|---------------------------------|----------------------|-----------------------|----------------------------------------|-----------------------------|-----------------------------|
| $1\frac{1}{4}$                  | 30                   | 36                    | $8\frac{1}{2}$                         | 4 12 3                      | 5 0 3                       |
| $1\frac{1}{2}$                  | 36                   | 36                    | 9                                      | 4 15 9                      | 5 3 9                       |
| $1\frac{3}{4}$                  | 42                   | 36                    | $9\frac{1}{2}$                         | 4 19 3                      | 5 7 3                       |

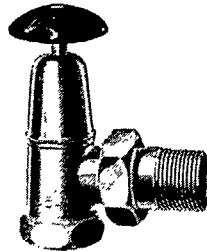
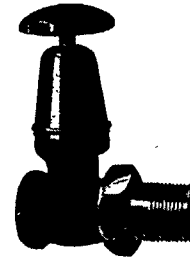
Extra for Radiator in rustless Bower-Barffed Process, 11/-

Made from 18G. Solid Drawn Brass Tube and tested 100 lbs. Hydraulic. Nickel Plated before Chromium Plating is applied, except Radiator which is suitably treated.

Height to bottom tapping 4", tappings supplied  $\frac{3}{4}$ " size pointing outward unless otherwise instructed.

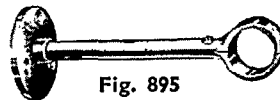
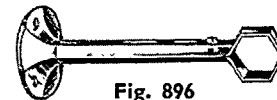
Diameter of floor flanges,  $3\frac{1}{2}$ ".

## TOWEL AIRER SUNDRIES

CHROMIUM PLATED AND POLISHED  
VALVES AND UNIONSFig. D201  
COMPOSITION WHEELFig. D202  
WITH LOCK SHIELDFig. D241  
ELBOW UNIONFig. D243  
STRAIGHT UNIONFig. D221  
COMPOSITION WHEELFig. D222  
WITH LOCK SHIELD

| Fig. | D201 | D202 | D221 | D222 | D241 | D243 |
|------|------|------|------|------|------|------|
| 1/4" | 4/10 | 4/10 | 6/1  | 6/1  | 2/1  | 1/10 |
| 1/2" | 6/2  | 6/2  | 7/8  | 7/8  | 2/8  | 2/5  |
| 3/4" | 7/5  | 7/5  | 9/5  | 9/5  | 3/4  | 3/4  |

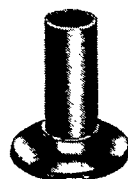
## WALL STAYS

Fig. 895  
FOR ROUND TUBEFig. 896  
FOR HEXAGONAL TUBE

| Fig. No. | Length, wall to centre of rail | 1"   | 1 1/4" | 1 1/2" |
|----------|--------------------------------|------|--------|--------|
| 895      | Up to 8"                       | 10/- | 10/6   | 11/-   |
| 896      | " "                            | —    | 16/6   | —      |

When ordering state length required—Stock length, 6"

## FLOOR FLANGES

Fig. 897  
OR ROUND TUBE AIRERS

| Fig. No.            | ... | ... | 897 | 899 | 900 |
|---------------------|-----|-----|-----|-----|-----|
| 3/4" size, per pair | ... | ... | 4/- | 2/2 | 2/7 |

These Flanges and Sleeves fit over wrought iron Pipe Connections and the height of Fig. 897 is suitable for use with our Fig. D201 Angle Valve and Fig. D241 Elbow Union.

Fig. 899  
FOR ROUND TUBE  
TOWEL AIRERS

Fig. 900 FOR HEXAGONAL TUBE

CRANE

## RADIATOR AIR VALVES

HOT WATER



Fig. E50



Fig. E53



Fig. E55



Fig. E56



Fig. E57

| No. | Size          | Polished Brass  |                 | Nickel Plated   |                 | Chromium Plated |                 |
|-----|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|     |               | $\frac{1}{8}$ " | $\frac{1}{4}$ " | $\frac{1}{8}$ " | $\frac{1}{4}$ " | $\frac{1}{8}$ " | $\frac{1}{4}$ " |
| E50 | Per dozen ... | 9/-             | 10/-            | 10/-            | 11/-            | 11/-            | 12/-            |
| E53 | " ...         | 5/8             | 6/3             | 6/3             | 6/10            | 7/2             | 7/9             |
| E55 | " ...         | 9/2             | 9/8             | 9/8             | 10/2            | 10/6            | 11/9            |
| E56 | " ...         | 5/2             | 5/8             | 5/8             | 6/2             | 6/6             | 7/-             |
| E57 | " ...         | —               | 6/-             | —               | 6/6             | —               | 7/6             |
| E60 | " ...         | 2/6             | 2/6             | 3/8             | 3/8             | 4/5             | 4/5             |



Fig. E60

Fig. E66. POLISHED BRASS  
SCHOOL BOARD PATTERN  
WITH BIB NOSE

| Size           | $\frac{1}{8}$ " | $\frac{1}{4}$ " |
|----------------|-----------------|-----------------|
| Price each ... | 3/-             | 3/2             |

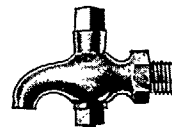


Fig. E66

## AIRLET PLUGS

CAST IRON

GUN METAL



Fig. 925



Fig. 926

| Size              | 1"  | $1\frac{1}{4}$ " |
|-------------------|-----|------------------|
| Fig. 925 ... each | -/9 | 1/1              |
| " 926 ... "       | 2/4 | 2/6              |

Fig. 925. Airlet Plug supplied free on all Radiators save Copper.

Fig. 926. Gun Metal Airlet Plugs. Customers' name can be cast on free of charge for lots of 50.

## CRANE AUTOMATIC AIR VALVE

FOR VENTING HOT WATER  
HEATING AND DOMESTIC  
SYSTEMS

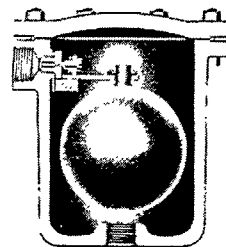


Fig. H101

| Size      | $\frac{1}{2}$ " | $\frac{3}{4}$ " |
|-----------|-----------------|-----------------|
| Price ... | 42/-            | 86/6            |

# CRANE HOFFMAN AUTOMATIC AIR VALVES

FOR STEAM

RADIATOR AIR VALVE  
 $\frac{1}{8}$ " CONNECTION

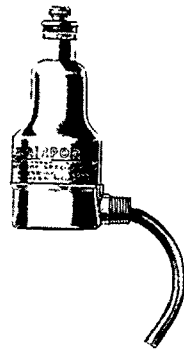


Fig. E70

Price ... 8/6  
For pressures 0-10 lbs.

RADIATOR SYPHON AIR  
AND VACUUM VALVE  
 $\frac{1}{8}$ " CONNECTION

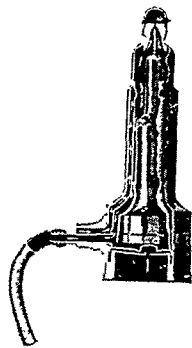


Fig. E78

Price ... 28/-  
For vacuum or pressures  
up to 10 lbs.

**Fig. E70.** Recommended for installations where moderate initial cost is desirable. It is similar in operation to the widely used E75, but has not the adjustable Venting Port.

This valve is suitable for low-pressure steam heating systems up to 10 lbs., but not for vapour-vacuum systems.

**Fig. E75.** Designed for all systems of low-pressure steam. Through its use all air is vented from the radiator without loss of steam, and maximum heating efficiency is assured. After contact of water with the valve the syphon drains all water from the valve, and venting occurs without the slightest "spit" even if the radiator is under pressure.

**Fig. E78.** Similar in construction to the No. E75, but in addition, when the radiator is once freed from air, return of air through the vent port is prevented. It is thus particularly suitable for vapour-vacuum systems.

RADIATOR SYPHON  
AIR VALVE  
 $\frac{1}{8}$ " CONNECTION

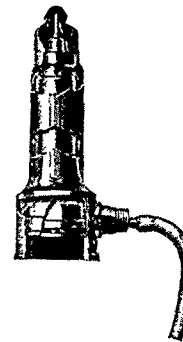
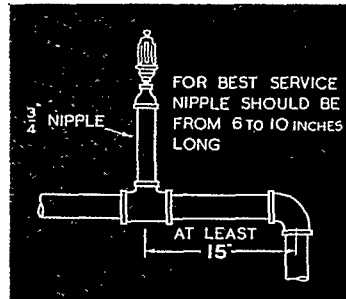


Fig. E75

Price ... 14/-  
For pressures  
0-10 lbs.



The E80 Automatic Air Valve is intended for venting the main steam pipe-line in low-pressure steam heating systems up to 10 lbs. working pressure.

For 3-10 lbs. pressure the valve has a  $\frac{1}{16}$ " port and for 0-3 lbs. a  $\frac{3}{16}$ " port. When ordering specify port size.

QUICK VENT FLOAT  
AIR VALVE  
 $\frac{3}{8}$ " CONNECTION



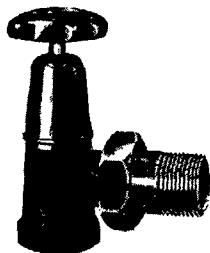
Fig. E80

Price ... 59/-

CRANE

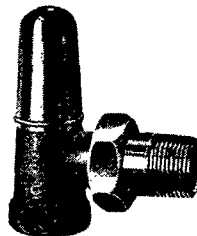
## RADIATOR VALVES

with  
EASY CLEAN SHIELDS



**Fig. D201**  
COMPOSITION WHEEL

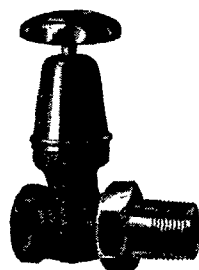
### ANGLE VALVES



**Fig. D202**  
LOCK SHIELD

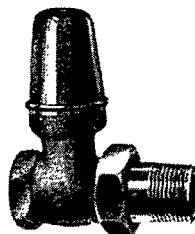


**Fig. D203**  
WITH CLOSED SHIELD



**Fig. D221**  
COMPOSITION WHEEL

### GATE VALVES



**Fig. D222**  
LOCK SHIELD

**Fig. D223**  
WITH CLOSED SHIELD

| Fig. No.        | Size                      | $\frac{3}{8}$ " | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"   | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " | 2"   |
|-----------------|---------------------------|-----------------|-----------------|-----------------|------|-------------------|-------------------|------|
| <b>D201-2-3</b> | Matt Finish ... ..        | 3/5             | 3/6             | 4/6             | 5/3  | 6/10              | —                 | —    |
| "               | Polished ... ..           | 4/-             | 4/1             | 5/4             | 6/5  | 8/5               | —                 | —    |
| "               | Nickel Plated on Polished | 4/5             | 4/6             | 5/9             | 6/11 | 9/0               | —                 | —    |
| "               | Chrom. Plated on Polished | 4/9             | 4/10            | 6/2             | 7/5  | 9/10              | —                 | —    |
| <b>D221-2-3</b> | Matt Finish ... ..        | 4/5             | 4/8             | 5/10            | 7/3  | 9/3               | 20/-              | 29/6 |
| "               | Polished ... ..           | 5/-             | 5/3             | 6/9             | 8/5  | 10/10             | 22/2              | 32/2 |
| "               | Nickel Plated on Polished | 5/4             | 5/7             | 7/3             | 9/1  | 11/5              | 22/10             | 33/3 |
| "               | Chrom. Plated on Polished | 5/10            | 6/1             | 7/8             | 9/5  | 12/1              | 23/5              | 34/8 |
| <b>D241</b>     | Matt Finish ... ..        | —               | 1/3             | 1/7             | 2/1  | 3/1               | 6/9               | 9/9  |
| "               | Polished ... ..           | —               | 1/8             | 2/1             | 2/8  | 3/11              | 7/10              | 11/2 |
| "               | Nickel Plated on Polished | —               | 1/10            | 2/4             | 2/11 | 4/2               | 8/2               | 11/6 |
| "               | Chrom. Plated on Polished | —               | 2/1             | 2/8             | 3/4  | 4/7               | 8/7               | 12/2 |

## RADIATOR VALVES

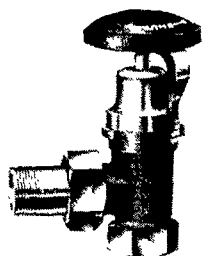


Fig. D238  
COMPOSITION WHEEL

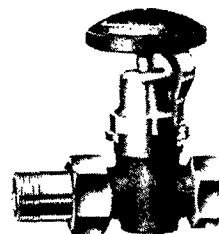
QUICK OPENING  
REGULATING VALVES

Fig. D239  
COMPOSITION WHEEL



Fig. D243  
STRAIGHT UNION

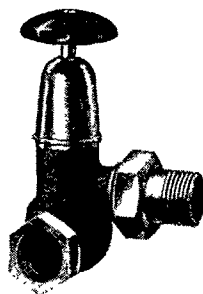


Fig. D212  
COMPOSITION WHEEL  
RIGHT HAND

## CORNER VALVES

Fig. D213, as Fig. D211  
WITH LOCK SHIELD

Fig. D214, as Fig. D212  
WITH LOCK SHIELD

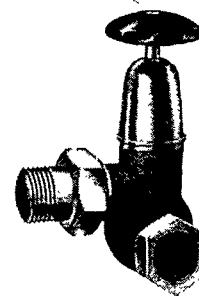


Fig. D211  
COMPOSITION WHEEL  
LEFT HAND

| Fig. No.   |                           | Each            |                 |      |                   |                   |      |
|------------|---------------------------|-----------------|-----------------|------|-------------------|-------------------|------|
|            |                           | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"   | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " | 2"   |
| D238       | With Composition Wheel*   | 6/6             | 7/6             | 11/6 | 14/-              | —                 | —    |
| D239       | " " " "                   | 6/6             | 7/6             | 11/6 | 14/-              | —                 | —    |
| D211-2-3-4 | Matt Finish " " " "       | 12/2            | 14/1            | 18/7 | 25/9              | —                 | —    |
| "          | Polished " " " "          | 12/9            | 15/-            | 19/9 | 27/4              | —                 | —    |
| "          | Nickel Plated on Polished | 13/1            | 15/6            | 20/5 | 28/3              | —                 | —    |
| "          | Chrom. Plated on Polished | 13/7            | 15/11           | 20/9 | 29/-              | —                 | —    |
| D243       | Matt Finish " " " "       | 1/3             | 1/7             | 2/1  | 3/1               | 6/9               | 9/9  |
| "          | Polished " " " "          | 1/6             | 1/11            | 2/6  | 3/7               | 7/5               | 10/9 |
| "          | Nickel Plated on Polished | 1/8             | 2/3             | 2/11 | 4/1               | 8/-               | 11/4 |
| "          | Chrom. Plated on Polished | 1/10            | 2/5             | 3/4  | 4/6               | 8/7               | 12/- |

\* Figs. D238/9 can be supplied Polished, Nickel Plated on Polished, or Chromium Plated on Polished.

Prices on application.

RADIATOR VALVES

GATE VALVES

(FEMALE ENDS)

EASY CLEAN

HOFFMAN ADJUSTABLE  
MODULATING VALVE



Fig. D78

Fig. D231  
COMPOSITION WHEEL

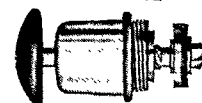


Fig. D240  
FOR "PALL MALL" RADS.

Fig. D242  
FOR HOSPITAL RADS.  
WITH COMPO. WHEEL

Fig. D232  
WITH CLOSED SHIELD



Fig. D232

Fig. D240  
FOR "PALL MALL" RADS.



Fig. D242

Fig. D240  
WITH LOCK SHIELD  
FOR HOSPITAL RADS.

CONCEALED VALVES

| Fig. No. |                           | 4/6  | 5/7 | 6/11 | 7/4  | 8/9 | 9/1  | 12/1 | 15/4 | 16/11 | 13/6 |
|----------|---------------------------|------|-----|------|------|-----|------|------|------|-------|------|
| D231-2-3 | Matt Finish               | ...  | ... | ...  | ...  | ... | ...  | ...  | ...  | ...   | ...  |
| "        | Polished                  | 4/11 | 5/7 | 6/11 | 7/4  | 8/9 | 9/1  | 12/1 | 15/4 | 16/11 | 13/6 |
| "        | Nickel Plated on Polished | 5/4  | 6/1 | 7/7  | 8/10 | 9/4 | 11/2 | 12/7 | 15/4 | 16/11 | 13/6 |
| "        | Chrom. Plated on Polished | 5/6  | 6/5 | 7/7  | 8/10 | 9/4 | 11/2 | 12/7 | 15/4 | 16/11 | 13/6 |
| D240/2   | With Compo. Wheel—        | ...  | ... | ...  | ...  | ... | ...  | ...  | ...  | ...   | ...  |
| "        | Polished Brass            | ...  | ... | ...  | ...  | ... | ...  | ...  | ...  | ...   | ...  |
| "        | Chromium Plated           | ...  | ... | ...  | ...  | ... | ...  | ...  | ...  | ...   | ...  |
| D240/2   | With Lock Shield—         | ...  | ... | ...  | ...  | ... | ...  | ...  | ...  | ...   | ...  |
| "        | Polished Brass            | ...  | ... | ...  | ...  | ... | ...  | ...  | ...  | ...   | ...  |
| "        | Chromium Plated           | ...  | ... | ...  | ...  | ... | ...  | ...  | ...  | ...   | ...  |
| D78      | Chromium Plated           | ...  | ... | ...  | ...  | ... | ...  | ...  | ...  | ...   | ...  |

Each

Prices of Concealed Valves include fitting blind nipple to Radiator.

LOCK SHIELD KEY



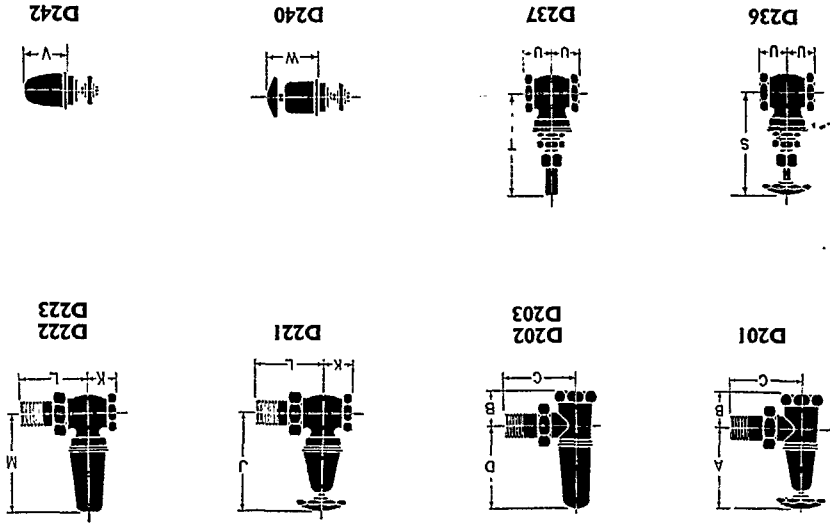
Fig. D260

Price ... No. 1 -/7, No. 2 -/8, No. 3 -/9

When ordering state size of valve for which key is required.

# RADIATOR VALVES

## DIMENSIONS



| Size | A       | B      | C      | D      | E      | F      | G      | H      | I      | J      | K      | L      | M      | N      | O      | P      | Q      | R      | S      | T      | U      | V      | W      | X      | Y      | Z      |
|------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 3"   | 3 1/4"  | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |
| 4"   | 4 1/4"  | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |
| 6"   | 6 1/4"  | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |
| 8"   | 8 1/4"  | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |
| 10"  | 10 1/4" | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |
| 12"  | 12 1/4" | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |
| 14"  | 14 1/4" | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |
| 16"  | 16 1/4" | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |
| 18"  | 18 1/4" | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |
| 20"  | 20 1/4" | 1 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" | 2 1/8" |

GUN METAL VALVES

GATE VALVES

WEDGE DISC

FOR WATER WORKING  
PRESSURES UP TO  
200 POUNDS



Fig. D236  
COMPOSITION WHEEL



Fig. D237  
LOCK SHIELD



Fig. D151  
IRON WHEEL

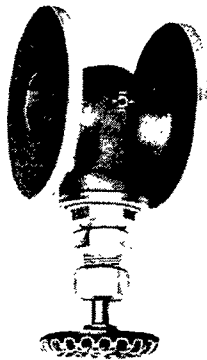


Fig. D160  
IRON WHEEL  
(B.S. Tables D and E)

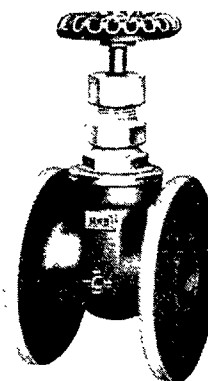
| Sizes:           | D236-7 Matc Finish | D151  | D160 |
|------------------|--------------------|-------|------|
| $\frac{1}{2}$ "  | 3/10               | ...   | ...  |
| $\frac{3}{8}$ "  | 4/-                | 3/10  | ...  |
| $\frac{1}{2}$ "  | 5/-                | 3/10  | ...  |
| $\frac{3}{4}$ "  | 6/3                | 4/9   | ...  |
| 1"               | 8/1                | 6/-   | ...  |
| $1\frac{1}{4}$ " | 10/-               | 7/8   | ...  |
| $1\frac{1}{2}$ " | 14/6               | 9/5   | ...  |
| 2"               | ...                | 13/10 | ...  |
| $2\frac{1}{2}$ " | ...                | 22/4  | ...  |
| 3"               | ...                | 51/3  | ...  |
|                  |                    | 27/10 | 63/- |

Flanged valves are supplied undrilled unless otherwise ordered. Drilling charge 2d. per hole.

## GUN METAL GATE VALVES

SOLID TAPER DISC

STAMPED "M.W.B."

Fig. D163.  
SCREWEDFig. D164.  
FLANGED B.S. TABLES D & E

| Fig. No. | Sizes:           | $\frac{1}{2}$ " | $\frac{3}{4}$ "  | 1"               | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"               | $2\frac{1}{2}$ " | 3"               |
|----------|------------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| D163     | Price ...        | 4/5             | 5/-              | 6/5              | 8/10             | 11/4             | 15/-             | 25/3             | 32/-             |
|          | End to End ...   | 2"              | $2\frac{1}{8}$ " | $2\frac{1}{2}$ " | $2\frac{3}{4}$ " | 3"               | $3\frac{1}{4}$ " | $4\frac{1}{8}$ " | $4\frac{3}{8}$ " |
| D164     | Price ...        | —               | —                | 15/-             | 22/6             | 26/6             | 37/-             | 51/3             | 63/-             |
|          | Face to Face ... | —               | —                | $3\frac{3}{8}$ " | $3\frac{3}{4}$ " | $4\frac{1}{4}$ " | 5"               | $5\frac{1}{2}$ " | $6\frac{1}{8}$ " |

The fee for stamping by the Metropolitan Water Board is extra to the above prices  
See separate price list.

Flanged valves are supplied undrilled unless otherwise ordered. Drilling charge 2d.  
per hole.

## THROTTLE VALVES

WITH INDICATOR PLATE

FOR HOT WATER

| Sizes: | 1"   | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " |
|--------|------|------------------|------------------|
| Prices | 11/8 | 14/-             | 20/-             |

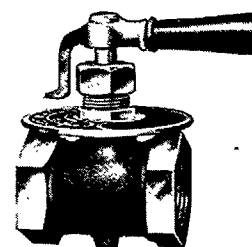


Fig. D76

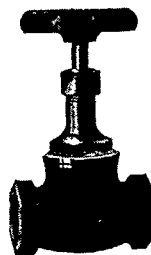
CRANE

## GUN METAL GLOBE VALVES



**Fig. D1** Screwed  
GUN METAL DISC

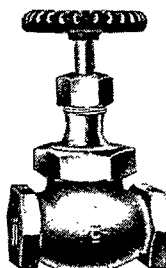
**Fig. D1**  
FOR STEAM WORKING  
PRESSURES UP TO  
200 POUNDS AND  
**Figs. D5 and D6**  
UP TO 125 POUNDS  
PER SQ. IN.



**Fig. D5.** Screwed  
**Fig. D6.** Flanged  
RENEWABLE DISC

| Sizes:             | $\frac{1}{4}$ " | $\frac{3}{8}$ " | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"   | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"   | $2\frac{1}{2}$ " | 3"   |
|--------------------|-----------------|-----------------|-----------------|-----------------|------|------------------|------------------|------|------------------|------|
| <b>Fig. D1</b> ... | 2/3             | 2/6             | 3/4             | 4/6             | 6/8  | 9/2              | 11/9             | 16/9 | 29/6             | 47/6 |
| <b>Fig. D5</b> ... | 4/-             | 4/4             | 4/8             | 5/-             | 7/-  | 9/6              | 12/6             | 19/6 | —                | —    |
| <b>Fig. D6</b> ... | —               | —               | 10/-            | 11/6            | 15/6 | 23/3             | 27/6             | 41/6 | —                | —    |

FOR  
STEAM WORKING  
PRESSURES  
UP TO  
200 POUNDS  
PER SQ. IN.



UNION BONNET  
AND  
SLIP ON  
RENEWABLE  
DISC

**Fig. D7.** Screwed  
**Fig. D8.** Flanged B.S. Table E.  
**Fig. D11** " " " F.

| Sizes:             | $\frac{1}{4}$ " | $\frac{3}{8}$ " | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"   | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"   | $2\frac{1}{2}$ " | 3"    |
|--------------------|-----------------|-----------------|-----------------|-----------------|------|------------------|------------------|------|------------------|-------|
| <b>Fig. D7</b> ... | 5/-             | 5/8             | 7/6             | 10/-            | 12/6 | 18/-             | 23/9             | 36/3 | 61/6             | 91/6  |
| <b>Fig. D8</b> ... | —               | —               | 15/-            | 19/-            | 25/6 | 34/6             | 45/-             | 73/6 | 105/-            | 140/- |
| <b>Fig. D11</b>    | —               | —               | —               | —               | 28/6 | 37/6             | 48/-             | 81/- | 117/-            | 155/- |

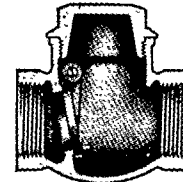
Renewable Disc Valves are provided with discs for steam, hot water, cold water, oil or compressed air. Please state on order which is required.  
Flanged Valves are supplied undrilled unless otherwise ordered. Drilling charge 2d. per hole.

## SWING CHECK VALVES

MAY BE USED IN A HORIZONTAL POSITION OR FOR  
UPWARD FLOW

FOR STEAM WORKING PRESSURES UP TO 125 POUNDS  
WATER WORKING PRESSURES NON-SHOCK UP TO 200 POUNDS

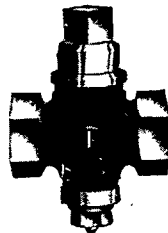
| Sizes: | $\frac{3}{8}$ " | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"  | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"   | $2\frac{1}{2}$ " | 3"   |
|--------|-----------------|-----------------|-----------------|-----|------------------|------------------|------|------------------|------|
| D138   | 4/2             | 4/4             | 5/4             | 6/6 | 8/8              | 11/8             | 16/- | 26/-             | 43/- |
| D139   | 4/9             | 5/-             | 6/3             | 7/9 | 10/6             | 14/6             | 19/6 | 33/-             | 53/- |
| D140   | 4/2             | 4/4             | 5/4             | 6/6 | 8/8              | 11/8             | 16/- | 26/-             | 43/- |
| D141   | 4/9             | 5/-             | 6/3             | 7/9 | 10/6             | 14/6             | 19/6 | 33/-             | 53/- |



With Gun Metal  
Disc  
**Fig. D138**  
**Fig. D140**  
Stamped "M.W.B."

With Leather Faced  
Disc  
**Fig. D139**  
**Fig. D141**  
Stamped "M.W.B."

The fee for stamping "M.W.B." valves is extra. See separate price sheet.

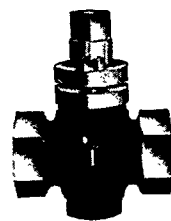


PLUG COCK

**Fig. D300** Female  
**Fig. D301** M. and F.

## PLUG AND GLAND COCKS

FOR STEAM WORKING PRESSURES  
UP TO 125 POUNDS



GLAND COCK

**Fig. D320** Female  
**Fig. D321** M. and F.

| Sizes: | $\frac{1}{2}$ "  | $\frac{3}{4}$ " | 1"               | $1\frac{1}{4}$ " |
|--------|------------------|-----------------|------------------|------------------|
| D300/I | 3/7              | 4/7             | 6/2              | 9/10             |
| D320/I | 4/8              | 6/-             | 9/-              | 12/6             |
| Sizes: | $1\frac{1}{2}$ " | 2"              | $2\frac{1}{2}$ " | 3"               |
| D300/I | 12/6             | 19/2            | 35/-             | 52/6             |
| D320/I | 15/6             | 23/-            | 46/-             | 64/-             |

CRANE

## RADIATOR TRAPS

THE "HOFFMAN"  
FOR STEAM WORKING PRESSURES UP TO 15 POUNDS

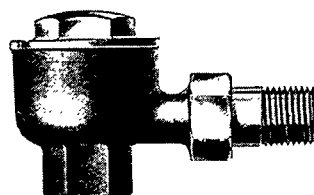


Fig. H74  
Angle  
Price £1/2/0

Hoffman Radiator Traps freely relieve air and condensation from radiators in Low Pressure, Vapour or Vapour-Vacuum systems without steam loss. They are also used as steam traps in industrial work and for cooking apparatus, sterilisers, etc., where pressure does not exceed 15 pounds.

Hoffman Traps are absolutely non-adjustable, and thermostats can be changed from one body to another without "setting."

Made in  $\frac{1}{2}$ " size only, capacity 200 sq. ft.

The Fig. H77 vertical trap is recommended for concealed Radiators having bottom outlet or for draining other vessels with similar connections. Capacity 200 sq. ft. of direct radiation. Maximum working pressure, 15 pounds.

Price £1/2/0



Fig. H77  
Vertical

THE "DRICO"  
FOR STEAM WORKING PRESSURES UP TO 30 POUNDS

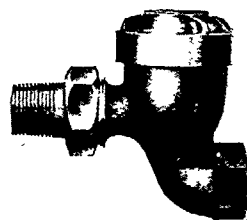


Fig. H70  
Straight

|                                     |                 |                 |
|-------------------------------------|-----------------|-----------------|
| Sizes :                             | $\frac{1}{2}$ " | $\frac{3}{4}$ " |
| Capacities in sq. ft. radiation ... | 400             | 560             |
| Price ...                           | 20/-            | 25/-            |

Capacities are based on 1 lb. differential pressure over trap. To obtain capacity in lbs./hour, divide by 4. Allow 2.1 margin.

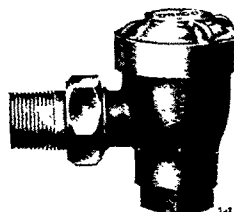


Fig. H71  
Angle

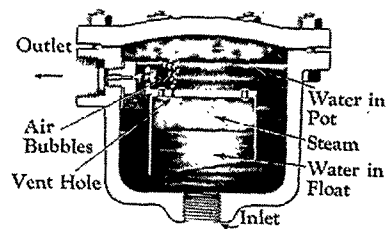
CRANE

# CRANE INVERTED OPEN FLOAT STEAM TRAPS

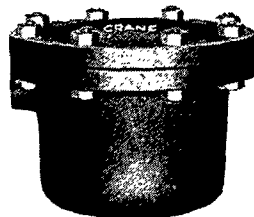
IRON BODY WITH GUN METAL WORKING PARTS  
DISC AND SEAT OF STAINLESS STEEL

FOR USE ON STEAM HEATING SYSTEMS FOR DRAINING COILS  
AND FOR DRIPPING MAINS OR RISERS INTO RETURNS

FOR PRESSURES UP TO 200 LBS.



Figs. H50 and H51



Figs. H50 and H51

Crane Inverted Open Float Steam Traps fill a long-felt demand for an inexpensive yet efficient trap for draining heating coils, unit heaters, and a variety of steam-heated apparatus used in industrial cooking and laundry plants.

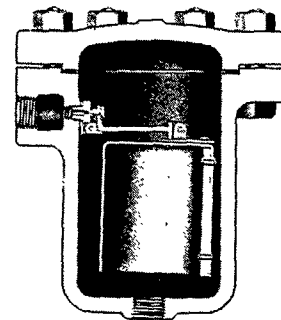


Fig. H52

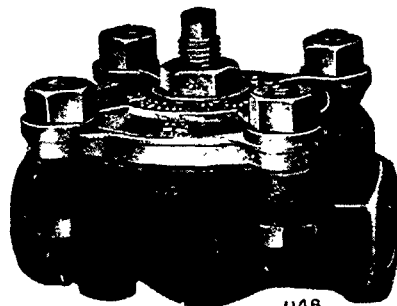
PRICES AND CAPACITIES. POUNDS OF CONDENSATION PER HOUR

| No.:<br>Size:                                  | H.50  | H.51  | H.52   |        |        |             |
|------------------------------------------------|-------|-------|--------|--------|--------|-------------|
|                                                | 1/2"  | 1/2"  | 3/4"   | 1"     | 1 1/2" | 1 1/2" & 2" |
| Effective pressure at Trap in lbs. per sq. in. |       |       |        |        |        |             |
| 5                                              | 915   | 3,050 | 10,400 | 12,300 | 20,000 | 26,000      |
| 10                                             | 880   | 3,500 | 9,200  | 14,000 | 20,800 | 31,800      |
| 15                                             | 1,080 | 4,300 | 11,300 | 17,500 | 24,800 | 39,800      |
| 20                                             | 790   | 3,100 | 7,130  | 12,500 | 20,000 | 39,100      |
| 25                                             | 845   | 3,350 | 7,900  | 13,400 | 21,200 | 41,600      |
| 30                                             | 960   | 3,800 | 8,600  | 15,300 | 24,000 | 47,200      |
| 40                                             | 610   | 2,450 | 6,920  | 9,800  | 17,600 | 39,900      |
| 50                                             | 680   | 2,700 | 7,750  | 10,900 | 19,400 | 43,800      |
| 60                                             | 530   | 2,050 | 4,040  | 8,250  | 11,800 | 21,100      |
| 75                                             | 600   | 2,250 | 4,550  | 9,060  | 13,100 | 23,800      |
| 100                                            | 405   | 2,650 | 5,200  | 10,450 | 15,000 | 29,600      |
| 125                                            | 450   | 1,850 | 4,000  | 7,370  | 11,700 | 22,600      |
| 150                                            | 460   | 2,050 | 4,500  | 8,000  | 12,500 | 24,600      |
| 200                                            | 325   | 1,300 | 3,540  | 7,000  | 11,500 | 20,500      |
| Price:                                         | 37/-  | 49/-  | 63/-   | 98/-   | 157/6  | 225/-       |

Above capacities are in pounds of water per hour based on continuous discharge to atmosphere

CRANE

## THE "WELLDECK" STEAM TRAP



1148

Registered design No. 766460.

**Fig. H88**  
GUN METAL

**Fig. H89**  
CAST IRON

**The improved "Welldeck" Trap has the following advantages:**

Brass hot-pressed bolted-on covers for  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{3}{4}$ " sizes. High grade mall. iron bolted-on cover for 1" size. Covers are easily and quickly removable.

Rust-proofed, machine-moulded bodies of high grade cast-iron.

Improved capsule construction giving large capacity, greater sensitivity and sharper action.

Coarser thread on setting screw with less tendency to strip, or jam when hot.

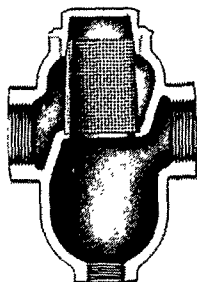
For Saturated Steam Pressures up to 125 lbs. per sq. in.

### PRICES AND CAPACITIES

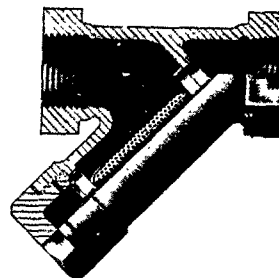
| Sizes.<br>Screwed<br>Standard<br>Gas Threads | Price Complete           |                          | Spare Parts |       | Continuous<br>Discharge.<br>Galls. per hour<br>at 212° F. |
|----------------------------------------------|--------------------------|--------------------------|-------------|-------|-----------------------------------------------------------|
|                                              | Cast Iron<br>Female Ends | Gun Metal<br>Female Ends | Condenser   | Valve |                                                           |
| $\frac{3}{8}$ "                              | 19/6                     | 27/6                     | 3/-         | 1/8   | 42                                                        |
| $\frac{1}{2}$ "                              | 19/6                     | 27/6                     | 3/6         | 1/8   | 110                                                       |
| $\frac{3}{4}$ "                              | 21/9                     | 37/-                     | 5/6         | 2/6   | 264                                                       |
| 1"                                           | 24/6                     | 53/-                     | 7/-         | 3/-   | 627                                                       |

The capacities given above are for steady discharge after adjustment at 120 lbs. pressure. For intermittent discharge calculate 10 per cent. of these figures.

## PIPE STRAINERS



**Fig. H121**  
CAST IRON



**Fig. H112**  
GUN METAL

Recommended on the  
inlet side of every Trap  
or Reducing Valve.

| Sizes:               | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"          | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"          |
|----------------------|-----------------|-----------------|-------------|------------------|------------------|-------------|
| <b>Fig. H121 ...</b> | <b>11/3</b>     | <b>14/-</b>     | <b>18/-</b> | <b>22/6</b>      | <b>27/9</b>      | <b>47/6</b> |
| <b>Fig. H112 ...</b> | <b>14/-</b>     | <b>15/-</b>     | <b>22/-</b> | <b>39/9</b>      | <b>40/9</b>      | <b>57/-</b> |

See General Catalogue for Flanged Pipe Strainers.

## REDUCING VALVES

"THE NEERFAIL"

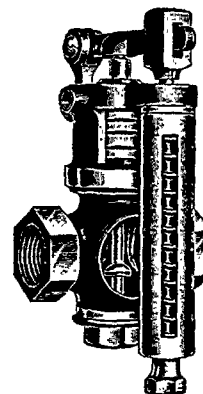
## GUN METAL SPRING TYPE

The Valve automatically closes in the event of the Boiler Pressure exceeding that to which it is set.

NOTE.—This reducing valve can be supplied dead-weight as well as spring type.

| Sizes:           | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"           | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " |
|------------------|-----------------|-----------------|--------------|------------------|------------------|
| <b>Fig. H151</b> | <b>113/6</b>    | <b>123/6</b>    | <b>139/6</b> | <b>157/6</b>     | <b>197/6</b>     |
| <b>Fig. H152</b> | <b>133/6</b>    | <b>144/6</b>    | <b>158/-</b> | <b>189/6</b>     | <b>237/6</b>     |

If ordering **Fig. H152** please specify if flanges  
are required B.S. Table D, F, or H, etc.



**Fig. H151** Screwed  
**Fig. H152** Flanged

# CRANE

## EXPANSION JOINTS

### GUN METAL

SCREWED ENDS  
GUN METAL  
THROUGHOUT



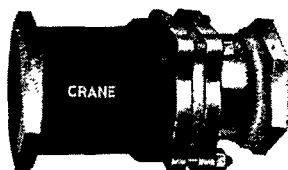
FOR STEAM WORKING  
PRESSURES  
UP TO 100 POUNDS

Fig. H311

| Sizes:           | $\frac{1}{2}$ "  | $\frac{3}{4}$ "  | 1"               | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"               | $2\frac{1}{2}$ " | 3"                |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|
| Price .. ..      | 9/6              | 11/6             | 17/6             | 20/6             | 25/6             | 35/-             | 47/-             | 65/-              |
| Traverse .. ..   | 2"               | $2\frac{1}{4}$ " | $2\frac{1}{2}$ " | $2\frac{1}{2}$ " | $2\frac{1}{2}$ " | $2\frac{1}{2}$ " | $2\frac{1}{2}$ " | 3"                |
| End to End, Open | $6\frac{3}{8}$ " | $7\frac{1}{2}$ " | $7\frac{3}{8}$ " | $7\frac{3}{8}$ " | $7\frac{3}{8}$ " | $8\frac{3}{8}$ " | $9\frac{1}{2}$ " | $10\frac{3}{8}$ " |

### CAST IRON

IRON BODY  
GUN METAL  
SLEEVES



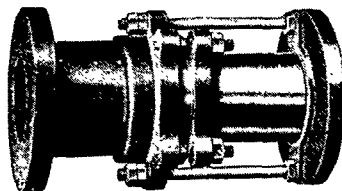
FOR STEAM  
WORKING PRESSURES  
UP TO 50 POUNDS

Fig. H312

### SCREWED

| Sizes:             | 2"                | $2\frac{1}{2}$ "  | 3"                | $3\frac{1}{2}$ "  | 4"                | 5"               | 6"               |
|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|
| Price .. ..        | 48/-              | 54/-              | 66/-              | 84/-              | 90/-              | 133/6            | 157/6            |
| Traverse .. ..     | $2\frac{1}{2}$ "  | $2\frac{1}{2}$ "  | $2\frac{1}{2}$ "  | 3"                | $3\frac{1}{2}$ "  | $4\frac{1}{2}$ " | $5\frac{1}{2}$ " |
| End to End, Opened | $11\frac{1}{2}$ " | $12\frac{1}{4}$ " | $13\frac{1}{2}$ " | $14\frac{1}{2}$ " | $15\frac{1}{2}$ " | 18"              | 21"              |

IRON BODY,  
FACED FLANGES  
GUN METAL  
WEARING PARTS  
WITH TIE RODS



STEAM WORKING  
PRESSURES:  
UP TO 50 POUNDS  
TESTED TO 200  
POUNDS HYDRAULIC

Fig. H313 B.S. TABLE D FLANGES

| Sizes:           | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"               | $2\frac{1}{2}$ " | 3"                | $3\frac{1}{2}$ " | 4"    | 5"    | 6"    |
|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|-------|-------|-------|
| Price .. ..      | 66/-             | 71/-             | 72/-             | 78/-             | 102/-             | 135/-            | 135/- | 168/- | 180/- |
| Traverse .. ..   | $2\frac{1}{2}$ " | $2\frac{1}{2}$ " | $2\frac{1}{2}$ " | $2\frac{1}{2}$ " | 3"                | 3"               | 3"    | 3"    | 3"    |
| F. to F., Opened | 13"              | 13"              | 13"              | 13"              | $13\frac{1}{2}$ " | 14"              | 15"   | 16"   | 16"   |

Fig. H313 is fitted with Brass Sleeve without Gun Metal, Neck Rings.  
Expansion Joints are not furnished packed unless so ordered, and then at a special price. If wanted packed, specify kind of packing required.

For Dimensions of British Standard Flanges—see pages 210 and 211.

CRANE

## CAST IRON GLOBE VALVES

GUN METAL WEARING PARTS

FOR STEAM WORKING PRESSURES UP TO 125 POUNDS

| Fig. No. | Sizes:     | 2"   | 2½"  | 3"    | 3½"   | 4"    | 5"    | 6"    | 8"    |
|----------|------------|------|------|-------|-------|-------|-------|-------|-------|
| F351     | Price ..   | 58/6 | 75/- | 104/- | 127/- | 158/6 | 225/- | 312/6 | 600/- |
|          | End to End | 6½"  | 7"   | 8"    | 9"    | 10"   | 11¼"  | 13"   | 18½"  |

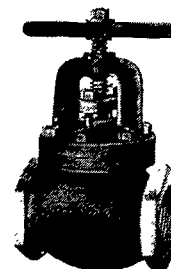


Fig. F351  
SCREWED

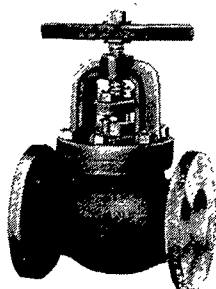


Fig. F352  
FLANGED B.S. TABLES D and E

| Fig. No. | Sizes:             | 2"   | 2½"  | 3"    | 3½"   | 4"    | 5"    | 6"    | 8"    |
|----------|--------------------|------|------|-------|-------|-------|-------|-------|-------|
| F352     | Price ..           | 71/6 | 89/6 | 125/- | 154/- | 187/6 | 258/6 | 350/- | 641/6 |
|          | Face to Face ..    | 8"   | 8½"  | 9½"   | 10½"  | 11½"  | 13"   | 14"   | 19½"  |
|          | Dia. of Flanges .. | 6"   | 6½"  | 7½"   | 8"    | 8½"   | 10"   | 11"   | 13½"  |

F352. For larger sizes see General Catalogue.

## SWING CHECK VALVES

IRON BODY WITH GUN METAL SEAT RING

BRITISH STANDARD TABLES D and E. FLANGES

FOR STEAM WORKING PRESSURES  
UP TO 125 POUNDS

FOR WATER WORKING PRESSURES  
UP TO 175 POUNDS

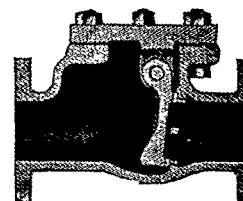


Fig. F440 SCREWED  
Fig. F442 FLANGED

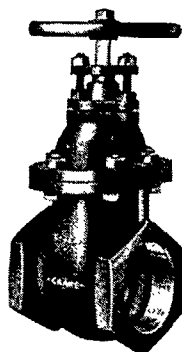
| Sizes:           | 2"   | 2½"  | 3"   | 3½"  | 4"   | 5"    | 6"    | 8"    |
|------------------|------|------|------|------|------|-------|-------|-------|
| F440. Price ...  | 56/6 | 62/- | 68/6 | 80/9 | 93/- | 124/6 | 145/3 | 235/6 |
| F442. " ...      | 56/6 | 62/- | 68/6 | 80/9 | 93/- | 124/6 | 145/3 | 235/6 |
| Face to Face ... | 10½" | 12"  | 12"  | 12"  | 14"  | 16"   | 16"   | 20"   |

Flanged Valves are supplied undrilled unless otherwise ordered. Drilling charge, 2d. per hole.

CRANE

# STANDARD CAST IRON WEDGE GATE VALVES

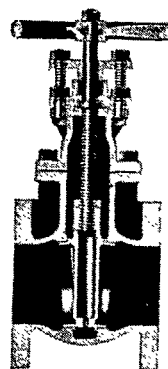
NON-RISING STEM  
IRON BODY WITH GUN METAL WEARING PARTS



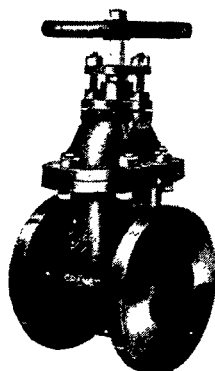
**Fig. F51**  
SCREWED ENDS

| Size:          | 2"      | 2½"      | 3"   | 4"   |
|----------------|---------|----------|------|------|
| Price ... ..   | 36/-    | 39/-     | 45/- | 59/6 |
| End to End ... | 4½"     | 4½"      | 6"   | 6½"  |
| Centre to Top  | 9-9/16" | 10-9/16" | 11¾" | 14¾" |

STEAM WORKING PRESSURE 100 lbs.  
WATER WORKING PRESSURE 175 lbs.  
TESTED TO 300 lbs. HYDRAULIC



**Fig. F52**  
SECTIONAL VIEW



**Fig. F52**  
FLANGED ENDS  
BRITISH STANDARD  
TABLES D and E FLANGES

| Size:             | 2"      | 2½"      | 3"   | 3½"  | 4"   | 5"       | 6"   |
|-------------------|---------|----------|------|------|------|----------|------|
| Price ...         | 36/-    | 39/-     | 45/- | 55/- | 59/6 | 82/-     | 94/6 |
| Diam. of Flanges  | 6"      | 6½"      | 7¼"  | 8"   | 8½"  | 10"      | 11"  |
| Face to Face ...  | 5¾"     | 6¼"      | 6¾"  | 7"   | 7½"  | 7¾"      | 8"   |
| Centre to Top ... | 9-9/16" | 10-9/16" | 11¼" | 12¾" | 14¾" | 16-5/16" | 18¾" |

Flanged Valves are supplied undrilled unless otherwise ordered. Drilling charge, 2d. per hole.

CRANE

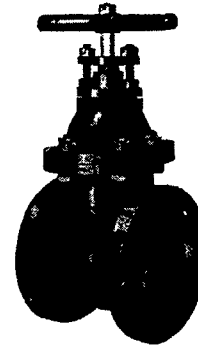
HEAVY

## CAST IRON WEDGE GATE VALVES

IRON BODY WITH GUN METAL WEARING PARTS  
FOR WATER WORKING PRESSURES UP TO 225 POUNDS

BRITISH STANDARD TABLE D and E FLANGES

| Sizes:           | 2"   | 2½"  | 3"   | 3½"  | 4"   | 5"    | 6"    | 8"    |
|------------------|------|------|------|------|------|-------|-------|-------|
| Price Un-stamped | 46/6 | 52/6 | 64/- | 76/- | 90/- | 123/- | 142/- | 226/- |
| Dia. of Flanges  | 6"   | 6½"  | 7¼"  | 8"   | 8½"  | 10"   | 11"   | 13¼"  |
| Face to Face ... | 7"   | 7½"  | 8"   | 8½"  | 9"   | 10"   | 10½"  | 11½"  |
| Centre to Top    | 11½" | 12½" | 14½" | 15½" | 16½" | 19½"  | 21½"  | 26½"  |



**Fig. F62**  
NON-RISING STEM  
FLANGED

**Fig. F65**  
M.W.B.

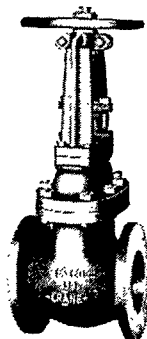
The fee for stamping by the Metropolitan Water Board is extra.  
See separate price list.

For Prices of Valves with B.S. Table F, etc. Flanges and larger sizes—  
see General Catalogue.

## OUTSIDE SCREW GATE VALVES

GUN METAL WEARING PARTS  
FOR WATER WORKING PRESSURES UP TO 225 POUNDS, NON-SHOCK

**Fig. F89** Stamped "Heating only Tested by Met. W.B."



**Fig. F81**

**Fig. F89** M.W.B.  
FLANGED  
B.S. TABLE D and E

| Size:              | 2"   | 2½"  | 3"   | 3½"   | 4"    | 5"    | 6"    | 8"    |
|--------------------|------|------|------|-------|-------|-------|-------|-------|
| Price Un-stamped   | 63/- | 76/- | 82/6 | 103/- | 114/- | 157/- | 179/- | 357/6 |
| Face to Face       | 7"   | 7½"  | 8"   | 8½"   | 9"    | 10"   | 10½"  | 11½"  |
| Dia. of Flanges    | 6"   | 6½"  | 7¼"  | 8"    | 8½"   | 10"   | 11"   | 13¼"  |
| Centre to Top Open | 15½" | 16½" | 19½" | 21½"  | 24½"  | 29½"  | 32½"  | 41½"  |

The Fee for Stamping by the Metropolitan Water Board is extra.  
See Separate Price List.

Flanged Valves are supplied undrilled unless otherwise ordered.  
Drilling charge, 2d. per hole.

CRANE

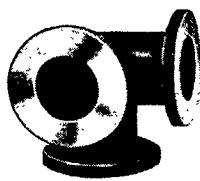
## CAST IRON FLANGED FITTINGS

BRITISH STANDARD TABLES D and E FLANGES

TEST PRESSURE 200 POUNDS HYDRAULIC



**No. A51**  
FLANGED ELBOWS  
EQUAL AND REDUCING



**No. A53**  
FLANGED ELBOWS  
SIDE OUTLET



**No. A54**  
45° FLANGED ELBOW



**No. A55**  
FLANGED ELBOWS WITH  
DUCKFOOT



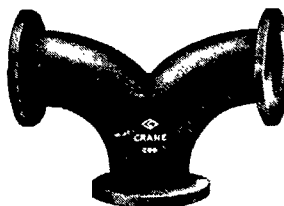
**No. A56**  
FLANGED BENDS



**No. A57**  
FLANGED BENDS, 45°



**No. A59**  
FLANGED SHORT SWEEP  
TWIN ELBOWS  
EQUAL AND REDUCING



**No. A61**  
FLANGED TWIN BENDS LONG SWEEP

For Prices—see page 133.

For Dimensions of British Standard Flanges—see pages 210 and 211.

For General Dimensions—see page 138.

See General Catalogue for Table F and Cast-steel Fittings.

## CAST IRON FLANGED FITTINGS

BRITISH STANDARD TABLES D and E FLANGES

TEST PRESSURE 200 POUNDS HYDRAULIC

## FACED FLANGES

| Sizes | A51                                |      | A53                                | A54                      | A55                                        | A56              | A57                     | A61                            | A59                       | A59                                   |
|-------|------------------------------------|------|------------------------------------|--------------------------|--------------------------------------------|------------------|-------------------------|--------------------------------|---------------------------|---------------------------------------|
|       | Flanged Elbows,<br>Equal, Reducing |      | Flanged<br>Elbow<br>Side<br>Outlet | 45°<br>Flanged<br>Elbows | Flanged<br>Elbows<br>with<br>Duck-<br>foot | Flanged<br>Bends | 45°<br>Flanged<br>Bends | Long<br>Sweep<br>Twin<br>Bends | Flanged<br>Twin<br>Elbows | Flanged<br>Twin<br>Elbows<br>Reducing |
| 2"    | 7/6                                | 7/6  | 18/6                               | 7/6                      | 16/6                                       | 11/6             | 11/6                    | 23/6                           | 11/-                      | 2"×2"×3" ... 16/-                     |
| 2½"   | 8/6                                | 8/6  | 20/-                               | 8/6                      | 21/-                                       | 12/6             | 12/6                    | 28/3                           | 13/6                      | —                                     |
| 3"    | 9/6                                | 9/6  | 24/-                               | 9/6                      | 22/6                                       | 14/6             | 14/6                    | 33/3                           | 16/-                      | 3"×3"×4" ... 19/9                     |
| 3½"   | 11/6                               | —    | 27/-                               | 11/6                     | 23/3                                       | 18/-             | 18/-                    | 36/-                           | 17/3                      | 3"×3"×6" ... 37/9                     |
| 4"    | 13/3                               | 13/3 | 30/-                               | 13/3                     | 24/-                                       | 19/3             | 19/3                    | 37/3                           | 19/9                      | 4"×4"×5" ... 29/-                     |
| 5"    | 18/6                               | 18/6 | 38/6                               | 18/6                     | 33/-                                       | 28/9             | 28/9                    | 54/-                           | 29/-                      | 5"×5"×7" ... 44/3                     |
| 6"    | 22/6                               | 22/6 | 52/-                               | 22/6                     | 36/-                                       | 36/-             | 36/-                    | 63/-                           | 37/9                      | 6"×6"×8" ... 56/9                     |
| 7"    | 27/-                               | 27/- | 58/-                               | 27/-                     | 54/-                                       | 40/6             | 40/6                    | 81/-                           | 44/3                      | 7"×7"×8" ... 56/9                     |
| 8"    | 34/-                               | 34/- | 70/-                               | 34/-                     | 60/-                                       | 50/9             | 50/9                    | 97/3                           | 56/9                      | —                                     |

For Dimensions of British Standard Flanges—see pages 210 and 211.

For General Dimensions—see page 138.

For Fittings under 2" and over 8" sizes, also for Fittings to Table "F," particulars—see General Catalogue.

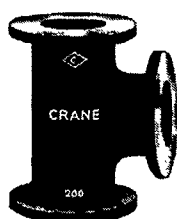
Flanged Fittings throughout are supplied undrilled unless ordered otherwise. Standard drilling charge is 2d. per hole.

CRANE

## CAST IRON FLANGED FITTINGS

BRITISH STANDARD TABLES D and E FLANGES

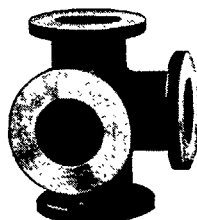
TEST PRESSURE 200 POUNDS HYDRAULIC



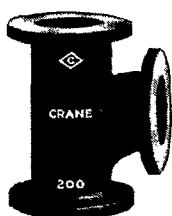
**No. A63**  
FLANGED TEES



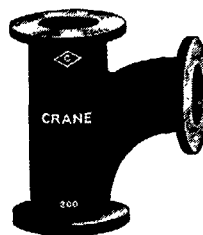
**No. A63**  
REDUCING FLANGED TEES  
REDUCING IN RUN OR BRANCH



**No. A66**  
FLANGED TEES  
SIDE OUTLET



**No. A68**  
SINGLE SWEEP FLANGED TEES  
EQUAL AND REDUCING



**No. A70**  
FLANGED LONG SWEEP TEES  
EQUAL AND REDUCING

For Prices—see page 135.

For Dimensions of British Standard Flanges—see pages 210 and 211.

For General Dimensions—see page 138.

See General Catalogue for Table F and Cast Steel Fittings.

# CAST IRON FLANGED FITTINGS

BRITISH STANDARD TABLES D and E FLANGES

TEST PRESSURE 200 POUNDS HYDRAULIC

## FACED FLANGES

| Sizes | <b>A63</b><br>Flanged Tees<br>Equal and<br>Reducing | <b>A66</b><br>Flanged Tees<br>Side Outlet | <b>A68</b><br>Flanged<br>Single Sweep<br>Tees | <b>A70</b><br>Flanged<br>Long Single<br>Sweep Tees |
|-------|-----------------------------------------------------|-------------------------------------------|-----------------------------------------------|----------------------------------------------------|
| 2"    | 10/-                                                | 24/-                                      | 11/-                                          | 15/3                                               |
| 2½"   | 12/-                                                | 27/6                                      | 13/6                                          | 16/6                                               |
| 3"    | 15/-                                                | 30/-                                      | 16/-                                          | 19/6                                               |
| 3½"   | 17/3                                                | 36/-                                      | 17/3                                          | 22/6                                               |
| 4"    | 18/9                                                | 39/-                                      | 19/9                                          | 27/-                                               |
| 5"    | 27/6                                                | 54/-                                      | 29/-                                          | 40/6                                               |
| 6"    | 33/-                                                | 68/-                                      | 34/6                                          | 54/-                                               |
| 7"    | 42/-                                                | 78/-                                      | 44/3                                          | 65/-                                               |
| 8"    | 52/6                                                | 90/-                                      | 56/9                                          | 73/-                                               |

For Dimensions of British Standard Flanges—see pages 210 and 211.

For General Dimensions—see page 138.

For Fittings under 2" size and over 8"—see General Catalogue.

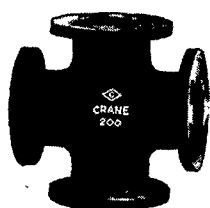
Flanged Fittings throughout are supplied undrilled unless otherwise ordered. Standard drilling charge is 2d. per hole.

CRANE

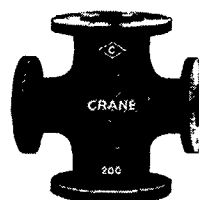
## CAST IRON FLANGED FITTINGS

BRITISH STANDARD TABLES D and E FLANGES

TEST PRESSURE 200 POUNDS HYDRAULIC



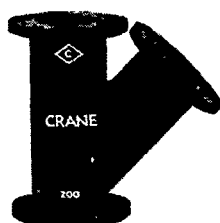
**No. A72**  
FLANGED CROSSES



**No. A72**  
REDUCING FLANGED CROSSES



**No. A76**  
FLANGED TAPER REDUCERS



**No. A74**  
FLANGED LATERAL "Y" BRANCHES



**No. A79**  
FLANGED CO-LATERAL "Y" BRANCHES

For Prices—see page 137.

For Dimensions of British Standard Flanges—see pages 210 and 211.

For General Dimensions—see page 138.

## CAST IRON FLANGED FITTINGS

BRITISH STANDARD TABLE D and E FLANGES

TEST PRESSURE 200 POUNDS HYDRAULIC

## FACED FLANGES

| Sizes | A72                         | A72                         | A74                        | A79                           | No. A76                                 |       |      |
|-------|-----------------------------|-----------------------------|----------------------------|-------------------------------|-----------------------------------------|-------|------|
|       | Flanged<br>Equal<br>Crosses | Flanged Crosses<br>Reducing | Lateral<br>"Y"<br>Branches | Co-Lateral<br>"Y"<br>Branches | Flanged Taper Reducers<br>Length<br>"G" | PRICE |      |
| 2"    | 15/-                        | 2" × 1½" ... 15/-           | 13/6                       | 11/-                          | 2" × 1½"                                | 7/6   |      |
| 2½"   | 18/-                        | 2½" × 1½" ... 18/-          | 15/-                       | 13/4                          | 2½" × 1½"                               |       | 6"   |
|       |                             | 2½" × 2" ... 18/-           |                            |                               | 2½" × 2"                                |       | 6"   |
| 3"    | 19/9                        | 3" × 1" ... 19/9            | 16/6                       | 16/6                          | 3" × 1½"                                | 9"    | 8/3  |
|       |                             | 3" × 2" ... 19/9            |                            |                               | 3" × 2½"                                | 5"    |      |
|       |                             | 3" × 2½" ... 19/9           |                            |                               | 3½" × 2"                                | 6"    | 9/-  |
|       |                             | 3" × 2½" ... 19/9           |                            |                               | 3½" × 2½"                               | 6"    |      |
| 3½"   | 22/6                        | 3½" × 2½" ... 22/6          | 25/3                       | 19/-                          | 3½" × 2½"                               | 6"    | 12/- |
| 4"    | 24/9                        | 4" × 2" ... 24/9            | 27/-                       | 20/9                          | 4" × 1½"                                | 9"    |      |
|       |                             | 4" × 2½" ... 24/9           |                            |                               | 4" × 2"                                 | 9"    | 10/6 |
|       |                             | 4" × 2½" ... 24/9           |                            |                               | 4" × 2½"                                | 5"    |      |
|       |                             | 4" × 3" ... 24/9            |                            |                               | 4" × 2½"                                | 12"   | 12/- |
|       |                             |                             |                            |                               | 4" × 2½"                                | 6"    |      |
|       |                             |                             |                            |                               | 4" × 3"                                 | 5"    | 10/6 |
|       |                             |                             |                            |                               | 4½" × 2½"                               | 9"    |      |
|       |                             |                             |                            |                               | 4½" × 4"                                | 12"   | 15/6 |
| 5"    | 36/-                        | 5" × 4" ... 36/-            | 36/-                       | 30/3                          | 5" × 2½"                                | 12"   |      |
|       |                             |                             |                            |                               | 5" × 3"                                 | 9"    | 14/6 |
|       |                             |                             |                            |                               | 5" × 4"                                 | 6"    |      |
|       |                             |                             |                            |                               | 6" × 2½"                                | 12"   | 15/9 |
| 6"    | 48/-                        | 6" × 3" ... 48/-            | 45/-                       | 36/6                          | 6" × 3"                                 | 12"   |      |
|       |                             | 6" × 4" ... 48/-            |                            |                               | 6" × 4"                                 | 9"    | 19/3 |
|       |                             |                             |                            |                               | 6" × 4"                                 | 12"   |      |
|       |                             |                             |                            |                               | 6" × 5"                                 | 6"    | 15/6 |
| 7"    | 64/9                        | 7" × 5" ... 64/9            | 59/6                       | 46/3                          | 6" × 5"                                 | 9"    |      |
|       |                             |                             |                            |                               | 7" × 2"                                 | 18"   | 21/9 |
|       |                             |                             |                            |                               | 7" × 3"                                 | 15"   |      |
|       |                             |                             |                            |                               | 7" × 4"                                 | 12"   | 28/9 |
| 8"    | 72/-                        | 8" × 4" ... 72/-            | 66/9                       | 57/9                          | 7" × 5"                                 | 9"    |      |
|       |                             | 8" × 4" ... 72/-            |                            |                               | 7" × 6"                                 | 6"    |      |
|       |                             |                             |                            |                               | 8" × 4"                                 | 15"   |      |
|       |                             | 8" × 6" ... 72/-            |                            |                               | 8" × 5"                                 | 12"   |      |
|       |                             |                             |                            |                               | 8" × 6"                                 | 9"    |      |
|       |                             |                             |                            |                               | 8" × 7"                                 | 6"    |      |

For Dimensions of British Standard Flanges—see pages 210 and 211.

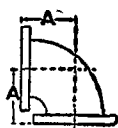
For General Dimensions—see page 138.

For Fittings under 2" and over 8" sizes—see General Catalogue.

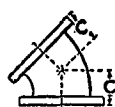
CRANE

# CAST IRON FLANGED FITTINGS

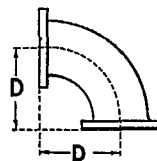
GENERAL DIMENSIONS



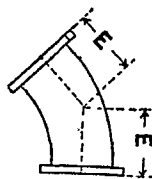
No. A51. Equal.  
Reducing.



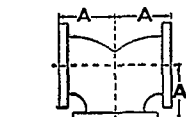
No. A54



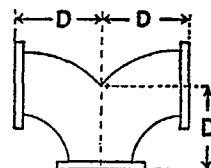
No. A56



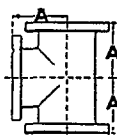
No. A57



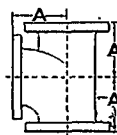
No. A59. Equal.  
Reducing.



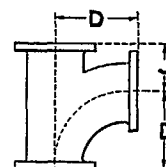
No. A61



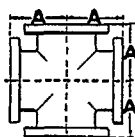
No. A63



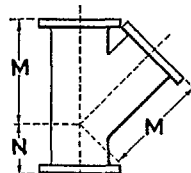
No. A68



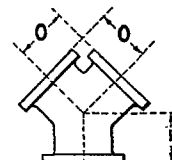
No. A70



No. A72. Equal.  
Reducing.



No. A74



No. A79

| Size: | 2"  | 2½" | 3"  | 3½"  | 4"  | 5"   | 6"   | 7"   | 8"   |
|-------|-----|-----|-----|------|-----|------|------|------|------|
| A     | 5"  | 5½" | 6"  | 6½"  | 7"  | 8"   | 9"   | 10"  | 11"  |
| C     | 2½" | 3"  | 3"  | 3½"  | 4"  | 4½"  | 5"   | 5½"  | 5½"  |
| D     | 10" | 10" | 12" | 14"  | 14" | 15"  | 16"  | 16"  | 18"  |
| E     | 5"  | 5½" | 6"  | 8"   | 8"  | 9"   | 10"  | 11"  | 11"  |
| J     | 3"  | 3½" | 4"  | 4"   | 4"  | 5"   | 6"   | 6"   | 7"   |
| M     | 8"  | 9½" | 10" | 11½" | 12" | 13½" | 14½" | 16½" | 17½" |
| N     | 2½" | 2½" | 3"  | 3"   | 3"  | 3½"  | 3½"  | 4"   | 4½"  |
| O     | 5"  | 5½" | 6"  | 6½"  | 7"  | 8"   | 9"   | 10"  | 11"  |
| P     | 2½" | 2½" | 3"  | 3½"  | 3½" | 4"   | 4½"  | 5"   | 5½"  |

For other Dimensions—see General Catalogue

## FLANGES

CAST IRON



FACED FLANGES

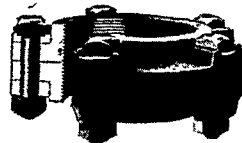
Fig. A142

|           |        |         |        |         |        |        |        |         |          |        |         |         |         |         |         |         |
|-----------|--------|---------|--------|---------|--------|--------|--------|---------|----------|--------|---------|---------|---------|---------|---------|---------|
| Sizes:    | 1/2"   | 1/2"    | 3/4"   | 1"      | 1 1/4" | 1 1/2" | 1 3/4" | 2"      | 2 1/4"   | 2 1/2" | 2 3/4"  | 3"      | 3 1/4"  | 3 1/2"  | 3 3/4"  | 4"      |
| Diameter  | 3 1/2" | 3 3/4"  | 4"     | 4 1/4"  | 5 1/4" | 6"     | 6 1/4" | 6 1/2"  | 6 3/4"   | 7"     | 7 1/4"  | 7 1/2"  | 7 3/4"  | 8"      | 8 1/4"  | 8 1/2"  |
| Price     | 1/-    | 1/3 1/2 | 1/4    | 1/5 1/2 | 2/2    | 2/4    | 1/5    | 1/5 1/2 | 1/10 1/2 | 2/2    | 2/4     | 2/4     | 3/-     | 1/9     | 1/9     |         |
| undrilled |        |         |        |         |        |        |        |         |          |        |         |         |         |         |         |         |
| Sizes:    | 1 1/2" | 1 3/4"  | 2"     | 2 1/4"  | 2 1/2" | 2 3/4" | 3"     | 3 1/4"  | 3 1/2"   | 3 3/4" | 4"      | 4 1/4"  | 4 1/2"  | 4 3/4"  | 5"      | 5 1/4"  |
| Diameter  | 5"     | 5 1/4"  | 6"     | 6 1/4"  | 6 1/2" | 6 3/4" | 7"     | 7 1/4"  | 7 1/2"   | 7 3/4" | 8"      | 8 1/4"  | 8 1/2"  | 8 3/4"  | 9"      | 9 1/4"  |
| Price     | 2/1    | 2/3     | 2/4    | 2/1     | 2/2    | 2/9    | 2/9    | 2/11    | 2/4      | 2/11   | 3/4     | 3/10    | 4/-     | 4/7     | 2/8     |         |
| undrilled |        |         |        |         |        |        |        |         |          |        |         |         |         |         |         |         |
| Sizes:    | 2 1/2" | 2 3/4"  | 3"     | 3 1/4"  | 3 1/2" | 3 3/4" | 4"     | 4 1/4"  | 4 1/2"   | 4 3/4" | 5"      | 5 1/4"  | 5 1/2"  | 5 3/4"  | 6"      | 6 1/4"  |
| Diameter  | 7 1/4" | 7 1/2"  | 8"     | 8 1/4"  | 8 1/2" | 8 3/4" | 9"     | 9 1/4"  | 9 1/2"   | 9 3/4" | 10"     | 10 1/4" | 10 1/2" | 10 3/4" | 11"     | 11 1/4" |
| Price     | 3/4    | 3/10    | 4/-    | 4/7     | 5/2    | 3/3    | 3/10   | 4/-     | 4/7      | 5/2    | 5/10    | 4/-     | 4/1     | 5/2     | 5/10    |         |
| undrilled |        |         |        |         |        |        |        |         |          |        |         |         |         |         |         |         |
| Sizes:    | 4"     | 4 1/4"  | 4 1/2" | 4 3/4"  | 5"     | 5 1/4" | 5 1/2" | 5 3/4"  | 6"       | 6 1/4" | 6 1/2"  | 6 3/4"  | 7"      | 7 1/4"  | 7 1/2"  | 7 3/4"  |
| Diameter  | 8 1/2" | 9"      | 10"    | 11"     | 12"    | 10"    | 11"    | 12"     | 11"      | 12"    | 13 1/4" | 12"     | 13 1/4" | 13 1/2" | 14 1/4" | 14 1/2" |
| Price     | 4/1    | 5/2     | 5/10   | 7/4     | 10/3   | 5/10   | 7/4    | 10/3    | 8/2      | 10/3   | 12/3    | 11/8    | 14/7    | 17/6    | 21/11   |         |
| Undrilled |        |         |        |         |        |        |        |         |          |        |         |         |         |         |         |         |

## CAST IRON FLANGE UNIONS

FOR STEAM WORKING PRESSURES UP TO 125 POUNDS  
FOR WATER WORKING PRESSURES UP TO 175 POUNDS

FACED



GASKET EXTRA

Fig. A151

| Figure No. | Sizes:              | 2"     | 2 1/2" | 3"     | 3 1/2" | 4"     | 5"     | 6"      | 8"      |
|------------|---------------------|--------|--------|--------|--------|--------|--------|---------|---------|
| A151       | Price, Black ...    | 4/2    | 5/3    | 6/3    | 7/6    | 8/9    | 13/2   | 16/6    | 29/2    |
|            | „ Galvd. ...        | 8/4    | 10/6   | 12/6   | 15/-   | 17/6   | 26/4   | 33/-    | 58/4    |
|            | Diameter of Flanges | 5 1/8" | 5 7/8" | 6 5/8" | 7 1/4" | 7 3/4" | 9 1/8" | 10 3/8" | 12 3/4" |
|            | Number of Bolts     | 4      | 4      | 4      | 4      | 5      | 5      | 6       | 8       |

See page 160 for malleable iron flanges

# CRANE

## INDIRECT CYLINDERS

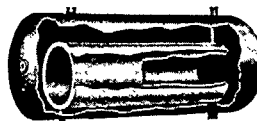
FOR HOT WATER SUPPLY OPERATED BY A RADIATOR HEATING BOILER

WATER TO WATER

Can be fixed horizontally or vertically



**Fig. 935**  
GALVANIZED STEEL



**Fig. 936**  
COPPER

**Fig. 935.** Galvanized Steel Indirect Cylinders. Nos. 0, 1, 02 and 2 with Fixed Head, Nos. 3-8 with Bolted Head and India-rubber jointing ring, as illustrated

| No. | Net Storage Galls. | Heating Surface sq. ft. | Test Pressure lbs. per sq. in. | Working Pressure ft. head of water | GAUGES |      | PRICE<br>£ s. d. | Test Pressure lbs. per sq. in. | Working Pressure ft. head of water | GAUGES |      | PRICE<br>£ s. d. |
|-----|--------------------|-------------------------|--------------------------------|------------------------------------|--------|------|------------------|--------------------------------|------------------------------------|--------|------|------------------|
|     |                    |                         |                                |                                    | Body   | Ends |                  |                                |                                    | Body   | Ends |                  |
| 0   | 24                 | 6½                      | 40                             | 50                                 | 14G    | 12G  | 4 7 0*           | 40                             | 50                                 | 14G    | 12G  | 5 5 0*           |
| 1   | 30                 | 10½                     | 40                             | 50                                 | 14G    | 12G  | 4 18 0*          | 40                             | 50                                 | 14G    | 12G  | 6 3 0*           |
| 02  | 35                 | 12                      | 40                             | 50                                 | 14G    | 12G  | 5 10 3*          | 40                             | 50                                 | 14G    | 12G  | 6 18 0*          |
| 2   | 40                 | 14                      | 40                             | 50                                 | 14G    | 12G  | 5 15 0*          | 40                             | 50                                 | 14G    | 12G  | 7 9 0*           |
| 3   | 50                 | 17½                     | 76                             | 90                                 | 14G    | 12G  | 8 6 9            | 94                             | 110                                | 14G    | 12G  | 11 14 0          |
| 4   | 60                 | 20½                     | 76                             | 90                                 | 14G    | 12G  | 9 12 6           | 94                             | 110                                | 14G    | 12G  | 13 3 0           |
| 5   | 80                 | 27½                     | 64                             | 75                                 | 14G    | 12G  | 11 18 0          | 84                             | 95                                 | 14G    | 12G  | 15 12 0          |
| 6   | 100                | 35                      | 64                             | 75                                 | 14G    | 12G  | 13 18 0          | 84                             | 95                                 | 14G    | 12G  | 18 12 0          |
| 7   | 150                | 52                      | 56                             | 65                                 | 14G    | 12G  | 18 18 0          | 76                             | 90                                 | 14G    | 12G  | 24 5 0           |
| 8   | 200                | 70                      | 50                             | 60                                 | 14G    | 12G  | 23 18 0          | 70                             | 80                                 | 14G    | 12G  | 30 0 0           |

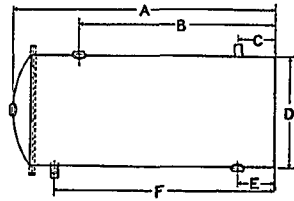
\* Extra for Bolted Head on application

Size of connections—24 and 30 gall., 1"; 35 and 40 gall., 1½"; 50 and 60 gall., 1½"; 80 and 100 gall., 2"; 150 gall., 2½"; 200 gall., 3"

**Fig. 936.** Copper Indirect Cylinders, Inner Cylinder Corrugated, all with Fixed Head.

| No. | Net Storage Galls. | Heating Surface sq. ft. | Test Pressure lbs. per sq. in. | Working Pressure ft. head of water | GAUGES |      | PRICE<br>£ s. d. | Test Pressure lbs. per sq. in. | Working Pressure ft. head of water | GAUGES |      | PRICE<br>£ s. d. |
|-----|--------------------|-------------------------|--------------------------------|------------------------------------|--------|------|------------------|--------------------------------|------------------------------------|--------|------|------------------|
|     |                    |                         |                                |                                    | Body   | Ends |                  |                                |                                    | Body   | Ends |                  |
| 0   | 24                 | 6½                      | 25                             | 35                                 | 20     | 18   | 5 15 0           | —                              | —                                  | —      | —    | —                |
| 01  | 27½                | 9                       | 25                             | 35                                 | 20     | 18   | 6 13 0           | —                              | —                                  | —      | —    | —                |
| 1   | 30                 | 10½                     | 25                             | 35                                 | 20     | 18   | 7 3 0            | —                              | —                                  | —      | —    | —                |
| 02  | 35                 | 12                      | 25                             | 35                                 | 20     | 18   | 7 19 0           | —                              | —                                  | —      | —    | —                |
| 2   | 40                 | 14                      | 25                             | 35                                 | 20     | 18   | 8 12 0           | —                              | —                                  | —      | —    | —                |
| 3   | 50                 | 17½                     | 30                             | 40                                 | 18     | 16   | 12 5 0           | 50                             | 70                                 | 16     | 14   | 14 12 6          |
| 4   | 60                 | 20½                     | 30                             | 40                                 | 18     | 16   | 13 17 6          | 50                             | 70                                 | 16     | 14   | 16 10 0          |
| 5   | 80                 | 27½                     | 30                             | 40                                 | 16     | 14   | 22 15 0          | 50                             | 70                                 | 14     | 12   | 26 15 0          |
| 6   | 100                | 35                      | 30                             | 40                                 | 16     | 13   | 28 5 0           | 50                             | 70                                 | 14     | 12   | 32 15 0          |
| 7   | 150                | 52                      | 30                             | 40                                 | 14     | 12   | 48 10 0          | 50                             | 70                                 | 12     | 10   | 55 0 0           |
| 8   | 200                | 70                      | 30                             | 40                                 | 14     | 11   | 65 17 6          | 50                             | 70                                 | 12     | 9    | 76 0 0           |

Size of Connections—24 to 30 gall., 1"; 35 and 40 gall., 1½"; 50 and 60 gall., 1½"; 80 and 100 gall., 2"; 150 gall., 2½"; 200 gall., 3"



**GALVANIZED CANTILEVER  
BRACKETS**  
For supporting Indirect Cylinders

## COPPER AND GALVANIZED INDIRECT CYLINDERS

Fig. 937 Horizontal Fig. 938 Vertical  
State if required for Horizontal or Vertical fixing.  
Prices on application.

DIMENSIONS IN INCHES

| No. | A      |        | B      |        | C      |        | D      |        | E      |        | F      |        | Size of Connections |        |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------------------|--------|
|     | Copper | Galvd. | Copper | Galvd. | Copper | Galvd. | Copper | Galvd. | Copper | Galvd. | Copper | Galvd. | Copper              | Galvd. |
| 0   | 30     | 30     | 22     | 22     | 5½     | 5      | 18     | 18     | 5½     | 5½     | 25     | 25     | 1                   | 1      |
| 01  | 34½    | —      | 27     | —      | 5½     | —      | 18     | —      | 5½     | —      | 29½    | —      | 1                   | —      |
| 1   | 39     | 39     | 31½    | 31½    | 6      | 6      | 18     | 18     | 6      | 6      | 33     | 33     | 1½                  | 1½     |
| 02  | 42½    | 42½    | 32     | 32     | 6      | 6      | 18     | 18     | 6      | 6      | 36     | 36     | 1½                  | 1½     |
| 2   | 48     | 48     | 38½    | 38½    | 6½     | 6½     | 18     | 18     | 6½     | 6½     | 40½    | 40½    | 1½                  | 1½     |
| 3   | 50     | 50     | 39     | 39     | 7      | 5½     | 20     | 20     | 7      | 5      | 41     | 39     | 1½                  | 1½     |
| 4   | 58     | 58     | 45     | 45     | 7      | 5      | 20     | 20     | 7      | 5      | 47     | 45     | 2                   | 2      |
| 5   | 54     | 54     | 41     | 41     | 7½     | 6      | 24     | 24     | 7½     | 6      | 45     | 43½    | 2                   | 2      |
| 6   | 69     | 69     | 53     | 53     | 7½     | 6      | 24     | 24     | 7½     | 6      | 60     | 58½    | 2                   | 2      |
| 7   | 65½    | 65½    | 50     | 50     | 9      | 6      | 30     | 30     | 9      | 6      | 55½    | 54     | 2½                  | 2½     |
| 8   | 76½    | 76½    | 59     | 59     | 9      | 7      | 32     | 32     | 9      | 7      | 66½    | 65½    | 3                   | 3      |

PRIMARY CONNECTIONS SCREWED MALE, SECONDARY AND COLD WATER  
ARE FEMALE

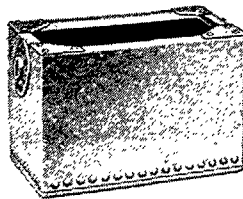


Fig. 939

## GALVANIZED FEED AND EXPANSION CISTERNS

FOR SMALL HEATING INSTALLATIONS

COMPLETE WITH FLANGES FOR OUTLET AND OVERFLOW AND PLAIN HOLE  
CUT FOR BALL VALVE

| *Cap-<br>acity<br>Gallons | DIMENSIONS |         |         | SIZE OF CONNECTIONS |        |          | Gauges | PRICE<br>Without<br>Cover | PRICE<br>With loose<br>Cover (18G) |
|---------------------------|------------|---------|---------|---------------------|--------|----------|--------|---------------------------|------------------------------------|
|                           | Length     | Width   | Depth   | Ball Valve          | Outlet | Overflow |        |                           |                                    |
| 10                        | ins. 18    | ins. 12 | ins. 12 | ½                   | ½      | 1        | 18     | 18/3                      | 20/6                               |
| 15                        | 24         | 12      | 15      | ½                   | ½      | 1        | 18     | 21/8                      | 24/8                               |
| 20                        | 20         | 15      | 20      | ½                   | ½      | 1        | 16     | 25/7                      | 28/6                               |
| 25                        | 24         | 17      | 17      | ½                   | ½      | 1        | 16     | 27/-                      | 31/4                               |
| 30                        | 24         | 18      | 19      | ½                   | ½      | 1        | 16     | 29/-                      | 33/7                               |

\* Total Nominal Capacity of Cistern. For larger Cisterns order Figs. 942/3.

# CRANE

## GALVANIZED HOT WATER CYLINDERS

WELDED TOP AND BOTTOM. SIDES RIVETED OR WELDED

Galvanized after manufacture and tested. WITHOUT HANDHOLE.

Fig. No. 940.

| Gallons<br>Approx. | Dimensions         |                   | 16 G.<br>Tested to 5 lbs.<br>Pressure = 10 ft.<br>Head of Water |    |    | 14 G.<br>Tested to 15 lbs.<br>Pressure = 30 ft.<br>Head of Water |    |    | 12 G.<br>Tested to 20 lbs.<br>Pressure = 40 ft.<br>Head of Water |    |    | 10 G.<br>Tested to 25 lbs.<br>Pressure = 50 ft.<br>Head of Water |    |    |
|--------------------|--------------------|-------------------|-----------------------------------------------------------------|----|----|------------------------------------------------------------------|----|----|------------------------------------------------------------------|----|----|------------------------------------------------------------------|----|----|
|                    | Diameter<br>Inside | Height<br>Overall | £                                                               | s. | d. | £                                                                | s. | d. | £                                                                | s. | d. | £                                                                | s. | d. |
| 20                 | { 15 × 30 }        |                   | 1                                                               | 15 | 0  | 1                                                                | 18 | 9  | 2                                                                | 4  | 0  | 2                                                                | 10 | 1  |
| 21                 | { 18 × 24 }        |                   | 1                                                               | 16 | 3  | 2                                                                | 0  | 3  | 2                                                                | 5  | 11 | 2                                                                | 12 | 5  |
| 23                 | { 15 × 33 }        |                   | 1                                                               | 17 | 8  | 2                                                                | 1  | 9  | 2                                                                | 7  | 9  | 2                                                                | 14 | 9  |
| 25                 | { 15 × 36 }        |                   | 1                                                               | 19 | 1  | 2                                                                | 3  | 7  | 2                                                                | 10 | 0  | 2                                                                | 16 | 11 |
| 28                 | { 18 × 27 }        |                   | 1                                                               | 19 | 9  | 2                                                                | 4  | 1  | 2                                                                | 11 | 3  | 2                                                                | 19 | 0  |
| 31                 | { 15 × 39 }        |                   | 2                                                               | 0  | 4  | 2                                                                | 5  | 0  | 2                                                                | 12 | 9  | 3                                                                | 1  | 7  |
| 34                 | { 18 × 30 }        |                   | 2                                                               | 2  | 8  | 2                                                                | 7  | 4  | 2                                                                | 15 | 1  | 3                                                                | 3  | 5  |
| 37                 | { 18 × 33 }        |                   | 2                                                               | 4  | 5  | 2                                                                | 9  | 5  | 2                                                                | 17 | 7  | 3                                                                | 5  | 7  |
| 40                 | { 20 × 30 }        |                   | 2                                                               | 6  | 3  | 2                                                                | 11 | 7  | 3                                                                | 0  | 1  | 3                                                                | 7  | 11 |
| 42                 | { 18 × 42 }        |                   | 2                                                               | 8  | 3  | 2                                                                | 13 | 4  | 3                                                                | 2  | 3  | 3                                                                | 10 | 3  |
| 45                 | { 20 × 36 }        |                   | 2                                                               | 10 | 1  | 2                                                                | 15 | 5  | 3                                                                | 4  | 0  | 3                                                                | 13 | 1  |
| 48                 | { 18 × 45 }        |                   | 2                                                               | 12 | 9  | 3                                                                | 18 | 0  | 3                                                                | 7  | 7  | 3                                                                | 17 | 7  |
| 56                 | { 20 × 48 }        |                   | 2                                                               | 16 | 0  | 3                                                                | 2  | 1  | 3                                                                | 12 | 3  | 4                                                                | 2  | 11 |
| 60                 | { 20 × 51 }        |                   | —                                                               | —  | —  | 3                                                                | 4  | 8  | 3                                                                | 14 | 11 | 4                                                                | 6  | 11 |
| 65                 | { 22 × 48 }        |                   | —                                                               | —  | —  | 4                                                                | 0  | 4  | 4                                                                | 12 | 5  | 5                                                                | 5  | 7  |
| 75                 | { 24 × 48 }        |                   | —                                                               | —  | —  | 4                                                                | 12 | 3  | 5                                                                | 4  | 7  | 5                                                                | 19 | 5  |
| 85                 | { 24 × 54 }        |                   | —                                                               | —  | —  | —                                                                | —  | —  | 5                                                                | 18 | 11 | 6                                                                | 18 | 1  |
| 100                | { 24 × 64 }        |                   | —                                                               | —  | —  | —                                                                | —  | —  | —                                                                | —  | —  | 7                                                                | 7  | 9  |

**Special Sizes.** These are priced at next larger capacity.

\* Prices include up to 4-1½" Screwed Flanges or Bosses. See page 147 for extras.

\* In calculating the extra for Flanges or Bosses, the total price of such Flanges or Bosses shall be taken and the price of 4-1½" Flanges or Bosses deducted therefrom, provided the ultimate price is not lower than the list price.

# CRANE

## GALVANIZED HOT WATER CYLINDERS

### RIVETED THROUGHOUT

Galvanized after manufacture and tested before despatch. WITHOUT HANDHOLE.

Fig. No. 94I.

| Gallons<br>Approx. | Dimensions         |                  | 16 G.<br>Tested to 5 lbs.<br>Pressure = 10 ft.<br>Head of Water | 14 G.<br>Tested to 15 lbs.<br>Pressure = 30 ft.<br>Head of Water | 12 G.<br>Tested to 20 lbs.<br>Pressure = 40 ft.<br>Head of Water | $\frac{1}{2}$ "<br>Tested to 25 lbs.<br>Pressure = 50 ft.<br>Head of Water |
|--------------------|--------------------|------------------|-----------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------|
|                    | Diameter<br>Inches | Height<br>Inches | £ s. d.                                                         | £ s. d.                                                          | £ s. d.                                                          | £ s. d.                                                                    |
| 20                 | { 15 × 30 }        |                  | 1 18 7                                                          | 2 2 8                                                            | 2 8 4                                                            | 2 15 4                                                                     |
| 21                 | { 18 × 24 }        |                  | 1 19 9                                                          | 2 4 1                                                            | 2 10 5                                                           | 2 17 9                                                                     |
| 23                 | { 15 × 36 }        |                  | 2 1 5                                                           | 2 6 0                                                            | 2 12 9                                                           | 3 0 3                                                                      |
| 25                 | { 18 × 27 }        |                  | 2 3 0                                                           | 2 7 9                                                            | 2 15 1                                                           | 3 2 7                                                                      |
|                    | { 15 × 39 }        |                  |                                                                 |                                                                  |                                                                  |                                                                            |
| 28                 | { 18 × 30 }        |                  | 2 3 9                                                           | 2 8 7                                                            | 2 16 7                                                           | 3 4 11                                                                     |
|                    | { 15 × 42 }        |                  |                                                                 |                                                                  |                                                                  |                                                                            |
| 31                 | { 20 × 27 }        |                  | 2 4 5                                                           | 2 9 7                                                            | 2 17 9                                                           | 3 7 9                                                                      |
|                    | { 18 × 33 }        |                  |                                                                 |                                                                  |                                                                  |                                                                            |
| 34                 | { 18 × 36 }        |                  | 2 7 1                                                           | 2 12 1                                                           | 3 0 5                                                            | 3 9 8                                                                      |
|                    | { 18 × 39 }        |                  |                                                                 |                                                                  |                                                                  |                                                                            |
| 37                 | { 20 × 30 }        |                  | 2 8 9                                                           | 2 14 5                                                           | 3 3 1                                                            | 3 12 3                                                                     |
| 40                 | { 18 × 42 }        |                  | 2 10 11                                                         | 2 16 8                                                           | 3 6 1                                                            | 3 15 0                                                                     |
| 42                 | { 18 × 45 }        |                  | 2 13 0                                                          | 2 18 11                                                          | 3 8 5                                                            | 3 17 7                                                                     |
|                    | { 20 × 36 }        |                  |                                                                 |                                                                  |                                                                  |                                                                            |
| 45                 | { 18 × 48 }        |                  | 2 15 4                                                          | 3 1 0                                                            | 3 10 7                                                           | 4 0 7                                                                      |
| 48                 | { 20 × 42 }        |                  | 2 18 0                                                          | 3 3 9                                                            | 3 14 4                                                           | 4 5 1                                                                      |
| 56                 | { 20 × 48 }        |                  | 3 1 8                                                           | 3 8 3                                                            | 3 19 5                                                           | 4 11 3                                                                     |
| 60                 | { 20 × 51 }        |                  | —                                                               | 3 11 1                                                           | 4 2 5                                                            | 4 15 9                                                                     |
| 65                 | { 22 × 48 }        |                  | —                                                               | 4 8 7                                                            | 5 1 8                                                            | 5 16 1                                                                     |
| 75                 | { 24 × 48 }        |                  | —                                                               | 5 1 7                                                            | 5 15 0                                                           | 6 11 4                                                                     |
| 85                 | { 24 × 54 }        |                  | —                                                               | —                                                                | 6 10 8                                                           | 7 11 9                                                                     |
| 100                | { 24 × 64 }        |                  | —                                                               | —                                                                | —                                                                | 8 2 5                                                                      |

**Special Sizes.** These are priced at next larger capacity.

Prices include up to 4-1 $\frac{1}{4}$ " Screwed Flanges or Bosses. See page 147 for extras.

In calculating the extra for Flanges or Bosses, the total price of such Flanges or Bosses shall be taken and the price of 4-1 $\frac{1}{4}$ " Flanges or Bosses deducted therefrom, provided the ultimate price is not lower than the list price.

# CRANE

## GALVANIZED OPEN TOP CISTERNS

WITH INTERNAL ANGLE IRON AT TOP AND CORNER PLATES

Nominal Capacities. Galvanized after manufacture, and tested before despatch.

Fig. No. 942.

| Gallons<br>Approx. | Dimensions        |                  |                  | 20 G.   | 18 G.   | 16 G.   | 14 G.   | 12 G.    | 1"      | 3/8"     |
|--------------------|-------------------|------------------|------------------|---------|---------|---------|---------|----------|---------|----------|
|                    | Length<br>Ft. In. | Width<br>Ft. In. | Depth<br>Ft. In. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d.  | £ s. d. | £ s. d.  |
| 20                 | 2 0               | 1 0              | 1 8              |         |         |         |         |          |         |          |
|                    | x2 0              | 1 4              | 1 3              | 1 0 1   | 1 3 5   | 1 5 7   | 1 9 1   | 1 13 8   | 1 19 0  | 5 1 0    |
|                    | 1 6               | 1 6              | 1 6              |         |         |         |         |          |         |          |
| 25                 | x2 0              | 1 5              | 1 5              |         |         |         |         |          |         |          |
|                    | 2 0               | 1 0              | 2 0              | 1 2 7   | 1 5 9   | 1 8 4   | 1 12 0  | 1 17 0   | 2 2 8   | 5 10 0   |
|                    | 2 0               | 1 8              | 1 3              |         |         |         |         |          |         |          |
| 30                 | x2 0              | 1 6              | 1 7              |         |         |         |         |          |         |          |
|                    | 1 8               | 1 8              | 1 8              | 1 4 7   | 1 8 1   | 1 10 7  | 1 14 8  | 1 19 9   | 2 7 1   | 5 17 4   |
|                    | 2 0               | 2 0              | 1 3              |         |         |         |         |          |         |          |
| 40                 | 2 0               | 1 3              | 2 0              |         |         |         |         |          |         |          |
|                    | x2 3              | 1 8              | 1 8              | 1 7 7   | 1 11 1  | 1 13 8  | 1 19 4  | 2 5 11   | 2 14 0  | 6 8 8    |
|                    | 2 0               | 2 0              | 1 7              |         |         |         |         |          |         |          |
| 50                 | 1 10              | 1 10             | 1 10             |         |         |         |         |          |         |          |
|                    | 2 0               | 2 0              | 2 0              | 1 10 9  | 1 15 3  | 2 0 3   | 2 5 11  | 2 14 5   | 3 1 7   | 7 0 8    |
|                    | x2 5              | 1 10             | 1 10             |         |         |         |         |          |         |          |
| 60                 | 2 7               | 2 0              | 1 7              |         |         |         |         |          |         |          |
|                    | x2 6              | 1 11             | 2 0              | 1 15 3  | 2 0 0   | 2 5 1   | 2 13 4  | 3 1 11   | 3 10 11 | 7 11 4   |
|                    | 3 0               | 2 0              | 1 8              |         |         |         |         |          |         |          |
| 70                 | 3 0               | 2 0              | 1 11             | 1 19 0  | 2 4 9   | 2 10 0  | 2 18 0  | 3 6 5    | 3 17 8  | 8 3 4    |
|                    | 2 8               | 2 2              | 2 0              |         |         |         |         |          |         |          |
|                    | 3 0               | 2 2              | 2 0              | 2 3 1   | 2 10 0  | 2 15 4  | 3 2 9   | 3 13 1   | 4 4 4   | 8 13 4   |
| 80                 | 3 0               | 2 2              | 2 0              |         |         |         |         |          |         |          |
|                    | 3 0               | 2 6              | 2 2              |         |         |         |         |          |         |          |
|                    | 4 0               | 2 0              | 2 0              | 2 6 8   | 2 13 7  | 2 19 3  | 3 8 9   | 4 2 11   | 4 16 9  | 9 10 8   |
| 100                | x3 2              | 2 3              | 2 3              |         |         |         |         |          |         |          |
|                    | 3 2               | 2 6              | 2 7              |         |         | 4 2 11  | 4 10 4  | 4 18 8   | 5 14 1  | 9 17 0   |
|                    | 3 7               | 2 10             | 2 5              |         |         | 4 13 0  | 5 4 3   | 5 14 1   | 6 11 9  | 10 10 11 |
| 125                | 4 0               | 3 0              | 2 8              |         |         |         |         |          |         |          |
|                    | x3 10             | 2 11             | 2 11             |         |         | 5 14 1  | 6 6 9   | 6 19 5   | 7 18 3  | 13 1 0   |
|                    | 5 0               | 3 0              | 2 8              |         |         |         |         |          |         |          |
| 250                | 6 0               | 3 0              | 2 8              |         |         | 6 18 1  | 7 13 1  | 8 8 3    | 9 14 7  | 14 11 3  |
|                    | x4 6              | 3 7              | 3 0              |         |         |         |         |          |         |          |
|                    | 6 6               | 3 3              | 2 8              |         |         | 7 14 4  | 8 16 7  | 9 9 7    | 10 18 4 | 16 2 5   |
| 350                | 5 0               | 3 9              | 3 0              |         |         | 8 19 7  | 9 15 9  | 10 12 1  | 12 0 4  | 18 0 3   |
|                    | 7 0               | 3 6              | 2 8              |         |         |         |         |          |         |          |
|                    | 4 0               | 4 0              | 4 0              |         |         | 9 12 0  | 10 4 8  | 11 10 11 | 13 4 11 | 19 2 9   |
| 400                | x6 0              | 3 7              | 3 0              |         |         |         |         |          |         |          |
|                    | 8 0               | 3 9              | 2 8              |         |         |         |         |          |         |          |
|                    | 5 0               | 4 0              | 4 0              |         |         |         | 12 6 0  | 13 16 1  | 15 16 3 | 22 6 9   |
| 500                | x6 0              | 4 0              | 3 4              |         |         |         |         |          |         |          |
|                    | 8 0               | 4 0              | 3 0              |         |         |         |         |          |         |          |
|                    | 6 0               | 4 0              | 4 0              |         |         |         |         | 15 11 4  | 17 17 8 | 25 8 4   |
| 600                | 7 0               | 4 0              | 4 0              |         |         |         |         |          |         |          |
|                    | 8 0               | 4 0              | 4 0              |         |         |         |         | 17 8 11  | 19 11 7 | 27 14 8  |
|                    | 8 0               | 4 0              | 4 0              |         |         |         |         | 18 19 0  | 21 4 3  | 30 6 0   |
| 700                | 9 0               | 4 0              | 4 0              |         |         |         |         |          |         |          |
|                    | 8 0               | 4 0              | 4 0              |         |         |         |         | 20 4 1   | 23 1 11 | 32 10 8  |
|                    | 8 0               | 5 0              | 4 0              |         |         |         |         | 21 9 4   | 24 19 5 | 34 15 4  |
| 800                |                   |                  |                  |         |         |         |         |          |         |          |
|                    |                   |                  |                  |         |         |         |         |          |         |          |
|                    |                   |                  |                  |         |         |         |         |          |         |          |
| 900                |                   |                  |                  |         |         |         |         |          |         |          |
|                    |                   |                  |                  |         |         |         |         |          |         |          |
|                    |                   |                  |                  |         |         |         |         |          |         |          |
| 1000               |                   |                  |                  |         |         |         |         |          |         |          |
|                    |                   |                  |                  |         |         |         |         |          |         |          |
|                    |                   |                  |                  |         |         |         |         |          |         |          |

See page 147 for extras.

Sizes marked x sent unless otherwise ordered.

# CRANE GALVANIZED OPEN TOP CISTERNS WITH BENT-OVER TOPS AND CORNER PLATES

Nominal Capacities. Galvanized after manufacture, and tested before despatch.  
Fig. No. 943.

| Gallons<br>Approx. | Dimensions        |                  |                  | 20 G    | 18 G    | 16 G.   | 14 G.   | 12 G.   | $\frac{1}{8}$ " | $\frac{1}{16}$ " |
|--------------------|-------------------|------------------|------------------|---------|---------|---------|---------|---------|-----------------|------------------|
|                    | Length<br>Ft. In. | Width<br>Ft. In. | Depth<br>Ft. In. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d.         | £ s. d.          |
| 20                 | 2 0               | 1 0              | 1 8              |         |         |         |         |         |                 |                  |
|                    | x2 0              | 1 4              | 1 3              | 18 3    | 1 1 4   | 1 3 4   | 1 7 0   | 1 11 4  | 1 15 9          | 4 10 8           |
|                    | 1 6               | 1 6              | 1 6              |         |         |         |         |         |                 |                  |
| 25                 | x2 0              | 1 3              | 1 5              |         |         |         |         |         |                 |                  |
|                    | 2 0               | 1 0              | 2 0              | 19 5    | 1 2 8   | 1 5 1   | 1 9 3   | 1 14 0  | 1 19 8          | 5 0 0            |
|                    | 2 0               | 1 8              | 1 3              |         |         |         |         |         |                 |                  |
| 30                 | x2 0              | 1 6              | 1 7              |         |         |         |         |         |                 |                  |
|                    | 1 8               | 1 8              | 1 8              | 1 1 4   | 1 4 7   | 1 7 3   | 1 11 4  | 1 17 0  | 2 3 4           | 5 6 8            |
|                    | 2 0               | 2 0              | 1 3              |         |         |         |         |         |                 |                  |
| 40                 | 2 0               | 1 3              | 2 0              |         |         |         |         |         |                 |                  |
|                    | x2 3              | 1 8              | 1 8              | 1 4 7   | 1 7 7   | 1 10 9  | 1 16 5  | 2 3 4   | 2 10 1          | 5 16 8           |
|                    | 2 0               | 2 0              | 1 7              |         |         |         |         |         |                 |                  |
| 50                 | 1 10              | 1 10             | 1 10             |         |         |         |         |         |                 |                  |
|                    | 2 0               | 2 0              | 2 0              | 1 7 7   | 1 11 4  | 1 16 5  | 2 2 1   | 2 10 1  | 2 17 9          | 6 8 0            |
|                    | 2 7               | 2 0              | 1 7              |         |         |         |         |         |                 |                  |
| 60                 | x2 6              | 1 11             | 2 0              | 1 10 9  | 1 15 3  | 2 2 1   | 2 7 1   | 2 17 1  | 3 4 0           | 6 17 4           |
|                    | 3 0               | 2 0              | 1 8              |         |         |         |         |         |                 |                  |
|                    | 3 0               | 2 0              | 1 11             |         |         |         |         |         |                 |                  |
| 70                 | x2 8              | 2 2              | 2 0              | 1 14 7  | 2 0 3   | 2 6 5   | 2 11 7  | 3 2 9   | 3 11 4          | 7 8 8            |
|                    | 3 0               | 2 2              | 2 0              | 1 17 8  | 2 4 0   | 2 9 0   | 2 16 7  | 3 8 5   | 4 0 4           | 7 18 0           |
|                    | 3 0               | 2 6              | 2 2              |         |         |         |         |         |                 |                  |
| 100                | 4 0               | 2 0              | 2 0              | 2 1 5   | 2 7 8   | 2 14 0  | 3 2 9   | 3 15 5  | 4 10 4          | 8 13 4           |
|                    | x3 2              | 2 3              | 2 3              |         |         |         |         |         |                 |                  |
|                    | 3 2               | 2 6              | 2 7              |         |         |         |         |         |                 |                  |
| 125                | 3 7               | 2 10             | 2 5              |         |         | 3 15 5  | 4 2 11  | 4 11 0  | 5 6 8           | 9 2 1            |
| 150                | 4 0               | 3 0              | 2 8              |         |         | 4 2 11  | 4 14 3  | 5 1 8   | 5 19 4          | 9 15 3           |
| 200                | x3 10             | 2 11             | 2 11             |         |         | 5 1 8   | 5 14 1  | 6 5 7   | 7 3 1           | 12 1 8           |
|                    | 5 0               | 3 0              | 2 8              |         |         | 6 5 7   | 7 0 8   | 7 15 8  | 8 17 0          | 13 9 1           |
|                    | 6 0               | 3 0              | 2 8              |         |         | 7 1 11  | 8 3 3   | 8 15 8  | 10 0 9          | 14 18 4          |
| 300                | x4 6              | 3 7              | 3 0              |         |         |         |         |         |                 |                  |
|                    | 6 6               | 3 3              | 2 8              |         |         | 7 18 3  | 8 15 8  | 9 14 7  | 11 2 9          | 16 13 1          |
|                    | 5 0               | 3 9              | 3 0              |         |         |         |         |         |                 |                  |
| 400                | 7 0               | 3 6              | 2 8              |         |         |         |         |         |                 |                  |
|                    | 4 0               | 4 0              | 4 0              |         |         | 8 14 5  | 9 8 4   | 10 13 4 | 12 4 11         | 17 14 1          |
|                    | x6 0              | 3 7              | 3 0              |         |         |         |         |         |                 |                  |
| 500                | 8 0               | 3 9              | 2 8              |         |         |         |         |         |                 |                  |
|                    | 5 0               | 4 0              | 4 0              |         |         |         | 11 6 0  | 12 11 0 | 14 8 8          | 20 13 4          |
|                    | x6 0              | 4 0              | 3 4              |         |         |         |         |         |                 |                  |
| 600                | 8 0               | 4 0              | 3 0              |         |         |         |         |         |                 |                  |
|                    | 6 0               | 4 0              | 4 0              |         |         |         |         | 14 8 8  | 16 12 8         | 23 10 3          |
|                    | 7 0               | 4 0              | 4 0              |         |         |         |         | 16 6 4  | 18 9 1          | 25 13 1          |
| 700                | 8 0               | 4 0              | 4 0              |         |         |         |         | 17 11 4 | 19 14 0         | 28 0 9           |
| 800                | 9 0               | 4 0              | 4 0              |         |         |         |         | 18 16 7 | 21 9 4          | 30 2 0           |
| 900                | 8 0               | 5 0              | 4 0              |         |         |         |         | 20 1 7  | 23 4 4          | 32 3 3           |
| 1000               |                   |                  |                  |         |         |         |         |         |                 |                  |

See page 147 for extras.  
Sizes marked x sent unless otherwise ordered.

CRANE

# GALVANIZED HOT WATER TANKS

WITH SET-PINNED HANDHOLE COVER AND I.R. RINGS

Galvanized after manufacture and tested before despatch.

Fig. No. 944.

| Gallons<br>Approx. | Dimensions<br>(Assuming Handhole Side<br>is regarded as the Top). |                  |                  | 16 G.<br>Tested to a<br>Pressure of 1 lb.<br>per sq. inch.<br>For a Working<br>Head of 1½ feet | 14 G.<br>Tested to a<br>Pressure of 3 lbs.<br>per sq. inch.<br>For a Working<br>Head of 4½ feet. | 12 G.<br>Tested to a<br>Pressure of 7½ lbs.<br>per sq. inch.<br>For a Working<br>Head of 10 feet | 1" $\frac{1}{2}$ "<br>Tested to a<br>Pressure of 10 lbs.<br>per sq. inch.<br>For a Working<br>Head of 15 feet |
|--------------------|-------------------------------------------------------------------|------------------|------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
|                    | Length<br>Ft. In.                                                 | Width<br>Ft. In. | Depth<br>Ft. In. | £ s. d.                                                                                        | £ s. d.                                                                                          | £ s. d.                                                                                          | £ s. d.                                                                                                       |
| 20                 | x2 0                                                              | 1 4              | 1 3              | 2 0 3                                                                                          | 2 3 11                                                                                           | 2 7 8                                                                                            | 2 12 9                                                                                                        |
|                    | 1 6                                                               | 1 6              | 1 6              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
|                    | 2 0                                                               | 2 0              | 10               |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
| 25                 | 1 7                                                               | 1 7              | 1 7              | 2 3 11                                                                                         | 2 7 8                                                                                            | 2 12 9                                                                                           | 2 17 9                                                                                                        |
|                    | x2 0                                                              | 1 5              | 1 5              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
|                    | 2 0                                                               | 2 0              | 1 0              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
| 30                 | x2 0                                                              | 1 6              | 1 7              | 2 7 8                                                                                          | 2 11 7                                                                                           | 2 17 9                                                                                           | 3 2 9                                                                                                         |
|                    | 1 8                                                               | 1 8              | 1 8              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
|                    | 2 0                                                               | 2 0              | 1 3              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
| 40                 | 2 0                                                               | 1 3              | 2 0              | —                                                                                              | 3 1 7                                                                                            | 3 9 0                                                                                            | 3 16 8                                                                                                        |
|                    | x2 3                                                              | 1 8              | 1 8              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
|                    | 1 10                                                              | 1 10             | 1 10             |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
| 50                 | x2 5                                                              | 1 10             | 1 10             | —                                                                                              | 3 11 5                                                                                           | 4 0 4                                                                                            | 4 9 1                                                                                                         |
|                    | 2 0                                                               | 2 0              | 2 0              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
|                    |                                                                   |                  |                  |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
| 60                 | x2 6                                                              | 1 11             | 2 0              | —                                                                                              | —                                                                                                | 4 19 3                                                                                           | 5 5 5                                                                                                         |
|                    | 2 2                                                               | 2 2              | 2 2              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
|                    | 3 0                                                               | 2 0              | 1 11             |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
| 70                 | x2 3                                                              | 2 3              | 2 3              | —                                                                                              | —                                                                                                | 5 12 11                                                                                          | 6 5 7                                                                                                         |
|                    | 3 0                                                               | 2 2              | 2 0              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
|                    | x2 4                                                              | 2 4              | 2 4              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
| 80                 | 3 0                                                               | 2 2              | 2 0              | —                                                                                              | —                                                                                                | —                                                                                                | 7 5 7                                                                                                         |
|                    | x2 4                                                              | 2 4              | 2 4              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
|                    | 3 2                                                               | 2 3              | 2 3              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
| 100                | x3 2                                                              | 2 3              | 2 3              | —                                                                                              | —                                                                                                | —                                                                                                | 8 4 5                                                                                                         |
|                    | 2 6                                                               | 2 6              | 2 6              |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |
|                    |                                                                   |                  |                  |                                                                                                |                                                                                                  |                                                                                                  |                                                                                                               |

Special Sizes. These are priced at next larger capacity.  
If without Rubber Ring, 11d. less.

Extra for LARGER HANDHOLES ... 14" 18"  
8/7 14/2

See page 147 for extras.

Sizes marked x sent unless otherwise ordered.

## CRANE EXTRAS TO HOT WATER CYLINDERS TANKS AND OPEN TOP CISTERNS

### SCREWED FLANGES OR BOSSES.

|                 |                 |                  |                  |                  |                |
|-----------------|-----------------|------------------|------------------|------------------|----------------|
| $\frac{1}{8}$ " | $\frac{3}{4}$ " | 1"               | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"             |
| $\frac{1}{8}$   | $\frac{2}{-}$   | $\frac{2}{4}$    | $\frac{2}{11}$   | $\frac{3}{4}$    | $\frac{4}{8}$  |
| $\frac{2}{4}$   | 3"              | $3\frac{1}{2}$ " | 4"               | 5"               | 6"             |
| $\frac{8}{4}$   | $\frac{14}{3}$  | $\frac{16}{9}$   | $\frac{19}{3}$   | $\frac{30}{1}$   | $\frac{45}{1}$ |

Extra per  
Flange or Boss.

PLAIN HOLES, cut in, 5d. each Hole extra.

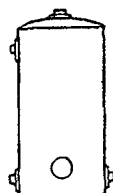
## EXTRAS TO OPEN TOP CISTERNS

LOOSE COVERS 22 W.G. 1/3 20 W.G. 1/5 18 W.G. 1/8 16 W.G. 2/1 14 W.G. 2/7 per sq. ft.  
WITH HANDLE.  
PARTITIONS ... 16 W.G. 3/3 14 W.G. 3/7 12 W.G. 4/-  $\frac{1}{8}$  4/5 per square foot of Partition fitted extra

## EXTRAS TO HOT WATER CYLINDERS

HANDHOLE, with set-pinned lid and rubber ring (in the case of Oval Handholes the mean diameter to be taken).

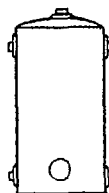
| Up to and including 8 ins.           | Up to and including 10 ins.                      | Up to and including 12 ins. | Up to and including 14 ins. | Up to and including 18 ins. |                                                                                                        |
|--------------------------------------|--------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------|
| 12/8                                 | 16/4                                             | 18/11                       | 21/4                        | 28/9                        | each extra.                                                                                            |
| BRIDGED LIDS (Mean diameter of Hole) | Single with Cast Bridge, up to 8 ins. mean diam. | Wrought " " 8 ins. " "      | " " 10 ins. " "             | " " 12 ins. " "             | 25/1 extra.                                                                                            |
|                                      | Double " " " "                                   | " " 10 ins. " "             | " " 12 ins. " "             | " " 12 ins. " "             | 50/1 " 56/7 " 94/3 "                                                                                   |
| THICKER BOTTOMS—15 ins. diameter     | 18 ins. " "                                      | 20 ins. " "                 | 22 ins. " "                 | 24 ins. " "                 | 16 and 14 W.G. with $\frac{1}{8}$ " Bottom. 3/9 extra. 12 W.G. and $\frac{1}{8}$ " Bottom. 11/5 extra. |
|                                      | 18 ins. " "                                      | 20 ins. " "                 | 22 ins. " "                 | 24 ins. " "                 | 4/5 " 5/- " 5/8 " 6/11 "                                                                               |
|                                      | 18 ins. " "                                      | 20 ins. " "                 | 22 ins. " "                 | 24 ins. " "                 | 12/8 " 14/5 " 16/4 " 17/7 "                                                                            |
| With both ends CONVEX, 10/- extra.   |                                                  |                             |                             |                             |                                                                                                        |



A.



B.



C.



D.



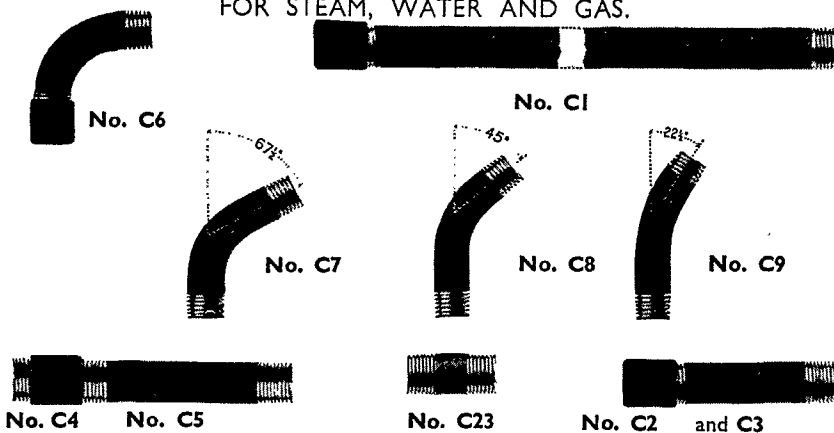
E.

ORDERS FOR CYLINDERS CANNOT BE EXECUTED UNLESS POSITION AND SIZES OF FLANGES ARE SPECIFIED

(SEND SKETCH WITH ORDER WITH SIZES MARKED THEREON)

| SIZE OF FLANGES IN FREQUENT USE | PRIMARY F & R Ins. |     |     |     | SECONDARY Ins. |     |     |     | COLD FEED Ins. |
|---------------------------------|--------------------|-----|-----|-----|----------------|-----|-----|-----|----------------|
| 20 to 40 gallons ..             | $1\frac{1}{2}$     | ... | ... | ... | $1\frac{1}{2}$ | ... | ... | ... | $1\frac{1}{2}$ |
| 40 to 60 gallons ..             | $1\frac{1}{2}$     | ... | ... | ... | $1\frac{1}{2}$ | ... | ... | ... | $1\frac{1}{2}$ |
| 60 to 75 gallons ..             | $1\frac{1}{2}$     | ... | ... | ... | $1\frac{1}{2}$ | ... | ... | ... | $1\frac{1}{2}$ |
| 80 to 100 gallons ..            | 2                  | ... | ... | ... | $1\frac{1}{2}$ | ... | ... | ... | $1\frac{1}{2}$ |

# CRANE WROUGHT TUBES AND TUBULARS FOR STEAM, WATER AND GAS.



## PRICES

| Figure No.    | Nominal Internal Diameter                       | $\frac{1}{8}$ " & $\frac{1}{4}$ " | $\frac{3}{8}$ "   | $\frac{1}{2}$ "   | $\frac{5}{8}$ "   | 1"                | 1 $\frac{1}{8}$ "  | 1 $\frac{1}{2}$ " | 2"   | 2 $\frac{1}{2}$ " | 3"   | 3 $\frac{1}{2}$ " | 4"   | 5"    | 6"    |
|---------------|-------------------------------------------------|-----------------------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|------|-------------------|------|-------------------|------|-------|-------|
| <b>TUBES.</b> |                                                 |                                   |                   |                   |                   |                   |                    |                   |      |                   |      |                   |      |       |       |
| C1            | Tubes—<br>2 ft. long & over, per ft.            | -/4                               | -/4 $\frac{1}{2}$ | -/5 $\frac{1}{2}$ | -/6 $\frac{1}{2}$ | -/9 $\frac{1}{2}$ | 1/1                | 1/4 $\frac{1}{2}$ | 1/10 | 2/10              | 3/3  | 4/-               | 4/5  | 6/-   | 7/6   |
| C2            | Pieces—<br>12" to 23 $\frac{1}{2}$ " long, each | -/10                              | -/11              | 1/1               | 1/5               | 1/11              | 2/8                | 3/4               | 4/9  | 8/-               | 10/6 | 13/6              | 15/6 | 24/-  | 32/6  |
| C3            | Long Screws—<br>4" to 11 $\frac{1}{2}$ " long " | -/7                               | -/8               | -/9               | -/11              | 1/3               | 1/8                | 2/2               | 3/-  | 5/3               | 6/9  | 9/3               | 10/9 | 18/-  | 25/3  |
| C4            | 12" to 23 $\frac{1}{2}$ " long "                | -/11                              | 1/-               | 1/3               | 1/7               | 2/2               | 2/10               | 3/9               | 5/3  | 9/-               | 12/- | 15/6              | 17/- | 26/6  | 35/6  |
| C5            | 3" to 11 $\frac{1}{2}$ " long "                 | -/8                               | -/9               | -/10              | 1/1               | 1/5               | 1/11               | 2/6               | 3/6  | 6/6               | 8/6  | 11/6              | 13/- | 20/-  | 28/-  |
| C23           | Barrel Nipples ... "                            | -/5                               | -/5               | -/6               | -/7               | -/9               | 1/-                | 1/4               | 1/9  | 3/-               | 4/-  | 6/-               | 7/-  | 12/6  | 20/-  |
| C6            | Bends ... "                                     | -/8                               | -/9               | -/11              | 1/2               | 1/7 $\frac{1}{2}$ | 2/7 $\frac{1}{2}$  | 3/2               | 5/2  | 12/-              | 18/- | 25/-              | 32/6 | 105/- | 150/- |
| C7, C8, C9    | Springs, not Socketed "                         | -/5                               | -/6               | -/7               | -/9               | 1/1 $\frac{1}{2}$ | 1/11 $\frac{1}{2}$ | 2/3 $\frac{1}{2}$ | 3/11 | 9/6               | 14/6 | 20/-              | 26/6 | 93/-  | 132/- |

## EXTRAS AND ALLOWANCES SUBJECT TO CHANGE WITHOUT NOTICE

REVISED APRIL 1st, 1937.

**Screwed and Socketed Random Length Tubes** (sizes  $\frac{1}{8}$  in. to  $\frac{3}{8}$  in.—8 feet and up, and sizes  $\frac{1}{2}$  in. to 6 in.—15 feet and up) at our option are charged at List Price, less current discount.

### ALLOWANCES.

Random length tubes (sizes  $\frac{1}{8}$  in. to  $\frac{3}{8}$  in.—8 feet and up, and sizes  $\frac{1}{2}$  in. to 6 in.—15 feet and up)—

- (a) Screwed, without sockets, less 2 $\frac{1}{2}$  % on the net.
- (b) Plain ends, without sockets, less 3 $\frac{1}{2}$  % on the net.

### EXTRAS.

Random lengths under 15 feet are charged as follows:—

|                                    | 2 ft. to<br>under 4 ft. | 4 ft. to<br>under 6 ft. | 6 ft. to<br>under 8 ft. | 8 ft. to<br>under 15 ft.      |
|------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------------|
| Screwed and Socketed .. .. .       | 15 %                    | 7 $\frac{1}{2}$ %       | 3 $\frac{1}{2}$ %       | 2 $\frac{1}{2}$ % less gross. |
| Screwed without Sockets .. .. .    | 7 $\frac{1}{2}$ %       | 3 $\frac{1}{2}$ %       | 2 $\frac{1}{2}$ %       | 1 $\frac{1}{2}$ % " "         |
| Plain Ends without Sockets .. .. . | 3 $\frac{1}{2}$ %       | 1 $\frac{1}{2}$ %       | 1 $\frac{1}{2}$ %       | 2 % " "                       |

Any restriction within the above ranges may be subject to a further extra.

N.B.—In  $\frac{1}{8}$  in.,  $\frac{1}{4}$  in. and  $\frac{3}{8}$  in. sizes the extras indicated above for lengths 8 feet—15 feet do not apply.

**EXACT LENGTHS.**—For Tubes in exact lengths, irrespective of length, an extra of 2 $\frac{1}{2}$  % less gross discount will be charged in addition to the extras for short lengths and to any other extras or allowances which may be applicable.

Pieces, Longscrews and Barrel Nipples in exact lengths are charged at List Prices with an extra of 5 % less gross discount.

Tubes and Fittings of intermediate diameters are charged at the List Price of the next larger size, and are subject to a special discount.

Carriage on orders not amounting to £10 net value will be to buyer's account.

## WROUGHT FITTINGS

FOR STEAM, WATER AND GAS



No. C10



No. C12



No. C13



No. C14



No. C15



No. C16



No. C17



No. C18



No. C19



No. C20



No. C21



No. C22

## PRICES

| Fig. No. | Nominal Internal Diameter | $\frac{1}{8}$ " & $\frac{1}{4}$ " | $\frac{3}{8}$ "  | $\frac{1}{2}$ " | $\frac{3}{4}$ "  | 1"   | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " | 2"   | 2 $\frac{1}{2}$ " | 3"   | 3 $\frac{1}{2}$ " | 4"   | 5"    | 6"    |
|----------|---------------------------|-----------------------------------|------------------|-----------------|------------------|------|-------------------|-------------------|------|-------------------|------|-------------------|------|-------|-------|
|          | FITTINGS.                 | Each                              |                  |                 |                  |      |                   |                   |      |                   |      |                   |      |       |       |
| C10      | Socket Unions ... ..      | 2/-                               | 2/6              | 3/-             | 4/-              | 5/6  | 6/9               | 8/-               | 10/- | 17/6              | 22/6 | 27/6              | 35/- | 66/-  | 105/- |
| C11      | Pipe Unions ... ..        | 2/-                               | 2/6              | 3/-             | 4/-              | 5/6  | 6/9               | 8/-               | 10/- | 17/6              | 22/6 | 27/6              | 35/- | 66/-  | 105/- |
| C12      | Elbows, Square ... ..     | -10/-                             | -11/-            | 1/1             | 1/3              | 1/6  | 2/2               | 2/7               | 4/3  | 9/6               | 14/- | 22/-              | 28/- | 95/-  | 150/- |
| C13      | Do. Round ... ..          | -11/-                             | 1/-              | 1/2             | 1/5              | 1/8  | 2/4               | 2/10              | 4/8  | 10/6              | 16/- | 24/-              | 30/- | 95/-  | 150/- |
| C14      | Tees ... ..               | 1/-                               | 1/1              | 1/3             | 1/7              | 1/10 | 2/6               | 3/1               | 5/11 | 11/6              | 18/- | 26/-              | 32/- | 98/-  | 155/- |
| C15      | Crosses ... ..            | 2/2                               | 2/4              | 2/9             | 3/3              | 4/1  | 5/6               | 6/7               | 10/6 | 22/-              | 40/- | 56/-              | 66/8 | 220/- | 350/- |
| C16      | Sockets, Plain ... ..     | -3/-                              | -3/-             | -4/-            | -5/-             | -6/- | -8/-              | -10 $\frac{1}{2}$ | 1/3  | 2/6               | 3/6  | 5/-               | 6/-  | 12/-  | 18/-  |
| C17      | Do. Diminished ... ..     | -4/-                              | -5/-             | -6/-            | -7/-             | -9/- | 1/-               | 1/4               | 2/-  | 5/-               | 7/-  | 9/-               | 11/- | 35/-  | 55/-  |
| C18      | Flanges ... ..            | -9/-                              | -10/-            | 1/-             | 1/2              | 1/4  | 1/9               | 2/-               | 2/9  | 5/-               | 8/6  | 10/-              | 11/6 | 18/-  | 27/-  |
| C19      | Caps ... ..               | -3 $\frac{1}{2}$                  | -3 $\frac{1}{2}$ | -5/-            | -6/-             | -8/- | 1/-               | 1/3               | 2/-  | 4/4               | 6/-  | 9/9               | 10/6 | 30/-  | 45/-  |
| C20      | Plugs ... ..              | -3/-                              | -3/-             | -4/-            | -5/-             | -6/- | -8/-              | -10               | 1/3  | 2/6               | 4/9  | 7/-               | 10/- | 30/-  | 48/-  |
| C21      | Backnuts ... ..           | -2/-                              | -2/-             | -3/-            | -3 $\frac{1}{2}$ | -5/- | -6/-              | -8                | 1/1  | 2/3               | 3/6  | 4/6               | 5/6  | 18/-  | 26/-  |
| C22      | Nipples ... ..            | -2/-                              | -2/-             | -3/-            | -3 $\frac{1}{2}$ | -4/- | -6/-              | -8                | 1/-  | 2/3               | 3/6  | 4/6               | 5/6  | 18/-  | 26/-  |

## EXTRAS AND ALLOWANCES SUBJECT TO CHANGE WITHOUT NOTICE

FITTINGS PAINTED RED will be charged at steam discounts.

FITTINGS PAINTED BLUE will be charged at water discounts.

FITTINGS coated inside and outside, or outside only, with bituminous or other solution are charged 2 $\frac{1}{2}$ % less gross discount.FLANGES of larger diameters than the standard for the screwing size ordered will be charged at the gross price of the standard Flange of the diameter required, and, in addition, Flanges varying from the standards in diameter will be charged an extra 2 $\frac{1}{2}$ % gross for every inch or part of an inch either over or under the standard diameter of British Standard Tables A to E.

CRANE

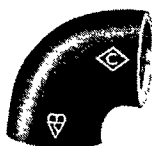
British Standard



100 lbs. Air Tested  
Under Water \*

## MALLEABLE IRON FITTINGS

PLAIN



**No. 101**  
ELBOWS,  
EQUAL AND REDUCING



**No. 102**  
SQUARE ELBOWS



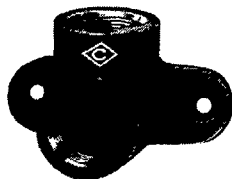
**No. 103**  
ELBOWS, M. & F.



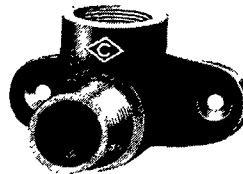
**No. 105**  
ELBOWS, 45°



**No. 110**  
SIDE OUTLET ELBOWS



**No. 111**  
FEMALE STRAPPED  
DROP ELBOWS



**No. 112**  
MALE AND FEMALE  
STRAPPED DROP ELBOWS

| No. | $\frac{1}{8}$ "   | $\frac{1}{4}$ "    | $\frac{3}{8}$ "    | $\frac{1}{2}$ "   | $\frac{3}{4}$ "   | 1"                 | $1\frac{1}{4}$ "  |
|-----|-------------------|--------------------|--------------------|-------------------|-------------------|--------------------|-------------------|
| 101 | -/5 $\frac{1}{2}$ | -/5 $\frac{1}{2}$  | -/6 $\frac{1}{2}$  | -/8 $\frac{1}{2}$ | 1/-               | 1/5 $\frac{1}{2}$  | 2/2 $\frac{1}{2}$ |
| 102 | —                 | —                  | -/6 $\frac{1}{2}$  | -/8 $\frac{1}{2}$ | 1/-               | 1/5 $\frac{1}{2}$  | 2/2 $\frac{1}{2}$ |
| 103 | -/7 $\frac{1}{4}$ | -/7 $\frac{1}{4}$  | -/7 $\frac{1}{4}$  | -/9 $\frac{1}{2}$ | 1/1 $\frac{1}{4}$ | 1/7 $\frac{1}{4}$  | —                 |
| 105 | -/5 $\frac{1}{2}$ | -/5 $\frac{1}{2}$  | -/6 $\frac{1}{2}$  | -/8 $\frac{1}{2}$ | 1/-               | 1/5 $\frac{1}{2}$  | 2/2 $\frac{1}{2}$ |
| 110 | —                 | -/9 $\frac{1}{2}$  | -/11 $\frac{1}{2}$ | 1/2 $\frac{1}{2}$ | 1/9               | 2/6                | 3/9 $\frac{1}{2}$ |
| 111 | —                 | -/10 $\frac{3}{4}$ | 1/1 $\frac{1}{2}$  | 1/5 $\frac{1}{4}$ | 2/2 $\frac{1}{2}$ | 2/10 $\frac{3}{4}$ | 4/1 $\frac{1}{4}$ |
| 112 | —                 | —                  | 1/2 $\frac{1}{2}$  | —                 | —                 | —                  | —                 |

| No. | $1\frac{1}{2}$ "  | 2"                | $2\frac{1}{2}$ "   | 3"                 | $3\frac{1}{2}$ " | 4"   | 5"   | 6"   |
|-----|-------------------|-------------------|--------------------|--------------------|------------------|------|------|------|
| 101 | 3/-               | 4/-               | 7/6                | 11/6               | 16/-             | 21/- | 53/- | 79/- |
| 102 | 3/-               | 4/-               | —                  | —                  | —                | —    | —    | —    |
| 105 | 3/-               | 4/-               | 7/6                | 11/6               | 16/-             | 21/- | —    | —    |
| 110 | 5/2 $\frac{1}{2}$ | 6/9 $\frac{1}{2}$ | 12/9 $\frac{1}{2}$ | 19/9 $\frac{1}{2}$ | —                | —    | —    | —    |

For Dimensions—see General Catalogue.

\* Fittings  $2\frac{1}{4}$ " size and over tested 300 lbs. hydraulic.

CRANE

British Standard



100 lbs. Air Tested  
Under Water \*

# MALLEABLE IRON FITTINGS

PLAIN



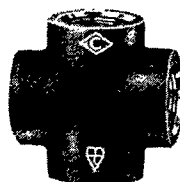
**No. 115**  
TEES,  
EQUAL AND REDUCING



**No. 121**  
SIDE OUTLET TEES



**No. 122**  
FEMALE STRAPPED  
DROP TEES



**No. 126**  
CROSSES,  
EQUAL AND REDUCING



**No. 131**  
PARALLEL THREAD  
SOCKETS



**No. 132**  
SOCKETS, REDUCING



**No. 134**  
STRAPPED SOCKETS

**No. 133**  
TAPER THREAD SOCKETS

| No. | $\frac{1}{8}$ "  | $\frac{1}{4}$ "   | $\frac{3}{8}$ "   | $\frac{1}{2}$ "   | $\frac{3}{4}$ "   | 1"                 | 1 $\frac{1}{4}$ "  | 1 $\frac{1}{2}$ " |
|-----|------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|
| 115 | -6 $\frac{1}{2}$ | -6 $\frac{1}{2}$  | -7 $\frac{3}{4}$  | -9 $\frac{1}{2}$  | 1/1 $\frac{3}{4}$ | 1/7 $\frac{1}{4}$  | 2/4 $\frac{3}{4}$  | 3/3 $\frac{1}{2}$ |
| 121 | —                | 1/-               | 1/2 $\frac{1}{2}$ | 1/5 $\frac{1}{2}$ | 2/1 $\frac{1}{4}$ | 2/10 $\frac{3}{4}$ | 4/3 $\frac{1}{2}$  | 6/-               |
| 122 | —                | 1/1 $\frac{1}{4}$ | 1/4 $\frac{3}{4}$ | 1/9 $\frac{1}{2}$ | 2/8 $\frac{1}{2}$ | 3/7 $\frac{1}{4}$  | 4/-                | —                 |
| 126 | -9 $\frac{1}{2}$ | -9 $\frac{1}{2}$  | -11 $\frac{1}{2}$ | 1/1 $\frac{3}{4}$ | 1/7 $\frac{1}{4}$ | 2/2 $\frac{1}{2}$  | 2/10 $\frac{3}{4}$ | 4/2 $\frac{1}{2}$ |
| 131 | -3 $\frac{1}{2}$ | -3 $\frac{1}{2}$  | -3 $\frac{3}{4}$  | -4 $\frac{1}{2}$  | -6                | -8                 | 1/0 $\frac{1}{2}$  | 1/5 $\frac{1}{2}$ |
| 132 | —                | -4                | -4 $\frac{1}{2}$  | -5 $\frac{3}{4}$  | -7 $\frac{1}{2}$  | -10                | 1/3                | 1/8 $\frac{1}{2}$ |
| 133 | -3 $\frac{1}{2}$ | -3 $\frac{1}{2}$  | -3 $\frac{3}{4}$  | -4 $\frac{1}{2}$  | -6                | -8                 | 1/0 $\frac{1}{2}$  | 1/5 $\frac{1}{2}$ |
| 134 | —                | -8                | -10 $\frac{1}{4}$ | 1/0 $\frac{1}{2}$ | 1/7 $\frac{1}{2}$ | 2/4 $\frac{3}{4}$  | 3/3 $\frac{1}{2}$  | —                 |

| No. | 2"                | 2 $\frac{1}{2}$ "  | 3"                 | 3 $\frac{1}{2}$ " | 4"                  | 5"                 | 6"                  | — |
|-----|-------------------|--------------------|--------------------|-------------------|---------------------|--------------------|---------------------|---|
| 115 | 4/6               | 8/6                | 13/-               | 18/-              | 24/-                | 60/-               | 88/-                | — |
| 121 | 8/1 $\frac{1}{4}$ | 15/3 $\frac{1}{2}$ | 23/4 $\frac{3}{4}$ | —                 | —                   | —                  | —                   | — |
| 126 | 5/9 $\frac{1}{2}$ | 10/-               | 15/-               | 20/-              | 27/6                | 70/-               | 115/-               | — |
| 131 | 2/1 $\frac{1}{4}$ | 3/6                | 5/7 $\frac{1}{4}$  | 7/7 $\frac{1}{4}$ | 9/7 $\frac{1}{4}$   | 16/9 $\frac{1}{2}$ | 24/-                | — |
| 132 | 2/6 $\frac{1}{2}$ | 4/1 $\frac{1}{4}$  | 6/6 $\frac{1}{2}$  | 8/9               | 10/10 $\frac{1}{4}$ | 20/8 $\frac{1}{2}$ | 31/10 $\frac{3}{4}$ | — |
| 133 | 2/1 $\frac{1}{4}$ | —                  | —                  | —                 | —                   | —                  | —                   | — |

For Dimensions—see General Catalogue.

\* Fittings 2 $\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

CRANE

British Standard



100 lbs. Air Tested  
under Water \*

TESTED

## MALLEABLE IRON FITTINGS

100 POUNDS AIR TESTED UNDER WATER

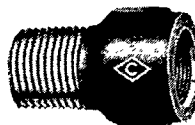
PLAIN



**No. 136**  
CAPS



**No. 137**  
CAPS  
SQUARE HEAD



**No. 138**  
EXTENSION PIECES



**No. 140**  
HEXAGON BUSHES



**No. 141**  
FLUSH BUSHES



**No. 142**  
ECCENTRIC BUSHES



**No. 144**  
HEXAGON NIPPLES  
EQUAL



**No. 145**  
REDUCING

| No. | 1/8"   | 1/4"   | 3/8"   | 1/2"   | 3/4"    | 1"      | 1 1/4"  | 1 1/2"  | 2"      | 2 1/2"  | 3"      | 3 1/2"   | 4"      | 5"   | 6"   |
|-----|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|----------|---------|------|------|
| 136 | -2 1/2 | -2 1/2 | -3     | -4 1/2 | -6 1/2  | -8 1/2  | 1 1/4   | 1 7/8   | 2 0 1/2 | 3 6 1/2 | 5 3 1/2 | 8 0 1/2  | 9 9 1/2 | —    | —    |
| 137 | —      | —      | —      | -5 1/2 | -8 1/2  | -11 1/2 | 1 5 1/2 | 2 1 1/2 | 2 8 1/2 | —       | —       | —        | —       | —    | —    |
| 138 | —      | —      | -6     | -8 1/2 | 1/-     | 1 3 1/2 | 1 7 1/2 | 2 2 1/2 | 3/-     | —       | —       | —        | —       | —    | —    |
| 140 | —      | -4 1/2 | -4 1/2 | -6     | -8      | -10 1/2 | 1 4 3/4 | 1 9 1/2 | 2 8 1/2 | 4/6     | 7/-     | 9/6      | 12/-    | 22/- | 34/- |
| 141 | —      | —      | -5 1/2 | -7 1/2 | -9 1/2  | 1 1 1/2 | 1 7 1/2 | 2/-     | 3/-     | 5/-     | 7 8 1/2 | —        | —       | —    | —    |
| 142 | —      | —      | —      | 1/-    | 1 2 1/2 | 1 8 1/2 | 2 1 1/2 | 3/-     | 4/-     | 6 2 1/2 | 10/-    | 14/-     | 18/6    | —    | —    |
| 144 | -5 1/2 | -5 1/2 | -6     | -7 1/2 | -9 1/2  | 1/-     | 1 7 1/2 | 2 2 1/2 | 3 2 1/2 | 5 4 1/2 | 8 7 1/2 | 10 7 1/2 | 15/-    | 30/- | 47/- |
| 145 | —      | -5 1/2 | -6 1/2 | -7 1/2 | -10 1/2 | 1 1 1/2 | 1 9 1/2 | 2 4 1/2 | 3/6     | 5 9 1/2 | 9/6     | 12/-     | 16/6    | —    | —    |

For Dimensions—see General Catalogue.

\* Fittings 2 1/2" size and over tested 300 lbs. hydraulic.

British Standard

100 lbs. Air Tested  
under water \*

# MALLEABLE IRON FITTINGS

BANDED

FOR STEAM WORKING PRESSURES UP TO 150 POUNDS  
FOR WATER WORKING PRESSURES UP TO 200 POUNDS

**No. 146**  
BEADED PLUGS  
SOLID



**No. 147**  
(PLUGS HOLLOW)  
SOLID No. 148



**No. 149**  
PLUGS  
(COUNTERSUNK)



**No. 150**  
BACKNUTS



**No. 151**  
ELBOWS,  
EQUAL AND REDUCING



**No. 152**  
ELBOWS, M. AND F.,  
EQUAL AND REDUCING



**No. 155**  
ELBOWS, 45°

| No. | $\frac{1}{8}$ "           | $\frac{1}{4}$ "           | $\frac{3}{8}$ "           | $\frac{1}{2}$ "            | $\frac{3}{4}$ "           | 1"                         | $1\frac{1}{4}$ "          | $1\frac{1}{2}$ "           |
|-----|---------------------------|---------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| 146 | —                         | —                         | —                         | $-\frac{1}{4}\frac{1}{4}$  | $-\frac{1}{6}\frac{1}{2}$ | $-\frac{1}{8}\frac{1}{2}$  | $1\frac{1}{4}\frac{1}{4}$ | $1\frac{1}{7}\frac{1}{4}$  |
| 147 | $-\frac{1}{2}\frac{3}{4}$ | $-\frac{1}{2}\frac{3}{4}$ | $-\frac{1}{3}$            | $-\frac{1}{3}\frac{3}{4}$  | $-\frac{1}{6}$            | $-\frac{1}{8}$             | $1\frac{1}{-}$            | $1\frac{1}{4}\frac{3}{4}$  |
| 149 | —                         | —                         | $-\frac{1}{6}$            | $-\frac{1}{7}\frac{1}{4}$  | $-\frac{1}{9}\frac{1}{2}$ | $1\frac{1}{-}$             | $1\frac{1}{6}$            | $2\frac{1}{-}$             |
| 150 | $-\frac{1}{2}\frac{1}{2}$ | $-\frac{1}{2}\frac{1}{2}$ | $-\frac{1}{3}$            | $-\frac{1}{3}\frac{1}{4}$  | $-\frac{1}{4}\frac{1}{4}$ | $-\frac{1}{5}\frac{3}{4}$  | $-\frac{1}{7}\frac{3}{4}$ | $-\frac{1}{10}\frac{1}{4}$ |
| 151 | $-\frac{1}{6}\frac{1}{2}$ | $-\frac{1}{6}\frac{1}{2}$ | $-\frac{1}{8}\frac{1}{2}$ | $-\frac{1}{9}\frac{1}{2}$  | $1\frac{1}{2}\frac{1}{2}$ | $1\frac{1}{8}\frac{1}{2}$  | $2\frac{1}{7}\frac{1}{2}$ | $3\frac{1}{6}$             |
| 152 | $-\frac{1}{7}\frac{1}{4}$ | $-\frac{1}{7}\frac{1}{4}$ | $-\frac{1}{9}\frac{1}{2}$ | $-\frac{1}{10}\frac{3}{4}$ | $1\frac{1}{3}\frac{1}{2}$ | $1\frac{1}{10}\frac{3}{4}$ | $2\frac{1}{9}\frac{1}{2}$ | $3\frac{1}{9}\frac{1}{2}$  |
| 155 | $-\frac{1}{6}\frac{1}{2}$ | $-\frac{1}{6}\frac{1}{2}$ | $-\frac{1}{8}\frac{1}{2}$ | $-\frac{1}{9}\frac{1}{2}$  | $1\frac{1}{2}\frac{1}{2}$ | $1\frac{1}{8}\frac{1}{2}$  | $2\frac{1}{7}\frac{1}{4}$ | $3\frac{1}{6}$             |

| No. | 2"                         | $2\frac{1}{2}$ "          | 3"                        | $3\frac{1}{2}$ "          | 4"              | 5"                         | 6"                         | — |
|-----|----------------------------|---------------------------|---------------------------|---------------------------|-----------------|----------------------------|----------------------------|---|
| 146 | $2\frac{1}{1}\frac{1}{4}$  | —                         | —                         | —                         | —               | —                          | —                          | — |
| 147 | $1\frac{1}{10}\frac{3}{4}$ | $3\frac{1}{3}\frac{1}{2}$ | $5\frac{1}{-}$            | $7\frac{1}{-}$            | $9\frac{1}{-}$  | $21\frac{1}{7}\frac{1}{4}$ | $30\frac{1}{7}\frac{1}{2}$ | — |
| 149 | $3\frac{1}{-}$             | $5\frac{1}{-}$            | $9\frac{1}{-}$            | —                         | —               | —                          | —                          | — |
| 150 | $1\frac{1}{5}\frac{1}{4}$  | $2\frac{1}{1}\frac{1}{4}$ | $3\frac{1}{4}\frac{3}{4}$ | $4\frac{1}{7}\frac{1}{4}$ | $6\frac{1}{-}$  | $12\frac{1}{-}$            | $18\frac{1}{-}$            | — |
| 151 | $5\frac{1}{-}$             | $9\frac{1}{-}$            | $14\frac{1}{-}$           | $18\frac{1}{-}$           | $24\frac{1}{-}$ | $63\frac{1}{-}$            | $94\frac{1}{-}$            | — |
| 152 | $5\frac{1}{6}$             | $10\frac{1}{-}$           | $16\frac{1}{-}$           | $21\frac{1}{-}$           | $27\frac{1}{6}$ | $72\frac{1}{-}$            | $108\frac{1}{-}$           | — |
| 155 | $5\frac{1}{-}$             | $9\frac{1}{-}$            | $14\frac{1}{-}$           | $18\frac{1}{-}$           | $24\frac{1}{-}$ | $63\frac{1}{-}$            | $94\frac{1}{-}$            | — |

Solid Plugs (No. 148) are charged at List Prices of No. 147 plus usual extras.

For Dimensions—see General Catalogue.

\* Fittings  $2\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

CRANE

British Standard



100 lbs. Air Tested  
Under Water \*

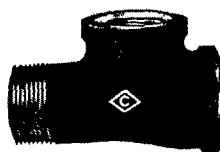
## MALLEABLE IRON FITTINGS

BANDED

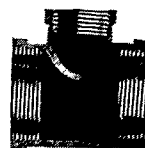
FOR STEAM WORKING PRESSURES UP TO 150 POUNDS  
FOR WATER WORKING PRESSURES UP TO 200 POUNDS



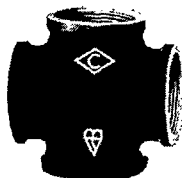
**No. 161**  
TEES,  
EQUAL AND REDUCING



**No. 163**  
TEES,  
MALE AND FEMALE



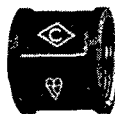
**No. 167**  
TONGUE TEES,  
EQUAL AND REDUCING



**No. 171**  
CROSSES,  
EQUAL AND REDUCING



**No. 175**  
TONGUE CROSSES



**No. 176**  
PARALLEL THREAD  
R.H.



**No. 178**  
SOCKETS R. & L.

**No. 177**  
TAPER THREAD, R.H.

| No. | $\frac{1}{8}$ "  | $\frac{1}{4}$ "  | $\frac{3}{8}$ "   | $\frac{1}{2}$ "   | $\frac{3}{4}$ "   | 1"                | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " |
|-----|------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 161 | -8 $\frac{1}{2}$ | -8 $\frac{1}{2}$ | -9 $\frac{1}{2}$  | 1/-               | 1/4 $\frac{3}{4}$ | 2/-               | 2/9 $\frac{1}{2}$ | 4/-               |
| 163 | —                | —                | 1/1 $\frac{1}{4}$ | 1/3 $\frac{1}{2}$ | 1/8 $\frac{1}{2}$ | 2/6               | 3/7 $\frac{1}{4}$ | 4/9 $\frac{1}{2}$ |
| 167 | —                | —                | 1/6               | 1/9               | 1/9 $\frac{1}{2}$ | 2/6               | 3/6               | 5/6               |
| 171 | —                | 1/-              | 1/2 $\frac{1}{2}$ | 1/4 $\frac{3}{4}$ | 2/-               | 2/9 $\frac{1}{2}$ | 3/7 $\frac{1}{4}$ | 5/2 $\frac{1}{2}$ |
| 175 | —                | —                | —                 | —                 | 2/6               | 3/6               | 4/6               | 6/6               |
| 176 | —                | -4 $\frac{1}{2}$ | -4 $\frac{3}{4}$  | -5 $\frac{3}{4}$  | -7 $\frac{3}{4}$  | -10 $\frac{1}{4}$ | 1/3 $\frac{1}{2}$ | 1/9 $\frac{1}{2}$ |
| 177 | —                | -4 $\frac{1}{2}$ | -4 $\frac{3}{4}$  | -5 $\frac{3}{4}$  | -7 $\frac{3}{4}$  | -10 $\frac{1}{4}$ | 1/3 $\frac{1}{2}$ | 1/9 $\frac{1}{2}$ |
| 178 | —                | -4 $\frac{3}{4}$ | -5 $\frac{1}{4}$  | -6 $\frac{1}{2}$  | -8 $\frac{3}{4}$  | -11 $\frac{1}{2}$ | 1/4 $\frac{3}{4}$ | 2/-               |

| No. | 2"                 | 2"                | 3"                 | 3 $\frac{1}{2}$ " | 4"                 | 5"                 | 6"    | — |
|-----|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|-------|---|
| 161 | 5/6                | 10/-              | 16/-               | 21/-              | 27/6               | 72/-               | 108/- | — |
| 163 | 7/-                | 12/6              | 20/-               | —                 | —                  | —                  | —     | — |
| 167 | 7/6                | 12/-              | 19/-               | 27/-              | 32/-               | —                  | —     | — |
| 171 | 7/2 $\frac{1}{2}$  | 12/-              | 19/2 $\frac{1}{2}$ | 25/-              | 33/-               | 86/-               | 130/- | — |
| 175 | 9/-                | —                 | —                  | —                 | —                  | —                  | —     | — |
| 176 | 2/7 $\frac{1}{2}$  | 4/4 $\frac{3}{4}$ | 7/-                | 9/6               | 12/-               | 21/-               | 30/-  | — |
| 177 | 2/7 $\frac{1}{2}$  | 4/4 $\frac{3}{4}$ | 7/-                | 9/6               | 12/-               | —                  | —     | — |
| 178 | 2/10 $\frac{1}{4}$ | 4/10              | 7/8 $\frac{1}{2}$  | 10/6              | 13/2 $\frac{1}{2}$ | 23/1 $\frac{1}{4}$ | 33/-  | — |

For Dimensions—see General Catalogue.

\* Fittings 2 $\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

CRANE

British Standard



100 lbs. Air Tested  
Under Water \*

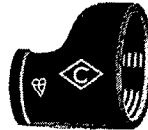
# MALLEABLE IRON FITTINGS

BANDED

FOR STEAM WORKING PRESSURES UP TO 150 POUNDS  
FOR WATER WORKING PRESSURES UP TO 200 POUNDS



**No. 179**  
REDUCING SOCKETS



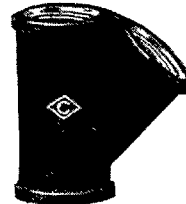
**No. 180**  
ECCENTRIC SOCKETS



**No. 181**  
LONG M. & F. REDUCING  
SOCKETS



**No. 185**  
BANDED CAPS



**No. 187**  
LATERAL Y BRANCHES



**No. 188**  
CO-LATERAL Y BRANCHES

| No. | $\frac{1}{8}$ " | $\frac{1}{4}$ " | $\frac{3}{8}$ "            | $\frac{1}{2}$ "           | $\frac{3}{4}$ "           | 1"                         | $1\frac{1}{4}$ "          | $1\frac{1}{2}$ "          |
|-----|-----------------|-----------------|----------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|
| 179 | —               | $-4\frac{3}{4}$ | $-5\frac{1}{2}$            | $-6\frac{3}{4}$           | -9                        | 1/-                        | 1/6                       | 2/-                       |
| 180 | —               | —               | —                          | —                         | 1/-                       | $1\frac{1}{4}\frac{3}{4}$  | $1\frac{1}{9}\frac{1}{2}$ | $2\frac{1}{4}\frac{3}{4}$ |
| 181 | —               | —               | —                          | $1\frac{1}{4}\frac{1}{4}$ | $1\frac{1}{4}\frac{3}{4}$ | $1\frac{1}{9}\frac{1}{2}$  | 3/-                       | 4/-                       |
| 185 | -3              | -3              | $-3\frac{1}{2}\frac{1}{2}$ | $-4\frac{3}{4}$           | $-7\frac{1}{4}$           | $-9\frac{1}{2}$            | $1\frac{1}{2}\frac{1}{2}$ | $1\frac{1}{9}\frac{1}{2}$ |
| 187 | 1/-             | 1/-             | $1\frac{1}{2}\frac{1}{2}$  | 1/6                       | $2\frac{1}{1}\frac{1}{2}$ | 3/-                        | $4\frac{1}{2}\frac{1}{2}$ | 6/-                       |
| 188 | —               | —               | —                          | $1\frac{1}{4}\frac{3}{4}$ | $2\frac{1}{2}\frac{1}{2}$ | $2\frac{1}{10}\frac{3}{4}$ | $4\frac{1}{4}\frac{3}{4}$ | 6/-                       |

| No. | 2"                        | $2\frac{1}{2}$ "          | 3"                        | $3\frac{1}{2}$ "           | 4"   | 5"   | 6"   | — |
|-----|---------------------------|---------------------------|---------------------------|----------------------------|------|------|------|---|
| 179 | 3/-                       | $4\frac{1}{9}\frac{1}{2}$ | $7\frac{1}{8}\frac{1}{2}$ | $10\frac{1}{4}\frac{3}{4}$ | 13/- | 24/- | 37/- | — |
| 180 | $3\frac{1}{2}\frac{1}{2}$ | $5\frac{1}{2}\frac{1}{2}$ | 8/6                       | —                          | 16/- | —    | —    | — |
| 181 | $5\frac{1}{9}\frac{1}{2}$ | 9/6                       | 15/3                      | 19/6                       | 26/- | —    | —    | — |
| 185 | $2\frac{1}{3}\frac{1}{2}$ | 4/-                       | 6/-                       | 9/-                        | 11/- | —    | —    | — |
| 187 | 8/6                       | 14/-                      | 21/-                      | 27/-                       | 35/- | —    | —    | — |
| 188 | 8/-                       | 15/-                      | 24/-                      | —                          | 40/- | —    | —    | — |

For Dimensions—see General Catalogue.

\* Fittings  $2\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

CRANE

British Standard



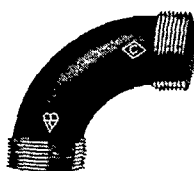
100 lbs. Air Tested  
Under Water \*

LONG SWEEP

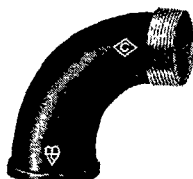
## MALLEABLE IRON FITTINGS

BANDED

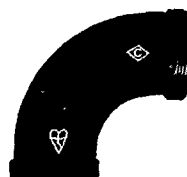
FOR STEAM WORKING PRESSURES UP TO 150 POUNDS  
FOR WATER WORKING PRESSURES UP TO 200 POUNDS



No. 191  
MALE BENDS



No. 192  
MALE AND FEMALE BENDS



No. 193  
FEMALE BENDS



No. 194  
MALE SPRINGS



No. 195  
MALE AND FEMALE SPRINGS



No. 196  
FEMALE SPRINGS

| No. | $\frac{1}{4}$ " | $\frac{3}{8}$ "  | $\frac{1}{2}$ "  | $\frac{3}{4}$ " | 1"             | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " |
|-----|-----------------|------------------|------------------|-----------------|----------------|------------------|------------------|
| 191 | $-7\frac{1}{4}$ | $-9\frac{1}{2}$  | 1/-              | $1\frac{1}{4}$  | $2\frac{1}{2}$ | $3\frac{1}{2}$   | $4\frac{1}{2}$   |
| 192 | $-8\frac{1}{2}$ | $-10\frac{3}{4}$ | $1\frac{1}{4}$   | $1\frac{1}{6}$  | $2\frac{3}{4}$ | $3\frac{1}{6}$   | 5/-              |
| 193 | $-9\frac{1}{2}$ | 1/-              | $1\frac{1}{2}$   | $1\frac{1}{8}$  | $2\frac{1}{6}$ | $3\frac{1}{10}$  | $5\frac{1}{6}$   |
| 194 | $-6$            | $-7\frac{3}{4}$  | $-9\frac{1}{2}$  | $1\frac{1}{4}$  | $1\frac{1}{9}$ | $2\frac{7}{14}$  | $3\frac{1}{9}$   |
| 195 | $-6\frac{3}{4}$ | $-8\frac{3}{4}$  | $-10\frac{3}{4}$ | $1\frac{1}{2}$  | $1\frac{1}{9}$ | $2\frac{1}{9}$   | 4/-              |
| 196 | $-7\frac{3}{4}$ | $-9\frac{1}{2}$  | 1/-              | $1\frac{1}{4}$  | 2/-            | $3\frac{1}{2}$   | $4\frac{1}{6}$   |

| No. | 2"             | $2\frac{1}{2}$ " | 3"              | $3\frac{1}{2}$ " | 4"              | 5"   | 6"    |
|-----|----------------|------------------|-----------------|------------------|-----------------|------|-------|
| 191 | 7/-            | 13/-             | 19/-            | 28/-             | 38/-            | 80/- | 120/- |
| 192 | $7\frac{1}{6}$ | 14/-             | 21/-            | 30/-             | 42/-            | 87/- | 130/- |
| 193 | $8\frac{1}{3}$ | $15\frac{1}{4}$  | 23/-            | 33/-             | 46/-            | 92/- | 140/- |
| 194 | $5\frac{1}{6}$ | $10\frac{1}{6}$  | $15\frac{1}{2}$ | 22/6             | 30/-            | 69/- | 110/- |
| 195 | 6/-            | $11\frac{1}{2}$  | $16\frac{1}{2}$ | 24/-             | $33\frac{1}{4}$ | 76/- | 120/- |
| 196 | 7/-            | 13/-             | $18\frac{1}{4}$ | 27/-             | 37/-            | 81/- | 130/- |

For Dimensions—see General Catalogue.

\* Fittings  $2\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

CRANE

British Standard



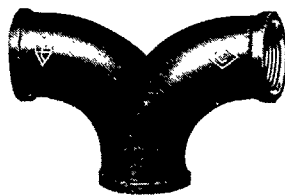
100 lbs. Air Tested  
Under Water \*

LONG SWEEP

## MALLEABLE IRON FITTINGS

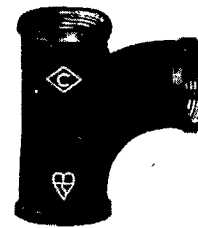
BANDED

FOR STEAM WORKING PRESSURES UP TO 150 POUNDS  
FOR WATER WORKING PRESSURES UP TO 200 POUNDS



No. 197

TWIN ELBOWS, EQUAL AND REDUCING



No. 199

PITCHER TEES, EQUAL AND REDUCING



No. 201

PITCHER CROSSES, EQUAL AND REDUCING

| No. | $\frac{1}{4}$ "   | $\frac{3}{8}$ "   | $\frac{1}{2}$ "   | $\frac{3}{4}$ "    | 1"                | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " |
|-----|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
| 197 | 1/3 $\frac{1}{2}$ | 1/4 $\frac{3}{4}$ | 1/9 $\frac{1}{2}$ | 2/10 $\frac{3}{4}$ | 4/3 $\frac{1}{2}$ | 6/-               | 8/6               |
| 199 | 1/1 $\frac{1}{4}$ | 1/2 $\frac{1}{2}$ | 1/6               | 2/4 $\frac{3}{4}$  | 3/7 $\frac{1}{4}$ | 5/-               | 7/-               |
| 201 | —                 | —                 | —                 | 4/-                | 5/7 $\frac{1}{4}$ | 7/2 $\frac{1}{2}$ | 10/6              |

| No. | 2"   | 2 $\frac{1}{2}$ " | 3"   | 3 $\frac{1}{2}$ " | 4"   | 5"    | 6"    |
|-----|------|-------------------|------|-------------------|------|-------|-------|
| 197 | 12/- | 23/-              | 38/- | 50/-              | 60/- | 250/- | 320/- |
| 199 | 10/- | 19/-              | 32/- | 42/-              | 55/- | 170/- | 270/- |
| 201 | 14/6 | 24/-              | 38/- | 50/-              | 65/- | —     | —     |

For Dimensions—see General Catalogue.

\* Fittings 2 $\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

CRANE

British Standard



100 lbs. Air Tested  
Under Water \*

## MALLEABLE IRON FITTINGS

BANDED

FOR STEAM WORKING PRESSURES UP TO 150 POUNDS

FOR WATER WORKING PRESSURES UP TO 200 POUNDS



No. 211

CLOSE RETURN BENDS  
(PLAIN PATTERN)



No. 212

MEDIUM RETURN BENDS



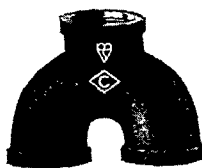
No. 213

OPEN RETURN BENDS



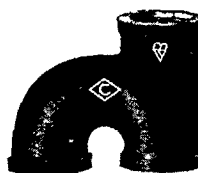
No. 214

WIDE RETURN BENDS



No. 215

BACK OUTLET RETURN  
BENDS



No. 216

SIDE OUTLET RETURN  
BENDS

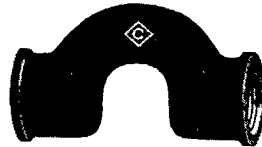
| No. | $\frac{1}{2}$ "                                        | $\frac{3}{4}$ "                                         | 1"                                                                  | $1\frac{1}{4}$ "                                        | $1\frac{1}{2}$ "                                        | 2"                                           | $2\frac{1}{2}$ "                                         | 3"                                 | 4"                   |
|-----|--------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|----------------------------------------------|----------------------------------------------------------|------------------------------------|----------------------|
| 211 | $\frac{1}{2} \times 1$<br>1/-                          | $\frac{3}{4} \times 1\frac{1}{4}$<br>1/7 $\frac{1}{2}$  | $1 \times 1\frac{1}{2}$<br>2/4 $\frac{1}{2}$                        | $1\frac{1}{4} \times 1\frac{3}{4}$<br>3/4 $\frac{1}{2}$ | $1\frac{1}{2} \times 2\frac{1}{4}$<br>4/8 $\frac{1}{2}$ | $2 \times 2\frac{3}{4}$<br>6/8 $\frac{1}{2}$ | —                                                        | —                                  | —                    |
| 212 | $\frac{1}{2} \times 1\frac{1}{4}$<br>1/3 $\frac{1}{2}$ | $\frac{3}{4} \times 1\frac{1}{2}$<br>1/10 $\frac{3}{4}$ | $1 \times 1\frac{7}{8}$<br>2/9 $\frac{1}{2}$                        | $1\frac{1}{4} \times 2\frac{1}{4}$<br>4/-               | $1\frac{1}{2} \times 2\frac{1}{2}$<br>5/6               | $2 \times 3$<br>9/-                          | —                                                        | —                                  | —                    |
| 213 | $\frac{1}{2} \times 1\frac{1}{2}$<br>1/4 $\frac{3}{4}$ | $\frac{3}{4} \times 2$<br>2/1 $\frac{1}{2}$             | $1 \times 2\frac{1}{2}$<br>3/-                                      | $1\frac{1}{4} \times 3$<br>4/4 $\frac{3}{4}$            | $1\frac{1}{2} \times 3\frac{1}{2}$<br>6/-               | $2 \times 4$<br>9/-<br>$2 \times 5$<br>12/6  | $2\frac{1}{2} \times 4\frac{1}{2}$<br>15/3 $\frac{1}{2}$ | $3 \times 5$<br>22/8 $\frac{1}{2}$ | $4 \times 6$<br>47/6 |
| 214 | —                                                      | $\frac{3}{4} \times 4$<br>4/4 $\frac{3}{4}$             | $1 \times 4$<br>5/-<br>$1 \times 6$<br>8/-                          | $1\frac{1}{4} \times 6$<br>10/-                         | $1\frac{1}{2} \times 6$<br>12/-                         | $2 \times 6$<br>14/-                         | $3 \times 8$<br>33/7 $\frac{1}{4}$                       | —                                  | —                    |
| 215 | $\frac{1}{2} \times 1\frac{1}{2}$<br>2/2 $\frac{1}{2}$ | $\frac{3}{4} \times 2$<br>2/10 $\frac{3}{4}$            | $1 \times 2\frac{1}{2}$<br>4/1 $\frac{1}{2}$<br>$1 \times 4$<br>6/- | $1\frac{1}{4} \times 3$<br>5/8 $\frac{1}{2}$            | $1\frac{1}{2} \times 3\frac{1}{2}$<br>7/8 $\frac{1}{2}$ | $2 \times 4$<br>14/6                         | —                                                        | —                                  | —                    |
| 216 | $\frac{1}{2} \times 1\frac{1}{2}$<br>2/1 $\frac{1}{4}$ | $\frac{3}{4} \times 2$<br>3/2 $\frac{1}{2}$             | $1 \times 2\frac{1}{2}$<br>4/6                                      | $1\frac{1}{4} \times 3$<br>6/6                          | $1\frac{1}{2} \times 3\frac{1}{2}$<br>9/-               | $2 \times 4$<br>15/-                         | —                                                        | —                                  | —                    |

For Dimensions—see General Catalogue.

\* Fittings  $2\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

TESTED

# MALLEABLE IRON FITTINGS



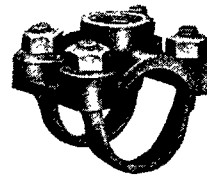
**No. 221**  
CROSSOVERS



**No. 222**  
FEMALE OFFSETS



**No. 229**  
PIPE SADDLE  
ONE BOLT



**No. 230**  
PIPE SADDLE  
TWO BOLT

| No. | 1/2"    | 3/4"                 | 1"                     | 1 1/4"             |
|-----|---------|----------------------|------------------------|--------------------|
| 221 | 2/2 1/2 | 3/-<br>3/4" x 1 1/2" | 4/2 1/2<br>1" x 1 1/2" | —                  |
| 222 | —       | 2/7 1/2              | 3/6                    | 1 1/2" x 2"<br>5/- |

| No. | Size of Main Tapped<br>for Branch | 1 1/2"           | 2"               | 2"                   | 2 1/2"               | 3"           | 3"           | 4"               | 4"           |
|-----|-----------------------------------|------------------|------------------|----------------------|----------------------|--------------|--------------|------------------|--------------|
| 229 | Price ...                         | 1 1/2"-2"<br>4/2 | 1 1/2"-1"<br>4/2 | 1 1/2"-1 1/2"<br>4/6 | 2 1/2"-1 1/2"<br>5/3 | 3"-1"<br>5/3 | 3"-2"<br>6/3 | 4"-1 1/2"<br>7/3 | 4"-2"<br>8/4 |

| No. | Size of Main Tapped<br>for Branch | 4"                | 5"                   | 5"        | 5"                | 6"               | 6"         | 6"          |  |
|-----|-----------------------------------|-------------------|----------------------|-----------|-------------------|------------------|------------|-------------|--|
| 229 | Price ...                         | 2 1/2"-3"<br>16/8 | 1 1/2"-1 1/2"<br>7/6 | 2"<br>9/- | 2 1/2"-3"<br>16/8 | 1"-1 1/2"<br>9/4 | 6"<br>10/5 | 6"<br>20/10 |  |

| No. | Size of Main Tapped<br>for Branch | 1 1/2"           | 2"                   | 2 1/2"                | 3"            | 4"            | 5"            | 6"            |  |
|-----|-----------------------------------|------------------|----------------------|-----------------------|---------------|---------------|---------------|---------------|--|
| 230 | Price ...                         | 1 1/2"-2"<br>8/4 | 1 1/2"-1 1/2"<br>8/4 | 2 1/2"-1 1/2"<br>10/5 | 3"-2"<br>10/5 | 4"-2"<br>12/6 | 5"-3"<br>23/- | 6"-2"<br>23/- |  |

| No. | Size of Main Tapped<br>for Branch | 6"                | 7"            | 8"            | 9"                | 10"           | 10"          | 12"          |  |
|-----|-----------------------------------|-------------------|---------------|---------------|-------------------|---------------|--------------|--------------|--|
| 230 | Price ...                         | 2 1/2"-4"<br>48/- | 1"-4"<br>54/- | 1"-4"<br>54/- | 1 1/2"-4"<br>71/- | 2"-5"<br>83/6 | 10"<br>105/- | 12"<br>117/- |  |

TESTED

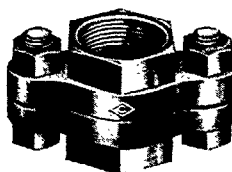
# MALLEABLE IRON FITTINGS



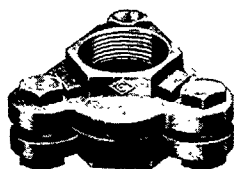
**No. 233**  
ROUND FLANGES  
B.S. TABLE D. DIAMETERS



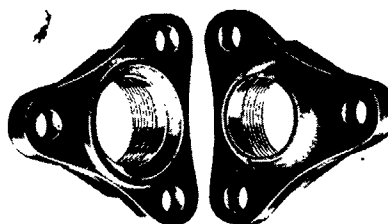
**No. 234**  
OVAL FLANGES



**No. 236**  
TWO-BOLT UNIONS



**No. 237**  
THREE-BOLT UNIONS



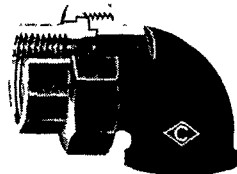
**No. 238**  
THREE-BOLT UNIONS, WITH GROUND-IN  
BALL AND SOCKET JOINT

| No. | $\frac{1}{8}$ " | $\frac{3}{8}$ " | $\frac{1}{2}$ "          | $\frac{3}{4}$ "          | 1"             | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"                        | $2\frac{1}{2}$ "         | 3"             | $3\frac{1}{2}$ " | 4"             | 5"   | 6"   |
|-----|-----------------|-----------------|--------------------------|--------------------------|----------------|------------------|------------------|---------------------------|--------------------------|----------------|------------------|----------------|------|------|
| 233 | 1/-             | $1\frac{1}{2}$  | $1\frac{1}{4}$           | 2/-                      | $2\frac{1}{2}$ | $2\frac{1}{2}$   | $\frac{3}{6}$    | $\frac{4}{6}$             | 7/-                      | 9/-            | $\frac{10}{6}$   | $\frac{12}{6}$ | 18/- | 24/- |
| 234 | $-\frac{7}{4}$  | $-\frac{9}{2}$  | $1\frac{1}{4}$           | $1\frac{1}{8}$           | $2\frac{1}{2}$ | 3/-              | $\frac{3}{6}$    | $\frac{4}{1\frac{1}{2}}$  | $\frac{5}{8\frac{1}{2}}$ | 8/-            | 10/-             | 12/-           | —    | —    |
| 236 | $\frac{2}{3}$   | $\frac{2}{4}$   | $\frac{2}{9}$            | $\frac{3}{6}$            | 5/-            | 7/-              | $\frac{7}{10}$   | 11/-                      | —                        | —              | —                | —              | —    | —    |
| 237 | —               | —               | $\frac{3}{2\frac{1}{2}}$ | $\frac{4}{1\frac{1}{2}}$ | $\frac{5}{6}$  | 7/-              | 8/-              | $\frac{11}{4\frac{1}{2}}$ | 15/-                     | $\frac{21}{6}$ | $\frac{26}{-}$   | $\frac{30}{-}$ | —    | —    |
| 238 | —               | —               | $\frac{3}{3}$            | $\frac{4}{1}$            | $\frac{5}{6}$  | 7/-              | 8/-              | $\frac{11}{5}$            | 15/-                     | $\frac{21}{6}$ | —                | —              | —    | —    |

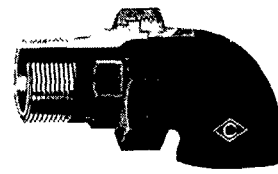
CRANE

# UNIONS AND UNION FITTINGS MALLEABLE IRON

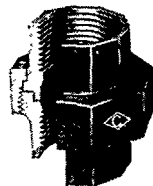
FLAT-FACED SEATING  
GASKETS EXTRA



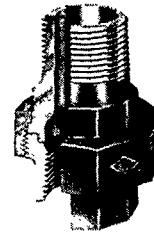
**No. 246**  
UNION ELBOWS, FEMALE



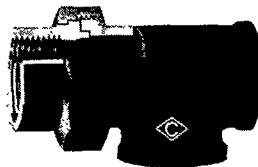
**No. 247**  
UNION ELBOWS, MALE AND FEMALE



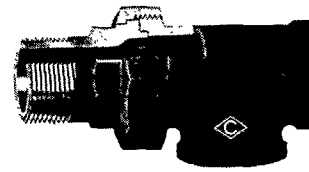
**No. 241**  
STANDARD UNIONS.  
GASKETS EXTRA



**No. 242**  
STANDARD UNIONS, M. & F.,  
GASKETS EXTRA



**No. 249**  
UNION TEES, FEMALE



**No. 250**  
UNION TEES, MALE AND FEMALE

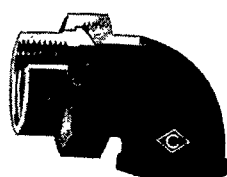
| No. | $\frac{1}{8}$ "   | $\frac{1}{4}$ "    | $\frac{3}{8}$ "   | $\frac{1}{2}$ "   | $\frac{3}{4}$ "    | 1"                | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ "  | 2"                 | 2 $\frac{1}{2}$ "  | 3"                 | 3 $\frac{1}{2}$ " | 4"   |
|-----|-------------------|--------------------|-------------------|-------------------|--------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|-------------------|------|
| 241 | 1/7 $\frac{1}{2}$ | 1/7 $\frac{1}{2}$  | 2/-               | 2/4 $\frac{1}{2}$ | 3/-                | 3/7 $\frac{1}{2}$ | 4/9 $\frac{1}{2}$ | 6/4 $\frac{1}{2}$  | 9/-                | 16/-               | 25/-               | 38/-              | 50/- |
| 242 | —                 | 1/10 $\frac{1}{2}$ | 2/3 $\frac{1}{2}$ | 2/9 $\frac{1}{2}$ | 3/6                | 4/2 $\frac{1}{2}$ | 5/7 $\frac{1}{2}$ | 7/6                | 10/6               | 18/7 $\frac{1}{2}$ | 30/2 $\frac{1}{2}$ | —                 | —    |
| 246 | —                 | 1/8 $\frac{1}{2}$  | 2/1 $\frac{1}{2}$ | 2/6               | 3/3 $\frac{1}{2}$  | 4/3 $\frac{1}{2}$ | 6/1 $\frac{1}{2}$ | 8/2 $\frac{1}{2}$  | 11/7 $\frac{1}{2}$ | —                  | —                  | —                 | —    |
| 247 | —                 | 2/-                | 2/4 $\frac{1}{2}$ | 3/-               | 3/10 $\frac{1}{2}$ | 5/-               | 6/9 $\frac{1}{2}$ | 9/3 $\frac{1}{2}$  | 13/-               | —                  | —                  | —                 | —    |
| 249 | —                 | 1/10 $\frac{1}{2}$ | 2/2 $\frac{1}{2}$ | 2/8 $\frac{1}{2}$ | 3/7 $\frac{1}{2}$  | 4/8 $\frac{1}{2}$ | 6/4 $\frac{1}{2}$ | 8/9 $\frac{1}{2}$  | 12/2 $\frac{1}{2}$ | —                  | —                  | —                 | —    |
| 250 | —                 | 2/2 $\frac{1}{2}$  | 2/6               | 3/1 $\frac{1}{2}$ | 4/1 $\frac{1}{2}$  | 5/3 $\frac{1}{2}$ | 7/2 $\frac{1}{2}$ | 9/10 $\frac{1}{2}$ | 13/8 $\frac{1}{2}$ | —                  | —                  | —                 | —    |

Prices of Gaskets for above are given on page 164.

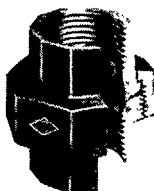
CRANE

# UNIONS AND UNION FITTINGS MALLEABLE IRON

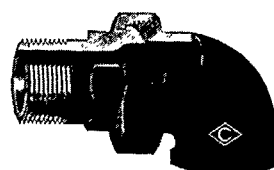
ALL IRON. GROUND SEAT



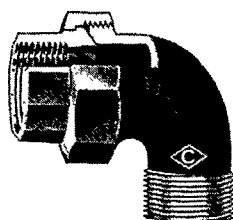
**No. 261**  
UNION ELBOWS,  
FEMALE



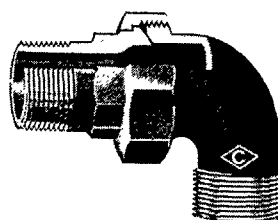
**No. 256**  
FEMALE UNIONS



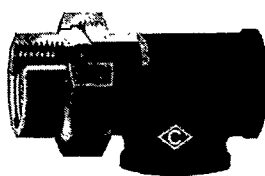
**No. 262**  
UNION ELBOWS,  
M. & F.



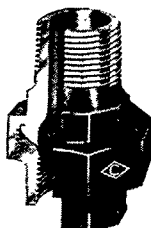
**No. 259**  
FEMALE UNION WITH MALE ELBOW



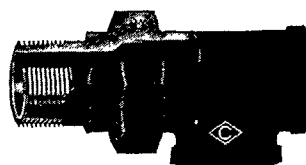
**No. 260**  
MALE UNION WITH MALE ELBOW



**No. 264**  
UNION TEES, FEMALE



**No. 257**  
MALE AND FEMALE



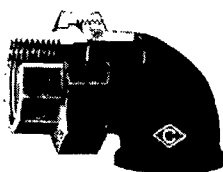
**No. 265**  
UNION TEES, M. & F.

| No. | $\frac{1}{4}$ "   | $\frac{3}{8}$ "    | $\frac{1}{2}$ "    | $\frac{3}{4}$ "   | 1"                | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ "  | 2"                 | 2 $\frac{1}{2}$ " | 3"   | 3 $\frac{1}{2}$ " | 4"   |
|-----|-------------------|--------------------|--------------------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|------|-------------------|------|
| 256 | 2/1 $\frac{1}{2}$ | 2/4 $\frac{1}{2}$  | 2/10 $\frac{1}{2}$ | 3/7 $\frac{1}{2}$ | 4/4 $\frac{1}{2}$ | 5/9 $\frac{1}{2}$ | 7/9 $\frac{1}{2}$  | 11/-               | 19/6              | 31/6 | 46/-              | 60/- |
| 257 | 2/6               | 2/9 $\frac{1}{2}$  | 3/4 $\frac{1}{2}$  | 4/2 $\frac{1}{2}$ | 5/2 $\frac{1}{2}$ | 6/9 $\frac{1}{2}$ | 9/2 $\frac{1}{2}$  | 13/-               | 23/-              | 37/- | —                 | —    |
| 259 | —                 | —                  | 3/3 $\frac{1}{2}$  | 4/4 $\frac{1}{2}$ | 5/9 $\frac{1}{2}$ | 8/1 $\frac{1}{2}$ | —                  | —                  | —                 | —    | —                 | —    |
| 260 | —                 | —                  | 3/9 $\frac{1}{2}$  | 5/-               | 6/6               | 9/-               | —                  | —                  | —                 | —    | —                 | —    |
| 261 | 2/1 $\frac{1}{2}$ | 2/7 $\frac{1}{2}$  | 3/-                | 4/-               | 5/2 $\frac{1}{2}$ | 7/4 $\frac{1}{2}$ | 10/-               | 14/-               | —                 | —    | —                 | —    |
| 262 | 2/4 $\frac{1}{2}$ | 2/10 $\frac{1}{2}$ | 3/7 $\frac{1}{2}$  | 4/8 $\frac{1}{2}$ | 6/-               | 8/2 $\frac{1}{2}$ | 11/2 $\frac{1}{2}$ | 15/7 $\frac{1}{2}$ | —                 | —    | —                 | —    |
| 264 | —                 | —                  | 3/3 $\frac{1}{2}$  | 4/4 $\frac{1}{2}$ | 5/8 $\frac{1}{2}$ | 7/8 $\frac{1}{2}$ | 10/7 $\frac{1}{2}$ | 14/8 $\frac{1}{2}$ | —                 | —    | —                 | —    |
| 265 | —                 | —                  | 3/9 $\frac{1}{2}$  | 5/-               | 6/4 $\frac{1}{2}$ | 8/8 $\frac{1}{2}$ | 12/-               | 16/3 $\frac{1}{2}$ | —                 | —    | —                 | —    |

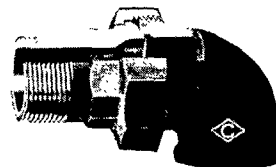
CRANE

## UNIONS AND UNION FITTINGS MALLEABLE IRON

RAILROAD PATTERN  
BRASS TO IRON SEATS



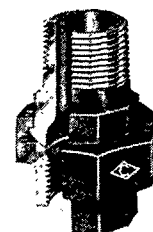
**No. 276**  
RAILROAD UNION ELBOWS,  
FEMALE



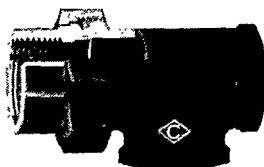
**No. 277**  
RAILROAD UNION ELBOWS,  
MALE AND FEMALE



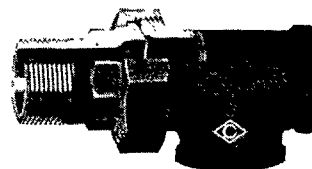
**No. 271**  
RAILROAD UNIONS, FEMALE



**No. 272**  
RAILROAD UNIONS  
MALE AND FEMALE



**No. 279**  
RAILROAD UNION TEES,  
FEMALE



**No. 280**  
RAILROAD UNION TEES,  
MALE AND FEMALE

| No. | $\frac{1}{4}$ " | $\frac{3}{8}$ " | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"  | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " | 2"   | 2 $\frac{1}{2}$ " | 3"   | 3 $\frac{1}{2}$ " | 4"   |
|-----|-----------------|-----------------|-----------------|-----------------|-----|-------------------|-------------------|------|-------------------|------|-------------------|------|
| 271 | 1/3             | 1/8             | 2/1             | 2/6             | 3/4 | 5/-               | 6/8               | 8/4  | 13/4              | 20/- | 33/4              | 41/8 |
| 272 | 1/7             | 2/1             | 2/7             | 3/2             | 4/2 | 6/3               | 8/4               | 10/5 | 16/8              | 25/- | —                 | —    |
| 276 | 1/11            | 2/6             | 3/2             | 3/9             | 5/- | 7/6               | 10/-              | 12/6 | —                 | —    | —                 | —    |
| 277 | 1/11            | 2/6             | 3/2             | 3/9             | 5/- | 7/6               | 10/-              | 12/6 | —                 | —    | —                 | —    |
| 279 | 2/1             | 2/9             | 3/5             | 4/2             | 5/6 | 8/3               | 11/-              | 13/9 | —                 | —    | —                 | —    |
| 280 | 2/1             | 2/9             | 3/5             | 4/2             | 5/6 | 8/3               | 11/-              | 13/9 | —                 | —    | —                 | —    |

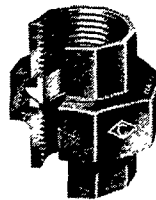
CRANE

## MALLEABLE IRON UNIONS

NAVY PATTERN

FOR STEAM WORKING PRESSURES UP TO 250 LBS.

TWO  
BRONZE  
SEATS



TWO  
BRONZE  
SEATS

No. 289

| Sizes:    | $\frac{1}{4}$ " | $\frac{3}{8}$ " | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"  | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"   | $2\frac{1}{2}$ " | 3"   |
|-----------|-----------------|-----------------|-----------------|-----------------|-----|------------------|------------------|------|------------------|------|
| Black ... | 1/3             | 1/8             | 2/1             | 2/6             | 3/4 | 5/-              | 6/8              | 8/4  | 13/4             | 20/- |
| Galv. ... | 1/11            | 2/6             | 3/2             | 3/9             | 5/- | 7/6              | 10/-             | 12/6 | 20/-             | 30/- |

### GASKETS FOR FLAT SEAT UNIONS AND UNION FITTINGS

| No. | Sizes:      | $\frac{1}{8}$ "  | $\frac{1}{4}$ "  | $\frac{3}{8}$ "  | $\frac{1}{2}$ "  | $\frac{3}{4}$ "  | 1"               | $1\frac{1}{4}$ " |
|-----|-------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 298 | Lead ...    | -2               | -2               | -2 $\frac{1}{2}$ | -3               | -3 $\frac{1}{2}$ | -4 $\frac{1}{4}$ | -5               |
| 299 | Cranite ... | -2               | -2               | -2 $\frac{1}{2}$ | -3               | -3 $\frac{1}{4}$ | -3 $\frac{3}{4}$ | -4 $\frac{3}{4}$ |
| 300 | Rubber ...  | -1 $\frac{1}{2}$ | -1 $\frac{1}{2}$ | -2               | -2 $\frac{1}{2}$ | -3               | -3 $\frac{1}{4}$ | -4               |

| No. | Sizes:      | $1\frac{1}{2}$ " | 2"               | $2\frac{1}{2}$ " | 3"                | $3\frac{1}{2}$ "  | 4"                | — |
|-----|-------------|------------------|------------------|------------------|-------------------|-------------------|-------------------|---|
| 298 | Lead ...    | -6               | -9               | 1/2              | 1/5               | 1/10              | 2/2               | — |
| 299 | Cranite ... | -5 $\frac{1}{2}$ | -8 $\frac{1}{2}$ | 1/-              | 1/3 $\frac{1}{2}$ | 1/7 $\frac{1}{4}$ | 2/-               | — |
| 300 | Rubber ...  | -4 $\frac{3}{4}$ | -6 $\frac{1}{2}$ | -8 $\frac{1}{4}$ | -9 $\frac{1}{2}$  | 1/1 $\frac{3}{4}$ | 1/5 $\frac{3}{4}$ | — |

CRANE

## CAST IRON SCREWED FITTINGS

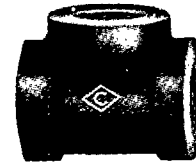
FOR STEAM WORKING PRESSURES UP TO 125 POUNDS  
FOR WATER WORKING PRESSURES UP TO 175 POUNDS

BANDED

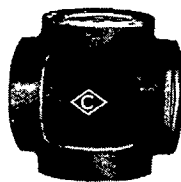


**No. A1**  
ELBOWS, R.H.

**No. A3**  
ELBOWS R. & L

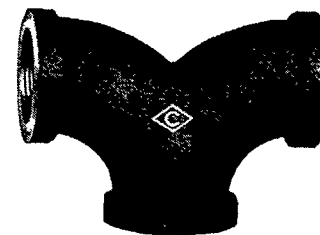


**No. A6**  
TEES EQUAL

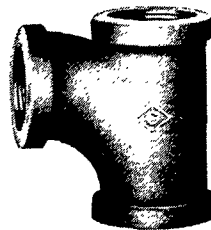


**No. A11**  
CROSSES

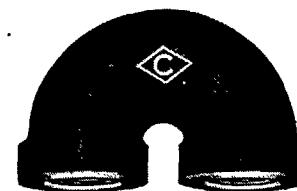
**No. A12**  
REDUCING CROSSES



**No. A30**  
DOUBLE BRANCH ELBOWS



**No. A32**  
PITCHER TEES, EQUAL



**No. A35**  
RETURN BEND (MEDIUM)

For Complete Range and Prices of Cast Iron Screwed Fittings—see General Catalogue.

CRANE

## PIPE BRACKETS

SCHOOL BOARD PATTERN

SHORT SHANK

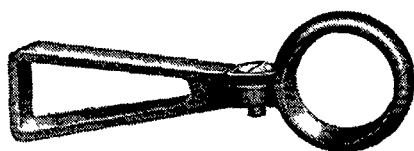


Fig. 502

SCREW ON

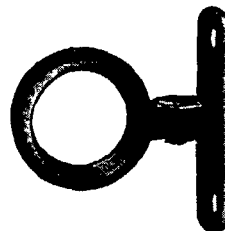


Fig. 501

| Fig. No. | Sizes:         | $\frac{1}{4}$ " | $\frac{3}{8}$ " | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"              | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"  | $2\frac{1}{2}$ " | 3"   | $3\frac{1}{2}$ " | 4"  |
|----------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|-----|------------------|------|------------------|-----|
| 501      | Black Japanned | $-2\frac{1}{2}$ | $-3$            | $-3\frac{1}{2}$ | $-3\frac{3}{4}$ | $-4\frac{1}{2}$ | $-6\frac{1}{2}$  | $-8\frac{1}{2}$  | 1/- | 1/4              | 1/9  | 2/4              | 2/8 |
| 501      | Galvanized     | $-2\frac{3}{4}$ | $-3\frac{1}{2}$ | $-3\frac{3}{4}$ | $-4$            | $-5\frac{1}{2}$ | $-7\frac{1}{2}$  | $-9\frac{1}{2}$  | 1/2 | 1/7              | 2/1  | 2/7              | 3/- |
| 502      | Black Japanned | $-2\frac{1}{2}$ | $-2\frac{3}{4}$ | $-3\frac{1}{4}$ | $-3\frac{1}{2}$ | $-4\frac{1}{2}$ | $-6\frac{1}{2}$  | $-8$             | 1/- | 1/6              | 1/11 | 2/6              | 3/- |
| 502      | Galvanized     | $-3$            | $-3\frac{1}{4}$ | $-4$            | $-4\frac{1}{4}$ | $-5\frac{1}{2}$ | $-7\frac{1}{2}$  | $-9\frac{1}{2}$  | 1/2 | 1/9              | 2/3  | 2/10             | 3/6 |

LONG SHANK

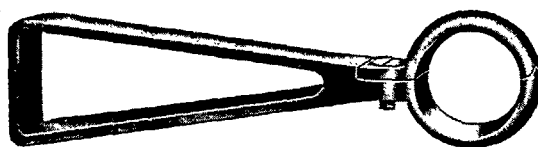


Fig. 503

| Fig. No. | Sizes:             | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"    | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"  | $2\frac{1}{2}$ " | 3"   | $3\frac{1}{2}$ " | 4"  |
|----------|--------------------|-----------------|-----------------|-------|------------------|------------------|-----|------------------|------|------------------|-----|
| 503      | Black Japanned ... | $-6$            | $-6\frac{1}{2}$ | $-8$  | $-10\frac{1}{2}$ | 1/2              | 1/6 | 2/-              | 2/4  | 4/-              | 4/6 |
| 503      | Galvanized ...     | $-7$            | $-7\frac{1}{2}$ | $-10$ | 1/1              | 1/4              | 1/9 | 2/6              | 2/10 | 5/-              | 5/6 |

Fig. 502 is also made ... 5" and 6"  
 Black ... 4/6 6/-  
 Galvanized ... 5/6 7/6

## PIPE BRACKETS

MENTAL HOSPITAL AND PRISON PATTERN  
MALLEABLE IRON

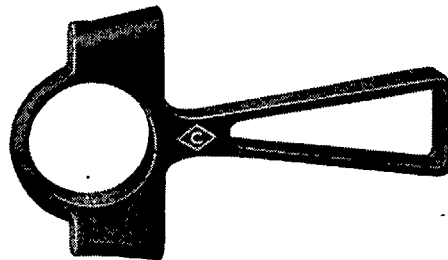
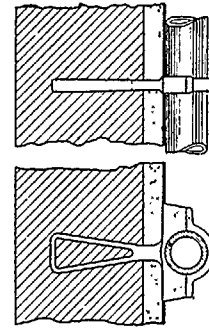


Fig. 506



|                 |                 |     |                  |
|-----------------|-----------------|-----|------------------|
| $\frac{1}{2}$ " | $\frac{3}{8}$ " | 1"  | $1\frac{1}{4}$ " |
| -/5             | -/6             | -/7 | -/10             |

These Brackets are offered for general use in Mental Hospitals, Prisons, etc., where the utmost protection against the illegal use of hooks, brackets, etc., by inmates is desired.

STAMPED STEEL

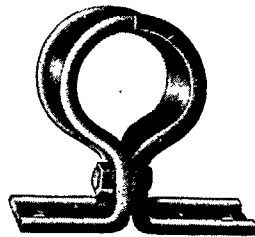


Fig. 507  
BLACK AND GALVANIZED

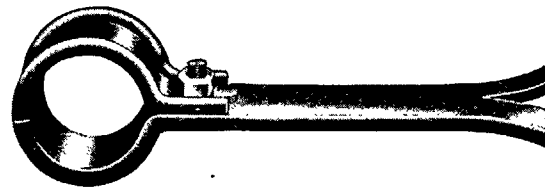


Fig. 508  
BLACK AND GALVANIZED

| Fig. No. | $\frac{1}{4}$ " | $\frac{3}{8}$ " | $\frac{1}{2}$ "   | $\frac{3}{4}$ "   | 1"                | $1\frac{1}{4}$ " | $1\frac{1}{2}$ "  | 2"                 | $2\frac{1}{2}$ " | 3"               | $3\frac{1}{2}$ " | 4"    | 5"     | 6"    |
|----------|-----------------|-----------------|-------------------|-------------------|-------------------|------------------|-------------------|--------------------|------------------|------------------|------------------|-------|--------|-------|
| 507      | -/4             | -/4             | -/4 $\frac{1}{4}$ | -/4 $\frac{3}{4}$ | -/5 $\frac{1}{2}$ | -/6              | -/7 $\frac{1}{2}$ | -/8                | -/10             | $1/1\frac{1}{2}$ | $1/2\frac{1}{2}$ | $1/3$ | $1/10$ | $2/5$ |
| Galv.    | -/5             | -/5             | -/5 $\frac{1}{2}$ | -/6               | -/7               | -/8              | -/9 $\frac{1}{2}$ | -/10 $\frac{1}{2}$ | $1/1$            | $1/5\frac{1}{2}$ | $1/6$            | $1/7$ | $2/5$  | $3/-$ |
| 508      | -/4             | -/4             | -/4 $\frac{1}{4}$ | -/4 $\frac{3}{4}$ | -/5 $\frac{1}{2}$ | -/6              | -/7 $\frac{1}{2}$ | -/8                | -/10             | $1/1\frac{1}{2}$ | $1/2\frac{1}{2}$ | $1/3$ | $1/10$ | $2/5$ |
| Galv.    | -/5             | -/5             | -/5 $\frac{1}{2}$ | -/6               | -/7               | -/8              | -/9 $\frac{1}{2}$ | -/10 $\frac{1}{2}$ | $1/1$            | $1/5\frac{1}{2}$ | $1/6$            | $1/7$ | $2/5$  | $3/-$ |

Fig. 508 can be supplied with Long Shanks at 25 % extra.

# PIPE BRACKETS

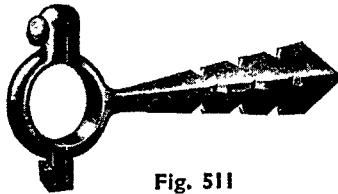


Fig. 511

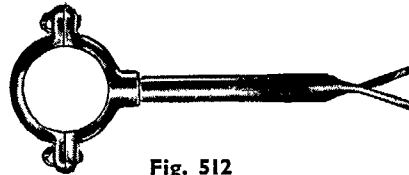


Fig. 512

| Fig. No. | Sizes:              | $\frac{3}{8}$ " | $\frac{1}{2}$ "    | $\frac{3}{4}$ "   | 1"                | $1\frac{1}{4}$ "  | $1\frac{1}{2}$ "   | 2"                 | $2\frac{1}{2}$ "  | 3"   | $3\frac{1}{2}$ " | 4"  |
|----------|---------------------|-----------------|--------------------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|------|------------------|-----|
| 511      | Black ...           | —               | -/4                | -/4 $\frac{1}{2}$ | -/5               | -/6 $\frac{1}{2}$ | -/8                | 1/-                | —                 | —    | —                | —   |
|          | Galvanized ...      | —               | -/5 $\frac{1}{4}$  | -/6               | -/6 $\frac{1}{2}$ | -/8 $\frac{1}{2}$ | -/10 $\frac{1}{2}$ | 1/4                | —                 | —    | —                | —   |
| 512      | Complete with Pipe— |                 |                    |                   |                   |                   |                    |                    |                   |      |                  |     |
|          | Black ...           | -/7             | -/8                | -/9               | -/9 $\frac{1}{2}$ | -/11              | 1/5                | 1/6                | 2/4               | 2/10 | 3/-              | 3/6 |
|          | Galvanized          | -/9             | -/10 $\frac{1}{2}$ | 1/-               | 1/0 $\frac{1}{2}$ | 1/2 $\frac{1}{2}$ | 1/10               | 1/11 $\frac{1}{2}$ | 3/0 $\frac{1}{2}$ | 3/8  | 3/11             | 4/6 |

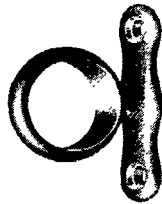


Fig. 513  
SOLID HOLDERS

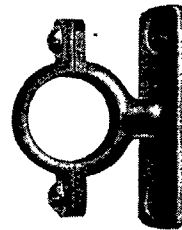


Fig. 514  
SPLIT HOLDERS

| Fig. No. | Sizes:         | $\frac{1}{2}$ " | $\frac{3}{4}$ "   | 1"                 | $1\frac{1}{4}$ " | $1\frac{1}{2}$ "   | 2"                |
|----------|----------------|-----------------|-------------------|--------------------|------------------|--------------------|-------------------|
| 513      | Black ...      | -/3             | -/4               | -/6                | -/7              | -/8                | 1/-               |
|          | Galvanized ... | -/4             | -/5 $\frac{1}{2}$ | -/8                | -/9              | -/10 $\frac{1}{2}$ | 1/3 $\frac{1}{2}$ |
| 514      | Black ...      | -/6             | -/7 $\frac{1}{2}$ | -/8                | -/11             | 1/2                | 1/4               |
|          | Galvanized ... | -/8             | -/9 $\frac{1}{2}$ | -/10 $\frac{1}{2}$ | 1/2              | 1/6                | 1/9               |

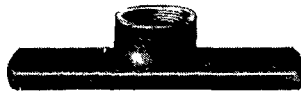


Fig. 515  
BACK PLATES



Fig. 516  
CEILING PLATES

| Fig No. | Sizes:         | $\frac{1}{8}$ "   | $\frac{1}{4}$ "   | $\frac{3}{8}$ "   | $\frac{1}{2}$ "   | $\frac{3}{4}$ " | 1"                |
|---------|----------------|-------------------|-------------------|-------------------|-------------------|-----------------|-------------------|
| 515     | Black ...      | -/2 $\frac{1}{2}$ | -/2 $\frac{1}{2}$ | -/4               | -/5 $\frac{1}{2}$ | -/7             | -/9 $\frac{1}{2}$ |
|         | Galvanized ... | -/3 $\frac{1}{4}$ | -/3 $\frac{1}{4}$ | -/5 $\frac{1}{2}$ | -/7               | -/9             | 1/0 $\frac{1}{2}$ |
| 516     | Black ...      | —                 | -/2 $\frac{1}{2}$ | -/2 $\frac{1}{2}$ | -/4               | —               | —                 |
|         | Galvanized ... | —                 | -/3 $\frac{1}{2}$ | -/3 $\frac{1}{2}$ | -/5 $\frac{1}{2}$ | —               | —                 |

## PIPE HANGERS



**Fig. 517**  
FLANGED SOCKETS



**Fig. 520**  
RING SOCKETS



**Fig. 521**  
CHANDELIER  
HOOKS, FEMALE



**Fig. 522**  
CHANDELIER  
LOOPS, MALE

| Fig. No. | Sizes: |     |     | $\frac{1}{8}$ " | $\frac{1}{4}$ "   | $\frac{3}{8}$ "   | $\frac{1}{2}$ "    | $\frac{3}{4}$ "   | 1"  |
|----------|--------|-----|-----|-----------------|-------------------|-------------------|--------------------|-------------------|-----|
| 517      | Black  | ... | ... | 1/-             | 1/-               | 1/1 $\frac{1}{4}$ | 1/3 $\frac{1}{2}$  | 2/-               | 3/- |
| 520      | Black  | ... | ... | -/6             | -/6               | -/8 $\frac{1}{2}$ | -/10 $\frac{3}{4}$ | 1/1 $\frac{1}{4}$ | 1/6 |
| 521      | Black  | ... | ... | —               | -/6               | -/8 $\frac{1}{2}$ | -/10 $\frac{3}{4}$ | 1/1 $\frac{1}{4}$ | —   |
| 522      | Black  | ... | ... | —               | -/4 $\frac{3}{4}$ | -/7 $\frac{1}{4}$ | -/9 $\frac{1}{2}$  | 1/-               | —   |

## LAGSCREWS



**Fig. 523**

| Sizes:                                   | $\frac{1}{8}$ " | $\frac{1}{4}$ "   | $\frac{3}{8}$ "   | $\frac{1}{2}$ "    |
|------------------------------------------|-----------------|-------------------|-------------------|--------------------|
| Screwed, with gim-<br>let point for wood | -/5             | -/6 $\frac{1}{2}$ | -/8 $\frac{1}{2}$ | -/10 $\frac{1}{2}$ |

## GIRDER LUGS



**Fig. 524**

To pass  $\frac{1}{2}$ " bolts for Hangers  
up to 3" ... per pair -/9  
To pass  $\frac{3}{8}$ " bolts for Hangers  
over 3". Heavy Pattern  
per pair -/11

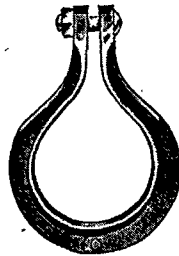


**Fig. 526**

PIPE RINGS  
SOLID

| Sizes:<br>Screwed for Iron Pipe |     |     | $\frac{1}{2}$ "<br>$\frac{1}{4}$ " | $\frac{3}{4}$ "<br>$\frac{1}{4}$ " | 1"<br>$\frac{1}{4}$ " | $1\frac{1}{4}$ "<br>$\frac{1}{4}$ " | $1\frac{1}{2}$ "<br>$\frac{3}{8}$ " | 2"<br>$\frac{3}{8}$ " | $2\frac{1}{2}$ "<br>$\frac{1}{2}$ " | 3"<br>$\frac{1}{2}$ " | $3\frac{1}{2}$ "<br>$\frac{1}{2}$ " | 4"<br>$\frac{1}{2}$ " |
|---------------------------------|-----|-----|------------------------------------|------------------------------------|-----------------------|-------------------------------------|-------------------------------------|-----------------------|-------------------------------------|-----------------------|-------------------------------------|-----------------------|
| Prices                          | ... | ... | -/3                                | -/4                                | -/4½                  | -/5                                 | -/6½                                | -/7                   | -/10½                               | 1/1                   | 1/4                                 | 1/5                   |

## PIPE HANGERS

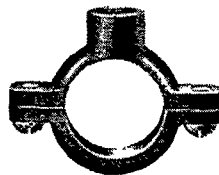


**Fig. 527**  
MALLEABLE IRON  
HINGED  
(COMPLETE)

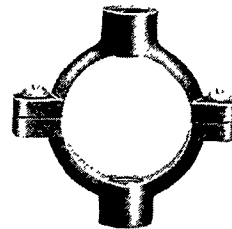


**Fig. 528**  
STAMPED  
STEEL

| Fig. No. | $\frac{3}{8}$ "  | $\frac{1}{2}$ " | $\frac{3}{4}$ "  | 1" | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " | 2" | 2 $\frac{1}{2}$ " | 3"  | 3 $\frac{1}{2}$ " | 4"  | 5"                | 6"  | 8"  |
|----------|------------------|-----------------|------------------|----|-------------------|-------------------|----|-------------------|-----|-------------------|-----|-------------------|-----|-----|
| 527      | -3 $\frac{1}{2}$ | -4              | -4 $\frac{1}{2}$ | -5 | -6                | -7                | -8 | -11               | 1/2 | 1/10              | 2/2 | 2/10              | 3/4 | 4/6 |
| 528      | —                | —               | -3 $\frac{1}{2}$ | -4 | -4 $\frac{1}{2}$  | -5 $\frac{1}{2}$  | -7 | -7 $\frac{1}{2}$  | -10 | 1/-               | 1/2 | 1/5 $\frac{1}{2}$ | 1/7 | —   |



**Fig. 529**  
PIPE RINGS (SPLIT)

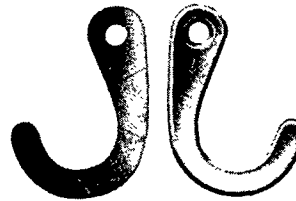


**Fig. 530**  
PIPE RINGS (DOUBLE)

| Fig. No. | Sizes:<br>Screwed: | $\frac{3}{8}$ " | $\frac{1}{2}$ "  | $\frac{3}{4}$ "  | 1"               | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " | 2"               | 2 $\frac{1}{2}$ " | 3"                | 3 $\frac{1}{2}$ " | 4"   | 5"   | 6"   |
|----------|--------------------|-----------------|------------------|------------------|------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|------|------|------|
| 529      | Black              | ...             | -4               | -4               | -4 $\frac{1}{2}$ | -5                | -5 $\frac{1}{2}$  | -6 $\frac{1}{2}$ | -7                | 1/-               | 1/2               | 1/6  | 1/10 | 3/-  |
|          | Galvd.             | ...             | -4 $\frac{1}{2}$ | -4 $\frac{1}{2}$ | -5 $\frac{1}{2}$ | -6                | -6 $\frac{1}{2}$  | -7 $\frac{1}{2}$ | -8 $\frac{1}{2}$  | 1/3               | 1/5               | 2/4  | 3/9  | 5/-  |
| 530      | Black              | ...             | -4 $\frac{1}{2}$ | -4 $\frac{1}{2}$ | -5 $\frac{1}{2}$ | -6                | -6 $\frac{1}{2}$  | -7 $\frac{1}{2}$ | -9 $\frac{1}{2}$  | 1/3 $\frac{1}{2}$ | 1/7               | 2/-  | 2/3  | 4/6  |
|          | Galvd.             | ...             | -5               | -5               | -6               | -7                | -8                | -9 $\frac{1}{2}$ | -11               | 1/7               | 2/6               | 2/10 | 5/7  | 6/10 |



**Fig. 531**  
SOLID PIPE RINGS



**Fig. 532**  
CALLIPER HOOKS

| Fig. No. | Sizes:   | $\frac{1}{2}$ " | $\frac{3}{4}$ "  | 1"               | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " | 2"               | 2 $\frac{1}{2}$ " | 3"                | 3 $\frac{1}{2}$ " | 4"  | 5"  | 6"  |
|----------|----------|-----------------|------------------|------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|-----|-----|-----|
| 531      | ...      | —               | —                | -2 $\frac{1}{2}$ | -3                | -4                | -5               | -6                | -8                | 1/-               | 1/3 | 1/6 | 2/- |
| 532      | Per pair | -2              | -2 $\frac{1}{2}$ | -3 $\frac{1}{2}$ | -4                | -4 $\frac{1}{2}$  | -7 $\frac{1}{2}$ | -8                | -10 $\frac{1}{2}$ | 2/-               | 2/4 | 3/- | 4/- |

CRANE  
MALLEABLE IRON PIPE HANGERS



Fig. 551



Fig. 552

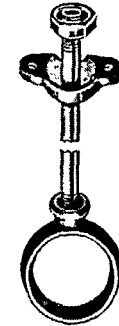


Fig. 553

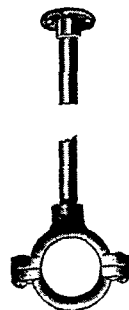


Fig. 560

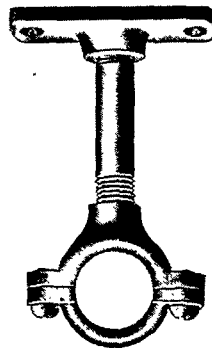


Fig. 561

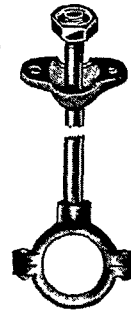


Fig. 566

Above are combinations built up from separate units  
Any combination quoted for on receipt of Specification

CRANE

# ROLLER BRACKETS AND CHAIRS

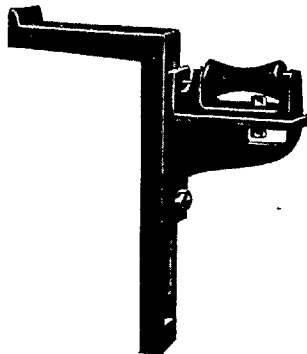


Fig. 577

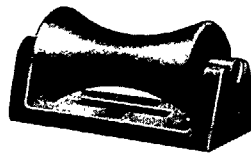


Fig. 573

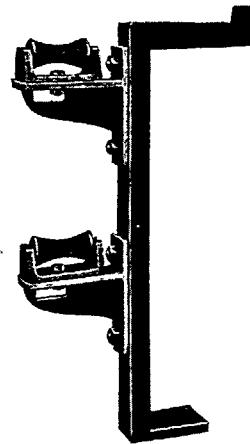


Fig. 578

| Figure No. | Sizes:                                                       | No. 1<br>Small | No. 2<br>Medium | No. 3<br>Large | No. 4<br>Extra Large |
|------------|--------------------------------------------------------------|----------------|-----------------|----------------|----------------------|
|            | For Pipe Sizes up to ... ..                                  | 3"             | 4"              | 7"             | 10"                  |
|            | Vertical Adjustment on largest size pipe ... ..              | 2½"            | 3"              | 4"             | 5"                   |
|            | Minimum Distance from Face of Wall Plate to Centre of Roller | 2½"            | 2 5/8"          | 3 3/8"         | 3 15/16"             |
|            | Maximum ditto ... ..                                         | 4 5/8"         | 4 15/16"        | 7 3/4"         | 9 3/16"              |
| 577        | Single Roller, Bracket and Wall Plate ... ..                 | 5/-            | 8/6             | 13/-           | 25/-                 |
| 578        | Double ditto ditto ... ..                                    | 9/-            | 13/6            | 24/-           | 39/-                 |
| 573        | Extra Rollers and Chairs for Figs. 577 and 578 ... ..        | -/6½           | -/11            | 2/4            | 3/3                  |

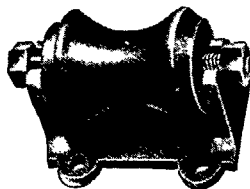
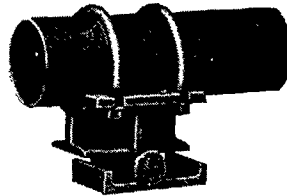


Fig. 574

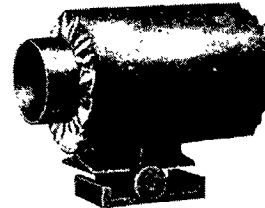
| Number                        | 1   | 2   | 3   | 4    | 5   | 6   | 7   |
|-------------------------------|-----|-----|-----|------|-----|-----|-----|
| For Pipe Sizes:               | 2"  | 2½" | 3"  | 3½"  | 4"  | 5"  | 6"  |
| Roller and Chair Complete ... | 3/- | 3/4 | 3/6 | 3/10 | 4/2 | 5/- | 6/- |

## PATENT ROLLER PIPE BRACKET

BRITISH PATENT 426415



BRACKET ASSEMBLED



WITH PIPE LAGGED

Fig. 591

This entirely new design of Support and Roller Bearing allows for expansion or contraction of Pipe without interfering with or damaging insulating material with which it is covered.

| For Pipe Sizes:                                   | 1½" | 2"  | 2½" | 3"   | 3½"  |
|---------------------------------------------------|-----|-----|-----|------|------|
| Pipe Cradles with Clamps, Roller and Plate ... .. | 8/6 | 9/- | 9/- | 10/3 | 10/9 |

| For Pipe Sizes:                                   | 4"   | 5"   | 6"   | 7"   |
|---------------------------------------------------|------|------|------|------|
| Pipe Cradles with Clamps, Roller and Plate ... .. | 12/- | 16/6 | 23/- | 28/6 |

## BUILD-IN WALL BRACKETS

Drilled to receive horizontal flanged base plate of Fig. 591

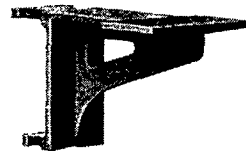


Fig. 592

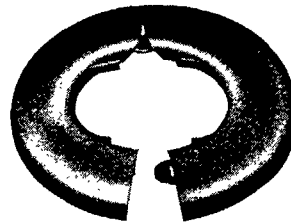
| For Pipe Sizes:                    | 1½" | 2"  | 2½" | 3"  | 3½" |
|------------------------------------|-----|-----|-----|-----|-----|
| Wall Bracket to support cradle ... | 8/6 | 8/6 | 8/6 | 9/6 | 9/6 |

| For Pipe Sizes:                    | 4"   | 5"   | 6"   | 7"   |
|------------------------------------|------|------|------|------|
| Wall Bracket to support cradle ... | 12/- | 12/- | 15/6 | 15/6 |

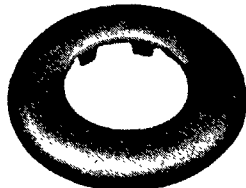
# FLOOR AND CEILING PLATES



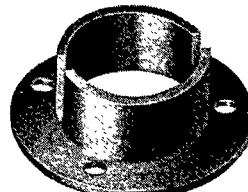
**Fig. 581**  
CAST IRON



**Fig. 582**  
ROLLED STEEL, HINGED



**Fig. 585**  
ROLLED STEEL, ONE-PIECE



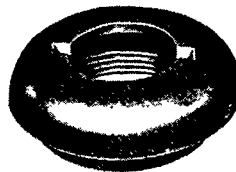
**Fig. 588**  
CAST IRON

| Figure No. | For Pipe Sizes:     | $\frac{3}{8}$ "    | $\frac{1}{2}$ "    | $\frac{3}{4}$ "    | 1"                | 1 $\frac{1}{2}$ " | 1 $\frac{1}{2}$ " | 2"                | 2 $\frac{1}{2}$ " | 3"   | 3 $\frac{1}{2}$ " | 4"   |
|------------|---------------------|--------------------|--------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|-------------------|------|
| 581        | Black ...           | -/10               | -/11               | -/11 $\frac{1}{2}$ | 1/1 $\frac{1}{2}$ | 1/3               | 1/5               | 1/8 $\frac{1}{2}$ | 2/10              | 3/9  | —                 | —    |
|            | Nickel Plated ...   | 1/8                | 1/9                | 1/9 $\frac{1}{2}$  | 2/1               | 2/3               | 2/5 $\frac{1}{2}$ | 2/11              | 4/2               | 5/2  | —                 | —    |
|            | Chromium Plated ... | 1/10 $\frac{1}{2}$ | 1/11 $\frac{1}{2}$ | 2/0 $\frac{1}{2}$  | 2/4               | 2/6               | 2/9               | 3/3 $\frac{1}{2}$ | 4/9               | 5/10 | —                 | —    |
| 582        | Black ...           | -/6                | -/6 $\frac{1}{2}$  | -/6 $\frac{1}{2}$  | -/8               | -/8 $\frac{1}{2}$ | -/10              | 1/-               | 1/8               | 2/2  | 2/8               | 3/4  |
|            | Nickel Plated ...   | -/10 $\frac{1}{2}$ | -/10 $\frac{1}{2}$ | -/11 $\frac{1}{2}$ | 1/0 $\frac{1}{2}$ | 1/2               | 1/3 $\frac{1}{2}$ | 1/6               | 2/2               | 2/8  | 3/4               | 4/2  |
|            | Chromium Plated ... | 1/2 $\frac{1}{2}$  | 1/3                | 1/4                | 1/6               | 1/7 $\frac{1}{2}$ | 1/9 $\frac{1}{2}$ | 2/1 $\frac{1}{2}$ | 3/0 $\frac{1}{2}$ | 3/9  | 4/8               | 5/10 |

| Figure No. | For Pipe Sizes:   | $\frac{1}{2}$ "   | $\frac{3}{4}$ "   | 1"                | 1 $\frac{1}{2}$ " | 1 $\frac{1}{2}$ " | 2"                |
|------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 585        | Black ...         | -/3 $\frac{1}{2}$ | -/3 $\frac{1}{2}$ | -/4               | -/4 $\frac{1}{2}$ | -/4 $\frac{1}{2}$ | -/5 $\frac{1}{2}$ |
|            | Nickel Plated ... | -/4 $\frac{1}{2}$ | -/4 $\frac{1}{2}$ | -/5 $\frac{1}{2}$ | -/6               | -/6 $\frac{1}{2}$ | -/6 $\frac{1}{2}$ |

| No. | For Pipe Sizes: | $\frac{1}{2}$ " | $\frac{3}{4}$ " | 1"  | 1 $\frac{1}{2}$ " | 1 $\frac{1}{2}$ " | 2"  | 2 $\frac{1}{2}$ " | 3"   | 3 $\frac{1}{2}$ " | 4"   |
|-----|-----------------|-----------------|-----------------|-----|-------------------|-------------------|-----|-------------------|------|-------------------|------|
| 588 | Per doz. ...    | 2/9             | 3/-             | 4/- | 5/6               | 7/-               | 8/- | 15/-              | 18/- | 22/-              | 26/- |

HALL'S PIPE



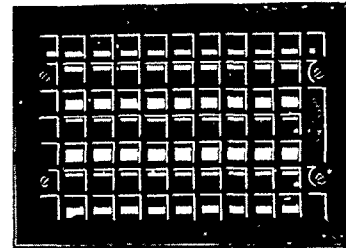
THIMBLES

**Fig. 589**

| Thimbles tapped for Pipe To pass Pipe ... | 1"                | 1 $\frac{1}{2}$ " | 1 $\frac{1}{2}$ " | 1 $\frac{1}{2}$ " | 1 $\frac{1}{2}$ " | 2"  | 2"  | 2"  | 2 $\frac{1}{2}$ " | 2 $\frac{1}{2}$ " | 3"  | 3 $\frac{1}{2}$ " | 4"  | 5"  |
|-------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----|-----|-----|-------------------|-------------------|-----|-------------------|-----|-----|
| Black ... each                            | -/5 $\frac{1}{2}$ | -/6               | -/6 $\frac{1}{2}$ | -/8               | -/8               | -/9 | -/9 | -/9 | -/10              | -/10              | 1/5 | 1/10              | 2/9 | 3/2 |

## LOUVRED REGISTERS

Fig. 905. PLAIN LATTICE DESIGN



### PRICES OF COMPLETE REGISTERS

| Size of Opening<br>in. | Black<br>Japanned<br>s. d. | Size of Opening<br>in. | Black<br>Japanned<br>s. d. | Size of Opening<br>in. | Black<br>Japanned<br>s. d. |
|------------------------|----------------------------|------------------------|----------------------------|------------------------|----------------------------|
| 6 × 8                  | 7 5                        | 9 × 9                  | 9 8                        | 10 × 16                | 15 7                       |
| 6 × 9                  | 7 10                       | 9 × 14                 | 10 7                       | 12 × 14                | 15 7                       |
| 8 × 10                 | 10 9                       | 10 × 12                | 11 6                       | 12 × 18                | 20 8                       |
|                        |                            | 10 × 14                | 12 5                       |                        |                            |

Fig. 906. Extra for White Enamelled Registers and Faces ... 10d. each.

Fig. 907. Pulleys for Registers ... 1/- per pair.

Extra for Fixing if required ... 6d. per pair.

Fig. 908. Indicator Handles, black japanned, lettered "Open" and "Shut" 11d. per pair.

### REGULATING QUADRANTS

Top action or Side action, state if right or left hand. Rod included up to 3 ft. in length.

Fig. 909. Malleable Iron, Black, with Iron Rod ... 3/- each.

Fig. 910. Brass or Gun metal, ditto ... 4/6 each.

Fig. 911. All Brass, Polished and Lacquered, ditto ... 8/- each.

Extra for Brass Rods, 3 ft. long ... 1/3 each.

### PULL-UP ACTION, WITH GUIDE

Fig. 912. Brass Knob, Guide and Iron Rod ... 3/8 each.

Fig. 913. Brass Knob, Guide and Brass Rod ... 5/8 each.

## DETACHABLE FRONT WALL GRATINGS AND FRAMES

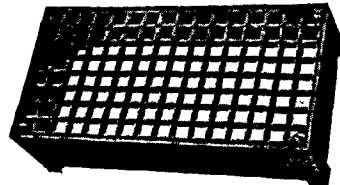


Fig. 914

### SCHOOL BOARD PATTERN WITH FOUR BRASS SCREWS

Gratings and Frames are of cast iron, Black, or Galvanized for external use.

The front can be detached from the body by removing the Brass Screws.

### C.I. AIR BRICKS—BLACK

| 9" × 6"<br>s. d. | 9" × 9"<br>s. d. | 12" × 6"<br>s. d. | 12" × 9"<br>s. d. | 12" × 12"<br>s. d. | 14" × 9"<br>s. d. | 18" × 6"<br>s. d. | 18" × 9"<br>s. d. |
|------------------|------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
| 3 8              | 4 2              | 4 6               | 5 1               | 6 4                | 6 0               | 6 2               | 7 4               |

### C.I. AIR BRICKS—GALVANIZED

| 9" × 6"<br>s. d. | 9" × 9"<br>s. d. | 12" × 6"<br>s. d. | 12" × 9"<br>s. d. | 12" × 12"<br>s. d. | 14" × 9"<br>s. d. | 18" × 6"<br>s. d. | 18" × 9"<br>s. d. |
|------------------|------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
| 5 6              | 6 4              | 6 9               | 7 8               | 9 9                | 9 5               | 9 10              | 11 10             |

CRANE

# SOLID STOCKS AND DIES

MALLEABLE IRON

LIGHT IN WEIGHT

STRONG

COMPACT

PERFECT CUTTING

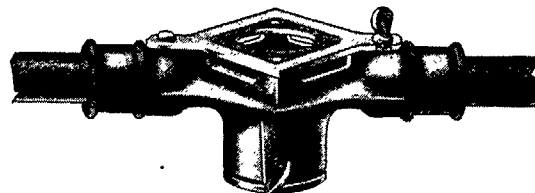


Fig. T5

FOR SCREWING PIPE BRITISH STANDARD PIPE THREAD

Fig. T6

FOR SCREWING BOLTS WHITWORTH STANDARD THREAD

| Figure No. |                                           | £ | s. | d. |
|------------|-------------------------------------------|---|----|----|
| T5         | Solid Die-stocks for Gas—                 |   |    |    |
|            | No. 0 $\frac{1}{8}$ " — $\frac{1}{2}$ "   | 1 | 13 | 4  |
|            | No. 1 $\frac{1}{4}$ " — $\frac{1}{2}$ "   | 2 | 3  | 9  |
|            | No. 1A $\frac{1}{2}$ " — $\frac{1}{2}$ "  | 1 | 11 | 3  |
|            | No. 1B $\frac{1}{2}$ " — $\frac{1}{2}$ "  | 2 | 10 | 0  |
|            | No. 1 $\frac{1}{2}$ " — $\frac{1}{2}$ "   | 1 | 19 | 7  |
|            | No. 1 $\frac{1}{2}$ A — $\frac{1}{2}$ "   | 2 | 7  | 11 |
|            | No. 1 $\frac{1}{2}$ B — $\frac{1}{2}$ "   | 2 | 16 | 3  |
|            | No. 1 $\frac{1}{2}$ C — $\frac{1}{2}$ "   | 2 | 7  | 11 |
|            | No. 1 $\frac{1}{2}$ D — $\frac{1}{2}$ "   | 1 | 19 | 7  |
|            | No. 2 $\frac{1}{4}$ " — $2\frac{1}{2}$ "  | 3 | 0  | 5  |
|            | No. 2B $\frac{1}{4}$ " — $2\frac{1}{2}$ " | 3 | 10 | 10 |
|            | No. 3 $2\frac{1}{2}$ " — $3\frac{1}{2}$ " | 7 | 5  | 10 |
|            |                                           |   |    |    |

Sizes Nos. 2 and 2B are complete with Leader Screws.

| Figure No. |                                                                                                         | £ | s. | d. |
|------------|---------------------------------------------------------------------------------------------------------|---|----|----|
| T6         | Solid Die-stocks for Bolts—                                                                             |   |    |    |
|            | No. OSL2 $\frac{1}{4}$ " $\frac{5}{8}$ " $\frac{3}{4}$ " $\frac{7}{8}$ " $\frac{1}{2}$ "                | 2 | 5  | 10 |
|            | No. OSL3 $\frac{1}{4}$ " $\frac{5}{8}$ " $\frac{3}{4}$ " $\frac{7}{8}$ " $\frac{1}{2}$ "                | 2 | 5  | 10 |
|            | No. ISL1 $\frac{1}{2}$ " $\frac{5}{8}$ " $\frac{3}{4}$ " $\frac{7}{8}$ " $\frac{1}{2}$ "                | 3 | 2  | 6  |
|            | No. ISL4 $\frac{1}{2}$ " $\frac{5}{8}$ " $\frac{3}{4}$ " $\frac{7}{8}$ " $\frac{1}{2}$ "                | 3 | 19 | 2  |
|            | No. ISL5 $\frac{1}{2}$ " $\frac{5}{8}$ " $\frac{3}{4}$ " $\frac{7}{8}$ " $\frac{1}{2}$ "                | 4 | 15 | 10 |
|            | No. 1 $\frac{1}{2}$ SL2 $\frac{1}{4}$ " $\frac{5}{8}$ " $\frac{3}{4}$ " $\frac{7}{8}$ " $\frac{1}{2}$ " | 4 | 7  | 6  |

For Spare Parts—see General Catalogue.

## ADJUSTABLE STOCKS AND DIES

GENUINE ARMSTRONG

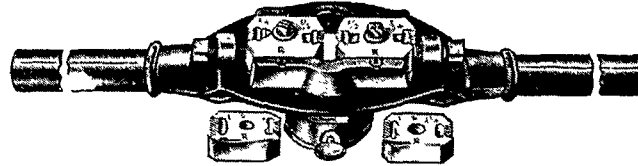


Fig. T15

FOR SCREWING BRITISH STANDARD PIPE THREADS

| Set No. | For Screwing Pipes |                  |                  |                                    |                           |     |     |     |     |     | Price each complete |
|---------|--------------------|------------------|------------------|------------------------------------|---------------------------|-----|-----|-----|-----|-----|---------------------|
| 1       | $\frac{1}{8}$ "    | $\frac{1}{4}$ "  | $\frac{3}{8}$ "  | $\frac{1}{2}$ "                    | ...                       | ... | ... | ... | ... | ... | 37/6                |
| 2       | $\frac{1}{8}$ "    | $\frac{1}{4}$ "  | $\frac{3}{8}$ "  | $\frac{1}{2}$ "                    | $\frac{3}{4}$ "           | 1"  | ... | ... | ... | ... | 58/4                |
| 2A      | $\frac{1}{4}$ "    | $\frac{3}{8}$ "  | $\frac{1}{2}$ "  | $\frac{3}{4}$ "                    | 1"                        | ... | ... | ... | ... | ... | 50/-                |
| 2½      | $\frac{1}{4}$ "    | $\frac{3}{8}$ "  | $\frac{1}{2}$ "  | $\frac{1}{2} \times \frac{3}{4}$ " | $1" \times \frac{1}{4}$ " | ... | ... | ... | ... | ... | 79/2                |
| 3       | $1\frac{1}{4}$ "   | $1\frac{1}{2}$ " | 2"               | ...                                | ...                       | ... | ... | ... | ... | ... | 75/-                |
| 3A      | 1"                 | $1\frac{1}{4}$ " | $1\frac{1}{2}$ " | 2"                                 | ...                       | ... | ... | ... | ... | ... | 87/6                |

Sets are packed in substantial wooden boxes, complete with dies and guides.

Fig. T16

FOR SCREWING WHITWORTH STANDARD BOLT THREAD

| Set No. | For Screwing Bolts |                  |                 |                  |                 |                  |                  |             |     |     | Price each complete |
|---------|--------------------|------------------|-----------------|------------------|-----------------|------------------|------------------|-------------|-----|-----|---------------------|
| 1       | $\frac{1}{4}$ "    | $\frac{5}{16}$ " | $\frac{3}{8}$ " | $\frac{7}{16}$ " | $\frac{1}{2}$ " | $\frac{5}{8}$ "  | $\frac{3}{4}$ "  | ...         | ... | ... | 62/6                |
| 1       | $\frac{1}{4}$ "    | $\frac{5}{16}$ " | $\frac{3}{8}$ " | $\frac{7}{16}$ " | $\frac{1}{2}$ " | $\frac{5}{8}$ "  | $\frac{3}{4}$ "  | With 7 Taps |     |     | 81/3                |
| 2       | $\frac{1}{2}$ "    | $\frac{5}{8}$ "  | $\frac{3}{4}$ " | $\frac{7}{8}$ "  | 1"              | $1\frac{1}{8}$ " | $1\frac{1}{4}$ " | ...         | ... | ... | 83/4                |
| 2       | $\frac{1}{2}$ "    | $\frac{5}{8}$ "  | $\frac{3}{4}$ " | $\frac{7}{8}$ "  | 1"              | $1\frac{1}{8}$ " | $1\frac{1}{4}$ " | With 7 Taps |     |     | 133/5               |

Dies are interchangeable in the Stock without altering the adjusting screws.

Sets are packed in substantial wooden boxes, complete with dies and guides.

For Spare Parts—see General Catalogue.

CRANE

## OSTER STOCKS AND DIES

"BULL-DOG"

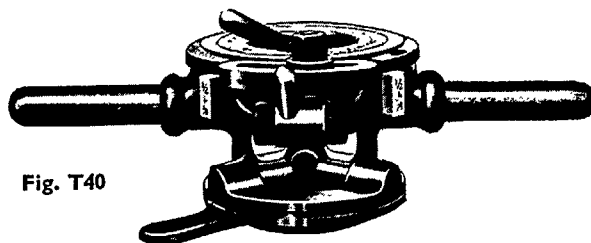


Fig. T40

The list prices include the stock or die holder, a complete set of right-hand pipe dies and a set of tubular handles.

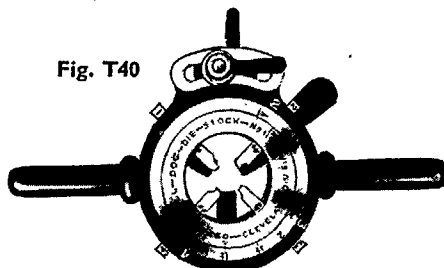


Fig. T40

"Bull-Dog" Sets are not made with cutting-off apparatus.

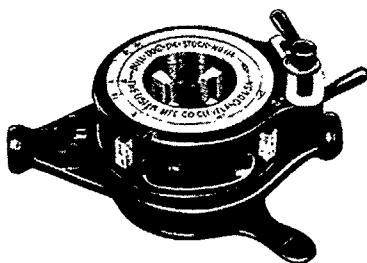
These Tools can be equipped with dies for left hand.

Set Nos. 111 to 114½

Nos. 115 to 117½ are made with four handles in the body

"BULL-DOG" RATCHET TYPE

Fig. T41



Set Nos. 112R to 115½R

These sets are made with two handles in the body and with one handle in the ratchet part, so that the tool may be used at will with two handles as a regular or with one handle as a ratchet. Two handles are supplied with each tool.

Set No. 117R.

is made with four handles in the body of the tool and with two handles in the ratchet part, so that the tool may be used at will with four handles or with two handles as a ratchet. Four handles in separate box are supplied with each tool.

For Spare Parts—see General Catalogue.

# OSTER STOCKS AND DIES

"BULL DOG"

| Set No. | For Screwing Iron Pipe:<br>Except No. 114X, which is for<br>B.S.T.I. Copper Pipe                       | Fig. T40 PLAIN           |                   | Fig. T41 RATCHET |                           |                   |
|---------|--------------------------------------------------------------------------------------------------------|--------------------------|-------------------|------------------|---------------------------|-------------------|
|         |                                                                                                        | No. of Dies<br>per Stock | Price<br>Complete | Set No.          | Sets of Dies<br>per Stock | Price<br>Complete |
| 111     | $\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and $\frac{3}{8}$ " ...                           | 2                        | 70/10             | —                | —                         | —                 |
| 111½    | $\frac{1}{2}$ ", $\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and $\frac{3}{8}$ " ...          | 3                        | 83/4              | —                | —                         | —                 |
| 112     | $\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and $\frac{3}{8}$ "; 1" and 1½" ...               | 3                        | 91/8              | 112 R            | 3                         | 116/8             |
| 113     | 1" and 1½"; 1½" and 2" ...                                                                             | 2                        | 100/-             | 113 R            | 2                         | 125/-             |
| 114     | $\frac{1}{2}$ " and $\frac{3}{8}$ "; 1" and 1½"; 1½" and 2" ...                                        | 3                        | 116/8             | 114 R            | 3                         | 141/8             |
| 114X    | $\frac{1}{2}$ ", $\frac{1}{2}$ ", $\frac{3}{8}$ ", 1", 1½", 1½" and 2" ...                             | 3                        | 141/8             | —                | —                         | —                 |
| 114½    | $\frac{1}{2}$ " and $\frac{3}{8}$ "; 1" and $\frac{3}{8}$ "; 1" and 1½";<br>$\frac{1}{2}$ " and 2" ... | 4                        | 133/4             | 114½R            | 4                         | 158/4             |
| 115     | 1½" and 2"; 2½" and 3" ...                                                                             | 2                        | 175/-             | 115 R            | 2                         | 250/-             |
| 115½    | 1" and 1½"; 1½" and 2"; 2½" and 3" ...                                                                 | 3                        | 204/2             | 115½R            | 3                         | 279/2             |
| 117     | 2½" and 3"; 3½" and 4" ...                                                                             | 2                        | 208/4             | 117 R            | 2                         | 291/8             |
| 117½    | 1½" and 2"; 2½" and 3"; 3½" and 4" ...                                                                 | 3                        | 241/8             | 117½R            | 3                         | 325/-             |

\* No. 114X is supplied with Dies for B.S.T.I. Copper Pipe, but is graduated for both Iron and Copper Pipe

## CONDUIT STOCKS AND DIES

| Set No.                               | To Screw Pipe:                                                                                | No. of Sets<br>of Dies per<br>Stock | Fig. T42<br>Price<br>Complete | Fig. T46<br>Dies per<br>set |
|---------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------|-----------------------------|
| 111C<br>No. of<br>Threads<br>per inch | $\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and 1" ...                               | 2                                   | 83/4                          | 18/9                        |
|                                       | 18      16                                                                                    |                                     |                               |                             |
| 112C<br>No. of<br>Threads<br>per inch | $\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and $\frac{3}{8}$ "; 1" and 1½"; 1½" ... | 4                                   | 135/5                         | 21/11                       |
|                                       | 18      16      16      14                                                                    |                                     |                               |                             |
| 113C<br>No. of<br>Threads<br>per inch | $\frac{3}{4}$ " and $\frac{7}{8}$ "; 1" and 1½"; 1½"; 2" ...                                  | 4                                   | 166/8                         | 25/-                        |
|                                       | 18      16      14      14                                                                    |                                     |                               |                             |

## DIES FOR OSTER "BULL DOG" DIESTOCKS

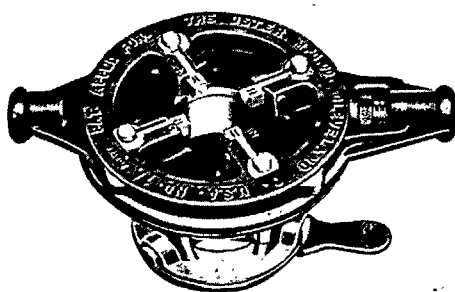
| Fig. T45<br>Set Nos. | To Thread<br>Pipes | $\frac{1}{8}$ ", $\frac{1}{4}$ "<br>& $\frac{3}{8}$ " | $\frac{1}{2}$ ", $\frac{1}{2}$ "<br>& $\frac{3}{4}$ " | $\frac{1}{2}$ " &<br>$\frac{3}{4}$ " | 1" &<br>1½" | 1" &<br>1½" | 1½" &<br>2" | 2"   | 2½" &<br>3" | 3½" &<br>4" |
|----------------------|--------------------|-------------------------------------------------------|-------------------------------------------------------|--------------------------------------|-------------|-------------|-------------|------|-------------|-------------|
| 111 ...              | per set            | 12/6                                                  | —                                                     | 12/6                                 | —           | —           | —           | —    | —           | —           |
| 112 and 112 R ...    | "                  | 14/7                                                  | —                                                     | 14/7                                 | —           | —           | —           | —    | —           | —           |
| 113 and 113 R ...    | "                  | —                                                     | —                                                     | 16/8                                 | —           | 16/8        | —           | —    | —           | —           |
| 114 and 114 R ...    | "                  | —                                                     | —                                                     | 16/8                                 | —           | 16/8        | —           | —    | —           | —           |
| 114X ...             | "                  | —                                                     | 25/-                                                  | —                                    | 25/-        | —           | —           | 25/- | —           | —           |
| 114½ and 114½R ...   | "                  | 16/8                                                  | —                                                     | 16/8                                 | —           | 16/8        | —           | —    | —           | —           |
| 115 and 115 R ...    | "                  | —                                                     | —                                                     | —                                    | —           | 29/2        | —           | —    | 29/2        | —           |
| 115½ and 115½R ...   | "                  | —                                                     | —                                                     | —                                    | 29/2        | —           | —           | —    | 29/2        | —           |
| 117 and 117 R ...    | "                  | —                                                     | —                                                     | —                                    | —           | —           | —           | —    | 33/4        | 33/4        |
| 117½ and 117½R ...   | "                  | —                                                     | —                                                     | —                                    | —           | —           | 33/4        | —    | 33/4        | 33/4        |

The list prices include the tool or die holder, a complete set of right-hand dies and a set of tubular handles. The tool is delivered ready for use.

For Spare Parts—see General Catalogue.

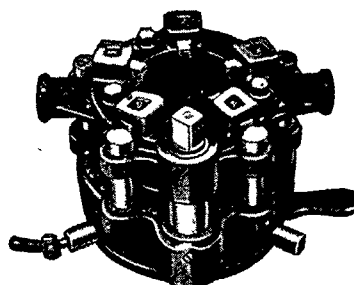
## CRANE OSTER RECEDING STOCKS AND DIES

"LEADER"



**Fig. T50**  
PLAIN AND RATCHET TYPE  
Nos. 1 and 1A.

"RECEDER"



**Fig. T51**  
GEARED TYPE

|                                                                 | Fig. T50                   |                        | Fig. T51                   |
|-----------------------------------------------------------------|----------------------------|------------------------|----------------------------|
|                                                                 | No. 1<br>Plain Type        | No. 1A<br>Ratchet Type | Geared<br>Type             |
|                                                                 | With<br>Universal<br>Chuck | With<br>Chuck          | With<br>Universal<br>Chuck |
| Pipe Threading Sizes:<br>Number of Sets and Dies:               | 1" to 2"<br>4              | 1" to 2"<br>4          | 2½" to 4"<br>4             |
| Tool complete with one set of Dies<br>for each size Pipe ... .. | £4 0 0                     | £5 0 0                 | £20 16 8                   |
| Extra Dies per set (any size) ...                               | 4 pieces<br>6/3            | 4 pieces<br>6/3        | 5 pieces<br>33/4           |

Fig. T50 is an easy screwing tool having dies which are only half the usual width, so that there is only half the friction to overcome. These dies are double taper, the first few teeth do the roughing, the others the finishing, and the dies automatically expand as the thread progresses, so producing the correct taper for pipe threads. The tool is made in the plain and ratchet types.

Fig. T51 is made in the geared type.

The lead screw pulls the dies on to the thread without any effort on the part of the operator. This screw is protected by a chip shield which prevents chips getting into it. When the thread is finished the lead screw is unwound.

The back ends of the dies, instead of being square, are bevelled or cut at an angle. This bevelled end of the die bears against a fixed post, so that, by moving the die sideways it is drawn in or out. The tool is quickly adjusted to screw over or under size threads as rotating the die head one way or the other permits the die to automatically expand or contract.

CRANE

## OSTER PORTABLE HAND-TOOL DRIVE "POWER BOY"

A PORTABLE DRIVE FOR PIPE TOOLS

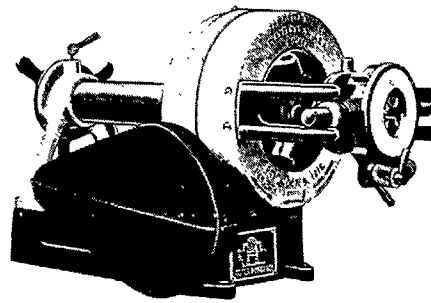


Fig. T60

Size No. 412 (with Electric Motor)

Size No. 412. For Screwing, Cutting and Fitting Pipe up to 2".

" No. 414. " " " " " "  $\frac{1}{2}$ " to 4"

## TOM THUMB MACHINES

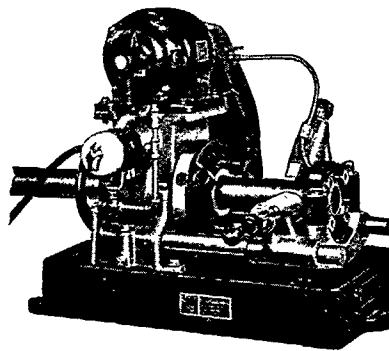
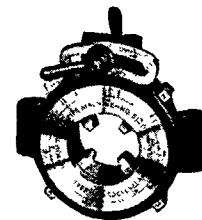


Fig. T70

For Screwing, Cutting and Reaming Pipe  $\frac{1}{2}$ " to 2".

For further particulars of above Machines—see General Catalogue.

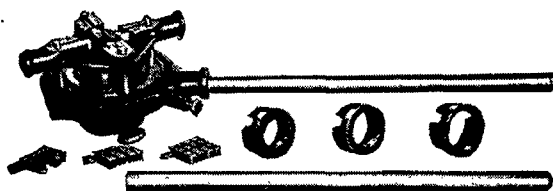


THE ADJUSTABLE DIE HEAD

CRANE

## TOLEDO STOCKS AND DIES

RATCHET ADJUSTABLE



No. T84

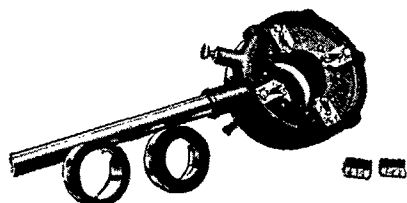
Capacity 1" to 2"

Equipped with a Ratchet, this is one of the most popular 1" to 2" threading devices on the market. Excellent for work at close quarters.

PRICE ... .. £4 3 0

EXTRA DIES:

|                |                        |        |      |
|----------------|------------------------|--------|------|
| 1", 1½" or 1½" | ... per set, each size | ... .. | 7/6  |
| 2"             | ... ..                 | ... .. | 11/6 |



No. T85

Capacity 2½" to 3"

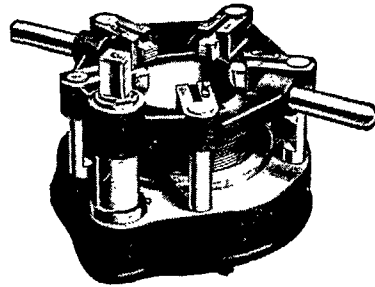
Light and compact, weighs about 37 lbs. Direct acting and using "TOLEDO" receding die principle, operates more easily on these sizes than other direct-acting tools.

PRICE ... .. £9 7 6

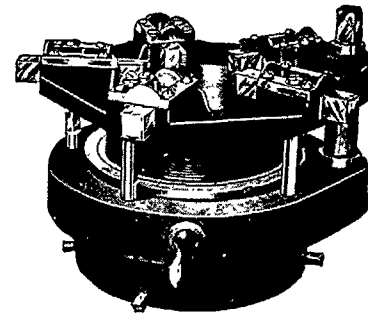
EXTRAS: Dies, each size ... .. per set £1 1 6

## TOLEDO STOCKS AND DIES

GEARED ADJUSTABLE



Size No. 2



Size No. 25

No. T86

Considered by many to be the easiest operating large stocks and dies on the market and have been standard with experienced operators for years. Easily operated and produce smooth, perfectly tapered standard threads. Will work in restricted quarters. Operated either by ratchet handle or instantly converted into power machines with a "TOLEDO" Power Drive.

Driving pinions with an oil reservoir assure proper lubrication. Gears are guarded and all tools are strongly built.

Size No. 2 weighs 84 lbs. net, uses a separate set of dies for each size pipe within its capacity.

Size No. 25 weighs 200 lbs. net and uses one set of dies to thread all sizes from  $2\frac{1}{2}$ " to 6". Easy, positive die change. An extra set of dies is furnished with each tool.

Size No. 3 weighs 215 lbs. net and uses a separate set of dies. Special 4" dies and 4" bushing can be supplied.

| Size    |                                                       | List Price |     |
|---------|-------------------------------------------------------|------------|-----|
| No. 2.  | R.H., threads $2\frac{1}{2}$ " to 4" inclusive ... .. | £16        | 4 0 |
| No. 25. | R.H., threads $2\frac{1}{2}$ " to 6" inclusive ... .. | 38         | 0 0 |
| No. 3.  | R.H., threads $4\frac{1}{2}$ " to 8" inclusive ... .. | 50         | 0 0 |

CRANE

## THREE-WHEEL PIPE CUTTERS

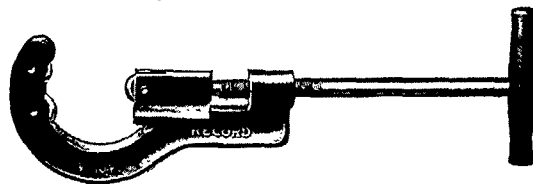


Fig. T110

| Figure No. | Size No.:            | 101              | 102              | 103               | 104               | 105               | 106               |
|------------|----------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|
|            | To Cut Pipe ins.     | $\frac{1}{8}$ -1 | $\frac{1}{2}$ -2 | $1\frac{1}{2}$ -3 | $2\frac{1}{2}$ -4 | 4-6               | 6-8               |
| T110       | Complete ... .. each | 18/9             | 25/-             | 42/-              | 84/-              | 125/-             | 166/-             |
| T111       | Wheels (Smooth) ..   | 1/1              | 1/3              | 1/8               | 2/1               | 3/2               | 3/2               |
| T112       | Wheels (Knurled) ..  | 1/7              | 1/10             | 2/6               | 3/1               | 4/9               | 4/9               |
| T113       | Pins ... ..          | -/5              | -/5              | -/5               | -/8 $\frac{1}{2}$ | -/8 $\frac{1}{2}$ | -/8 $\frac{1}{2}$ |

## CHAIN PIPE CUTTERS

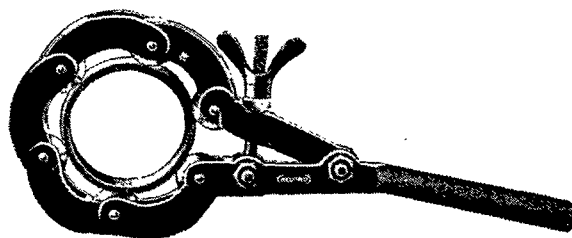


Fig. T120

This Cutter is particularly suitable for cutting cast iron pipe in confined spaces.

| Figure No. | Size No.:         | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    | 12     | 13     | 14     |
|------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
|            | No. of Wheels ... | 5     | 6     | 7     | 8     | 9     | 10    | 5     | 6     | 7     | 8      | 9      | 10     |
|            | To Cut Pipes ...  | 2"-3" | 2"-4" | 2"-5" | 2"-6" | 2"-7" | 2"-8" | 5"-6" | 5"-7" | 5"-8" | 5"-10" | 5"-11" | 5"-13" |
| T120       | Complete ...      | 40/-  | 45/-  | 50/-  | 55/-  | 60/-  | 65/-  | 72/6  | 80/-  | 87/6  | 95/-   | 102/6  | 102/6  |
| T121       | Wheels ...        | 1/6   | 1/6   | 1/6   | 1/6   | 1/6   | 1/6   | 2/3   | 2/3   | 2/3   | 2/3    | 2/3    | 2/3    |
| T122       | Pins ...          | -/6   | -/6   | -/6   | -/6   | -/6   | -/6   | -/7   | -/7   | -/7   | -/7    | -/7    | -/7    |

## PIPE WRENCHES

STILLSON'S PATTERN

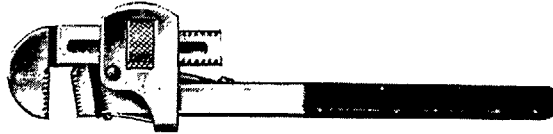


Fig. T125

T126 (with Wood Handle)

| Fig. No. | Length:                       | 6"                                     | 8"                                     | 10"                        | 14"                                     | 18"                        | 24"                                     | 36"                                     | 48"                        |
|----------|-------------------------------|----------------------------------------|----------------------------------------|----------------------------|-----------------------------------------|----------------------------|-----------------------------------------|-----------------------------------------|----------------------------|
|          | Takes pipe from               | $\frac{1}{8}"$<br>to<br>$\frac{1}{2}"$ | $\frac{1}{8}"$<br>to<br>$\frac{3}{4}"$ | $\frac{1}{8}"$<br>to<br>1" | $\frac{1}{4}"$<br>to<br>$1\frac{1}{2}"$ | $\frac{1}{4}"$<br>to<br>2" | $\frac{1}{4}"$<br>to<br>$2\frac{1}{2}"$ | $\frac{1}{4}"$<br>to<br>$3\frac{1}{2}"$ | $\frac{1}{4}"$<br>to<br>5" |
| T125     | Steel Handle ...              | —                                      | 9/3                                    | 12/-                       | 16/-                                    | 23/-                       | 39/6                                    | 83/6                                    | 125/-                      |
| T126     | Wood Handle<br>Price ... each | 8/4                                    | 9/6                                    | 13/3                       | 17/9                                    | —                          | —                                       | —                                       | —                          |

## CHAIN PIPE WRENCHES

DROP-FORGED STEEL

DOUBLE-ENDED REVERSIBLE JAWS

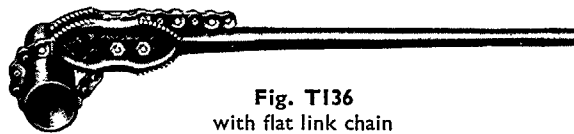


Fig. T136

with flat link chain

With Double-Ended Reversible Jaws for gripping pipes, pipe-fittings, etc., from  $\frac{1}{8}"$  to 12" diameter.

The Connecting Link swings freely on a sleeve or bush, which is tightened between the prongs of the lever head by the centre stud passing through it. This holds the Jaws absolutely rigid and prevents working loose.

The Chain is made from High Tensile Steel, subjected to special heat treatment, and is tested and guaranteed to give dependable service.

The Jaws are carefully hardened and tempered to ensure long life.

All parts are interchangeable with standard make, and are fully guaranteed against defect in material or workmanship.

| Figure No. | Size No.:                               | 230                              | 231                               | 232                               | 233                  | 233½     | 234                   | 235       |
|------------|-----------------------------------------|----------------------------------|-----------------------------------|-----------------------------------|----------------------|----------|-----------------------|-----------|
| T136       | Price ...                               | 21/-                             | 29/-                              | 41/6                              | 58/6                 | 75/-     | 91/6                  | 150/-     |
|            | Capacity, Size Pipe ...                 | $\frac{1}{8}"$ to $\frac{3}{4}"$ | $\frac{1}{8}"$ to $1\frac{1}{2}"$ | $\frac{1}{4}"$ to $2\frac{1}{2}"$ | $\frac{3}{8}"$ to 4" | 1" to 6" | $1\frac{1}{2}"$ to 8" | 2" to 12" |
|            | Length over all ...                     | 14"                              | 20"                               | 27"                               | 37"                  | 44½"     | 50½"                  | 64½"      |
|            | Weight, approx. (lbs.)                  | 2½                               | 5½                                | 10                                | 16                   | 24       | 32                    | 50        |
|            | Average Breaking Strain of Chain (lbs.) | 2,500                            | 6,800                             | 9,600                             | 12,600               | 14,100   | 15,800                | 21,600    |

## CHAIN PIPE VICES

"VULCAN" PATTERN

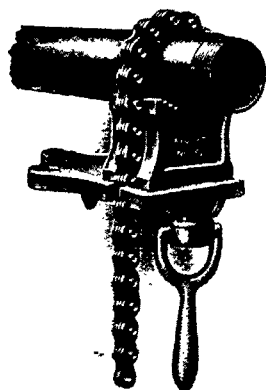


Fig. T155

| Size No. | For Taking Pipes   | Prices, Complete and Parts |                  |       |                |      |                |
|----------|--------------------|----------------------------|------------------|-------|----------------|------|----------------|
|          |                    | Jaws per pair              | Chain with Screw | Screw | Handle and Nut | Nut  | Price complete |
| 181      | $\frac{1}{8}$ "-2" | 12/6                       | 10/6             | 3/6   | 9/3            | 5/9  | 29/-           |
| 182      | $\frac{1}{4}$ "-4" | 29/3                       | 20/-             | 5/9   | 17/6           | 11/3 | 62/6           |
| 183      | $\frac{1}{2}$ "-6" | 50/-                       | 37/6             | 10/6  | 29/3           | 16/9 | 112/6          |
| 184      | $\frac{3}{4}$ "-8" | 75/-                       | 50/-             | 10/6  | 29/3           | 16/9 | 150/-          |

Sizes Nos. 181 and 182 are packed in boxes for convenient transit and storage.

Orders for chains include screws unless otherwise stated.

## OPEN SIDE PIPE VICES

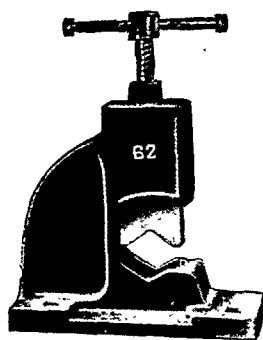


Fig. T157  
CAST IRON

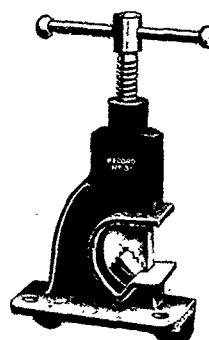


Fig. T159  
MALLEABLE IRON

| Figure No. | Size No.:    |     | 61                                | 62                 | 63                 | 64                 | 66    |
|------------|--------------|-----|-----------------------------------|--------------------|--------------------|--------------------|-------|
| T157       | To take Pipe | ... | $\frac{1}{8}$ "-1 $\frac{1}{4}$ " | $\frac{1}{4}$ "-2" | $\frac{1}{4}$ "-3" | $\frac{1}{4}$ "-4" | 1"-6" |
|            | Price ...    | ... | 17/6                              | 25/-               | 34/-               | 48/-               | 100/- |

| Figure No. | Size No.:    |     | 31                 | 31 $\frac{1}{2}$                  | 32                 |   |   |
|------------|--------------|-----|--------------------|-----------------------------------|--------------------|---|---|
| T159       | To take Pipe | ... | $\frac{1}{8}$ "-1" | $\frac{1}{8}$ "-1 $\frac{1}{2}$ " | $\frac{1}{4}$ "-2" | — | — |
|            | Price ...    | ... | 13/-               | 17/6                              | 22/-               | — | — |

## HINGED PIPE VICES

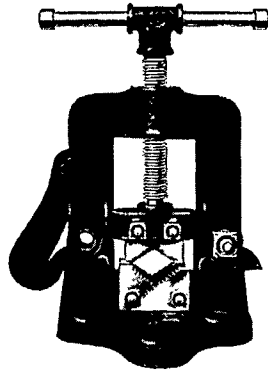


Fig. T161

|                                        |      |                   |      |                   |                   |                   |      |
|----------------------------------------|------|-------------------|------|-------------------|-------------------|-------------------|------|
| To take Pipe<br>$\frac{1}{8}$ " up to: | 1"   | 1 $\frac{1}{2}$ " | 2"   | 2 $\frac{1}{2}$ " | 3 $\frac{1}{2}$ " | 4 $\frac{1}{2}$ " | 6"   |
| Size Nos.:                             | 91   | 91 $\frac{1}{2}$  | 92   | 92 $\frac{1}{2}$  | 93 $\frac{1}{2}$  | 94 $\frac{1}{2}$  | 96   |
| T161 each                              | 12/6 | 15/-              | 17/9 | 20/9              | 31/3              | 45/9              | 98/- |
| Extra Jaws<br>(set of 3)               | 5/-  | 6/3               | 7/6  | 7/6               | 10/6              | 15/-              | 25/- |

Size 91 is only suitable for electrical conduits

For Spare Parts—see General Catalogue.

## BURRING REAMERS



Fig. No. T200

| No. | For Pipe Sizes<br>Ins.          | Price<br>s. d. |
|-----|---------------------------------|----------------|
| 1   | $\frac{1}{8}$ to $\frac{1}{2}$  | 4 6            |
| 2   | $\frac{3}{8}$ „ 1               | 6 6            |
| 3   | $\frac{1}{4}$ „ 1 $\frac{1}{4}$ | 8 0            |
| 4   | 1 „ 2                           | 13 0           |

## TANK CUTTERS

(Cooke's) Size No. 1

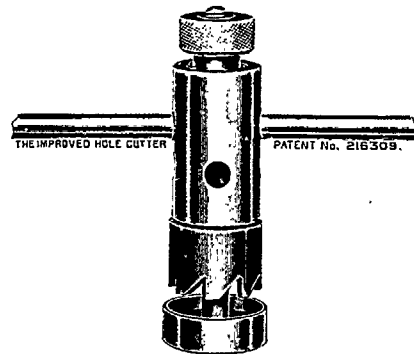


Fig. No. T204

Complete with Cutters and Pads for holes to suit  $\frac{1}{2}$ " to 1 $\frac{1}{2}$ " wrought Pipe inclusive.

Price ... £2 14 0

## UNION WRENCHES

For Union Tail-pieces  
of Crane Radiator Valves.

Fig. T209

Malleable Iron black japanned.

Price ... 2/- each.

Sizes  $\frac{1}{2}$  in. to 1 $\frac{1}{4}$  in.,  
inclusive.

## BENCH VICES

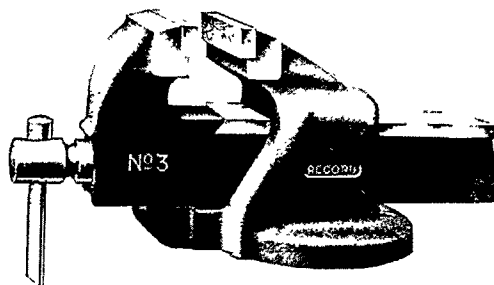


Fig. T173

| Figure No. | Size Nos.:      | 00   | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |
|------------|-----------------|------|------|------|------|------|------|------|------|------|------|
| T173       | Width of Jaws   | 2¼"  | 2½"  | 3"   | 3½"  | 4"   | 4½"  | 5"   | 6"   | 7"   | 8"   |
|            | Jaws, open      | 2¼"  | 2½"  | 3¼"  | 4"   | 4¾"  | 5½"  | 6½"  | 8"   | 9¼"  | 9½"  |
|            | Price, each ... | 10/6 | 12/- | 14/6 | 19/6 | 25/- | 33/- | 41/- | 55/- | 65/- | 72/- |

## PORTABLE VICE

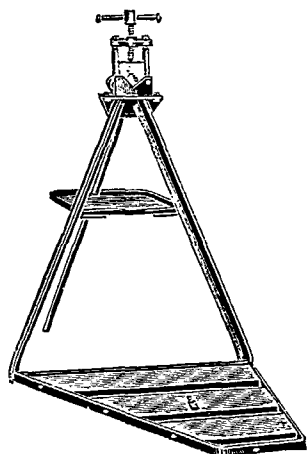


Fig. T165

| Figure No. | Description                                                | Price |
|------------|------------------------------------------------------------|-------|
| T165       | With Pipe Vice for Tube up to 2" (illustrated) ...         | 48/-  |
| T167       | With Bench Vice and Pipe Vice                              | 72/-  |
| T169       | With self-locking, hinged Pipe Vice for pipes ½" to 2" ... | 54/-  |

|      |                                           | No. 1<br>⅛"-2" | No. 2<br>¼"-4" |
|------|-------------------------------------------|----------------|----------------|
| T171 | With "Vulcan" pattern Chain Pipe Vice ... | 58/-           | 95/-           |

## HACK SAW FRAMES

ADJUSTABLE 8 IN. TO 12 IN.

Price  
3/4 each

Fig. T187

## HACK SAW BLADES



Fig. T189

For cutting Solid Steel or Iron Tubes, Brass and Soft Metals, etc.

FOR HAND

| Stock Sizes     | Per Gross | Stock Sizes      | Per Gross |
|-----------------|-----------|------------------|-----------|
| 8" × 1/2" × 23g | 33/4      | 10" × 1/2" × 23g | 41/8      |
| 9" × 1/2" × 23g | 37/6      | 12" × 1/2" × 23g | 50/-      |

## DOUBLE-EDGED BLADES

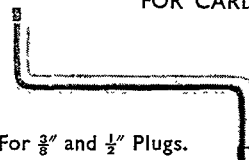
Fig. T193

|                         |      |      |       |       |
|-------------------------|------|------|-------|-------|
| Length (1" wide) × 2lg. | 9"   | 10"  | 12"   | 14"   |
| Price per gross ...     | 81/- | 90/- | 108/- | 126/- |

Specially recommended for cutting soft metals, such as Lead, Copper, Brass, etc.  
They are made of very best quality Tungsten Alloy Steel, hardened in the teeth only.

## KEY SPANNERS FOR RECESSED PLUGS

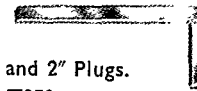
FOR CARLTON AND WHITEHALL BOILERS.



For 3/8" and 1/2" Plugs.

No. T851

Price ... 2/3



For 1 1/4", 1 1/2" and 2" Plugs.

No. T852

PRICE

|        |     |     |        |     |     |
|--------|-----|-----|--------|-----|-----|
| 3/4"   | ... | 2/3 | 1 1/2" | ... | 3/6 |
| 1 1/4" | ... | 3/6 | 2"     | ... | 5/- |

## BOILER WRENCHES

For Assembling Whitehall Sectional Boilers.



Fig. 840. Wrench, 3/4" for Nos. 1, 2, and 3; 7/8" for No. 4, each 7/9

## SUNDRIES

CRABENITE ASBESTOS COMPOSITION  
SHEET PACKING

Fig. C101

This High Pressure Jointing is particularly suitable for flanged joints on high and low pressure, super-heated and saturated steam, acids, ammonia, oil, alkaline and hot liquid pipe lines.

The weight of a sheet 40" square by  $\frac{1}{16}$ " thick is about 7 $\frac{1}{2}$  lbs.

The weight of a sheet 40" square by  $\frac{1}{8}$ " thick is about 14 $\frac{1}{2}$  lbs.

Best Quality  
5/- per lb.  
400 lbs.  
S.W.P.

Junior  
3/4 per lb.  
200 lbs.  
S.W.P.

Usually supplied in sheets and rolls of 40" by 40".  
Sheets of 48" by 48" can be supplied.  
Prices for Gaskets made from above Packing will be given on application, stating dimensions.

TAYLOR'S BRASS CORRUGATED JOINT RINGS  
(TO LIE INSIDE BOLTS)

Fig. C111

| Bore of Pipe    | $\frac{1}{2}$ "   | $\frac{3}{4}$ " | 1"  | 1 $\frac{1}{4}$ " | 1 $\frac{1}{2}$ " | 2"  | 2 $\frac{1}{2}$ " | 3"   | —    |
|-----------------|-------------------|-----------------|-----|-------------------|-------------------|-----|-------------------|------|------|
| B.S. Tables D&E | -/6               | -/9             | 1/- | 1/3               | 1/6               | 2/- | 2/6               | 3/-  | —    |
| B.S. „ F,H,&J   | -/6               | -/9             | 1/- | 1/3               | 1/6               | 2/3 | 3/-               | 3/6  | —    |
| Bore of Pipe    | 3 $\frac{1}{2}$ " | 4"              | 5"  | 6"                | 7"                | 8"  | 9"                | 10"  | 12"  |
| B.S. Table 1    | 3/6               | 4/-             | 5/- | 6/-               | 7/-               | 8/- | 9/-               | 10/- | 12/- |
| B.S. Table 2    | 3/9               | 4/3             | 5/9 | 6/3               | 7/3               | 8/9 | 9/3               | 10/3 | 12/3 |

Prices are per dozen

Rings to cover the full diameter of British Standard Flanges can be supplied.

## BOLTS AND NUTS

Fig. C97 Hex. round hex.—Black

| Size            | Length            |                   |       |                   |                   |                   |      |
|-----------------|-------------------|-------------------|-------|-------------------|-------------------|-------------------|------|
|                 | 1 $\frac{1}{2}$ " | 1 $\frac{3}{4}$ " | 2"    | 2 $\frac{1}{4}$ " | 2 $\frac{1}{2}$ " | 2 $\frac{3}{4}$ " | 3"   |
| $\frac{1}{2}$ " | 25/9              | 26/10             | 27/11 | 29/-              | 30/1              | 31/2              | 32/3 |
| $\frac{3}{8}$ " | 39/-              | 40/6              | 42/-  | 43/6              | 45/-              | 46/6              | 48/- |
| $\frac{3}{4}$ " | 59/-              | 61/-              | 63/-  | 65/-              | 67/-              | 69/-              | 71/- |

Prices are per gross.

## SUNDRIES

## PIPE JOINT COMPOUNDS

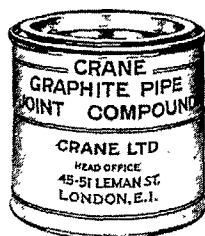


Fig. E290  
GRAPHITE

Fig. E292  
"BOSS WHITE"

## GRAPHITE

Fig. E290. Superior to red or white lead and more economical. The Compound is put up in 1 lb., 2 lb., 5 lb., 7 lb., and 10 lb. tins, mixed ready for use.

It is absolutely non-poisonous; is largely used on Taylor's Corrugated Joint Rings, and all Screwed or Flanged Connections for steam, water, gas, air, etc.

## "BOSS WHITE"

High grade non-poisonous White Compound, for Screwed and Flanged Joints on steam, water, gas, oil, ammonia, etc. Especially suitable for exposed pipework in interiors.

|                       |       |        |        |        |         |         |         |          |
|-----------------------|-------|--------|--------|--------|---------|---------|---------|----------|
| Price per Tin or Keg: | 1 lb. | 2 lbs. | 5 lbs. | 7 lbs. | 10 lbs. | 28 lbs. | 56 lbs. | 112 lbs. |
| E290 }<br>E292 }      | 1/3   | 2/3    | 5/3    | 6/9    | 9/-     | 24/-    | 46/-    | 90/-     |

THE UNDERMENTIONED ARTICLES ARE OF FOREIGN MANUFACTURE.

| MADE IN U.S.A. |      |                                                                         |        |      |                                  |        |      |                                            |
|----------------|------|-------------------------------------------------------------------------|--------|------|----------------------------------|--------|------|--------------------------------------------|
| No.            | Page | Sizes                                                                   | No.    | Page | Sizes                            | No.    | Page | Sizes                                      |
| 121            | 151  | $\frac{1}{4}$ ", $\frac{3}{8}$ ", $2\frac{1}{2}$ ", 3"                  | 222    | 159  | 1", $1\frac{1}{4}$ "             | F351/2 | 129  | All sizes                                  |
| 138            | 152  | $\frac{3}{8}$ ", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", 2"                 | 241    | 161  | $\frac{1}{8}$ "                  | H101   | 114  | $\frac{1}{2}$ ", $\frac{3}{4}$ "           |
| 140            | 152  | $3\frac{1}{2}$ ", $4\frac{1}{2}$ ", 5", 6"                              | A1     | 165  | $\frac{1}{4}$ ", $\frac{3}{8}$ " | H121   | 127  | 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", 2" |
| 152            | 153  | $1\frac{1}{4}$ " $\times$ $\frac{3}{4}$ ", 2" $\times$ $1\frac{1}{4}$ " | A6     | 165  | $\frac{1}{4}$ ", $\frac{3}{8}$ " | H211/3 | 107  | All sizes                                  |
| 163            | 154  | $\frac{3}{8}$ ", $\frac{3}{4}$ ", 1", $1\frac{1}{2}$ "                  | A11/12 | 165  | All sizes                        | T5/6   | 176  | All Nos.                                   |
| 221            | 159  | 2", $2\frac{3}{4}$ ", 3"                                                | A35    | 165  | All sizes                        | T15/6  | 177  | All Nos.                                   |
|                |      | $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1"                                    | E210   | 103  | —                                |        |      |                                            |

All "Oster" and "Toledo" threading devices, pages 178 to 183, made in U.S.A.

Nos. T165 and. T167, page 188, MADE IN GERMANY

## CRANE

### CONDITIONS OF SALE

Customers are respectfully informed that all quotations are subject to these conditions unless specifically varied by us in writing.

**NEW ACCOUNTS.**—New customers wishing to open accounts should forward Trade and Bankers' references with their initial orders.

**ORDERS.**—When ordering goods the exact size, catalogue figure number, and description should be stated.

**PRICES AND DISCOUNTS.**—The prices and discounts quoted, whether in this catalogue, or in any other list or quotation, are subject to alteration without notice. The right is reserved to make any increase in quoted prices rendered necessary by or arising from a labour award or other cause beyond our control.

**STOCK.**—Goods offered from stock are subject to remaining unsold.

#### **DELIVERY.**—

**GREAT BRITAIN.**—Either by our own lorries (within our delivery area), by Public Carrier, or to nearest Railway Goods Station ONLY, unless free delivery to destination is included in the rates charged by the Railway Companies. Goods, when sent by our own lorries, will be delivered free (within our delivery area) on regular delivery days; otherwise carriage for orders under minimum carriage-paid values will be charged on invoice at usual rates whether sent by our own lorries, public carrier or rail.

**IRELAND.**—To Seaport only (not including delivery, and excluding Irish Free State Customs Duties) except by arrangement.

**Radiators.** Carriage paid on orders of £4 net value and over.

**Combined Orders** for Radiators and Heating Specialties (except W.I. Fittings, Tanks and Cylinders) delivered Carriage Paid on orders of £4 net value and over.

**Concealed Radiators** with Cabinets, Fronts, or Grills, Carriage Paid on orders of £7 net value or over.

**Boilers.** (All) irrespective of value, Carriage Paid.

**Parts of Boilers.** £4 net value and over, Carriage Paid.

**Heating Specialties** (except Tube and W.I. Fittings, Tanks and Cylinders), supplied with Boiler, delivered Carriage Paid.

**Combined Orders** for Radiators and Boilers of £4 net value and over, delivered Carriage Paid.

**Oster Screwing Machines.** Carriage Forward.

**Galvanized Storage Cylinders.** (Not Indirect). **Tanks and Cisterns.** Carriage Paid in England, Scotland, Wales, and to approved Irish Ports.

**Tubes and Wrought Fittings** delivered Carriage Paid only on orders of £10 value and over.

**Compression Joint Fittings** delivered Carriage Paid on orders of £10 net value and over.

**Copper Pipe** delivered Carriage Paid on orders of 3 cwt. lots and over.

**Other Goods** delivered Carriage Paid on orders of £7 net value and over, except where otherwise quoted.

**EXPORT.**—Packing and Delivery to Wharf or Ship will be charged extra at cost, unless otherwise specified when quoting.

**TIME OF DELIVERY.**—Every endeavour is made to ensure prompt delivery, but lateness in delivery shall not entitle customers to cancel contracts unless we specially agree thereto in writing, and no claims for consequential damages, loss of time sustained, cost of repairs executed without previous consent or any claim whatever in consequence of late delivery shall be made by customers.

**DELAY.**—When a delivery date is named, this is subject to strikes, lockouts, accidents, government requirements, delay occasioned by the procuring of material or component parts, and all other unforeseen circumstances and causes beyond our control. We accept no contingent liability on account of delays in delivery.

These conditions are subject to amendments appearing from time to time in our discount sheets.

## CONDITIONS OF SALE—continued.

**PACKING.—Radiators and Boilers.** Packing crates, cases and protecting strips are charged for at nominal prices only and are not returnable. Crates for Whitehall Boiler Jackets will be credited if returned in good condition to Ipswich Works Carriage Paid.

**PACKING.—General.**

**Bags** are charged at half-cost and are not returnable.

**Cases**, where not included in price, also containers for Copper Indirect Cylinders and for Towel Airers, are charged at cost and full credit will be allowed if returned in good condition to Ipswich Works, Carriage Paid Home.

**BREAKAGES AND SHORTAGES.**—No goods damaged in transit will be replaced unless Carriers are advised within 24 hours of receipt of goods. Contents of packages should be examined on arrival and checked with Advice Notes, and Carriers advised immediately of any breakage or shortage. At same time as Carriers are advised duplicate advice must be forwarded to us. Damaged goods should be returned by same Carrier who delivered, consigned "Carriage Free: Broken in Transit."

**WORKING PRESSURES—REPLACEMENTS.**—Test or Working Pressures stated in our Catalogues, printed matter, quotations or correspondence are only mentioned as a guide and for the assistance of our customers. We accept no responsibility should the fittings fail in practice, even though the pressures stated are not exceeded. All goods found defective, when used for the purpose for which they were manufactured, will be replaced free of charge, at point of original despatch, provided the defective goods are returned to us for examination within 10 days of their receipt. No claim for consequential damage is to be made nor will be entertained. Goods not of our manufacture are guaranteed only to the extent of the Maker's warranty and without any further responsibility on our part.

**RETURNS.**—Goods returned by customers (other than those which are defective) will, if accepted by us, be credited at the price charged by us, less a charge for handling and expenses of 10 per cent. Goods may not be returned without our permission.

**DIMENSIONS AND ILLUSTRATIONS.**—The dimensions and illustrations appearing in our catalogues have been prepared with every care, but the correctness thereof is not guaranteed and we reserve the right to vary the details. Exact dimensions can be had on application.

**TERMS OF PAYMENT—HOME TRADE.**—All accounts are due for payment on or before the end of the month following that in which the goods are despatched. Wrought Iron and Steel Tubes, Wrought Iron Fittings and Wrought Iron Flanges: STRICTLY NET. Other Catalogue items are subject to 2½ per cent settlement discount if paid by the due date as stated above.

**TERMS OF PAYMENT—EXPORT TRADE.**—Goods for shipment are sold on the basis of cash against documents or cash within 7 days from the date of Invoice, whichever is the shorter period, and in either case net unless otherwise quoted. In all cases of goods for shipment the date of the invoice will be the day when the goods, whether a portion or the whole of the order, are packed in our warehouse ready for despatch. Where shipment is made through customers' own Shipping Agents, "Documents" is understood to mean Wharfingers' or Port of London Authority Receipt when goods are shipped from London, and signed "Railway Receipt" when goods are shipped from any other port.

**SPECIAL ORDERS.**—Whenever an order has been given and accepted for goods to be specially manufactured, no cancellation of such order is to be demanded and will not be permitted until the written undertaking of the customer to pay for the special work performed in respect of such order has been received.

**EXPORT (SPECIAL NOTE) INSPECTION.**—The goods offered herein are open for inspection at our Warehouse or Works before despatch, and our responsibility ends with clean receipts from either the Forwarding Company or Shipping Company.

These conditions are subject to amendments appearing from time to time in our discount sheets.

## USEFUL DATA FOR ARCHITECTS AND HEATING ENGINEERS

The following tables and data compiled from the findings of various accepted authorities and, in the case of heat losses through building materials, either from the results of tests conducted by the Department of Scientific and Industrial Research, or from information given by Manufacturers of certain materials.

All Data has been reviewed and brought up to date where necessary.

The Data has been prepared with an intimate knowledge of the requirements of Heating Engineers in preparing their schemes, and it is hoped that as such the contents will be found acceptable.

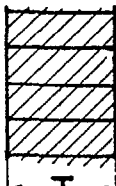
In addition to matter contained in previous catalogues, tables on chimney flues, pipe sizing, etc., have been added.

Whilst every care has been given to their preparation, the information and figures cannot, of course, be guaranteed.

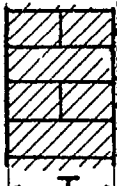
## HEAT LOSS COEFFICIENTS (AIR TO AIR)

B.Th.U.s per hour per square foot of surface per degree difference (Fahr.)

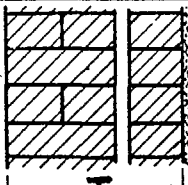
## ① BRICK WALLS.

| PLAIN.                                                                            |  | T   | K.   |
|-----------------------------------------------------------------------------------|--|-----|------|
|  |  | 4½  | 0.5  |
|                                                                                   |  | 9   | 0.35 |
|                                                                                   |  | 13½ | 0.27 |
|                                                                                   |  | 18  | 0.23 |
|                                                                                   |  | 22  | 0.20 |
|                                                                                   |  | 27  | 0.18 |

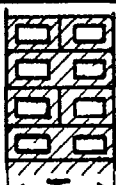
## ② BRICK WALLS.

| PLASTER ONE SIDE.                                                                  |  | T   | K.   |
|------------------------------------------------------------------------------------|--|-----|------|
|  |  | 4½  | 0.45 |
|                                                                                    |  | 9   | 0.33 |
|                                                                                    |  | 13½ | 0.25 |
|                                                                                    |  | 18  | 0.22 |
|                                                                                    |  | 22  | 0.19 |
|                                                                                    |  | 26  | 0.17 |

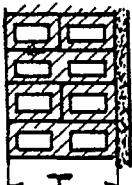
## ③ BRICK WALLS.

| 2" AIR SPACE - PLAST'D                                                            |  | T. | K.   |
|-----------------------------------------------------------------------------------|--|----|------|
|  |  | 11 | 0.25 |
|                                                                                   |  | 16 | 0.20 |
|                                                                                   |  | 20 | 0.17 |
|                                                                                   |  | 24 | 0.15 |
|                                                                                   |  | 28 | 0.14 |
|                                                                                   |  |    |      |

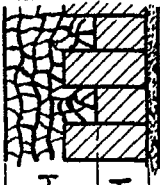
## ④ BRICK WALLS.

| HOLLOW FLETTONS. PLN.                                                               |  | T.  | K.   |
|-------------------------------------------------------------------------------------|--|-----|------|
|  |  | 4½  | 0.42 |
|                                                                                     |  | 9   | 0.30 |
|                                                                                     |  | 13½ | 0.23 |
|                                                                                     |  |     |      |

## ⑤ BRICK WALLS

| HOLLOW FLETTONS. PLAST.                                                             |  | T   | K.   |
|-------------------------------------------------------------------------------------|--|-----|------|
|  |  | 4½  | 0.38 |
|                                                                                     |  | 9   | 0.27 |
|                                                                                     |  | 13½ | 0.20 |
|                                                                                     |  |     |      |

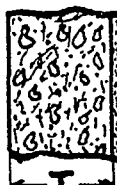
## ⑥ PORTLAND STONE

| STONE & BRICK PLAST'D                                                                |  | T  | T <sub>1</sub> | K.   |
|--------------------------------------------------------------------------------------|--|----|----------------|------|
|  |  | 9  | 4½             | 0.31 |
|                                                                                      |  | 9  | 9              | 0.27 |
|                                                                                      |  | 12 | 9              | 0.23 |
|                                                                                      |  |    |                |      |

## ⑦ CONCRETE WALLS

| PLAIN.                                                                              |  | T  | K.   |
|-------------------------------------------------------------------------------------|--|----|------|
|  |  | 4  | 0.70 |
|                                                                                     |  | 6  | 0.58 |
|                                                                                     |  | 8  | 0.51 |
|                                                                                     |  | 10 | 0.45 |
|                                                                                     |  | 12 | 0.41 |
|                                                                                     |  | 16 | 0.34 |

## ⑧ CONCRETE WALLS.

| PLASTER ONE SIDE.                                                                    |  | T. | K.   |
|--------------------------------------------------------------------------------------|--|----|------|
|  |  | 4  | 0.62 |
|                                                                                      |  | 6  | 0.52 |
|                                                                                      |  | 8  | 0.46 |
|                                                                                      |  | 10 | 0.41 |
|                                                                                      |  | 12 | 0.38 |
|                                                                                      |  | 16 | 0.32 |

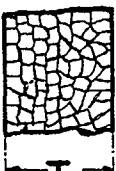
CRANE

# HEAT LOSS COEFFICIENTS (AIR TO AIR)

B.Th.U.s per hour per square foot of surface per degree difference (Fahr.)

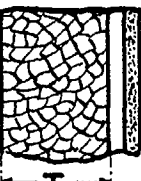
⑨

## SANDSTONE & GRANITE WALLS.

| PLAIN.                                                                            |    |      |
|-----------------------------------------------------------------------------------|----|------|
|  | T. | K.   |
|                                                                                   | 8  | 0.56 |
|                                                                                   | 12 | 0.47 |
|                                                                                   | 16 | 0.43 |
|                                                                                   | 18 | 0.38 |
|                                                                                   | 24 | 0.33 |

⑩

## SANDSTONE WALLS.

| WITH BATTENS LATH & PLAST.                                                        |    |      |
|-----------------------------------------------------------------------------------|----|------|
|  | T. | K.   |
|                                                                                   | 8  | 0.50 |
|                                                                                   | 12 | 0.40 |
|                                                                                   | 16 | 0.35 |
|                                                                                   | 18 | 0.33 |
|                                                                                   | 24 | 0.28 |

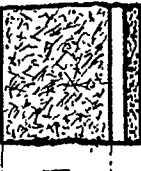
⑪

## LIMESTONE WALLS.

| PLAIN.                                                                             |    |      |
|------------------------------------------------------------------------------------|----|------|
|  | T. | K.   |
|                                                                                    | 8  | 0.60 |
|                                                                                    | 12 | 0.49 |
|                                                                                    | 16 | 0.46 |
|                                                                                    | 18 | 0.41 |
|                                                                                    | 24 | 0.35 |

⑫

## LIMESTONE WALLS.

| WITH BATTENS LATH & PLAST.                                                         |    |      |
|------------------------------------------------------------------------------------|----|------|
|  | T. | K.   |
|                                                                                    | 8  | 0.50 |
|                                                                                    | 12 | 0.40 |
|                                                                                    | 16 | 0.36 |
|                                                                                    | 18 | 0.34 |
|                                                                                    | 24 | 0.30 |

⑬

## ASBESTOS WALLS.

| 1/4" THICK CORRUGATED                                                               |      |
|-------------------------------------------------------------------------------------|------|
|  | K.   |
|                                                                                     | 1.25 |

⑭

## STEEL WALLS

| 1/8" THICK CORRUGATED                                                               |      |
|-------------------------------------------------------------------------------------|------|
|  | K.   |
|                                                                                     | 1.50 |

⑮

## STEEL WALLS.

| ON 1" T. & G. BOARDS.                                                               |      |
|-------------------------------------------------------------------------------------|------|
|  | K.   |
|                                                                                     | 0.48 |

⑯

## STEEL WALLS.

| PLAIN 3/16" THICK.                                                                  |      |
|-------------------------------------------------------------------------------------|------|
|  | K.   |
|                                                                                     | 1.20 |

## HEAT LOSS COEFFICIENTS (AIR TO AIR)

B.Th.U.s per hour per square foot of surface per degree difference (Fahr.)

## ⑪ ASBESTOS WALLS

| FLAT SHEETS                                                                       |      |
|-----------------------------------------------------------------------------------|------|
|  | K    |
|                                                                                   | 0.70 |

## ⑫ TIMBER WALLS.

| 1" T. & G. BOARDS.                                                                  |      |
|-------------------------------------------------------------------------------------|------|
|  | T.   |
|                                                                                     | K.   |
| 1"                                                                                  | 0.45 |
| 1½                                                                                  | 0.35 |

## ⑬ CONCRETE WALLS

| BATTENS, CELOTEX & PLAST.                                                         |         |
|-----------------------------------------------------------------------------------|---------|
|  | T.      |
|                                                                                   | K.      |
|                                                                                   | 4 0.20  |
|                                                                                   | 6 0.19  |
|                                                                                   | 8 0.18  |
|                                                                                   | 12 0.17 |
|                                                                                   | 16 0.16 |
|                                                                                   | 20 0.15 |

## ⑭ PARTITIONS.

| STUDS, PLASTER ONE SIDE.                                                            |      |
|-------------------------------------------------------------------------------------|------|
|  | T.   |
|                                                                                     | K.   |
| 4                                                                                   | 0.55 |

## ⑮ FRAME WALLS

| WEATHER BRDS. LATHE & PLAST.                                                        |      |
|-------------------------------------------------------------------------------------|------|
|  | T.   |
|                                                                                     | K.   |
| 7/16                                                                                | 0.44 |

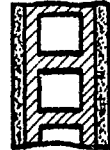
## ⑯ PARTITIONS.

| 4" STUDS PLAST'D BOTH SIDES.                                                         |      |
|--------------------------------------------------------------------------------------|------|
|  | T.   |
|                                                                                      | K.   |
| 4                                                                                    | 0.33 |

## ⑰ HOLLOW PARTITIONS.

| 4" PLAST'D ONE SIDE.                                                                |      |
|-------------------------------------------------------------------------------------|------|
|  | T.   |
|                                                                                     | K.   |
| 4                                                                                   | 0.43 |

## ⑱ HOLLOW PARTITIONS.

| 4" PLAST'D BOTH SIDES.                                                               |      |
|--------------------------------------------------------------------------------------|------|
|  | T.   |
|                                                                                      | K.   |
| 4                                                                                    | 0.35 |

## HEAT LOSS COEFFICIENTS

B.Th.U.s per hour per square foot of surface per degree difference (Fahr.)

## FLOORS—Heat loss downwards

Fig. 25



4 in. Concrete on earth ... .. Coefficient 0.55  
 6 in. Concrete on earth ... .. Coefficient 0.49

Fig. 26



1 1/2-in. Wood Blocks, 1/4-in. Screed and 5-in. Concrete on earth Coefficient 0.25

Fig. 27

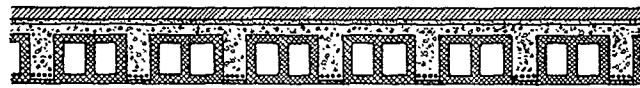


Fig. 28

Wood Block Floor 1 1/2 in. thick on Cement Screed and 6-in. Hollow Tile Fireproof floor plastered under ... .. Coefficient 0.15  
 Ditto, but not plastered under ... .. Coefficient 0.18



Fig. 29



Boarded Floor 1 in. thick on Joists with 9-in. Air Space under and 4 1/2-in. Surface Concrete ... .. Coefficient 0.07

Fig. 30



Board Floor 1 in. thick on Joists with unheated and enclosed room under. Coefficient 0.20

Fig. 31



Board Floor 1 in. thick on 7-in. Joists with plastered ceiling and unheated enclosed room under ... .. Coefficient 0.08

## HEAT LOSS COEFFICIENTS (AIR TO AIR)

B.Th.U.s per hour per square foot of surface per degree difference (Fahr.)

## FLOORS—Heat loss downwards (contd.)

Fig. 33



Wood Block  $1\frac{1}{2}$  in. thick on Cement Screed and Concrete 6 in. thick with plaster under ... Coefficient 0.20  
 Ditto Concrete 7 in. thick ... Coefficient 0.19  
 Ditto Concrete 8 in. thick ... Coefficient 0.18

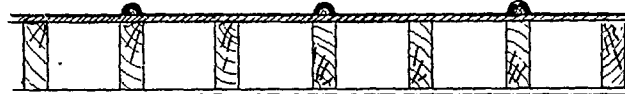
## ROOFS (flat) AND FLOORS (Heat loss upwards)

Fig. 32



Asphalt  $\frac{1}{2}$  in. thick on Cement Screed and Concrete 6 in. thick with plaster under ... Coefficient 0.32  
 Ditto Concrete 7 in. thick ... Coefficient 0.30  
 Ditto Concrete 8 in. thick ... Coefficient 0.28  
 Ditto Concrete 9 in. thick ... Coefficient 0.27

Fig. 34



Lead or Zinc Roof on  $\frac{7}{8}$ -in. Boards and 9-in. Joists with plaster under, Coefficient 0.20

Fig. 35



Asphalt  $\frac{1}{2}$  in. thick on Cement Screed and 6-in. Hollow Tile Fireproof Roof with plaster under ... Coefficient 0.22

Fig. 36



Board Floor 1 in. thick on Joists, Cold air above ... Coefficient 0.44

Fig. 37



Boarded Floor 1 in. thick on Joists with Lath and Plastered Ceiling, Cold air above Coefficient 0.18

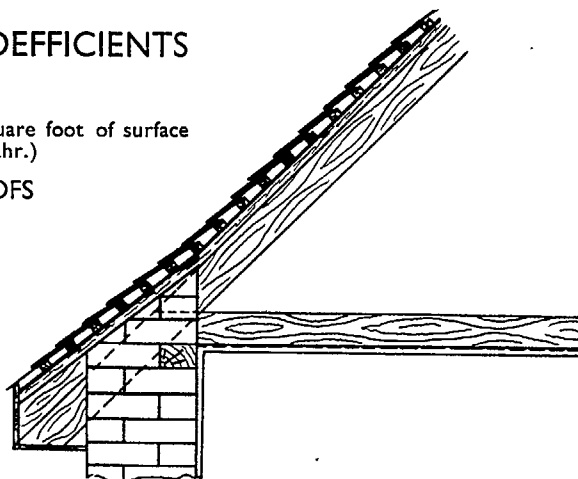
## CRANE

### HEAT LOSS COEFFICIENTS (AIR TO AIR)

B.Th.U.s per hour per square foot of surface  
per degree difference (Fahr.)

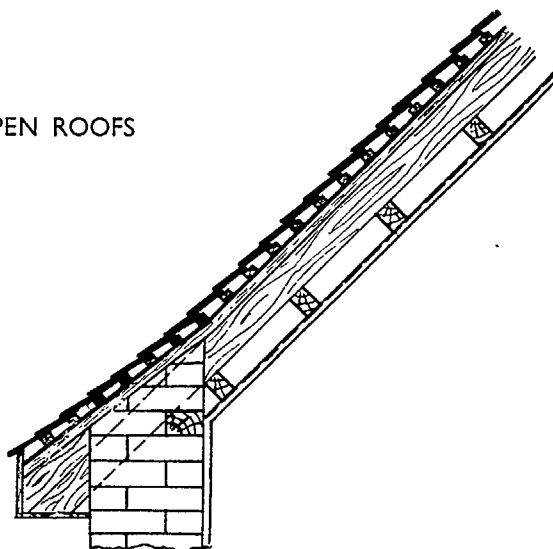
#### CEILINGING AND ROOFS

(Closed Roof Spaces)



- |                |                                                                               |                  |
|----------------|-------------------------------------------------------------------------------|------------------|
| <b>Fig. 38</b> | Slates or tiles on battens and rafters only. Lath and plaster ceiling to room | Coefficient 0.35 |
| <b>Fig. 39</b> | Ditto, with 1-in. tongued and grooved boards under tiles                      | Coefficient 0.25 |
| <b>Fig. 40</b> | Ditto, with Roofing Felt between tiles and boards                             | Coefficient 0.19 |

#### OPEN ROOFS



- |                |                                                                                      |                  |
|----------------|--------------------------------------------------------------------------------------|------------------|
| <b>Fig. 41</b> | Slates or tiles on battens and rafters only                                          | Coefficient 0.80 |
| <b>Fig. 42</b> | Ditto, but with 1-in. tongued and grooved boards                                     | Coefficient 0.35 |
| <b>Fig. 43</b> | Ditto, with Roofing Felt between tiles and boards                                    | Coefficient 0.25 |
| <b>Fig. 44</b> | Slates or tiles on 1-in. tongued & grooved boards, & lath & plaster ceiling as shown | Coefficient 0.30 |

## HEAT LOSS COEFFICIENTS (AIR TO AIR)

B.Th.U.s per hour per square foot of surface per degree of difference (Fahr.)

### GLASS

|                 |    |    |    |    |             |      |
|-----------------|----|----|----|----|-------------|------|
| Single Windows  | .. | .. | .. | .. | Coefficient | 1.07 |
| Double          | „  | .. | .. | .. | „           | 0.60 |
| Single Skylight | .. | .. | .. | .. | „           | 1.16 |
| Double          | „  | .. | .. | .. | „           | 0.62 |

### DOORS

|                                   |    |    |    |    |   |      |
|-----------------------------------|----|----|----|----|---|------|
| All wood                          | .. | .. | .. | .. | „ | 0.45 |
| Ditto. Upper portion glass panels | .. |    |    |    | „ | 0.75 |
| All glass, wood framing           | .. | .. |    |    | „ | 0.95 |
| All steel                         | .. | .. | .. | .. | „ | 1.20 |
| Ditto. Upper portion glass panels | .. |    |    |    | „ | 1.15 |
| All glass, steel framed           | .. | .. | .. |    | „ | 1.05 |

### FACTORY ROOFS

|                                                  |    |    |    |    |   |      |
|--------------------------------------------------|----|----|----|----|---|------|
| Corrugated Iron (unlined)                        | .. | .. |    |    | „ | 1.80 |
| Corrugated Asbestos Cement Sheeting<br>(unlined) | .. | .. | .. | .. | „ | 1.45 |
| Glass North Lights                               | .. | .. | .. |    | „ | 1.20 |

## CRANE

### AVERAGE RADIATOR TRANSMISSIONS

B.Th.U.s per square foot per degree difference per hour.

| Position of Radiator                                                | 2-Col.       |              | 4-Col.       |              | 6-Col.       |              | Window       |              | Wall         |              | Hospital 3" wide |              | Hospital 5½" wide |              | Hospital 7½" wide |              |
|---------------------------------------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|------------------|--------------|-------------------|--------------|-------------------|--------------|
|                                                                     | Water 160-60 | Steam 215-60 | Water 160-60 | Steam 215-60 | Water 160-60 | Steam 215-60 | Water 160-60 | Steam 215-60 | Water 160-60 | Steam 215-60 | Water 160-60     | Steam 215-60 | Water 160-60      | Steam 215-60 | Water 160-60      | Steam 215-60 |
| Radiator fixed 2½" from wall ...                                    | 1.85         | 2.10         | 1.70         | 1.95         | 1.60         | 1.82         | 1.58         | 1.80         | 1.71         | 1.91         | 1.85             | 2.10         | 1.58              | 1.80         | 1.51              | 1.71         |
| Fitted with Crane Deflecting Shield * ...                           | —            | —            | 1.75         | 2.00         | 1.65         | 1.90         | 1.65         | 1.85         | —            | —            | —                | —            | —                 | —            | —                 | —            |
| In open recess not less than 3" clear of radiator top and sides ... | 1.70         | 1.95         | 1.55         | 1.78         | 1.47         | 1.66         | 1.45         | 1.67         | 1.55         | 1.76         | 1.70             | 1.95         | 1.45              | 1.67         | 1.40              | 1.60         |

\* Represent equivalent heating effect at lower levels of room (see page 14)

### TRANSMISSION TABLE

FOR RADIATORS FIXED 2½" FROM WALL

British Thermal Units per sq. ft. per hour

| Radiator         | Temperature Difference (Degrees Fahrenheit) |     |     |     |     |     |       |     |
|------------------|---------------------------------------------|-----|-----|-----|-----|-----|-------|-----|
|                  | Water                                       |     |     |     |     |     | Steam |     |
|                  | 70                                          | 80  | 90  | 100 | 110 | 120 | 155   | 160 |
| 2-Col. Pall Mall | 116                                         | 140 | 162 | 185 | 208 | 233 | 327   | 340 |
| 4-Col. " "       | 105                                         | 128 | 150 | 170 | 192 | 215 | 300   | 312 |
| 6-Col. " "       | 100                                         | 120 | 140 | 160 | 180 | 200 | 282   | 294 |
| Window ...       | 99                                          | 119 | 138 | 158 | 178 | 200 | 278   | 290 |
| Wall ...         | 106                                         | 128 | 150 | 171 | 192 | 215 | 300   | 312 |
| 3" Hospital ...  | 116                                         | 139 | 162 | 185 | 208 | 234 | 327   | 340 |
| 5½" " ...        | 99                                          | 119 | 138 | 158 | 178 | 199 | 278   | 290 |
| 7½" " ...        | 94                                          | 113 | 132 | 151 | 170 | 190 | 266   | 275 |

### HANDY RADIATOR TRANSMISSION TABLE

FOR RADIATORS FIXED 2½" FROM WALL

| Room Temperature | Hot Water                                               |       |       |                                                             |       |       | Steam                                                |       |       |
|------------------|---------------------------------------------------------|-------|-------|-------------------------------------------------------------|-------|-------|------------------------------------------------------|-------|-------|
|                  | Gravity Circulation<br>(mean Rad. temp. assumed 155°F.) |       |       | Accelerated Circulation<br>(mean Rad. temp. assumed 170°F.) |       |       | L P or Vapour Systems<br>(Rad. temp. assumed 215°F.) |       |       |
|                  | 55°F.                                                   | 60°F. | 65°F. | 55°F.                                                       | 60°F. | 65°F. | 55°F.                                                | 60°F. | 65°F. |
| 2-Column ...     | 185                                                     | 174   | 162   | 215                                                         | 208   | 194   | 138                                                  | 327   | 315   |
| 4-Column ...     | 170                                                     | 159   | 150   | 196                                                         | 192   | 179   | 310                                                  | 300   | 290   |
| 6-Column ...     | 160                                                     | 150   | 140   | 185                                                         | 180   | 168   | 292                                                  | 282   | 270   |
| Wall ...         | 171                                                     | 159   | 150   | 196                                                         | 192   | 179   | 310                                                  | 300   | 290   |
| Window ...       | 158                                                     | 148   | 138   | 183                                                         | 178   | 166   | 288                                                  | 278   | 270   |
| 3" Hospital ...  | 185                                                     | 173   | 162   | 215                                                         | 208   | 194   | 338                                                  | 327   | 315   |
| 5½" " ...        | 158                                                     | 148   | 138   | 183                                                         | 178   | 167   | 290                                                  | 278   | 270   |
| 7½" " ...        | 151                                                     | 142   | 132   | 175                                                         | 170   | 159   | 275                                                  | 266   | 253   |

It is recommended that radiators be fixed as far from the wall as the situation will allow, in order to obtain the maximum heating effect. 2½" is suitable if space permits.

Radiators painted with metallic bronzing paints such as aluminium have less efficiency than radiators painted with flat paints or with enamels.

See separate Folder for Concealed Radiator Transmissions.

## TRANSMISSION TABLE (Wrought Iron Pipes) UNCOVERED

B.Th.U.s per lineal foot per hour

| Size of Pipe    | TEMPERATURE DIFFERENCE (Deg. Fahr.) |     |     |     |     |     |     |       |     |     |
|-----------------|-------------------------------------|-----|-----|-----|-----|-----|-----|-------|-----|-----|
|                 | Water                               |     |     |     |     |     |     | Steam |     |     |
|                 | 80                                  | 85  | 90  | 95  | 100 | 105 | 110 | 150   | 155 | 160 |
| $\frac{1}{8}$   | 42                                  | 45  | 48  | 51  | 56  | 59  | 63  | 95    | 98  | 103 |
| $\frac{1}{4}$   | 53                                  | 56  | 60  | 64  | 70  | 75  | 80  | 118   | 123 | 130 |
| $\frac{3}{8}$   | 60                                  | 64  | 70  | 74  | 80  | 85  | 90  | 135   | 140 | 147 |
| $\frac{1}{2}$   | 73                                  | 78  | 85  | 90  | 98  | 103 | 110 | 168   | 175 | 180 |
| $\frac{3}{4}$   | 82                                  | 87  | 96  | 102 | 110 | 116 | 124 | 185   | 195 | 202 |
| 1               | 97                                  | 103 | 113 | 120 | 130 | 137 | 145 | 220   | 228 | 238 |
| 1 $\frac{1}{4}$ | 115                                 | 122 | 135 | 142 | 155 | 165 | 175 | 260   | 272 | 283 |
| 1 $\frac{1}{2}$ | 140                                 | 150 | 165 | 175 | 188 | 200 | 212 | 320   | 330 | 345 |
| 2               | 174                                 | 185 | 203 | 215 | 232 | 245 | 262 | 395   | 410 | 426 |
| 3               | 212                                 | 225 | 247 | 265 | 282 | 300 | 318 | 480   | 500 | 522 |
| 4               | 250                                 | 270 | 290 | 310 | 330 | 350 | 375 | 560   | 585 | 610 |

The above is for single pipes freely exposed. For three or more pipes installed one above the other in the form of a pipe coil, reduce by 10% for pipes under  $1\frac{1}{4}$  in. size, and by 20% for pipes  $1\frac{1}{4}$  in. and over.

## COVERED PIPES

The transmission from covered pipes varies according to the efficiency and thickness of the non-conducting material employed. For pipes covered with  $\frac{1}{2}$  in. hair felt allow one half, 1 in. asbestos one-third, and  $1\frac{1}{2}$  in. magnesia one-quarter of the above values.

## AIR CHANGE

A natural interchange of air or air leakage is continuously taking place from any enclosed space which is being heated, exclusive of air provided by ventilating schemes, mechanical or natural. This leakage is dependent on the character of the construction, the number of windows and doors, etc., and is a purely arbitrary figure.

The following, however, are useful examples assuming buildings of normal good construction and with natural ventilation only:—

|                                                                  | Air Change.<br>per hour |
|------------------------------------------------------------------|-------------------------|
| Very large Halls and Churches ... ..                             | $\frac{1}{2}$ " "       |
| Large Halls, and smaller Churches, etc. ... ..                   | $\frac{3}{4}$ " "       |
| Rooms with one exposed wall with one window ... ..               | 1 " "                   |
| " " two " walls with one window ... ..                           | $1\frac{1}{4}$ " "      |
| " " one exposed wall with two windows ... ..                     | $1\frac{1}{2}$ " "      |
| " " two " walls with two windows ... ..                          | $1\frac{3}{4}$ " "      |
| " " three " walls with two windows ... ..                        | 2 " "                   |
| Entrance Halls, Corridors ... ..                                 | 2 " "                   |
| Schools and Hospital Wards with natural cross ventilation ... .. | 3 " "                   |

One cubic foot of air heated one degree Fahr. at 62° requires 0.02 B.Th.U. per hour.

## CRANE

### EXPOSURE AND WIND VELOCITY

The aspect of the exposed walls of a heated building has an important bearing on the calculation of heat losses.

The following minimum quantities should be added to the heat losses for the under-mentioned exposures:—

|                                  |     |     |     |     |
|----------------------------------|-----|-----|-----|-----|
| North, North-east and North-west | ... | ... | ... | 10% |
| East                             | ... | ... | ... | 5%  |

For isolated buildings in very exposed positions as at the top of a hill or on the coast line, add a further 5% to all heat losses.

### BUILDINGS NOT CONTINUOUSLY HEATED

An apparatus of larger capacity is required when a building is only intermittently heated, than when continuously heated. For buildings heated during the day only, add 10-15%, and for buildings such as Lecture Halls or Churches, where the apparatus is not in use daily, 25-30% should be added to the capacity of radiators, boiler and mains.

### TEMPERATURES FOR VARIOUS ROOMS

The following temperatures are frequently specified for the warming of various rooms:—

|                                     |     |     |     |            |
|-------------------------------------|-----|-----|-----|------------|
| GARAGES (not workshops)             | ... | ... | ... | 45 deg. F. |
| CHURCHES, LECTURE HALLS             | ... | ... | ... | 58 "       |
| BEDROOMS, private houses            | ... | ... | ... | 55 "       |
| FACTORIES (save as under)           | ... | ... | ... | 55 "       |
| FACTORIES, female workers, seated   | ... | ... | ... | 60 "       |
| BEDROOMS, hotels and flats          | ... | ... | ... | 60 "       |
| CORRIDORS AND ENTRANCE HALLS        | ... | ... | ... | 60 "       |
| THEATRES, CINEMAS AND CONCERT HALLS | ... | ... | ... | 60 "       |
| OFFICES                             | ... | ... | ... | 62-65 "    |
| LIVING-ROOMS AND DAY NURSERIES      | ... | ... | ... | 65 "       |
| HOSPITALS AND SCHOOLROOMS           | ... | ... | ... | 65 "       |
| OPERATING THEATRES                  | ... | ... | ... | 70-73 "    |
| DRYING ROOMS                        | ... | ... | ... | 80 "       |

### WARMING HIGH ROOMS

For rooms above 12 ft. in height some authorities state a percentage should be added to the heating surface of the radiators as follows:—

| ft. | per cent. | ft. | per cent. |
|-----|-----------|-----|-----------|
| 14  | 4         | 25  | 20        |
| 16  | 7         | 30  | 25        |
| 18  | 10        | 35  | 30        |
| 20  | 15        | 40  | 33        |

## EXPANSION TANKS

The water content of a hot water heating system expands one twenty-third when fully heated, and the tank should have ample capacity to accommodate this expansion without overflowing.

The inlet to the ball valve should be fixed so that when cold there is only two inches of water in the bottom of the tank.

To determine the approximate tank capacity for estimating purposes, allow two gallons for every 100 square feet of radiating surface in the installation (radiators and circulating pipes) with a minimum of 10 gallons. Thus, a system with a boiler of 1,100 square feet rating requires a tank of 22 gallons capacity.

See page 5 for water content of "Pall Mall" Radiators.

## EXPANSION OF WROUGHT IRON

| Temperature when Pipe Fitted Deg. F. | Length of Pipe when Fitted ft. | Expansion of Pipe when heated to |              |              |              |              |
|--------------------------------------|--------------------------------|----------------------------------|--------------|--------------|--------------|--------------|
|                                      |                                | 120 deg. in.                     | 160 deg. in. | 215 deg. in. | 250 deg. in. | 265 deg. in. |
| 32                                   | 100                            | 0.73                             | 0.90         | 1.45         | 1.72         | 1.87         |
| 40                                   | 100                            | 0.64                             | 0.96         | 1.41         | 1.69         | 1.80         |
| 50                                   | 100                            | 0.56                             | 0.88         | 1.33         | 1.61         | 1.71         |
| 64                                   | 100                            | 0.45                             | 0.77         | 1.20         | 1.50         | 1.63         |

## WROUGHT IRON PIPE

## APPROXIMATE MEASUREMENTS

| Nominal Bore   | Outside Diameter | Contents        | Approx. Weight | Nominal Bore   | Outside Diameter | Contents        | Approx. Weight |
|----------------|------------------|-----------------|----------------|----------------|------------------|-----------------|----------------|
| in.            | in.              | Gallons per ft. | Pounds per ft. | in.            | in.              | Gallons per ft. | Pounds per ft. |
| $\frac{3}{8}$  | $\frac{1}{2}$    | .0047           | .58            | 2              | $2\frac{3}{8}$   | .1356           | 4.1            |
| $\frac{1}{2}$  | $\frac{3}{4}$    | .0084           | .81            | $2\frac{1}{2}$ | 3                | .212            | 5.334          |
| $\frac{3}{4}$  | $\frac{1}{2}$    | .019            | 1.16           | 3              | $3\frac{1}{2}$   | .3053           | 6.326          |
| 1              | $\frac{1}{2}$    | .0339           | 1.6            | 4              | $4\frac{1}{2}$   | .5426           | 8.282          |
| $1\frac{1}{4}$ | $1\frac{1}{2}$   | .053            | 2.36           | 5              | $5\frac{1}{2}$   | .848            | 10.17          |
| $1\frac{1}{2}$ | $1\frac{3}{4}$   | .0763           | 3.00           | 6              | $6\frac{1}{2}$   | 1.221           | 12.57          |

## PIPE FACTORS

| Nominal Size of Pipe<br>Inches | For converting lineal feet to square feet |        | For converting square feet to lineal feet |        | Nominal Size of Pipe<br>Inches | For converting lineal ft. to square ft. |              | For converting square ft. to lineal ft. |
|--------------------------------|-------------------------------------------|--------|-------------------------------------------|--------|--------------------------------|-----------------------------------------|--------------|-----------------------------------------|
|                                | Wrought Iron                              | Copper | Wrought Iron                              | Copper |                                | Wrought Iron                            | Wrought Iron |                                         |
| $\frac{1}{2}$                  | .21                                       | .13    | 4.76                                      | 7.64   | $2\frac{1}{2}$                 | .75                                     | 1.32         |                                         |
| $\frac{3}{4}$                  | .28                                       | .20    | 3.63                                      | 5.09   | 3                              | .92                                     | 1.09         |                                         |
| 1                              | .33                                       | .26    | 2.90                                      | 3.83   | $3\frac{1}{2}$                 | 1.05                                    | .95          |                                         |
| $1\frac{1}{4}$                 | .43                                       | .33    | 2.30                                      | 3.05   | 4                              | 1.19                                    | .84          |                                         |
| $1\frac{1}{2}$                 | .50                                       | .39    | 2.01                                      | 2.55   | 5                              | 1.46                                    | .68          |                                         |
| 2                              | .62                                       | —      | 1.61                                      | —      | 6                              | 1.75                                    | .57          |                                         |

Multiply quantities by constants shown in respective columns

## CHIMNEY FLUES

The importance of having a chimney which fulfills the requisite requirements is almost as great as the choice of the boiler. These requirements are:—

- (a) Sufficient height to permit the chimney to exert enough "pull" by reason of the difference in temperature between the gases in the chimney and the cold air outside.
- (b) Sufficient cross sectional area to enable the chimney to easily carry away the products of combustion.
- (c) A complete avoidance of air leakages or openings which would reduce the temperature of the gases in the chimney and thus diminish the draught,

The height of the chimney is of necessity generally determined by the height of the building but it should never be less than 20 ft. and 25ft. is preferably the minimum.

The precise cross sectional area cannot be determined with exactness owing to such indeterminate factors as the condition of the inner surfaces of the flue, barometric changes, fluctuating flue gas analysis, etc., but the undermentioned table gives capacities of chimney flues for various heights and sizes which will in general be found satisfactory under ordinary working conditions.

APPROXIMATE CHIMNEY CAPACITIES FOR HEATING BOILERS  
IN THOUSANDS OF BRITISH THERMAL UNITS PER HOUR

| Size of<br>Flue<br>Inches | Area<br>Square<br>Inches | HEIGHT IN FEET ABOVE GRATE |     |     |      |      |      |      |      |      |
|---------------------------|--------------------------|----------------------------|-----|-----|------|------|------|------|------|------|
|                           |                          | 20                         | 25  | 30  | 40   | 50   | 60   | 70   | 80   | 100  |
| —                         | 36                       | 45                         | 55  | 62  | 80   | 90   | 105  | 115  | —    | —    |
| —                         | 50                       | 87                         | 100 | 115 | 140  | 165  | 185  | 200  | 220  | —    |
| 9×9                       | 81                       | 160                        | 185 | 210 | 250  | 290  | 310  | 330  | 350  | 400  |
| 14×9                      | 126                      | —                          | 275 | 300 | 420  | 460  | 500  | 560  | 615  | 765  |
| 18×9                      | 162                      | —                          | 375 | 425 | 525  | 615  | 700  | 775  | 825  | 950  |
| 14×14                     | 196                      | —                          | —   | 500 | 675  | 775  | 875  | 975  | 1075 | 1250 |
| 18×14                     | 252                      | —                          | —   | —   | 900  | 1025 | 1075 | 1275 | 1400 | 1600 |
| 18×18                     | 324                      | —                          | —   | —   | 1250 | 1350 | 1475 | 1600 | 1750 | 2000 |
| 22×18                     | 396                      | —                          | —   | —   | 1550 | 1700 | 1850 | 1975 | 2100 | 2600 |
| 24×18                     | 432                      | —                          | —   | —   | —    | 1750 | 1900 | 2100 | 2400 | 2750 |

For Circular Brick Flues with fire tile lining increase capacities by 10 per cent.

For exposed iron flues decrease capacity by 10 per cent.

Minimum size of exposed iron flue, 6 ins. diameter.

CHIMNEY FLUES—*continued*

The top of the flue should not be unduly restricted by using a pot having a diameter appreciably less than the width of the flue. Also the top should not be overshadowed by a higher building or roof line adjacent, or down draughts will result when wind is in a certain direction.

In the case of boilers standing in range or fireplace opening, the lower end of the flue should be tightly sealed off by means of a sheet iron covering-in plate.

CARE OF HEATING BOILERS IN  
SUMMER MONTHS\*

It is common when inspecting a heating boiler during the summer months to find the boiler left exactly as it was when the fire went out for the last time, with the remains of the fuel on the grate and ashes beneath in the ashpit.

There is nothing more conducive to shortening the life of a Cast Iron Sectional Boiler than leaving it in this condition, for during the summer months, especially when the boiler is fixed in a basement heating chamber, condensation collects on the cold cast iron surfaces and mixing with the sulphur in the flue dust and ashes forms a corrosive acid, which eats into the boiler metal.

To prolong the life of the boiler, and to maintain its efficiency when the next heating season arrives the following steps are necessary:—

1. Remove all ashes, clinker, unburned fuel, etc., from the grate and ashes from the ashpit.
2. Have the chimney swept and the cast iron smoke pipe connecting the boiler to the chimney scraped and swept free of soot and flue dust.
3. Scrape and brush clean all firebox and flue surfaces of the boiler. (In Crane Boilers all heating surfaces are very accessible.)
4. Leave the smokehood damper and the whole of the ashpit door wide open, so that a current of air passes through the boiler, and thus minimizes the possibility of condensation being deposited on the iron.
5. Clean off and oil all movable parts, such as hinges, dampers, etc.

Do not permit the heating system to be emptied down unless this is necessary for making alterations. This is of special importance in hard water districts.

\* Extract from Crane pamphlet supplied free of charge to Heating Engineer customers with their name overprinted.

## CRANE

## RADIATING SURFACE OF PIPES

| Length<br>of Pipe<br>1 Ft. | SIZE OF PIPE IN INCHES |       |        |        |       |        |       |        |       |       |       |
|----------------------------|------------------------|-------|--------|--------|-------|--------|-------|--------|-------|-------|-------|
|                            | 3/4"                   | 1"    | 1 1/4" | 1 1/2" | 2"    | 2 1/2" | 3"    | 3 1/2" | 4"    | 5"    | 6"    |
| 2                          | 0.275                  | 0.346 | 0.434  | 0.494  | 0.622 | 0.753  | 0.916 | 1.046  | 1.175 | 1.455 | 1.739 |
| 3                          | 0.5                    | 0.7   | 0.9    | 1.0    | 1.2   | 1.5    | 1.8   | 2.0    | 2.4   | 2.9   | 3.5   |
| 4                          | 0.8                    | 1.0   | 1.3    | 1.5    | 1.9   | 2.3    | 2.7   | 3.1    | 3.5   | 4.4   | 5.2   |
| 5                          | 1.1                    | 1.4   | 1.7    | 2.0    | 2.5   | 3.0    | 3.6   | 4.2    | 4.7   | 5.8   | 7.0   |
| 6                          | 1.4                    | 1.7   | 2.2    | 2.4    | 3.1   | 3.8    | 4.6   | 5.2    | 5.8   | 7.3   | 8.7   |
| 7                          | 1.6                    | 2.1   | 2.6    | 2.9    | 3.7   | 4.5    | 5.5   | 6.3    | 7.0   | 8.7   | 10.5  |
| 8                          | 1.9                    | 2.4   | 3.0    | 3.4    | 4.4   | 5.3    | 6.4   | 7.3    | 8.2   | 10.2  | 12.1  |
| 9                          | 2.2                    | 2.8   | 3.5    | 3.9    | 5.0   | 6.0    | 7.3   | 8.4    | 9.4   | 11.6  | 13.9  |
| 10                         | 2.5                    | 3.1   | 3.9    | 4.4    | 5.6   | 6.8    | 8.2   | 9.4    | 10.6  | 13.1  | 15.7  |
| 11                         | 2.7                    | 3.5   | 4.3    | 4.9    | 6.2   | 7.5    | 9.1   | 10.5   | 11.8  | 14.6  | 17.4  |
| 12                         | 3.0                    | 3.8   | 4.8    | 5.4    | 6.8   | 8.3    | 10.0  | 11.5   | 12.9  | 16.0  | 19.1  |
| 13                         | 3.3                    | 4.1   | 5.2    | 5.9    | 7.5   | 9.0    | 11.0  | 12.5   | 14.1  | 17.4  | 20.9  |
| 14                         | 3.6                    | 4.5   | 5.6    | 6.4    | 8.1   | 9.8    | 11.9  | 13.6   | 15.3  | 18.9  | 22.6  |
| 15                         | 3.8                    | 4.8   | 6.1    | 6.9    | 8.7   | 10.5   | 12.8  | 14.6   | 16.5  | 20.3  | 24.3  |
| 16                         | 4.1                    | 5.2   | 6.5    | 7.4    | 9.3   | 11.3   | 13.7  | 15.7   | 17.6  | 21.8  | 26.1  |
| 17                         | 4.4                    | 5.5   | 6.9    | 7.9    | 10.0  | 12.0   | 14.6  | 16.7   | 18.8  | 23.2  | 27.8  |
| 18                         | 4.7                    | 5.9   | 7.4    | 8.4    | 10.6  | 12.8   | 15.5  | 17.8   | 20.0  | 24.7  | 29.6  |
| 19                         | 5.0                    | 6.2   | 7.8    | 8.9    | 11.2  | 13.5   | 16.5  | 18.8   | 21.2  | 26.2  | 31.3  |
| 20                         | 5.2                    | 6.6   | 8.3    | 9.4    | 11.8  | 14.3   | 17.4  | 19.9   | 22.3  | 27.6  | 33.1  |
| 21                         | 5.5                    | 6.9   | 8.7    | 9.9    | 12.5  | 15.0   | 18.3  | 20.9   | 23.5  | 29.1  | 34.8  |
| 22                         | 5.8                    | 7.3   | 9.1    | 10.4   | 13.0  | 15.8   | 19.2  | 21.9   | 24.7  | 30.5  | 36.5  |
| 23                         | 6.0                    | 7.6   | 9.6    | 10.9   | 13.7  | 16.5   | 20.2  | 23.0   | 25.9  | 32.0  | 38.3  |
| 24                         | 6.3                    | 8.0   | 10.0   | 11.3   | 14.3  | 17.3   | 21.1  | 24.0   | 27.0  | 33.5  | 40.0  |
| 25                         | 6.6                    | 8.3   | 10.4   | 11.9   | 14.9  | 18.0   | 22.0  | 25.1   | 28.2  | 34.9  | 41.7  |
| 26                         | 6.9                    | 8.6   | 10.9   | 12.3   | 15.6  | 18.8   | 22.9  | 26.1   | 29.3  | 36.3  | 43.5  |
| 27                         | 7.1                    | 9.0   | 11.3   | 12.8   | 16.2  | 19.5   | 23.8  | 27.2   | 30.5  | 37.8  | 45.2  |
| 28                         | 7.4                    | 9.4   | 11.7   | 13.3   | 16.8  | 20.3   | 24.7  | 28.2   | 31.7  | 39.3  | 47.0  |
| 29                         | 7.7                    | 9.7   | 12.2   | 13.8   | 17.4  | 21.0   | 25.6  | 29.3   | 32.9  | 40.7  | 48.7  |
| 30                         | 8.0                    | 10.0  | 12.6   | 14.3   | 18.0  | 21.8   | 26.6  | 30.3   | 34.1  | 42.2  | 50.4  |
| 31                         | 8.3                    | 10.4  | 13.0   | 14.8   | 18.7  | 22.5   | 27.5  | 31.4   | 35.3  | 43.6  | 52.1  |
| 32                         | 8.5                    | 10.7  | 13.5   | 15.3   | 19.3  | 23.3   | 28.4  | 32.4   | 36.4  | 45.1  | 53.9  |
| 33                         | 8.8                    | 11.1  | 13.9   | 15.8   | 19.9  | 24.1   | 29.3  | 33.4   | 37.6  | 46.5  | 55.6  |
| 34                         | 9.1                    | 11.4  | 14.3   | 16.3   | 20.5  | 24.8   | 30.2  | 34.5   | 38.8  | 48.0  | 57.4  |
| 35                         | 9.4                    | 11.7  | 14.7   | 16.8   | 21.2  | 25.6   | 31.1  | 35.5   | 40.0  | 49.5  | 59.1  |
| 36                         | 9.6                    | 12.1  | 15.2   | 17.3   | 21.8  | 26.3   | 32.0  | 36.6   | 41.1  | 50.9  | 60.8  |
| 37                         | 9.9                    | 12.5  | 15.6   | 17.8   | 22.4  | 27.0   | 33.0  | 37.6   | 42.3  | 52.4  | 62.6  |
| 38                         | 10.2                   | 12.8  | 16.1   | 18.3   | 23.0  | 27.8   | 33.9  | 38.7   | 43.5  | 53.8  | 64.3  |
| 39                         | 10.5                   | 13.2  | 16.5   | 18.8   | 23.7  | 28.5   | 34.8  | 39.7   | 44.6  | 55.2  | 66.0  |
| 40                         | 10.7                   | 13.5  | 16.9   | 19.3   | 24.3  | 29.3   | 35.7  | 40.8   | 45.8  | 56.7  | 67.8  |
| 41                         | 11.0                   | 13.8  | 17.4   | 19.8   | 24.9  | 30.1   | 36.6  | 41.8   | 47.0  | 58.2  | 69.5  |
| 42                         | 11.3                   | 14.2  | 17.8   | 20.3   | 25.5  | 30.8   | 37.6  | 42.9   | 48.2  | 59.6  | 71.3  |
| 43                         | 11.5                   | 14.5  | 18.2   | 20.8   | 26.1  | 31.6   | 38.5  | 43.9   | 49.4  | 61.1  | 73.0  |
| 44                         | 11.8                   | 14.9  | 18.7   | 21.3   | 26.8  | 32.3   | 39.4  | 45.0   | 50.6  | 62.5  | 74.8  |
| 45                         | 12.1                   | 15.2  | 19.1   | 21.8   | 27.4  | 33.1   | 40.3  | 46.0   | 51.7  | 64.0  | 76.5  |
| 46                         | 12.4                   | 15.6  | 19.5   | 22.2   | 28.0  | 33.8   | 41.2  | 47.0   | 52.9  | 65.5  | 78.2  |
| 47                         | 12.7                   | 15.9  | 20.0   | 22.7   | 28.6  | 34.6   | 42.2  | 48.1   | 54.0  | 67.0  | 80.0  |
| 48                         | 12.9                   | 16.3  | 20.4   | 23.2   | 29.2  | 35.3   | 43.0  | 49.1   | 55.2  | 68.4  | 81.7  |
| 49                         | 13.2                   | 16.6  | 20.8   | 23.7   | 29.9  | 36.1   | 43.9  | 50.2   | 56.4  | 69.8  | 83.5  |
| 50                         | 13.5                   | 17.0  | 21.3   | 24.2   | 30.5  | 36.8   | 44.8  | 51.2   | 57.6  | 71.2  | 85.1  |
| 60                         | 13.8                   | 17.3  | 21.7   | 24.7   | 31.1  | 37.6   | 45.8  | 52.3   | 58.7  | 72.7  | 87.0  |
| 70                         | 16.5                   | 20.8  | 26.0   | 29.6   | 37.3  | 45.2   | 55.0  | 62.8   | 70.5  | 87.3  | 104.3 |
| 80                         | 19.3                   | 24.2  | 30.4   | 34.6   | 43.5  | 52.7   | 64.1  | 73.2   | 82.3  | 101.9 | 121.7 |
| 90                         | 22.0                   | 27.7  | 34.7   | 39.5   | 49.8  | 60.2   | 73.3  | 83.7   | 94.0  | 116.4 | 139.1 |
| 100                        | 24.8                   | 31.1  | 39.1   | 44.5   | 56.0  | 67.8   | 82.4  | 94.1   | 105.7 | 131.0 | 156.5 |
|                            | 27.5                   | 34.6  | 43.4   | 49.4   | 62.2  | 75.3   | 91.6  | 104.6  | 117.5 | 145.5 | 173.9 |

## COMPARATIVE THERMOMETER SCALES

| Degrees<br>Fahr. | Degrees<br>Centigrade | Degrees<br>Fahr. | Degrees<br>Centigrade | Degrees<br>Fahr. | Degrees<br>Centigrade | Degrees<br>Fahr. | Degrees<br>Centigrade |
|------------------|-----------------------|------------------|-----------------------|------------------|-----------------------|------------------|-----------------------|
| 0                | -17.78                | 54               | 12.23                 | 108              | 42.32                 | 162              | 72.23                 |
| +1               | 17.23                 | 55               | 12.78                 | 109              | 42.78                 | 163              | 72.78                 |
| 2                | 16.67                 | 56               | 13.34                 | 110              | 43.34                 | 164              | 73.34                 |
| 3                | 16.11                 | 57               | 13.90                 | 111              | 43.90                 | 165              | 73.90                 |
| 4                | 15.56                 | 58               | 14.45                 | 112              | 44.45                 | 166              | 74.45                 |
| 5                | 15.00                 | 59               | 15.00                 | 113              | 45.00                 | 167              | 75.00                 |
| 6                | 14.45                 | 60               | 15.56                 | 114              | 45.56                 | 168              | 75.56                 |
| 7                | 13.90                 | 61               | 16.11                 | 115              | 46.11                 | 169              | 76.11                 |
| 8                | 13.34                 | 62               | 16.67                 | 116              | 46.67                 | 170              | 76.67                 |
| 9                | 12.78                 | 63               | 17.23                 | 117              | 47.23                 | 171              | 77.23                 |
| 10               | 12.23                 | 64               | 17.78                 | 118              | 47.78                 | 172              | 77.78                 |
| 11               | 11.67                 | 65               | 18.34                 | 119              | 48.34                 | 173              | 78.34                 |
| 12               | 11.11                 | 66               | 18.89                 | 120              | 48.90                 | 174              | 78.90                 |
| 13               | 10.56                 | 67               | 19.45                 | 121              | 49.45                 | 175              | 79.45                 |
| 14               | 10.00                 | 68               | 20.00                 | 122              | 50.00                 | 176              | 80.00                 |
| 15               | 9.45                  | 69               | 20.56                 | 123              | 50.56                 | 177              | 80.56                 |
| 16               | 8.89                  | 70               | 21.11                 | 124              | 51.11                 | 178              | 81.11                 |
| 17               | 8.34                  | 71               | 21.67                 | 125              | 51.67                 | 179              | 81.67                 |
| 18               | 7.78                  | 72               | 22.23                 | 126              | 52.23                 | 180              | 82.23                 |
| 19               | 7.23                  | 73               | 22.78                 | 127              | 52.78                 | 181              | 82.78                 |
| 20               | 6.67                  | 74               | 23.34                 | 128              | 53.34                 | 182              | 83.34                 |
| 21               | 6.11                  | 75               | 23.90                 | 129              | 53.90                 | 183              | 83.90                 |
| 22               | 5.56                  | 76               | 24.45                 | 130              | 54.45                 | 184              | 84.45                 |
| 23               | 5.00                  | 77               | 25.00                 | 131              | 55.00                 | 185              | 85.00                 |
| 24               | 4.45                  | 78               | 25.56                 | 132              | 55.56                 | 186              | 85.56                 |
| 25               | 3.90                  | 79               | 26.12                 | 133              | 56.11                 | 187              | 86.11                 |
| 26               | 3.34                  | 80               | 26.67                 | 134              | 56.67                 | 188              | 86.67                 |
| 27               | 2.78                  | 81               | 27.23                 | 135              | 57.23                 | 189              | 87.23                 |
| 28               | 2.23                  | 82               | 27.78                 | 136              | 57.78                 | 190              | 87.78                 |
| 29               | 1.67                  | 83               | 28.34                 | 137              | 58.34                 | 191              | 88.34                 |
| 30               | 1.11                  | 84               | 28.89                 | 138              | 58.90                 | 192              | 88.90                 |
| 31               | 0.56                  | 85               | 29.45                 | 139              | 59.45                 | 193              | 89.45                 |
| 32               | 0.00                  | 86               | 30.00                 | 140              | 60.00                 | 194              | 90.00                 |
| 33               | +0.56                 | 87               | 30.55                 | 141              | 60.56                 | 195              | 90.56                 |
| 34               | 1.11                  | 88               | 31.11                 | 142              | 61.11                 | 196              | 91.11                 |
| 35               | 1.67                  | 89               | 31.67                 | 143              | 61.67                 | 197              | 91.67                 |
| 36               | 2.23                  | 90               | 32.22                 | 144              | 62.23                 | 198              | 92.23                 |
| 37               | 2.78                  | 91               | 32.78                 | 145              | 62.78                 | 199              | 92.78                 |
| 38               | 3.34                  | 92               | 33.33                 | 146              | 63.34                 | 200              | 93.34                 |
| 39               | 3.90                  | 93               | 33.89                 | 147              | 63.90                 | 201              | 93.90                 |
| 40               | 4.45                  | 94               | 34.45                 | 148              | 64.45                 | 202              | 94.45                 |
| 41               | 5.00                  | 95               | 35.00                 | 149              | 65.00                 | 203              | 95.00                 |
| 42               | 5.56                  | 96               | 35.56                 | 150              | 65.56                 | 204              | 95.56                 |
| 43               | 6.11                  | 97               | 36.11                 | 151              | 66.11                 | 205              | 96.11                 |
| 44               | 6.67                  | 98               | 36.67                 | 152              | 66.67                 | 206              | 96.67                 |
| 45               | 7.23                  | 99               | 37.23                 | 153              | 67.23                 | 207              | 97.23                 |
| 46               | 7.78                  | 100              | 37.78                 | 154              | 67.78                 | 208              | 97.78                 |
| 47               | 8.34                  | 101              | 38.34                 | 155              | 68.34                 | 209              | 98.34                 |
| 48               | 8.89                  | 102              | 38.90                 | 156              | 68.90                 | 210              | 98.90                 |
| 49               | 9.45                  | 103              | 39.45                 | 157              | 69.45                 | 211              | 99.45                 |
| 50               | 10.00                 | 104              | 40.00                 | 158              | 70.00                 | 212              | 100.00                |
| 51               | 10.56                 | 105              | 40.56                 | 159              | 70.56                 |                  |                       |
| 52               | 11.11                 | 106              | 41.11                 | 160              | 71.11                 |                  |                       |
| 53               | 11.67                 | 107              | 41.67                 | 161              | 71.67                 |                  |                       |

# DIMENSIONS OF BRITISH STANDARD PIPE FLANGES

REPORT No. 10, PART 1—1928

TABLE B  
 FOR WATER PRESSURES 50 TO 130 POUNDS PER SQUARE INCH  
 (SUPERSEDING TABLE 1 OF REPORT No. 10—1914)

TABLE C  
 FOR WATER PRESSURES 130 TO 175 POUNDS PER SQUARE INCH  
 (SUPERSEDING TABLE 1 OF REPORT No. 10—1904)

| Tables B and C          |                       |                            |                                | 6 (a)               |                 | 6 (b)                    |                 | 6 (f)                                   |                 |
|-------------------------|-----------------------|----------------------------|--------------------------------|---------------------|-----------------|--------------------------|-----------------|-----------------------------------------|-----------------|
| 1                       | 2                     | 3                          | 4/5                            | Thickness of flange |                 |                          |                 |                                         |                 |
| Nominal<br>Pipe<br>Size | Diam.<br>of<br>Flange | Diam.<br>of Bolt<br>Circle | Number<br>and Dia.<br>of Bolts | Cast<br>Iron        |                 | Cast Steel<br>and Bronze |                 | Iron or Steel<br>(Stamped or<br>forged) |                 |
|                         |                       |                            |                                | Table               |                 | Table                    |                 | Table                                   |                 |
|                         |                       |                            |                                | B<br>in.            | C<br>in.        | B<br>in.                 | C<br>in.        | B<br>in.                                | C<br>in.        |
| 1                       | 3 $\frac{3}{4}$       | 2 $\frac{5}{8}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 1                       | 4                     | 2 $\frac{7}{8}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 1                       | 4 $\frac{1}{2}$       | 3 $\frac{1}{4}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 1                       | 4 $\frac{3}{4}$       | 3 $\frac{7}{16}$           | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 1                       | 5 $\frac{1}{4}$       | 3 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1 $\frac{3}{8}$ |
| 2                       | 6                     | 4 $\frac{1}{2}$            | 4                              | 1 $\frac{1}{2}$     | 1 $\frac{1}{2}$ | 1 $\frac{3}{8}$          | 1 $\frac{3}{8}$ | 1 $\frac{3}{8}$                         | 1<              |

\* The Association recommends that the use of these sizes be discontinued.

## THICKNESSES

The thicknesses given in this Table include a raised face of not more than  $\frac{1}{16}$  inch high if such be used.

## BOLT HOLES

For  $\frac{1}{2}$ -inch and  $\frac{3}{4}$ -inch bolts the diameters of the holes to be  $\frac{1}{16}$  inch larger than the diameters of the bolts, and for larger sizes of bolts  $\frac{1}{8}$  inch.

Bolt holes to be drilled off centre lines.

# DIMENSIONS OF BRITISH STANDARD PIPE FLANGES

REPORT No. 10, PART 2—1926

TABLE D

FOR STEAM PRESSURES UP TO 50 POUNDS PER SQUARE INCH  
(SUPERSEDING TABLE I OF REPORT No. 10—1904)

| 1                       | 2                        | 3                                | 4                     | 5                       | 6 (a)               | 6 (b)                          | 6 (c)                                                                                                          |
|-------------------------|--------------------------|----------------------------------|-----------------------|-------------------------|---------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------|
| Nominal<br>Pipe<br>Size | Diameter<br>of<br>Flange | Diameter<br>of<br>Bolt<br>Circle | Number<br>of<br>Bolts | Diameter<br>of<br>Bolts | Thickness of Flange |                                |                                                                                                                |
|                         |                          |                                  |                       |                         | Cast<br>Iron        | Cast<br>Steel<br>and<br>Bronze | Iron or Steel<br>(stamped or<br>forged),<br>screwed or<br>riveted on with<br>boss, or welded<br>on with fillet |
| in.                     | in.                      | in.                              |                       | in.                     | in.                 | in.                            | in.                                                                                                            |
| $\frac{1}{2}$           | $3\frac{3}{4}$           | $2\frac{5}{8}$                   | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| $\frac{3}{4}$           | 4                        | $2\frac{7}{8}$                   | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 1                       | $4\frac{1}{2}$           | $3\frac{1}{4}$                   | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| $1\frac{1}{4}$          | $4\frac{3}{4}$           | $3\frac{1}{2}$                   | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| $1\frac{1}{2}$          | $5\frac{1}{4}$           | $3\frac{3}{4}$                   | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 2                       | 6                        | $4\frac{1}{2}$                   | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| $2\frac{1}{2}$          | $6\frac{1}{2}$           | 5                                | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 3                       | $7\frac{1}{4}$           | $5\frac{1}{4}$                   | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| $3\frac{1}{2}$          | 8                        | $6\frac{1}{2}$                   | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 4                       | $8\frac{1}{2}$           | 7                                | 4                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| * $4\frac{1}{2}$        | 9                        | $7\frac{1}{2}$                   | 8                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 5                       | 10                       | $8\frac{1}{4}$                   | 8                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 6                       | 11                       | $9\frac{1}{4}$                   | 8                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 7                       | 12                       | $10\frac{1}{4}$                  | 8                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 8                       | $13\frac{1}{4}$          | $11\frac{1}{2}$                  | 8                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 9                       | $14\frac{1}{2}$          | $12\frac{3}{4}$                  | 8                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 10                      | 16                       | 14                               | 8                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| *11                     | 17                       | 15                               | 8                     | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 12                      | 18                       | 16                               | 12                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| *13                     | $19\frac{1}{4}$          | $17\frac{1}{4}$                  | 12                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 14                      | $20\frac{3}{4}$          | $18\frac{1}{2}$                  | 12                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 15                      | $21\frac{3}{4}$          | $19\frac{1}{2}$                  | 12                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 16                      | $22\frac{3}{4}$          | $20\frac{1}{2}$                  | 12                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| *17                     | 24                       | $21\frac{3}{4}$                  | 12                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 18                      | $25\frac{1}{4}$          | 23                               | 12                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| *19                     | $26\frac{1}{2}$          | 24                               | 12                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 20                      | $27\frac{3}{4}$          | $25\frac{1}{4}$                  | 16                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 21                      | 29                       | $26\frac{1}{2}$                  | 16                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| *22                     | 30                       | $27\frac{1}{2}$                  | 16                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| *23                     | 31                       | $28\frac{1}{2}$                  | 16                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |
| 24                      | $32\frac{1}{2}$          | $29\frac{3}{4}$                  | 16                    | $\frac{1}{2}$           | $\frac{1}{2}$       | $\frac{3}{8}$                  | $\frac{3}{16}$                                                                                                 |

\* The Association recommends that the use of these sizes be discontinued.

## THICKNESSES

The thicknesses given in this Table include a raised face of not more than  $\frac{1}{16}$  inch high if such be used.

## BOLT HOLES

For  $\frac{1}{2}$ -inch and  $\frac{3}{4}$ -inch bolts the diameters of the holes to be  $\frac{1}{16}$  inch larger than the diameters of the bolts and for larger sizes of bolts  $\frac{1}{8}$  inch.

Bolt holes to be drilled off centre lines.

## PIPE SIZES

## LOW PRESSURE HOT WATER GRAVITY SYSTEMS

In a natural circulation low pressure hot water system, pipes should be sized to carry sufficient quantities of water to maintain the Radiators at approximately an even temperature throughout.

There are three factors which control the sizes, viz., (1) temperature difference between flow and return, (2) the heights of the Radiators above the Boiler, and (3) the length of the circulation, referred to below as "travel."

Temperature difference may vary between 25° for one pipe ring main to 50° for overhead two-pipe drop systems. Generally 30° F. is most suitable for one-pipe systems, and 40° F. for two-pipe; the chart opposite is based on these temperature differences.

The heights of the Radiators above the Boiler affect the pipe sizing for the reason that the circulating pressure in a low pressure hot water system is in direct proportion to the height of the vertical flow and return columns. It is not necessary to size a system on the height of the most unfavourably situated Radiator as this ignores the assistance given to the principal circuits by Radiators which are favourably placed. Accordingly, the mean effective height of each circuit should be the mean common denominator of each Radiator height, multiplied by the B.Th.U.s of each, as illustrated in example under.

The travel represents the distance which the water has to flow from the Boiler to the Radiator and back, and thus is the total length of flow and return in a circuit plus a margin for the additional friction caused by Tees, Bends, Offsets, etc.

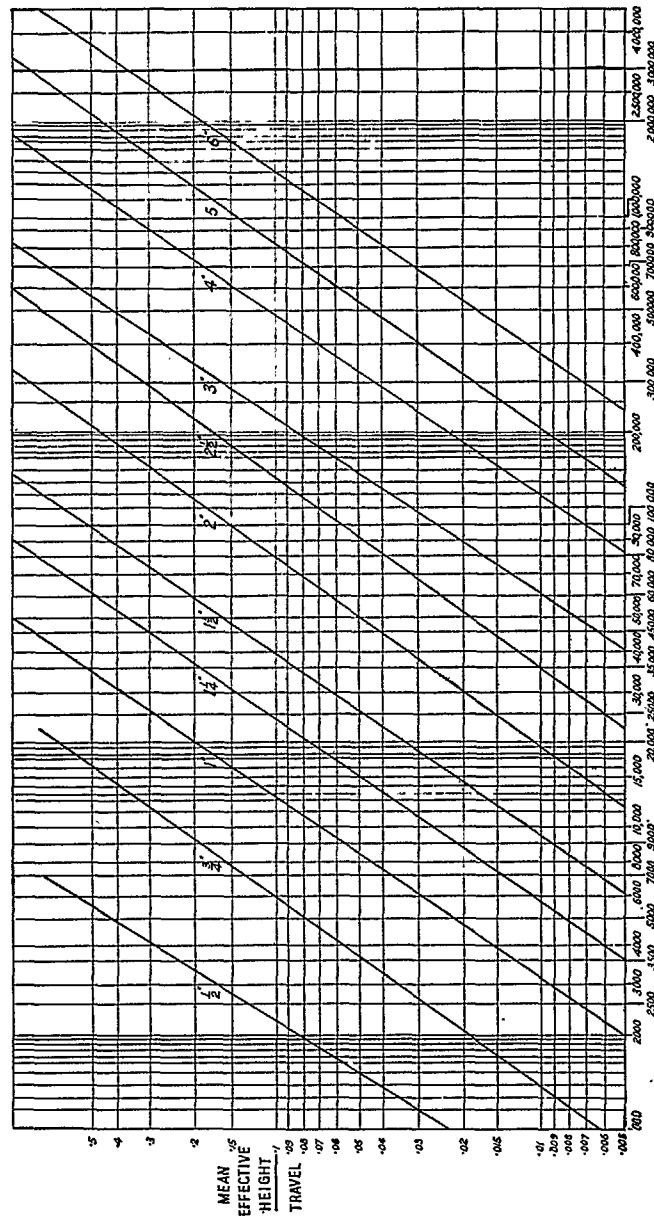
Illustrating the application of height and travel factors to a simple example, consider a circuit with one radiator of 2,500 B.Th.U.s 20 ft. above boiler, another 3,000 B.Th.U.s 11 ft. above, and a third 3,500 B.Th.U.s 1 ft. above. The total actual length of this circulation is, say, 95 ft., to which adding 10 per cent. for fittings gives 105 ft. travel.

|                    |                         |   |        |   |        |                                                          |
|--------------------|-------------------------|---|--------|---|--------|----------------------------------------------------------|
| Radiator           | 2,500                   | × | 20 ft. | = | 50,000 | 86,500 ÷ 9,000<br>gives mean effective<br>height 9.5 ft. |
| "                  | 3,000                   | × | 11 ft. | = | 33,000 |                                                          |
| "                  | 3,500                   | × | 1 ft.  | = | 3,500  |                                                          |
| Total              | 9,000 B.Th.U.s          |   |        |   | 86,500 |                                                          |
| Height ÷ travel is | $\frac{9.5}{105} = .09$ |   |        |   |        |                                                          |

From the chart it will be seen that for a load of 9,000 B.Th.U.s, ignoring pipe losses, a 1-in. pipe will be required.

The above example, of course, does not take into account heat lost from circulating pipes which should actually be added to the radiators to obtain the circuit load, afterwards checking the pipe size from the chart.

## PIPE SIZES



For low pressure hot water gravity circulation, 30° diff.

# CRANE

## PIPE SIZES, LOW PRESSURE STEAM

TABLE 7. Pipe Sizes for **Two-Pipe, Gravity**, Low Pressure Steam, where Equivalent Length of Run from Boiler or Source of Supply to Farthest Radiator does not exceed 200 ft.  
Capacity in sq. ft. of Equivalent Radiation  
Based on Total Pressure Drop of 1 oz. per 100 ft.

| Pipe Sizes Inches | Supply Main Dripped and Branches to Risers Dripped Steam and Condensate Flowing in same Direction | Supply Risers Up-Feed | Branches to Supply Risers and Radiators Not Dripped | Return Risers | Wet Return Main | Dry Return Main | Radiator Supply Valve | Radiator Return Valve |
|-------------------|---------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------|---------------|-----------------|-----------------|-----------------------|-----------------------|
| A                 | B                                                                                                 | C                     | D*                                                  | E             | F               | G               | H                     | I                     |
| $\frac{3}{4}$     | —                                                                                                 | 30                    | —                                                   | 122           | —               | —               | 30                    | 122                   |
| 1                 | 56                                                                                                | 56                    | 26                                                  | 320           | 700             | 320             | 56                    | 190                   |
| $1\frac{1}{4}$    | 122                                                                                               | 122                   | 58                                                  | 670           | 1200            | 670             | 122                   | 386                   |
| $1\frac{1}{2}$    | 190                                                                                               | 190                   | 95                                                  | 1058          | 1900            | 1058            | 190                   | —                     |
| 2                 | 386                                                                                               | 386                   | 195                                                 | 2300          | 4000            | 2300            | 386                   | —                     |
| $2\frac{1}{2}$    | 635                                                                                               | 635                   | 395                                                 | 3800          | 6700            | 3800            | —                     | —                     |
| 3                 | 1163                                                                                              | 1129                  | 700                                                 | 7000          | 10,700          | 7000            | —                     | —                     |
| $3\frac{1}{2}$    | 1737                                                                                              | 1548                  | 1150                                                | 10,000        | —               | 10,000          | —                     | —                     |
| 4                 | 2457                                                                                              | 2042                  | 1700                                                | —             | —               | —               | —                     | —                     |
| 5                 | 4546                                                                                              | —                     | 3150                                                | —             | —               | —               | —                     | —                     |
| 6                 | 7462                                                                                              | —                     | —                                                   | —             | —               | —               | —                     | —                     |

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\* Radiator branches more than 8 ft. in length should be one size larger than shown in Col. D.  
NOTE 1.—These tables apply where pipes are properly reamed. No allowances for defective material or workmanship have been made.

NOTE 2.—Capacities based on  $\frac{1}{2}$  lb. condensation per square foot per hour equivalent radiation and actual diameter of standard pipe.

NOTE 3.—Extra length to be added to straight run of pipe for various fittings and valves to determine equivalent length (see Table 4).

NOTE 4.—Where it is necessary to drip a supply main, supply riser or branch to a supply riser, same should be dripped separately into a wet return or through an adequate seal into a dry return. Never drip a supply pipe into a dry return except through an adequate seal.

NOTE 5.—Pitch of mains should not be less than  $\frac{1}{4}$  in. in 10 ft.; on horizontal branches to radiators and risers at least  $\frac{1}{8}$  in. in 10 ft.

TABLE 4. Length in Feet of Pipe to be Added to Actual Length of Run to Obtain Equivalent Length.

| Size of Pipe                      | St'd. Elbow | Side Outlet Tee | Gate Valve | Globe Valve | Angle Valve |
|-----------------------------------|-------------|-----------------|------------|-------------|-------------|
| Length in feet to be Added in Run |             |                 |            |             |             |
| 2"                                | 5           | 16              | 2          | 18          | 9           |
| $2\frac{1}{2}$ "                  | 7           | 20              | 3          | 25          | 12          |
| 3"                                | 10          | 26              | 3          | 33          | 16          |
| $3\frac{1}{2}$ "                  | 12          | 31              | 4          | 39          | 19          |
| 4"                                | 14          | 35              | 5          | 45          | 22          |
| 5"                                | 18          | 44              | 7          | 57          | 28          |
| 6"                                | 22          | 50              | 9          | 70          | 32          |
| 7"                                | 26          | 55              | 10         | 82          | 37          |
| 8"                                | 31          | 63              | 12         | 94          | 42          |
| 9"                                | 35          | 69              | 13         | 105         | 47          |
| 10"                               | 39          | 76              | 15         | 118         | 52          |
| 12"                               | 47          | 90              | 18         | 140         | 63          |
| 14"                               | 53          | 105             | 20         | 160         | 72          |

TABLE 13. Pipe Sizes for Vacuum Pump Systems, where Equivalent Length of Run from Boiler or Source of Supply to Farthest Radiator Exceeds 200 ft.

Capacity in Sq. Ft. of Equivalent Radiation

| Pipe Size<br>Inches | Equivalent length of Pipe from Boiler to Farthest Radiator,<br>Including Main and Riser. (See Note 4.)<br>Supply Main Dripped and Branches to Risers Dripped—<br>Steam and Condensate flowing in same direction.<br>Based on 4 oz. Total Pressure Drop** |         |         |         |         |         | Maximum Capacities          |                                                              |    |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|---------|---------|---------|-----------------------------|--------------------------------------------------------------|----|
|                     | 100 Ft.                                                                                                                                                                                                                                                  | 200 Ft. | 300 Ft. | 400 Ft. | 500 Ft. | 600 Ft. | Supply<br>Risers<br>Up-Feed | Branches to<br>Supply Risers and<br>Radiators<br>Not Dripped |    |
|                     | A                                                                                                                                                                                                                                                        | B       | C       | D       | E       | F       | G                           | H                                                            | I* |
| $\frac{3}{4}$       | —                                                                                                                                                                                                                                                        | —       | —       | —       | —       | —       | —                           | —                                                            | —  |
| 1                   | 111                                                                                                                                                                                                                                                      | 79      | 65      | 56      | 49      | 46      | 56                          | 26                                                           |    |
| $1\frac{1}{4}$      | 245                                                                                                                                                                                                                                                      | 173     | 141     | 122     | 110     | 100     | 122                         | 58                                                           |    |
| $1\frac{1}{2}$      | 380                                                                                                                                                                                                                                                      | 269     | 220     | 190     | 165     | 155     | 190                         | 95                                                           |    |
| 2                   | 771                                                                                                                                                                                                                                                      | 546     | 446     | 386     | 345     | 315     | 386                         | 195                                                          |    |
| $2\frac{1}{2}$      | 1270                                                                                                                                                                                                                                                     | 898     | 734     | 635     | 568     | 518     | 635                         | 395                                                          |    |
| 3                   | 2326                                                                                                                                                                                                                                                     | 1645    | 1342    | 1163    | 1040    | 948     | 1129                        | 700                                                          |    |
| $3\frac{1}{2}$      | 3474                                                                                                                                                                                                                                                     | 2457    | 2006    | 1737    | 1552    | 1419    | 1548                        | 1150                                                         |    |
| 4                   | 4914                                                                                                                                                                                                                                                     | 3475    | 2828    | 2457    | 2196    | 2011    | 2042                        | 1700                                                         |    |
| 5                   | 9092                                                                                                                                                                                                                                                     | 6429    | 5250    | 4546    | 4062    | 3712    | —                           | 3150                                                         |    |
| 6                   | 14,924                                                                                                                                                                                                                                                   | 10,553  | 8618    | 7462    | 6669    | 6094    | —                           | —                                                            |    |
| 8                   | 31,066                                                                                                                                                                                                                                                   | 21,967  | 17,935  | 15,533  | 13,880  | 12,682  | —                           | —                                                            |    |
| 10                  | 56,689                                                                                                                                                                                                                                                   | 40,085  | 32,730  | 28,345  | 25,334  | 23,144  | —                           | —                                                            |    |
| 12                  | 90,985                                                                                                                                                                                                                                                   | 64,336  | 52,530  | 45,492  | 40,660  | 37,145  | —                           | —                                                            |    |

TABLE 13—continued

Capacity in Sq. Ft. of Equivalent Radiation.

Different makes of supply and return valves, steam traps and other specialties vary as to capacity, therefore use size as recommended for any particular make. Vertical connection to be of same size as valve and trap used. Return horizontal runout to be no less than  $\frac{3}{4}$  in.

| Pipe Size<br>Inches |                | Return Mains and Risers |         |         |         |         |         |
|---------------------|----------------|-------------------------|---------|---------|---------|---------|---------|
| Riser               | Main           | 100 Ft.                 | 200 Ft. | 300 Ft. | 400 Ft. | 500 Ft. | 600 Ft. |
| J                   | K              | L                       | M       | N       | O       | P       | Q       |
| —                   | $\frac{3}{4}$  | 800                     | 568     | 462     | 400     | 358     | 326     |
| $\frac{3}{4}$       | 1              | 1400                    | 994     | 810     | 700     | 626     | 570     |
| 1                   | $1\frac{1}{4}$ | 2400                    | 1704    | 1387    | 1200    | 1073    | 976     |
| $1\frac{1}{4}$      | $1\frac{1}{2}$ | 3800                    | 2696    | 2195    | 1900    | 1698    | 1547    |
| $1\frac{1}{2}$      | 2              | 8000                    | 5680    | 4622    | 4000    | 3575    | 3256    |
| 2                   | $2\frac{1}{2}$ | 13,400                  | 9510    | 7745    | 6700    | 5990    | 5453    |
| $2\frac{1}{2}$      | 3              | 21,400                  | 15,190  | 12,360  | 10,700  | 9565    | 8710    |
| 3                   | $3\frac{1}{2}$ | 32,000                  | 22,710  | 18,490  | 16,000  | 14,300  | 13,020  |
| $3\frac{1}{2}$      | 4              | 44,000                  | 31,220  | 25,430  | 22,000  | 19,660  | 17,910  |

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Notes and Explanation of Tables on following page.

## CRANE

TABLE 13—continued

Radiator branches more than 8 ft. in length should be one size larger than shown in Column I.

\*\*It is not generally considered good practice to greatly exceed 1 oz. drop in pressure in each 100 ft. equivalent length of run nor to exceed 1 lb. total pressure drop in any system.

NOTE 1.—These tables apply where pipes are properly reamed. No allowances for defective material or workmanship have been made.

NOTE 2.—Capacities based on  $\frac{1}{4}$  lb. condensation per square foot equivalent radiation and actual diameter of standard pipe.

NOTE 3.—Extra length to be added to straight run of pipe for various fittings and valves to determine equivalent length. (See Table 4.)

NOTE 4.—Mains are to be proportioned according to the equivalent length of run from the boiler or source of supply to the farthest radiators supplied by the main.

Determine equivalent length of run, then use figures in corresponding Column (B to G) for sizing the entire run.

Supply risers are to be proportioned according to the equivalent length of run from the boiler or source of supply to the farthest radiator on each riser. Determine the distance to the farthest radiator, then use figures in that corresponding Column (B to G) for sizing each riser; provided the amount of radiation for that riser does not exceed amounts shown in Column H. Where riser capacities are found to be in excess of amounts shown in Column H, step up to necessary size indicated in that column.

NOTE 5.—Return mains and risers are to be proportioned according to the equivalent distance in feet from farthest radiator to the vacuum pump; using capacities in that corresponding Column (L to Q) for sizing entire return riser (Column J) and return main (Column K).

NOTE 6.—Where it is necessary to drip a supply main, supply riser or branch to a supply riser, same should be dripped separately through a steam trap into vacuum return. Never drip a supply riser into a vacuum return except through a steam trap.

NOTE 7.—Pitch of mains should be not less than  $\frac{1}{4}$  in. in 10 ft.; on horizontal branches to radiators at least  $\frac{1}{8}$  in. in 10 ft.

## RADIATOR CONNECTIONS

### Two-Pipe Gravity and Vacuum Line Heating Systems

| Square Feet Direct Radiation | SUPPLY             |                                     |                                                                                      | RETURN                        |                                                    |
|------------------------------|--------------------|-------------------------------------|--------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------|
|                              | Inlet Valve Inches | Vertical Pipe to Inlet Valve Inches | Horizontal Runout to Riser or Springpiece to Main from a First Floor Radiator Inches | Stub to Trap and Size of Trap | Horizontal Runout to Riser or First Floor Radiator |
| 1—25                         | $\frac{1}{4}$      | $\frac{1}{2}$                       | $\frac{3}{4}$                                                                        | $\frac{1}{2}$                 | $\frac{3}{4}$                                      |
| 26—80                        | $\frac{1}{2}$      | $\frac{3}{4}$                       | 1                                                                                    | $\frac{1}{2}$                 | $\frac{3}{4}$                                      |
| 81—100                       | $\frac{1}{2}$      | $\frac{3}{4}$                       | $1\frac{1}{4}$                                                                       | $\frac{1}{2}$                 | $\frac{3}{4}$                                      |
| 101—140                      | 1                  | 1                                   | $1\frac{1}{4}$                                                                       | $\frac{1}{2}$                 | $\frac{3}{4}$                                      |
| 141—180                      | 1                  | 1                                   | $1\frac{1}{2}$                                                                       | $\frac{1}{2}$                 | $\frac{3}{4}$                                      |
| 181—300                      | $1\frac{1}{4}$     | $1\frac{1}{2}$                      | $1\frac{1}{2}$                                                                       | $\frac{1}{2}$                 | $\frac{3}{4}$                                      |
| 301—450                      | $1\frac{1}{2}$     | $1\frac{1}{2}$                      | 2                                                                                    | $\frac{3}{4}$                 | $\frac{3}{4}$                                      |
| 451—700                      | 2                  | 2                                   | $2\frac{1}{2}$                                                                       | $\frac{3}{4}$                 | $\frac{3}{4}$                                      |

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Use pipes one size larger for horizontal connections over 8 ft. long.  
Grade with a fall not less than  $\frac{1}{4}$  in. per foot.

## STEAM—USEFUL FIGURES

| Vacuum,<br>Inches of<br>Mercury | Absolute<br>Pressure<br>Lbs. per<br>sq. inch | Temperature<br>Fahrenheit | Total Heat above 32° F.               |                                       | Latent Heat<br>Heat Units<br>per lb. |
|---------------------------------|----------------------------------------------|---------------------------|---------------------------------------|---------------------------------------|--------------------------------------|
|                                 |                                              |                           | In the Water<br>Heat Units<br>per lb. | In the Steam<br>Heat Units<br>per lb. |                                      |
| 23.81                           | 3.0                                          | 141.52                    | 109.4                                 | 1121.6                                | 1012.3                               |
| 21.78                           | 4.0                                          | 153.01                    | 120.9                                 | 1126.5                                | 1005.7                               |
| 19.74                           | 5.0                                          | 162.28                    | 130.1                                 | 1130.5                                | 1000.3                               |
| 17.70                           | 6.0                                          | 170.06                    | 137.9                                 | 1133.7                                | 995.2                                |
| 15.67                           | 7.0                                          | 176.85                    | 144.7                                 | 1136.5                                | 991.8                                |
| 13.63                           | 8.0                                          | 182.86                    | 150.8                                 | 1139.0                                | 988.2                                |
| 11.60                           | 9.0                                          | 188.27                    | 156.2                                 | 1141.1                                | 985.0                                |
| 9.56                            | 10.0                                         | 193.22                    | 161.1                                 | 1143.1                                | 982.0                                |
| 7.52                            | 11.0                                         | 197.95                    | 165.7                                 | 1144.9                                | 979.2                                |
| 5.49                            | 12.0                                         | 201.96                    | 169.9                                 | 1146.5                                | 976.6                                |
| 3.45                            | 13.0                                         | 205.87                    | 173.8                                 | 1148.0                                | 974.2                                |
| 1.42                            | 14.0                                         | 209.55                    | 177.5                                 | 1149.4                                | 971.9                                |
| Lbs. Gauge                      |                                              |                           |                                       |                                       |                                      |
| 0.0                             | 14.7                                         | 212.0                     | 180.0                                 | 1150.4                                | 970.4                                |
| 0.3                             | 15.0                                         | 213.0                     | 181.0                                 | 1150.7                                | 969.7                                |
| 1.3                             | 16.0                                         | 216.3                     | 184.4                                 | 1152.0                                | 967.6                                |
| 2.3                             | 17.0                                         | 219.4                     | 187.5                                 | 1153.1                                | 965.6                                |
| 3.3                             | 18.0                                         | 222.4                     | 190.5                                 | 1154.2                                | 963.7                                |
| 4.3                             | 19.0                                         | 225.2                     | 193.4                                 | 1155.2                                | 961.8                                |
| 5.3                             | 20.0                                         | 228.0                     | 196.1                                 | 1156.2                                | 960.0                                |
| 6.3                             | 21.0                                         | 230.6                     | 198.8                                 | 1157.1                                | 958.3                                |
| 7.3                             | 22.0                                         | 233.1                     | 201.3                                 | 1158.0                                | 956.7                                |
| 8.3                             | 23.0                                         | 235.5                     | 203.8                                 | 1158.8                                | 955.1                                |
| 9.3                             | 24.0                                         | 237.8                     | 206.1                                 | 1159.6                                | 953.5                                |
| 10.3                            | 25.0                                         | 240.1                     | 208.4                                 | 1160.4                                | 952.0                                |
| 15.3                            | 30.0                                         | 250.3                     | 218.8                                 | 1163.9                                | 945.1                                |
| 20.3                            | 35.0                                         | 259.3                     | 227.9                                 | 1166.9                                | 938.9                                |
| 25.3                            | 40.0                                         | 267.3                     | 236.1                                 | 1169.4                                | 933.3                                |
| 30.3                            | 45.0                                         | 274.5                     | 243.4                                 | 1171.6                                | 928.2                                |
| 40.3                            | 55.0                                         | 287.1                     | 256.3                                 | 1175.4                                | 919.0                                |
| 50.3                            | 65.0                                         | 298.0                     | 267.5                                 | 1178.5                                | 911.0                                |
| 60.3                            | 75.0                                         | 307.6                     | 277.4                                 | 1181.1                                | 903.7                                |
| 70.3                            | 85.0                                         | 316.3                     | 286.3                                 | 1188.4                                | 897.1                                |
| 80.3                            | 95.0                                         | 324.1                     | 294.5                                 | 1185.4                                | 890.9                                |
| 91.3                            | 106.0                                        | 332.0                     | 302.7                                 | 1187.4                                | 884.7                                |
| 101.3                           | 116.0                                        | 338.7                     | 309.6                                 | 1189.0                                | 879.3                                |
| 125.3                           | 140.0                                        | 353.1                     | 324.6                                 | 1192.2                                | 867.7                                |
| 151.3                           | 166.0                                        | 366.5                     | 338.7                                 | 1195.1                                | 856.4                                |
| 175.3                           | 190.0                                        | 377.6                     | 350.4                                 | 1197.3                                | 846.9                                |
| 200.3                           | 215.0                                        | 388.0                     | 361.4                                 | 1199.3                                | 837.9                                |
| 225.3                           | 240.0                                        | 397.4                     | 371.4                                 | 1200.9                                | 829.5                                |
| 255.3                           | 270.0                                        | 407.9                     | 382.5                                 | 1202.6                                | 820.1                                |

## VOLUME

One cu. in. of water evaporated at atmospheric pressure is converted into approximately 1 cu. ft. of steam.

One pound of steam occupies 26.79 cu. ft. and the density is 0.373 lbs. at atmospheric pressure.

## CRANE

## AREAS AND CIRCUMFERENCES OF CIRCLES

| Dia.             | Circum. | Area   | Dia.             | Circum. | Area   | Dia.            | Circum. | Area   |
|------------------|---------|--------|------------------|---------|--------|-----------------|---------|--------|
| $\frac{1}{16}$   | ·1963   | ·00307 | $2\frac{5}{16}$  | 7·2649  | 4·2    | $6\frac{1}{2}$  | 19·63   | 30·67  |
| $\frac{1}{8}$    | ·3927   | ·01227 | $2\frac{3}{8}$   | 7·4613  | 4·4302 | $6\frac{1}{2}$  | 20·42   | 33·18  |
| $\frac{3}{16}$   | ·589    | ·02761 | $2\frac{7}{16}$  | 7·6576  | 4·6664 | $6\frac{3}{4}$  | 21·20   | 35·78  |
| $\frac{1}{4}$    | ·7854   | ·04909 | $2\frac{1}{2}$   | 7·854   | 4·9087 | 7               | 21·99   | 38·48  |
| $\frac{5}{16}$   | ·9817   | ·0767  | $2\frac{9}{16}$  | 8·0503  | 5·1573 | $7\frac{1}{4}$  | 22·77   | 41·28  |
| $\frac{3}{8}$    | 1·1781  | ·1104  | $2\frac{5}{8}$   | 8·2467  | 5·4119 | $7\frac{1}{2}$  | 23·56   | 44·17  |
| $\frac{7}{16}$   | 1·3744  | ·1503  | $2\frac{11}{16}$ | 8·443   | 5·6723 | $7\frac{3}{4}$  | 24·34   | 47·17  |
| $\frac{1}{2}$    | 1·5708  | ·1963  | $2\frac{3}{4}$   | 8·6394  | 5·9395 | 8               | 25·13   | 50·26  |
| $\frac{9}{16}$   | 1·7771  | ·2485  | $2\frac{13}{16}$ | 8·8357  | 6·2126 | $8\frac{1}{4}$  | 25·91   | 53·45  |
| $\frac{5}{8}$    | 1·9635  | ·3068  | $2\frac{7}{8}$   | 9·0321  | 6·4918 | $8\frac{1}{2}$  | 26·70   | 56·74  |
| $\frac{11}{16}$  | 2·1598  | ·3712  | $2\frac{15}{16}$ | 9·2284  | 6·7772 | $8\frac{3}{4}$  | 27·49   | 60·13  |
| $\frac{3}{4}$    | 2·3562  | ·4417  | 3                | 9·4248  | 7·0686 | 9               | 28·27   | 63·62  |
| $\frac{13}{16}$  | 2·5525  | ·5185  | $3\frac{1}{8}$   | 9·8175  | 7·6699 | $9\frac{1}{4}$  | 29·06   | 67·20  |
| $\frac{7}{8}$    | 2·7489  | ·6013  | $3\frac{1}{4}$   | 10·21   | 8·2957 | $9\frac{1}{2}$  | 29·84   | 70·88  |
| $\frac{15}{16}$  | 2·9452  | ·6903  | $3\frac{3}{8}$   | 10·602  | 8·9462 | $9\frac{3}{4}$  | 30·63   | 74·66  |
| 1                | 3·1416  | ·7854  | $3\frac{1}{2}$   | 10·995  | 9·6211 | $10\frac{1}{2}$ | 31·41   | 78·54  |
| $1\frac{1}{16}$  | 3·3379  | ·8866  | $3\frac{5}{8}$   | 11·388  | 10·32  | $10\frac{1}{2}$ | 32·98   | 86·59  |
| $1\frac{1}{8}$   | 3·5343  | ·994   | $3\frac{3}{4}$   | 11·781  | 11·044 | 11              | 34·56   | 95·08  |
| $1\frac{3}{16}$  | 3·7306  | 1·1075 | $3\frac{7}{8}$   | 12·173  | 11·793 | $11\frac{1}{2}$ | 36·13   | 103·87 |
| $1\frac{1}{4}$   | 3·927   | 1·2271 | 4                | 12·566  | 12·566 | 12              | 37·69   | 113·09 |
| $1\frac{5}{16}$  | 4·1233  | 1·353  | $4\frac{1}{8}$   | 12·959  | 13·364 | $12\frac{1}{2}$ | 39·27   | 122·71 |
| $1\frac{3}{8}$   | 4·3197  | 1·4848 | $4\frac{1}{4}$   | 13·351  | 14·186 | 13              | 40·84   | 132·73 |
| $1\frac{7}{16}$  | 4·516   | 1·6229 | $4\frac{3}{8}$   | 13·744  | 15·033 | $13\frac{1}{2}$ | 42·41   | 143·13 |
| $1\frac{1}{2}$   | 4·7124  | 1·7671 | $4\frac{1}{2}$   | 14·137  | 15·904 | 14              | 43·98   | 153·93 |
| $1\frac{9}{16}$  | 4·9087  | 1·9175 | $4\frac{5}{8}$   | 14·529  | 16·8   | $14\frac{1}{2}$ | 45·55   | 165·13 |
| $1\frac{5}{8}$   | 5·1051  | 2·0739 | $4\frac{3}{4}$   | 14·922  | 17·72  | 15              | 47·12   | 176·71 |
| $1\frac{11}{16}$ | 5·3014  | 2·2365 | $4\frac{7}{8}$   | 15·315  | 18·665 | $15\frac{1}{2}$ | 48·69   | 188·69 |
| $1\frac{3}{4}$   | 5·4978  | 2·4052 | 5                | 15·708  | 19·635 | 16              | 50·26   | 201·06 |
| $1\frac{13}{16}$ | 5·6941  | 2·58   | $5\frac{1}{8}$   | 16·1    | 20·629 | $16\frac{1}{2}$ | 51·83   | 213·82 |
| $1\frac{7}{8}$   | 5·8905  | 2·7611 | $5\frac{1}{4}$   | 16·493  | 21·647 | 17              | 53·40   | 226·98 |
| $1\frac{15}{16}$ | 6·0868  | 2·9483 | $5\frac{3}{8}$   | 16·886  | 22·69  | $17\frac{1}{2}$ | 54·97   | 240·52 |
| 2                | 6·2832  | 3·1416 | $5\frac{1}{2}$   | 17·278  | 23·758 | 18              | 56·54   | 254·47 |
| $2\frac{1}{16}$  | 6·4795  | 3·3410 | $5\frac{5}{8}$   | 17·671  | 24·85  | $18\frac{1}{2}$ | 58·12   | 268·80 |
| $2\frac{1}{8}$   | 6·6759  | 3·5465 | $5\frac{3}{4}$   | 18·064  | 25·967 | 19              | 59·69   | 283·53 |
| $2\frac{3}{16}$  | 6·8722  | 3·7584 | $5\frac{7}{8}$   | 18·457  | 27·108 | $19\frac{1}{2}$ | 61·26   | 298·64 |
| $2\frac{1}{4}$   | 7·0686  | 3·976  | 6                | 18·85   | 28·27  | 20              | 62·83   | 314·16 |

## USEFUL CONVERSIONS

## CONVERSION OF AREAS

|    | Sq. in.<br>to<br>sq. cm. | Sq. cm.<br>to<br>sq. in. | Sq. ft.<br>to<br>sq. m. | Sq. m.<br>to<br>sq. ft. | Sq. yd.<br>to<br>sq. m. | Sq. m.<br>to<br>sq. yd. | Acres<br>to<br>hectares | Hectares<br>to<br>acres | Sq. mi.<br>to<br>sq. km. | Sq. km.<br>to<br>sq. mi. |
|----|--------------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|
| 1. | 6.452                    | 0.1550                   | 0.0929                  | 10.76                   | 0.8361                  | 1.196                   | 0.4047                  | 2.471                   | 2.590                    | 0.3861                   |

## CONVERSION OF VOLUMES OR CUBIC MEASURE

|    | Cu. in.<br>to<br>cu. cm. | Cu. cm.<br>to<br>cu. in. | Cu. ft.<br>to<br>cu. m. | Cu. m.<br>to<br>cu. ft. | Cu. yd.<br>to<br>cu. m. | Cu. m.<br>to<br>cu. yd. | Gallons<br>to<br>cu. ft. | Cu. ft.<br>to<br>gallons |
|----|--------------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|
| 1. | 16.39                    | 0.06102                  | 0.02832                 | 35.31                   | 0.7646                  | 1.308                   | 0.1337                   | 7.481                    |

## CONVERSION OF VOLUMES OR CAPACITIES

|    | Liquid<br>ounces<br>to<br>cu. cm. | Cu. cm.<br>to<br>liquid<br>ounces | Pints<br>to<br>litres | Litres<br>to<br>pints | Quarts<br>to<br>litres | Litres<br>to<br>quarts | Gallons<br>to<br>litres | Litres<br>to<br>gallons | Bushels<br>to<br>hecto-<br>litres | Hecto-<br>litres<br>to<br>bushels |
|----|-----------------------------------|-----------------------------------|-----------------------|-----------------------|------------------------|------------------------|-------------------------|-------------------------|-----------------------------------|-----------------------------------|
| 1. | 29.57                             | 0.03381                           | 0.4732                | 2.113                 | 0.9464                 | 1.057                  | 3.785                   | 0.2642                  | 0.3524                            | 2.838                             |

## CONVERSION OF MASSES

|    | Grains<br>to<br>grams | Grams<br>to<br>grains | Ounces<br>(avoir.)<br>to<br>grams | Grams<br>to<br>ounces<br>(avoir.) | Pounds<br>(avoir.)<br>to<br>kilo-<br>grams | Kilo-<br>grams<br>to<br>pounds | Short<br>tons<br>(2000 lb.)<br>to<br>metric<br>tons | Metric<br>tons<br>(1000 kg.)<br>to<br>short<br>tons | Long<br>tons<br>(2240 lb.)<br>to<br>metric<br>tons | Metric<br>tons<br>to<br>long |
|----|-----------------------|-----------------------|-----------------------------------|-----------------------------------|--------------------------------------------|--------------------------------|-----------------------------------------------------|-----------------------------------------------------|----------------------------------------------------|------------------------------|
| 1. | 0.06480               | 15.43                 | 28.35                             | 0.03527                           | 0.4536                                     | 2.205                          | 0.907                                               | 1.102                                               | 1.016                                              | 0.984                        |

## CONVERSION OF PRESSURES

|    | Pounds per<br>sq. in. to<br>kilograms<br>per sq. cm. | Kilograms<br>per sq. cm.<br>to pounds<br>per sq. in. | Atmospheres<br>to<br>pounds<br>per sq. in. | Pounds per<br>sq. in. to<br>atmospheres | Atmospheres<br>to<br>kilograms<br>per sq. cm. | Kilograms<br>per sq. cm.<br>to<br>atmospheres |
|----|------------------------------------------------------|------------------------------------------------------|--------------------------------------------|-----------------------------------------|-----------------------------------------------|-----------------------------------------------|
| 1. | 0.0703                                               | 14.22                                                | 14.70                                      | 0.0680                                  | 1.033                                         | 0.9678                                        |

## CONVERSION OF ENERGY, WORK, HEAT

|    | Ft.-lb.<br>to<br>kilogram-<br>metres | Kilogram-<br>metres<br>to<br>ft.-lb. | Ft.-lb.<br>to<br>B.Th.U.s | B.Th.U.s<br>to<br>ft.-lb. | Kilogram-<br>metres<br>to<br>large<br>calories | Large<br>calories<br>to<br>kilogram-<br>metres | Joules<br>to<br>small<br>calories | Small<br>calories<br>to<br>joules |
|----|--------------------------------------|--------------------------------------|---------------------------|---------------------------|------------------------------------------------|------------------------------------------------|-----------------------------------|-----------------------------------|
| 1. | 0.1383                               | 7.233                                | 0.001286                  | 777.5                     | 0.002344                                       | 426.6                                          | 0.2390                            | 4.183                             |

## CONVERSION OF POWER

|    | Horsepower<br>to<br>kilowatts | Kilowatts<br>to<br>horsepower | Metric<br>horsepower<br>to<br>kilowatts | Kilowatts<br>to<br>metric<br>horsepower | Horsepower<br>to<br>metric<br>horsepower | Metric<br>horsepower<br>to<br>horsepower |
|----|-------------------------------|-------------------------------|-----------------------------------------|-----------------------------------------|------------------------------------------|------------------------------------------|
| 1. | 0.7457                        | 1.341                         | 0.7354                                  | 1.360                                   | 1.014                                    | 0.9863                                   |

## CRANE

### USEFUL DATA

#### WATER

One imperial gallon = 277.274 cubic inches = .16 cubic foot = 10 lbs. = 1.2 U.S.A. gallons = 4.537 litres.  
 One cubic inch of water = .03607 lb. = .003607 imperial gallon.  
 One cubic foot of water = 6.23 imperial gallons = 7.48 U.S.A. gallons = .028 ton = 28.375 litres.  
 One pound of water = 27.72 cubic inches = .10 imperial gallon = .4573 kilogramme.  
 One ton of water = 35.9 cubic feet = 224 imperial gallons = 1 cubic metre approximate.  
 One litre of water = .22 imperial gallon = 61 cubic inches = .0353 cubic foot = 1 kilogramme.

#### PRESSURE

One pound per square inch = 2.31 feet of water = 27.71 inches of water = 703.03 kilogrammes per m<sup>2</sup>.  
 One atmosphere = 14.7 lbs. per square inch = 2116.3 lbs. per square foot = 33.947 feet of water.  
 One kilogramme per square metre = .00142 lb. per square inch.

#### HEAT

One B.Th.U. is the amount of heat required to raise 1 lb. of water 1 deg. Fahr. 1 B.Th.U. equals 0.252 Calorie = .294 watt hour = 777.5 foot pounds.  
 One Calorie (Kcal) or Great Calorie is the amount of heat required to raise one kilogramme of water 1 degree Centigrade. 1 Calorie equals 3.97 B.Th.U.s.  
 One Petit Calorie is the amount of heat required to raise one gramme of water 1 degree Centigrade.

|                                                            |   |                                                            |
|------------------------------------------------------------|---|------------------------------------------------------------|
| One Calorie per m <sup>2</sup>                             | = | .3687 B.Th.U. per square foot                              |
| One B.Th.U. per square foot                                | = | 2.712 Calories per m <sup>2</sup>                          |
| One Calorie per m <sup>2</sup> per degree difference Cent. | = | .2048 B.Th.U. per square foot per degree diff. Fahr.       |
| One B.Th.U. per square foot per degree Fahr.               | = | 4.882 Calories per m <sup>2</sup> degrees difference Cent. |
| One B.Th.U. per lb.                                        | = | .556 Calorie per kilogramme                                |
| One Calorie per kilogramme                                 | = | 1.8 B.Th.U.'s per lb.                                      |

#### LENGTH

|                |   |              |   |              |
|----------------|---|--------------|---|--------------|
| One foot       | = | 12 inches    | = | 0.3048 metre |
| One metre      | = | 39.37 inches | = | 3.281 feet   |
| One inch       | = | 0.0833 foot  | = | 0.0254 metre |
| One centimetre | = | 0.3937 inch  | = | 0.0328 foot  |

#### AREA

|                       |   |                    |   |                          |
|-----------------------|---|--------------------|---|--------------------------|
| One square foot       | = | 144 square inches  | = | 0.0929 square metre      |
| One square metre      | = | 1550 square inches | = | 10.76 square feet        |
| One square inch       | = | 0.0069 square foot | = | 6.452 square centimetres |
| One square centimetre | = | 0.1550 square inch |   |                          |

#### VOLUME

|                      |   |                    |   |                    |
|----------------------|---|--------------------|---|--------------------|
| One cubic foot       | = | 1728 cubic inches  | = | 0.0283 cubic metre |
| One cubic metre      | = | 61030 cubic inches | = | 35.32 cubic feet   |
| One cubic inch       | = | 16.39 cubic cm.    | = | 0.0164 litre       |
| One cubic centimetre | = | 0.0610 cubic inch  |   |                    |

#### WEIGHT

|                |   |          |   |                   |
|----------------|---|----------|---|-------------------|
| One kilogramme | = | 2.2 lbs. |   |                   |
| One pound      | = | 16 ozs.  | = | 0.454 kilogramme  |
| One cwt.       | = | 112 lbs. | = | 50.80 kilogrammes |
| One ton        | = | 20 cwt.  | = | 1016 kilogrammes  |

#### ELECTRICAL

One kilowatt = 1000 watts = 737.3 foot pounds per sec. = 1.34 horse power.  
 One B.O.T.U. (unit) = 1 kw. hour = 3412 B.Th.U.s  
 One unit of electricity will raise 5 galls. of water 68.24° F. in one hour.

#### POWER

One horse power = 550 foot pounds per sec. = 33,000 foot pounds per minute.  
 = 746 watts = 1.014 metric horse power.

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