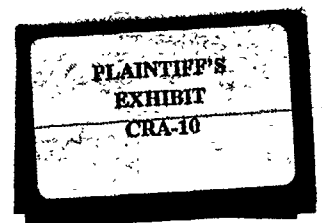


Exhibit CRA-10

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

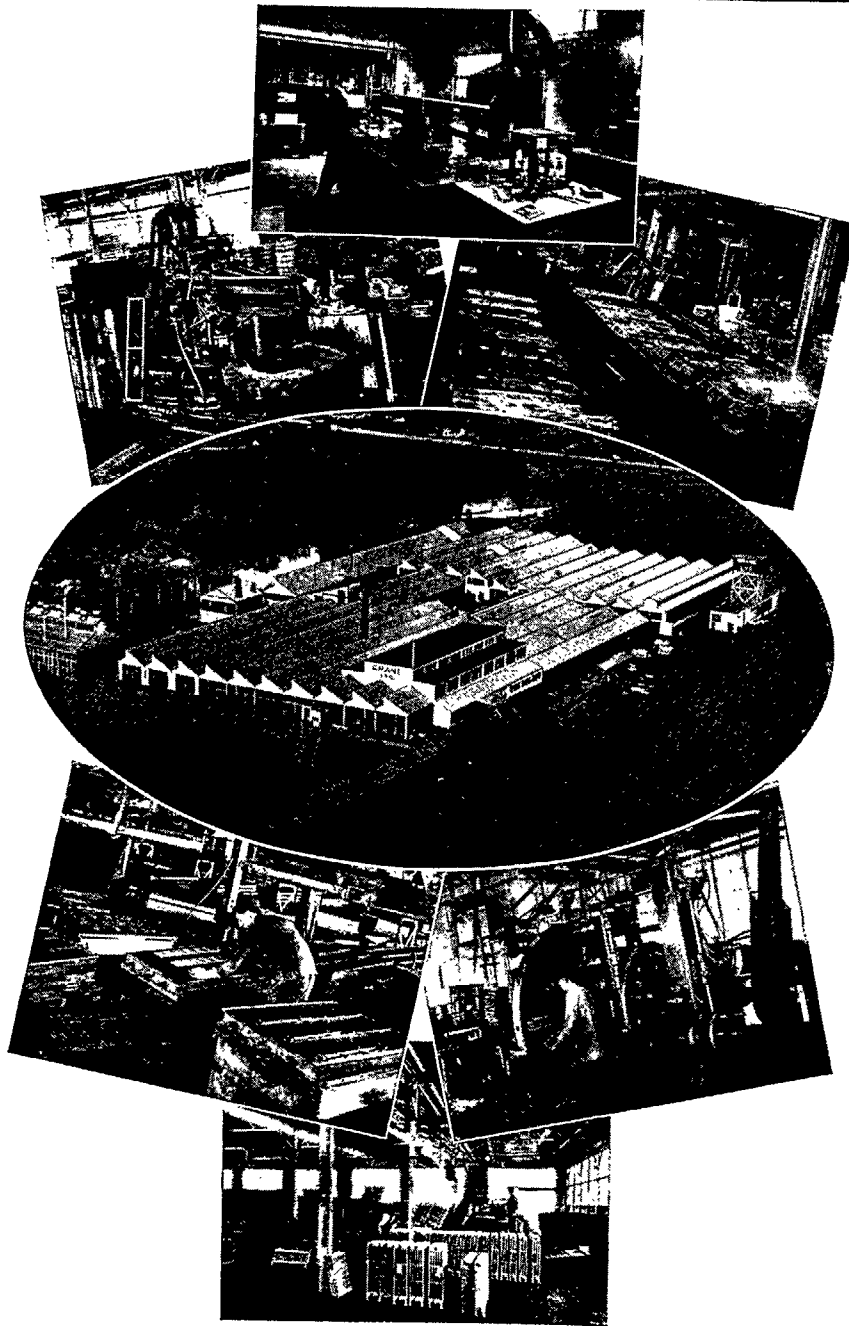
Telegrams
CRANELON, TELEX
LONDON

LONDON SHOWROOMS: 118 WIGMORE STREET, W.1

BRANCHES
BIRMINGHAM, BRISTOL, GLASGOW, MANCHESTER

WORKS
IPSWICH

CRANE



FOREWORD

THIS 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

THERE 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:—

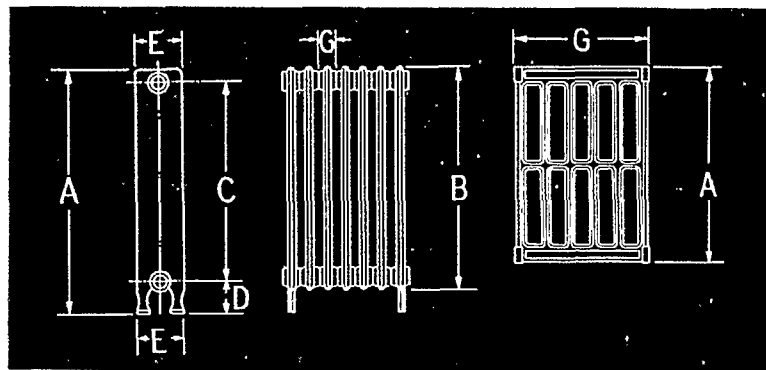
MACHINING. Sections are machined on specially designed patented tapping and screwing machines which bore, screw and face both sides of the section at one set-up, thus ensuring perfect alignment.

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 Surface per section	Water Content lbs. per sq. ft.	Maximum size Tappings top and bottom	B.T.U. Trans. per sq. ft. 100° Diff.
2 Column ..	18 24 30	15½ 21½ 27½	12½ 18½ 24½	4	2½	2½	¾ 1½ 2¼	·7	1½	185
4 Column ..	18 24 30 36	15½ 21½ 27½ 33½	12½ 18½ 24½ 30½	4	5½	2½	¾ 1½ 2¼ 3½	·7	1½	170
6 Column ..	18 24 30 36	15½ 21½ 27½ 33½	12½ 18½ 24½ 30½	4	8½	2½	¾ 1½ 2¼ 3½ 4½	·7	1½	160
Window ..	13	11½	8½	3	13½	2½	2½	·8	1½	158
3 Hospital ..	18 24 30	15½ 21½ 27½	12½ 18½ 24½	4	3	2	¾ 1½ 2¼	1·2	1	185
5½ Hospital	18 24 30 36	15½ 21½ 27½ 33½	12½ 18½ 24½ 30½	4	5½	2½	¾ 1½ 2¼ 3½	1·5	1½	158
7½ Hospital	18 24 30 36	15½ 21½ 27½ 33½	12½ 18½ 24½ 30½	4	7½	2½	¾ 1½ 2¼ 3½ 4½	1·6	1½	151
Wall ..	18 24 30	—	16 22 28	—	2	16	5 6½ 8½	·7	1	171
Concealed Copper ..	— 24 30 36	11 21½ 27½ 33½	8½ 18½ 24½ 30½	— 4	3½ 5½	2	¾ 1½ 2¼ 3	·7 1·3	1 1	— 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.

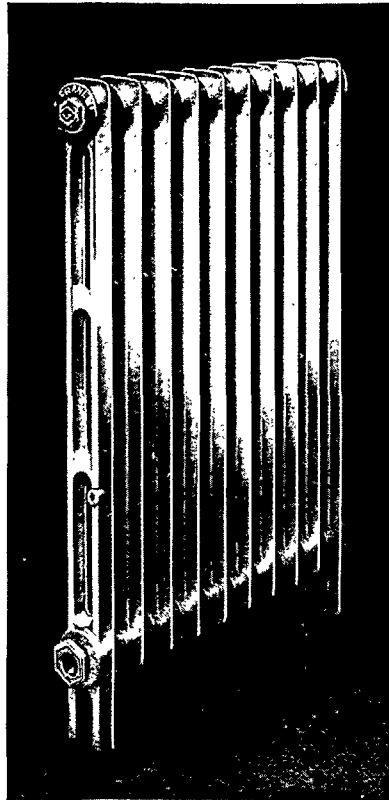
Air Vent, or Airlet Plug, is situated on return end section.

CRANE

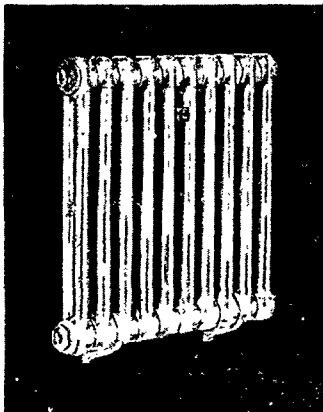
THE TWO COLUMN

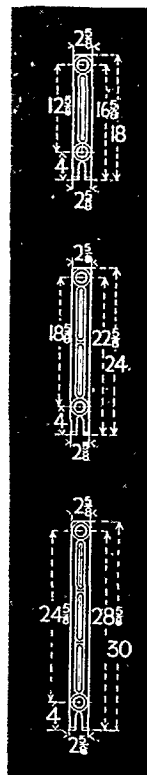
For Corridors and Bedrooms, or wherever radiators of only a small heating surface are required, the Two-column "Pall Mall" Radiator will be found most suitable.

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.

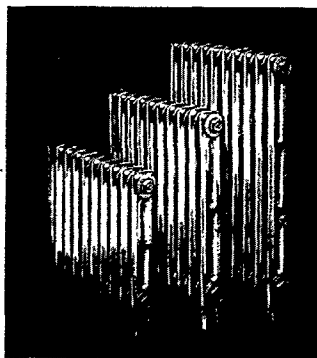


"PALL MALL" FOR WATER OR STEAM



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

Legless Radiators are 2 $\frac{3}{4}$ in. less in height than when with feet.



Number of Sections	*Length, 2 $\frac{1}{2}$ in. per section	30-in. Height 1 $\frac{1}{2}$ sq. ft. per section		24-in. Height 1 sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ s. d.
4	9	5 $\frac{1}{2}$	10 2	4	7 11
5	11 $\frac{1}{2}$	6 $\frac{1}{2}$	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

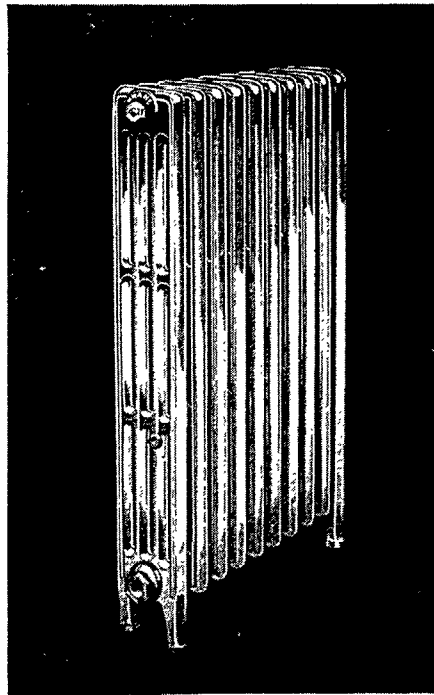
Number of Sections	*Length, 2 $\frac{1}{2}$ in. per section	18-in. Height $\frac{3}{4}$ sq. ft. per section	
		Heating Surface	PRICE £ s. d.
4	9	3	6 3
5	11 $\frac{1}{2}$	3 $\frac{1}{2}$	7 10
6	13 $\frac{1}{2}$	4 $\frac{1}{2}$	9 5
7	15 $\frac{1}{2}$	5 $\frac{1}{2}$	10 11
8	18	6	12 6
9	20 $\frac{1}{2}$	6 $\frac{1}{2}$	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 $\frac{1}{2}$	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.

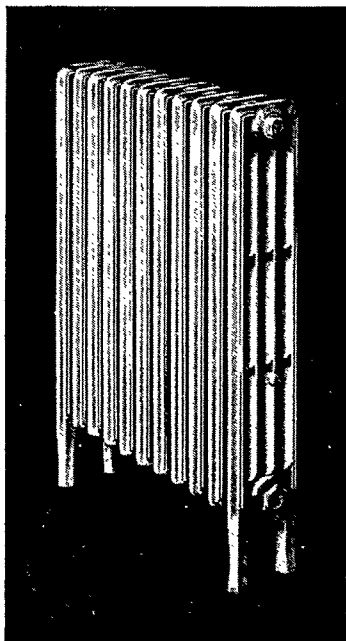
CRANE

THE FOUR COLUMN

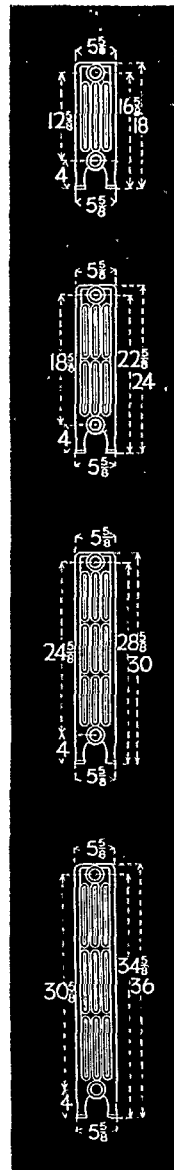
A radiator of graceful lines yet of sound and sturdy construction. When wall space and floor area call for a radiator neither too long nor too wide, the desired amount of heating surface is often best supplied by the Four-column "Pall Mall" Radiator.



"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, 2½ in. per section	36-in. Height 3½ sq. ft. per section		30-in. Height 2½ sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ s. d.
4	9	13½	1 1 4	10½	18 0
5	11½	16½	1 6 8	13½	1 2 0
6	13½	19½	1 12 0	16½	1 7 0
7	15½	23½	1 17 4	18½	1 11 6
8	18	26½	2 2 8	21½	1 16 0
9	20½	29½	2 8 0	24½	2 0 6
10	22½	33	2 13 4	27	2 5 0
11	24½	36½	2 18 7	29½	2 9 6
12	27	39½	3 3 11	32½	2 14 0
13	29½	42½	3 9 3	35½	2 18 6
14	31½	46½	3 14 7	37½	3 3 0
15	33½	49½	3 19 11	40½	3 7 6
16	36	52½	4 5 3	43½	3 12 0
17	38½	56½	4 10 7	45½	3 16 6
18	40½	59½	4 15 11	48½	4 1 0
19	42½	62½	5 1 3	51½	4 5 6
20	45	66	5 6 7	54	4 10 0
21	47½	69½	5 11 11	56½	4 14 6
22	49½	72½	5 17 2	59½	4 19 0
23	51½	75½	6 2 6	61½	5 3 6
24	54	79½	6 7 10	64½	5 8 0
25	56½	82½	6 13 3	67½	5 12 6

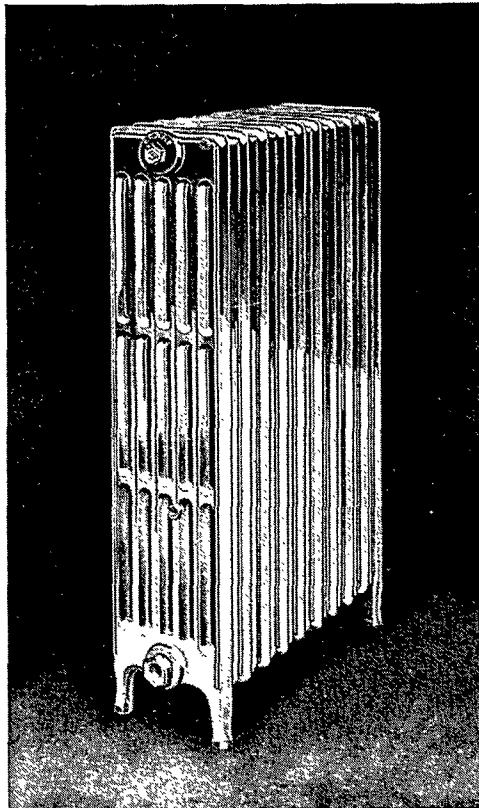
Number of Sections	*Length, 2½ in. per section	24-in. Height 2½ sq. ft. per section		18-in. Height 1½ sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ s. d.
4	9	8½	15 10	6	11 7
5	11½	11	19 10	7½	14 6
6	13½	13½	1 3 9	9	17 4
7	15½	15½	1 7 9	10½	1 0 3
8	18	17½	1 11 8	12	1 3 2
9	20½	19½	1 15 7	13½	1 6 1
10	22½	22	1 19 7	15	1 8 11
11	24½	24½	2 3 6	16½	1 11 9
12	27	26½	2 7 6	18	1 14 8
13	29½	28½	2 11 5	19½	1 17 7
14	31½	30½	2 15 5	21	2 0 6
15	33½	33	2 19 3	22½	2 3 4
16	36	35½	3 3 3	24	2 6 3
17	38½	37½	3 7 2	25½	2 9 2
18	40½	39½	3 11 2	27	2 12 1
19	42½	41½	3 15 1	28½	2 14 11
20	45	44	3 19 1	30	2 17 10
21	47½	46½	4 3 0	31½	3 0 9
22	49½	48½	4 7 0	33	3 3 7
23	51½	50½	4 10 11	34½	3 6 6
24	54	52½	4 14 11	36	3 9 5
25	56½	55	4 18 10	37½	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.

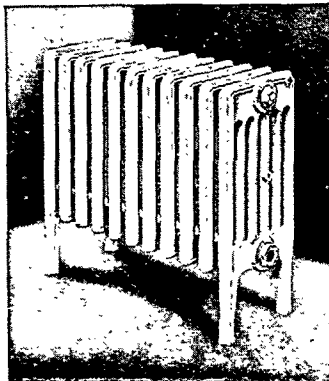
CRANE

THE SIX COLUMN

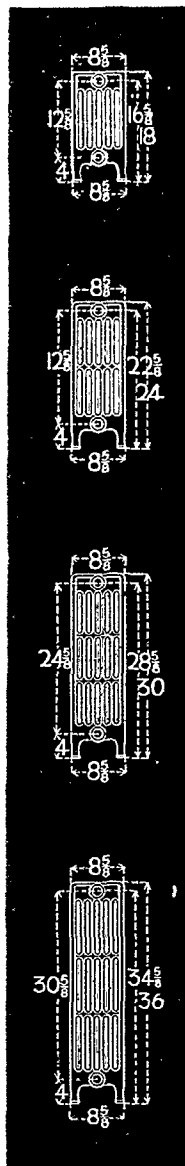
Only $8\frac{5}{8}$ inches wide, the Six-column is a concentrated unit providing an unusual amount of heating surface per section. It fulfils the requirements of large rooms where available wall space is limited and unduly long or too many radiators are not desirable.



"PALL MALL" FOR WATER OR STEAM



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

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

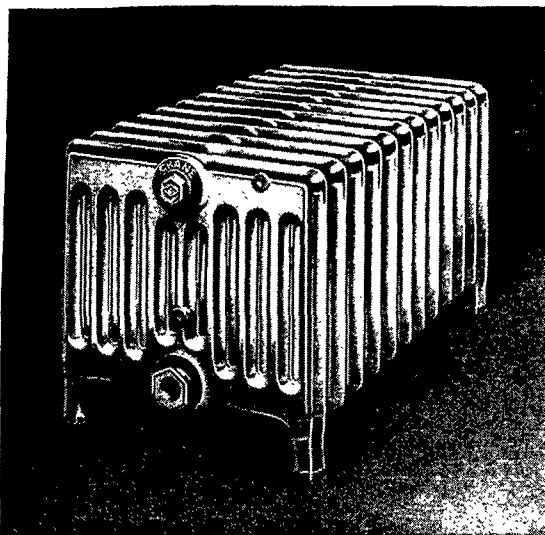
Number of Sections	*Length, 2 $\frac{1}{2}$ in. per section	36-in. Height 5 sq. ft. per section		30-in. Height 4 $\frac{1}{8}$ sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ s. d.
4	9	20	1 12 4	16 $\frac{4}{16}$	1 7 4
5	11 $\frac{1}{2}$	25	2 0 4	20 $\frac{1}{16}$	1 14 2
6	13 $\frac{1}{2}$	30	2 8 5	24 $\frac{1}{16}$	2 1 0
7	15 $\frac{1}{2}$	35	2 16 6	28 $\frac{1}{16}$	2 7 10
8	18	40	3 4 7	32 $\frac{1}{16}$	2 14 8
9	20 $\frac{1}{2}$	45	3 12 8	36 $\frac{1}{16}$	3 1 6
10	22 $\frac{1}{2}$	50	4 0 9	41	3 8 4
11	24 $\frac{1}{2}$	55	4 8 10	45 $\frac{1}{16}$	3 15 2
12	27	60	4 16 11	49 $\frac{1}{16}$	4 2 0
13	29 $\frac{1}{2}$	65	5 4 11	53 $\frac{1}{16}$	4 8 10
14	31 $\frac{1}{2}$	70	5 13 0	57 $\frac{1}{16}$	4 15 8
15	33 $\frac{1}{2}$	75	6 1 1	61 $\frac{1}{16}$	5 2 6
16	36	80	6 9 2	65 $\frac{1}{16}$	5 9 4
17	38 $\frac{1}{2}$	85	6 17 3	69 $\frac{1}{16}$	5 16 2
18	40 $\frac{1}{2}$	90	7 5 4	73 $\frac{1}{16}$	6 3 0
19	42 $\frac{1}{2}$	95	7 13 5	77 $\frac{1}{16}$	6 9 10
20	45	100	8 1 6	82	6 16 8
21	47 $\frac{1}{2}$	105	8 9 7	86 $\frac{1}{16}$	7 3 6
22	49 $\frac{1}{2}$	110	8 17 8	90 $\frac{1}{16}$	7 10 4
23	51 $\frac{1}{2}$	115	9 5 9	94 $\frac{1}{16}$	7 17 2
24	54	120	9 13 10	98 $\frac{1}{16}$	8 4 0
25	56 $\frac{1}{2}$	125	10 1 11	102 $\frac{1}{16}$	8 10 10
Number of Sections	*Length 2 $\frac{1}{2}$ in. per section	24-in. Height 3 $\frac{3}{8}$ sq. ft. per section		18-in. Height 2 $\frac{7}{8}$ sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ s. d.
4	9	12 $\frac{1}{16}$	1 3 0	9 $\frac{1}{16}$	17 9
5	11 $\frac{1}{2}$	16	1 8 9	11 $\frac{1}{16}$	1 2 2
6	13 $\frac{1}{2}$	19 $\frac{1}{16}$	1 14 6	13 $\frac{1}{16}$	1 6 7
7	15 $\frac{1}{2}$	22 $\frac{1}{16}$	2 0 3	16 $\frac{1}{16}$	1 11 1
8	18	25 $\frac{1}{16}$	2 6 0	18 $\frac{1}{16}$	1 15 6
9	20 $\frac{1}{2}$	28 $\frac{1}{16}$	2 11 9	20 $\frac{1}{16}$	1 19 11
10	22 $\frac{1}{2}$	32	2 17 6	23	2 4 4
11	24 $\frac{1}{2}$	35 $\frac{1}{16}$	3 3 3	25 $\frac{1}{16}$	2 8 9
12	27	38 $\frac{1}{16}$	3 9 0	27 $\frac{1}{16}$	2 13 2
13	29 $\frac{1}{2}$	41 $\frac{1}{16}$	3 14 9	29 $\frac{1}{16}$	2 17 7
14	31 $\frac{1}{2}$	44 $\frac{1}{16}$	4 0 6	32 $\frac{1}{16}$	3 2 1
15	33 $\frac{1}{2}$	48	4 6 3	34 $\frac{1}{16}$	3 6 6
16	36	51 $\frac{1}{16}$	4 12 0	36 $\frac{1}{16}$	3 10 11
17	38 $\frac{1}{2}$	54 $\frac{1}{16}$	4 17 9	39 $\frac{1}{16}$	3 15 4
18	40 $\frac{1}{2}$	57 $\frac{1}{16}$	5 3 6	41 $\frac{1}{16}$	3 19 9
19	42 $\frac{1}{2}$	60 $\frac{1}{16}$	5 9 3	43 $\frac{1}{16}$	4 4 2
20	45	64	5 15 0	46	4 8 8
21	47 $\frac{1}{2}$	67 $\frac{1}{16}$	6 0 9	48 $\frac{1}{16}$	4 13 1
22	49 $\frac{1}{2}$	70 $\frac{1}{16}$	6 6 6	50 $\frac{1}{16}$	4 17 6
23	51 $\frac{1}{2}$	73 $\frac{1}{16}$	6 12 3	52 $\frac{1}{16}$	5 2 0
24	54	76 $\frac{1}{16}$	6 18 0	55 $\frac{1}{16}$	5 6 4
25	56 $\frac{1}{2}$	80	7 3 9	57 $\frac{1}{16}$	5 10 10

* 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.

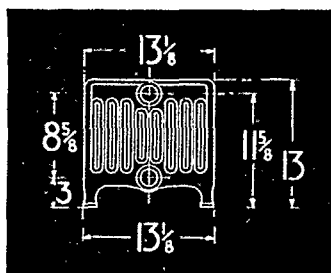
Radiators are fitted with Air Vent Plug unless ordered for steam.

CRANE



THE WINDOW RADIATOR

"PALL MALL" FOR WATER OR STEAM



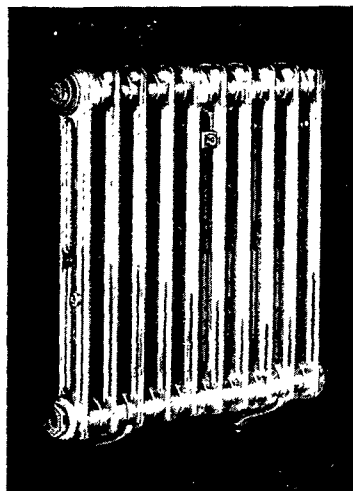
Number of Sections	13-in. Height 2 ¹ / ₁₆ sq. ft. per section			Number of Sections	13-in. Height 2 ¹ / ₁₆ sq. ft. per section		
	*Length, 2 ¹ / ₁₆ in. per section	Heating Surface	PRICE £ s. d.		*Length, 2 ¹ / ₁₆ in. per section	Heating Surface	PRICE £ s. d.
4	9	10 ¹ / ₁₆	1 4 1	15	33 ¹ / ₁₆	39	4 10 5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

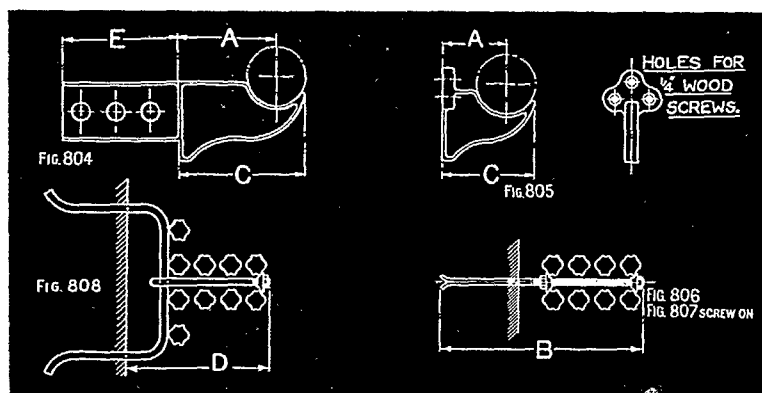
Radiators are fitted with Air Vent Plug unless ordered for steam.

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.

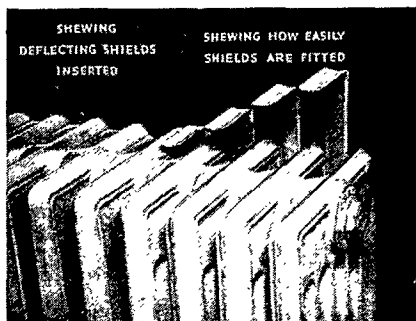
For Radiators	Dimensions in inches					PRICES			
	A	B	C	D	E	Fig. 804 Bracket (build in)	Fig. 805 Bracket (screw on)	Fig. 806 Top Stay (build in)	Fig. 808 Top Stay (build in)
Pall Mall 2-Col. ...	$3\frac{7}{8}$	10	$4\frac{1}{2}$	5	$3\frac{1}{2}$	-/9	-/9	-/7	-/11 $\frac{1}{2}$
Pall Mall 4-Col. ...	$4\frac{7}{8}$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

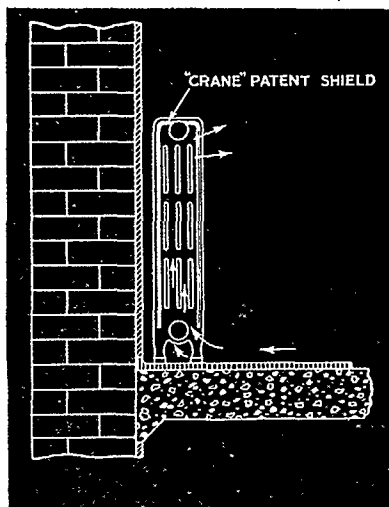
THE CRANE INVISIBLE SHIELD

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.

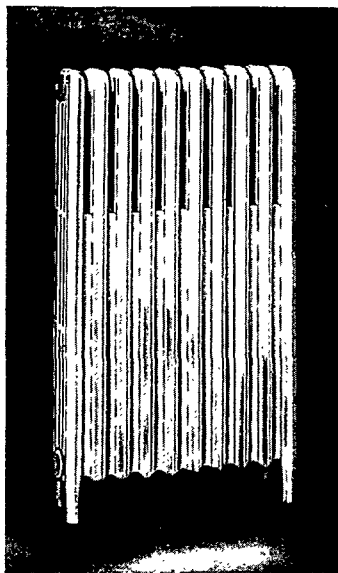
Every Pall Mall radiator, except the Two-column, can be equipped with the Invisible Shield at the slight additional cost of 3d. per radiator section for "Pall Mall" Radiators.

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.

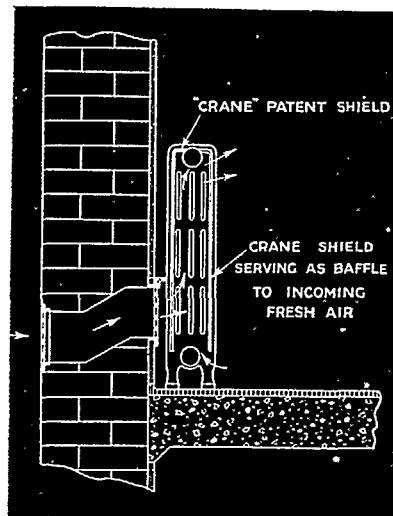
Deflecting Shields should be ordered at the same time as the Radiators, and are fitted before despatch.

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 6½d. per radiator section for "Pall Mall" Radiators for both Shield and Baffle.

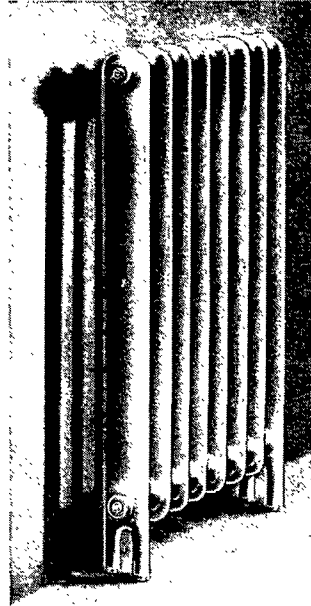
Crane Shield and baffles should be ordered at the same time as the radiators, and are fitted before despatch.

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 -/4 one side per section, -/6 two sides per section.

CRANE

THE HOSPITAL RADIATOR

3" WIDE

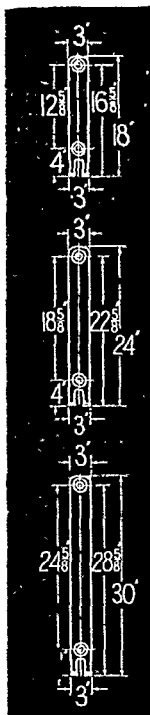


FOR WATER OR STEAM

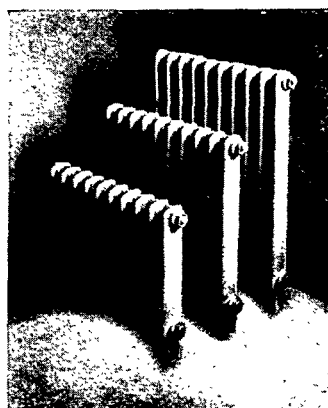
The 3-in.-wide Crane Hospital Radiator is designed for Schools, Hospitals and other situations where easy-clean Radiators of narrow width are desired.

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



Number of Sections	*Length, 2 in. per section	18-in. Height ¾ sq. ft. per section	
		Heating surface	PRICE £ s. d.
4	8	3	6 9
5	10	3 ¹ / ₂	8 5
6	12	4 ¹ / ₂	10 1
7	14	5 ¹ / ₂	11 9
8	16	6	13 5
9	18	6 ¹ / ₂	15 1
10	20	7 ¹ / ₂	16 10
11	22	8 ¹ / ₂	18 6
12	24	9	20 1
13	26	9 ¹ / ₂	21 10
14	28	10 ¹ / ₂	23 6
15	30	11 ¹ / ₂	25 2
16	32	12	26 10
17	34	12 ¹ / ₂	28 7
18	36	13 ¹ / ₂	30 3
19	38	14 ¹ / ₂	31 11
20	40	15	33 7
21	42	15 ¹ / ₂	35 3
22	44	16 ¹ / ₂	36 11
23	46	17 ¹ / ₂	38 8
24	48	18	40 4
25	50	18 ¹ / ₂	42 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 2½ in. less in height than when with feet.

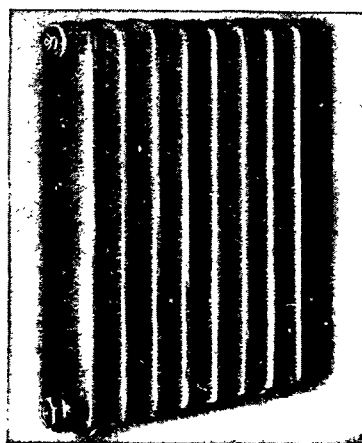
CRANE

THE HOSPITAL RADIATOR

5 $\frac{3}{4}$ " WIDE



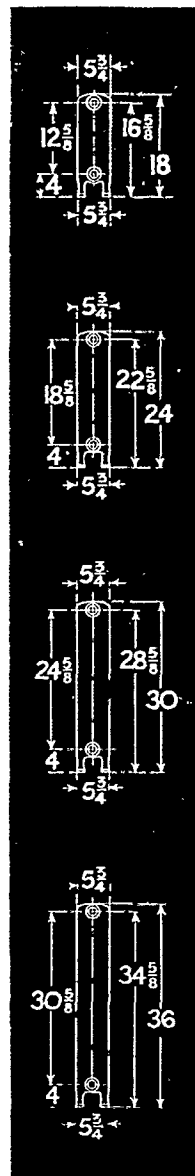
FOR WATER OR STEAM



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 $1\frac{3}{8}$ 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 3 sq. ft. per section		30-in. Height 2 $\frac{1}{2}$ sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ 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 2 sq. ft. per section		18-in. Height 1 $\frac{1}{2}$ sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ s. d.
4	10 $\frac{1}{2}$	8	16 3	6	13 5
5	13 $\frac{1}{2}$	10	1 0 4	7 $\frac{1}{2}$	1 6 10
6	15 $\frac{3}{4}$	12	1 4 5	9	1 0 2
7	18 $\frac{3}{4}$	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.

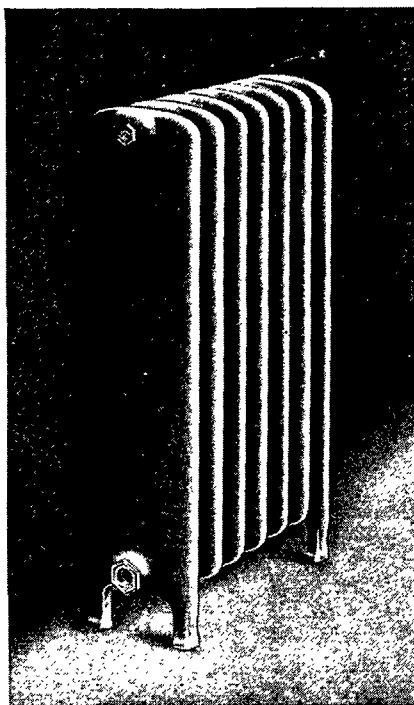
Legless Radiators are 2 $\frac{3}{8}$ in. less in height than when with feet.
Radiators are supplied for water unless ordered for steam. When ordered for steam, outlet bushing is supplied tapped eccentrically unless otherwise instructed.

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

CRANE

THE HOSPITAL RADIATOR

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

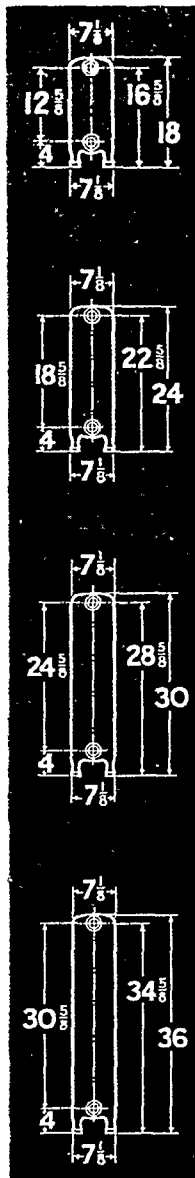


FOR WATER OR STEAM

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 $\frac{1}{4}$ 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 3 7/8 sq. ft. per section		30-in. Height 3 1/8 sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ 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 7/8	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 1/8	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 1/8	55 7/8	4 19 9	46 7/8	4 9 7
16	42	59 3/8	5 6 4	49 7/8	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 5/8	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 1/8	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 2 1/8 sq. ft. per section		18-in. Height 1 7/8 sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ 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 1/8	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 1/8	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 5/8	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 1/8	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 $2\frac{3}{4}$ 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.

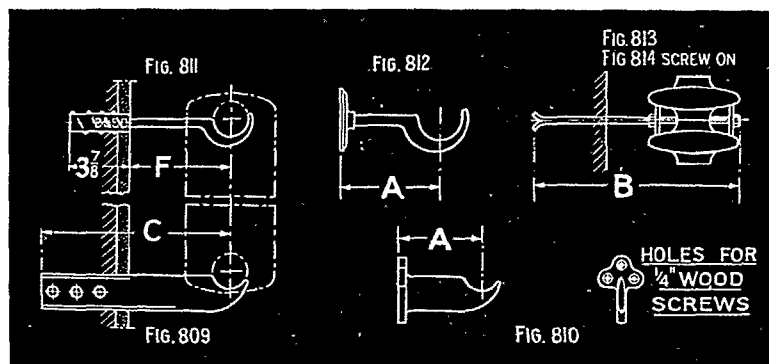
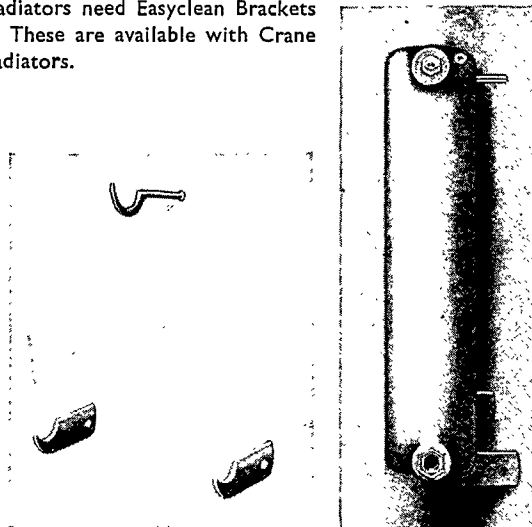
CRANE BRACKETS AND STAYS FOR HOSPITAL RADIATORS

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

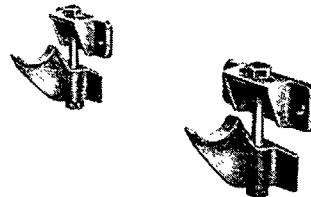
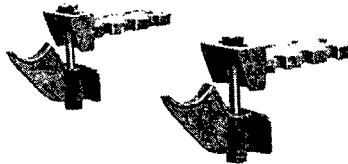


Fig. 825

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.	2/3
" " 4 " ...	2"	$\frac{1}{4}$ " " $1\frac{1}{4}$ " "	2/3
" " 6 " ...	2"	$\frac{1}{4}$ " " $1\frac{1}{4}$ " "	2/10
Hospital, 3" wide	2"	$1\frac{1}{8}$ " " $2\frac{1}{8}$ " "	2/3
" $5\frac{3}{8}$ " "	2"	$\frac{1}{4}$ " " $1\frac{1}{4}$ " "	2/3
" $7\frac{1}{8}$ " "	2"	$\frac{1}{4}$ " " $1\frac{1}{4}$ " "	2/10

SUSPENDED ADJUSTABLE PATTERN

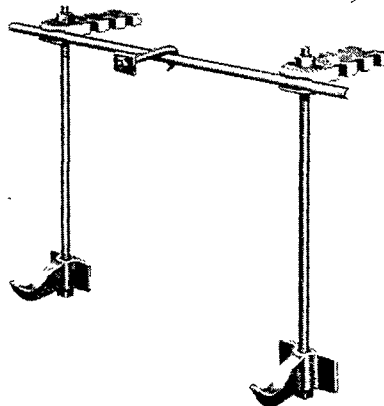


Fig. 827

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.

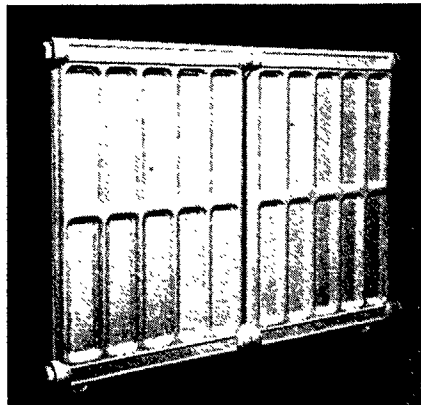
PRICE

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 of Sections	*Lengths 16 in. per section	30-in. Height 8½ sq. ft. per section		24-in. Height 6⅔ sq. ft. per section		18-in. Height 5 sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ 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.

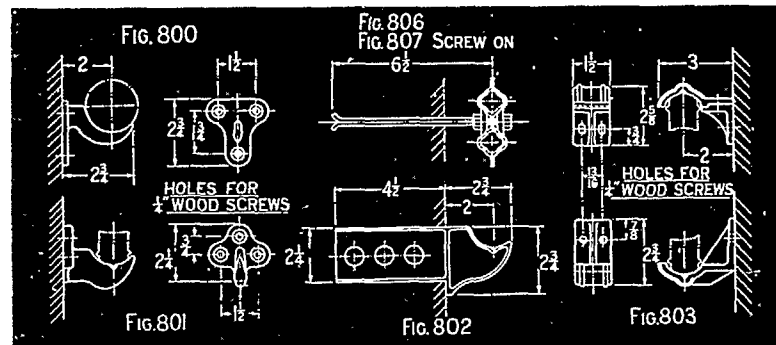
† Includes hexagon nipples.

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. 30	ins. 24	ins. 18
Distance between centres of top and bottom tappings	...	...	...	...	...	27½ 16	21½ 16	15½ 16
Width	...	...	...	...	...	2	2	2

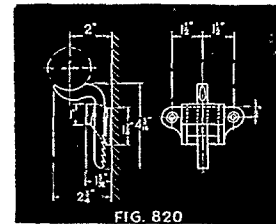
All Radiators are fitted with Air Vent Plugs unless ordered for steam.

WALL RADIATOR BRACKETS



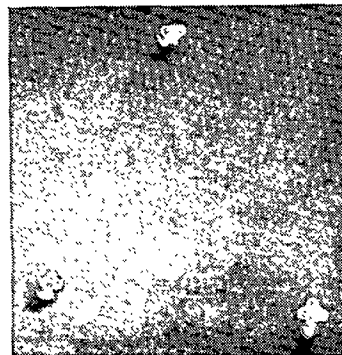
Prices of Brackets for Wall Radiators, all heights:—

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.

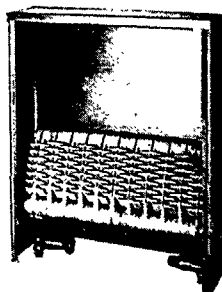
Dimensions of all Brackets and Stays provide for 2 ins. from wall to centre of Radiator. Fig. 802 Brackets can be supplied for 2½" centre to special order, for use with Figs. 806 and 807 stays.

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:

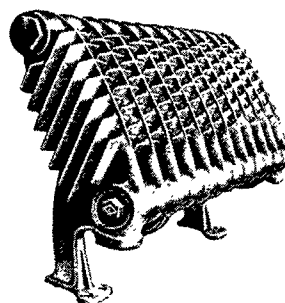
1½ sq. ft. per section.

LENGTH:

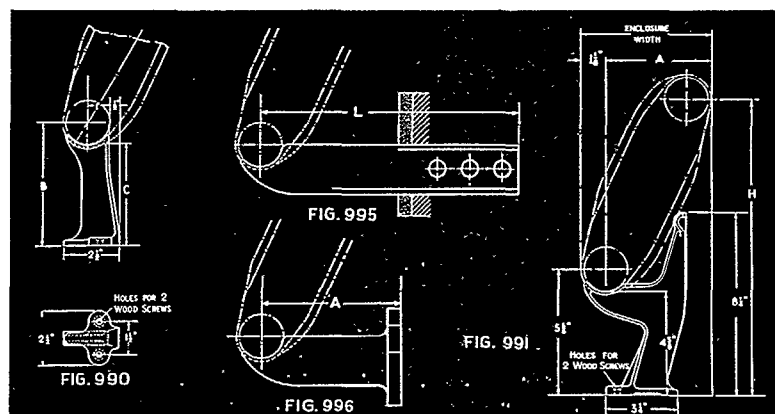
2" per section, plus 1½"

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
		5½"	4½"						
6"	4½"	4"	3"	8½"	13½"	-/9	-/10	-/9	-/9
		5½"	4½"						
8"	6½"	4"	3"	10½"	12½"	-/9	-/11	1/1½	1/1½
		5½"	4½"						
9"	7½"	4"	3"	11½"	11"	-/9	1/-	1/1½	1/1½
		5½"	4½"						

* For four standard width enclosures only.

CRANE CABINETS, FRONT PANELS & GRILLES

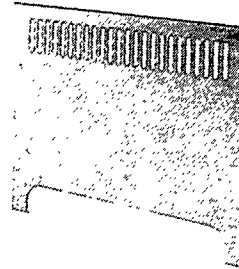


CABINETS

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	22½	24½	27½
9	19½		28½	31½
10	21½	26½	32½	35½
11	23½		36½	39½
12	25½	30½	40½	43½
13	27½		44½	47½
14	29½	34½	48½	51½
15	31½		52½	55½
16	33½	38½	56½	59½
17	35½		60½	63½
18	37½	42½	62½	65½
19	39½			
20	41½	46½		
21	43½			
22	45½	50½		
23	47½			
24	49½	54½		
25	51½			
26	53½	58½		
27	55½			
28	57½	62½		
29	59½			
30	61½			

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	4½" 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"	18"	24"	30"	36"
6	13½	7½	970	1060	1145	1230	1210	1310	1410	1490	1255	1360	1480	1585	1320	1450	1550	1620
7	15½	8½	1135	1240	1335	1435	1415	1525	1645	1735	1465	1590	1730	1850	1540	1695	1805	1890
8	17½	10	1295	1415	1530	1640	1615	1745	1880	1985	1670	1815	1975	2110	1760	1935	2065	2160
9	19½	11½	1460	1595	1720	1845	1820	1960	2115	2230	1880	2045	2225	2375	1980	2180	2320	2430
10	21½	12½	1620	1770	1910	2050	2020	2180	2350	2480	2090	2270	2470	2640	2200	2420	2580	2700
11	23½	13½	1780	1945	2100	2255	2220	2400	2585	2730	2300	2495	2715	2905	2420	2660	2840	2970
12	25½	15	1945	2125	2290	2460	2425	2615	2820	2975	2510	2725	2965	3170	2640	2905	3095	3240
13	27½	16½	2105	2300	2485	2665	2625	2835	3055	3225	2715	2950	3210	3430	2860	3145	3355	3510
14	29½	17½	2270	2480	2675	2870	2830	3050	3290	3470	2925	3180	3460	3695	3080	3390	3610	3780
15	31½	18½	2430	2655	2865	3075	3030	3270	3525	3720	3135	3405	3705	3960	3300	3630	3870	4050
16	33½	20	2590	2830	3055	3280	3230	3490	3760	3970	3345	3630	3950	4225	3520	3870	4130	4320
17	35½	21½	2755	3010	3245	3485	3435	3705	3995	4215	3555	3860	4200	4490	3740	4115	4385	4590
18	37½	22½	2915	3185	3440	3690	3635	3925	4230	4465	3760	4085	4445	4750	3960	4355	4645	4860
19	39½	23½	3080	3365	3630	3895	3840	4140	4465	4710	3970	4315	4695	5015	4180	4600	4900	5130
20	41½	25	3240	3540	3820	4100	4040	4360	4700	4960	4180	4540	4940	5280	4400	4840	5160	5400
21	43½	26½	3400	3715	4010	4305	4240	4580	4935	5210	4390	4765	5185	5545	4620	5080	5420	5670
22	45½	27½	3565	3895	4200	4510	4445	4795	5170	5455	4600	4995	5434	5810	4840	5325	5675	5940
23	47½	28½	3725	4060	4395	4715	4645	5015	5405	5705	4805	5220	5680	6070	5060	5565	5935	6210
24	49½	30	3890	4240	4585	4920	4850	5230	5640	5950	5015	5450	5930	6335	5280	5810	6190	6480
25	51½	31½	4050	4415	4775	5125	5050	5450	5875	6200	5225	5675	6175	6600	5500	6050	6450	6750
26	53½	32½	4210	4590	4965	5330	5250	5670	6110	6450	5435	5900	6422	6865	5720	6290	6710	7020
27	55½	33½	4375	4770	5155	5535	5455	5885	6345	6695	5645	6130	6670	7130	5940	6535	6965	7290
28	57½	35	4535	4945	5350	5740	5655	6105	6580	6945	5850	6355	6915	7390	6160	6775	7225	7560
29	59½	36½	4700	5125	5540	5945	5860	6320	6815	7190	6060	6585	7165	7655	6380	7020	7480	7830
30	61½	37½	4860	5300	5730	6150	6060	6540	7050	7440	6270	6810	7410	7920	6600	7260	7740	8100

* Increase by 6% 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 **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			
			Height in inches				Height in inches				Height in inches				Height in inches			
			18"	24"	30"	36"	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	1490	1630	1740	1825
7	15½	8¾	1280	1395	1505	1615	1590	1715	1850	1955	1645	1785	1945	2080	1735	1905	2030	2130
8	17½	10	1465	1590	1720	1850	1815	1960	2110	2230	1880	2040	2225	2375	1985	2175	2320	2430
9	19½	11½	1645	1790	1935	2080	2045	2205	2375	2510	2115	2295	2500	2675	2230	2450	2610	2735
10	21½	12½	1830	1990	2150	2310	2270	2450	2640	2790	2350	2550	2780	2970	2480	2720	2900	3040
11	23½	13¾	2015	2190	2365	2540	2495	2695	2905	3070	2585	2805	3060	3265	2730	2990	3190	3345
12	25½	15	2195	2390	2580	2770	2725	2940	3170	3350	2820	3060	3335	3565	2975	3265	3480	3650
13	27½	16½	2380	2585	2795	3005	2950	3185	3430	3625	3055	3315	3615	3860	3225	3535	3770	3950
14	29½	17½	2560	2785	3010	3235	3180	3430	3695	3905	3290	3570	3890	4160	3470	3810	4060	4255
15	31½	18¾	2745	2985	3225	3465	3405	3675	3960	4185	3525	3825	4170	4455	3720	4080	4350	4560
16	33½	20	2930	3185	3440	3695	3630	3920	4225	4465	3760	4080	4450	4750	3970	4350	4640	4865
17	35½	21½	3110	3385	3655	3925	3860	4165	4490	4745	3995	4335	4725	5050	4215	4625	4930	5180
18	37½	22½	3295	3580	3870	4160	4085	4410	4750	5020	4230	4590	5005	5345	4465	4895	5220	5470
19	39½	23¾	3475	3780	4085	4390	4315	4655	5015	5300	4465	4845	5280	5645	4710	5170	5510	5775
20	41½	25	3660	3980	4300	4620	4540	4900	5280	5580	4700	5100	5560	5940	4960	5440	5800	6080
21	43½	26½	3845	4180	4515	4850	4765	5145	5545	5860	4935	5355	5840	6235	5210	5710	6090	6385
22	45½	27½	4025	4380	4730	5080	4995	5390	5810	6140	5170	5610	6115	6535	5455	5985	6380	6690
23	47½	28¾	4210	4575	4945	5315	5220	5635	6070	6415	5405	5865	6395	6830	5705	6255	6670	6990
24	49½	30	4390	4775	5160	5545	5450	5880	6335	6695	5640	6120	6670	7130	5950	6530	6960	7295
25	51½	31½	4575	4975	5375	5775	5675	6125	6600	6975	5875	6375	6950	7425	6200	6800	7250	7600
26	53½	32½	4760	5175	5590	6005	5900	6370	6865	7255	6110	6630	7230	7720	6450	7070	7540	7905
27	55½	33¾	4940	5375	5805	6235	6130	6615	7130	7535	6345	6885	7505	8020	6695	7345	7830	8210
28	57½	35	5125	5570	6020	6470	6355	6860	7390	7810	6580	7140	7785	8315	6945	7615	8120	8510
29	59½	36½	5305	5770	6235	6700	6585	7105	7655	8090	6815	7395	8060	8615	7190	7890	8410	8815
30	61½	37½	5490	5970	6450	6930	6810	7350	7920	8370	7050	7650	8340	8910	7440	8160	8700	9120

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

CRANE

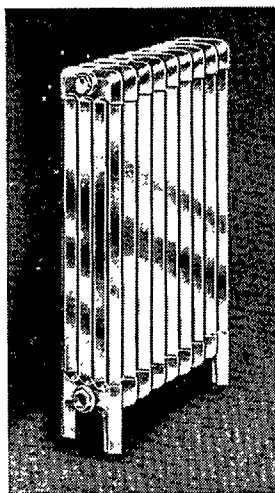
CRANE CONCEALED RADIATOR

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	4½" 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"	18"	24"	30"	36"
6	13½	7½	1740	1900	2050	2200	2160	2335	2515	2650	2240	2430	2645	2825	2360	2590	2760	2890
7	15½	8½	2030	2220	2395	2570	2520	2725	2935	3095	2610	2835	3085	3295	2750	3025	3220	3375
8	17½	10	2320	2535	2735	2935	2880	3110	3350	3535	2985	3240	3530	3770	3145	3455	3680	3855
9	19½	11½	2610	2855	3080	3305	3240	3500	3770	3980	3355	3645	3970	4240	3535	3890	4140	4340
10	21½	12½	2900	3170	3420	3670	3600	3890	4190	4420	3730	4050	4410	4710	3930	4320	4600	4820
11	23½	13½	3190	3485	3760	4035	3960	4280	4610	4860	4105	4455	4850	5180	4325	4750	5060	5300
12	25½	15	3480	3805	4105	4405	4320	4670	5230	5305	4475	4860	5290	5650	4715	5185	5520	5785
13	27½	16½	3770	4120	4445	4770	4680	5055	5445	5745	4850	5265	5735	6125	5110	5615	5980	6265
14	29½	17½	4060	4440	4790	5140	5040	5445	5865	6190	5220	5670	6175	6595	5510	6050	6440	6750
15	31½	18½	4350	4755	5130	5505	5400	5835	6285	6630	5595	6075	6615	7065	5895	6480	6900	7230
16	33½	20	4640	5070	5470	5870	5760	6225	6705	7070	5970	6480	7055	7535	6290	6910	7360	7710
17	35½	21½	4930	5390	5815	6240	6120	6615	7125	7515	6340	6885	7495	8005	6680	7345	7820	8195
18	37½	22½	5220	5705	6155	6605	6480	7000	7540	7955	6715	7290	7940	8480	7075	7775	8280	8675
19	39½	23½	5510	6025	6500	6975	6840	7390	7960	8400	7085	7695	8380	8950	7465	8210	8740	9160
20	41½	25	5800	6345	6840	7340	7200	7780	8380	8840	7460	8100	8820	9420	7860	8640	9200	9640
21	43½	26½	6090	6655	7180	7705	7560	8170	8800	9280	7835	8505	9260	9890	8255	9070	9660	10120
22	45½	27½	6380	6975	7525	8075	7920	8560	9220	9725	8205	8910	9700	10360	8645	9505	10120	10605
23	47½	28½	6670	7290	7865	8440	8280	8945	9635	10165	8580	9315	10145	10835	9040	9935	10580	11085
24	49½	30	6960	7610	8210	8810	8640	9335	10055	10610	8950	9720	10585	11305	9430	10370	11040	11570
25	51½	31½	7250	7925	8550	9175	9000	9725	10475	11050	9325	10125	11025	11775	9825	10800	11500	12050
26	53½	32½	7540	8240	8890	9540	9360	10115	10895	11490	9700	10530	11465	12245	10220	11230	11960	12530
27	55½	33½	7830	8560	9235	9910	9720	10505	11315	11935	10070	10935	11905	12715	10610	11665	12420	13015
28	57½	35	8120	8875	9575	10275	10080	10890	11730	12375	10445	11340	12350	13190	11005	12095	12880	13495
29	59½	36½	8410	9195	9920	10645	10440	11280	12150	12820	10815	11745	12790	13660	11395	12530	13340	13980
30	61½	37½	8700	9510	10260	11010	10800	11670	12570	13260	11190	12150	13230	14130	11790	12960	13800	14460

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 3 sq. ft. per section		30-in. Height $2\frac{1}{2}$ sq. ft. per section		24-in. Height 2 sq. ft. per section	
		Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ s. d.	Heating Surface	PRICE £ s. d.
4	8	12	5 19 0	10	5 13 4	8	5 3 4
5	10	15	7 8 9	$12\frac{1}{2}$	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	$17\frac{1}{2}$	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	$22\frac{1}{2}$	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	$27\frac{1}{2}$	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	$32\frac{1}{2}$	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	$37\frac{1}{2}$	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	$42\frac{1}{2}$	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	$47\frac{1}{2}$	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	$52\frac{1}{2}$	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	$57\frac{1}{2}$	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	$62\frac{1}{2}$	35 8 4	50	32 5 10

Prices of Radiators include Polished and Lacquered finish as illustrated.

Extra for Nickel Plating $\frac{2}{3}$ 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

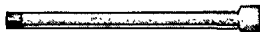


Fig. 831/2

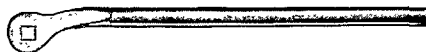


Fig. 833



Fig. 834

	Length in inches	...	...	...	12	19	24	36	
Fig. 831	Nipple Wrench for $1\frac{1}{4}$ " nipples				1/9	—	2/6	3/3	each
Fig. 832	" " " 1" "				—	3/3	—	3/3	"
Fig. 833	Key Wrench,	10/3	each.						
Fig. 834	Plug and Bushing Wrench— $1\frac{1}{2}$ " 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).

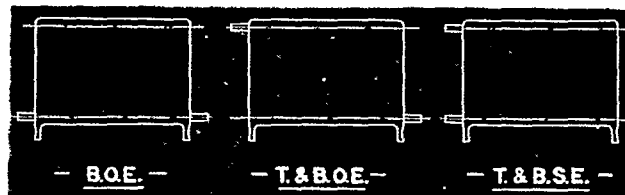
Unless otherwise ordered all Radiators are supplied tapped as under:

Heating Surface	Hot Water	Steam
1 to 12 sq. feet	$\frac{1}{8}$ "	$\frac{1}{8}$ " × $\frac{1}{8}$ "
13 to 30 sq. feet	$\frac{3}{8}$ "	$\frac{3}{8}$ " × $\frac{3}{8}$ "
31 to 50 sq. feet	$\frac{1}{2}$ "	$\frac{1}{2}$ " × $\frac{1}{2}$ "
51 and over	$\frac{1}{4}$ "*	$\frac{1}{2}$ " × $\frac{3}{4}$ "

* 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.

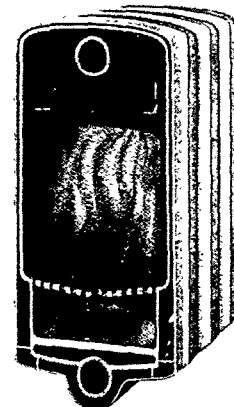
ENLARGING "WHITEHALL" SECTIONAL BOILERS. Any "Whitehall" Boiler may be extended up to the limit of the catalogue capacity by the addition of new sections which may be fitted either at the front or the rear. In the absence of other instructions, sections and nipples only are despatched; customers should 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

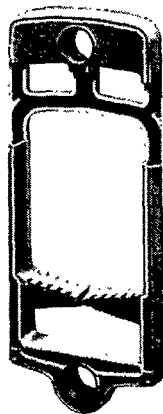
THE "Carlton" Boiler embodies the Crane Patent controlled water travel feature which directs a rapid water circulation over the fire box crown, thus achieving maximum heat transfer and prolonged life of the Boiler. (Patent No. 354545).



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

EVEN 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

ADEQUATE 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

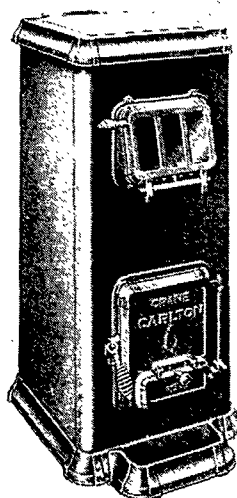
THE exceptionally low level of the main return enables radiators to be fixed at the same level as the Boiler.

OIL FIRING

THE 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

THE "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

JACKETS 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.

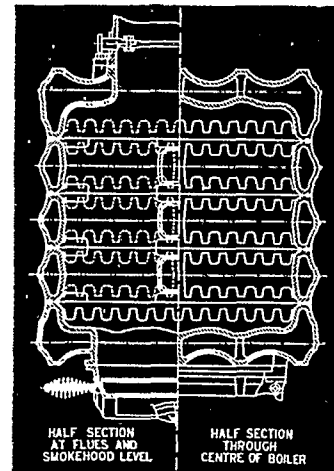
HOT WATER SUPPLY

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.)

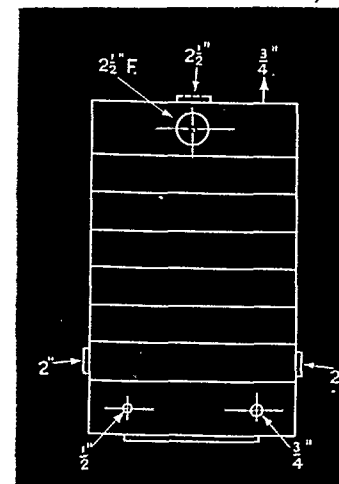


Plan view showing the efficient arrangement of heating surfaces, and the adequate waterways.

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.

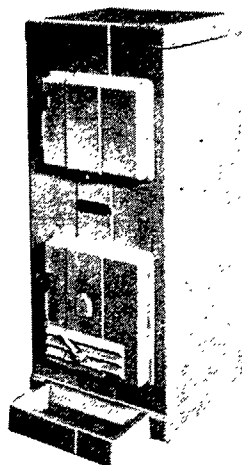


CRANE

THE NEW CARLTON BOILER

Registered Design No. 829725

ROOM
MODEL



WITH
ENAMELLED
JACKET

RATING AND CAPACITIES

No.	B.Th.U.s per hour	Heating Power C.I. Radiation sq. ft. (gross)	External Surface* B.Th.U.s per hour	Boiler Heating Surface sq. ft.	Fuel capacity cu. ft.	Grate area sq. ft.	Water Content 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 Tools
	Boiler	Jacket	Vitreous Enamel Finish extra† (Grey Mottle)	Boiler‡	Insulated Galvanized 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.

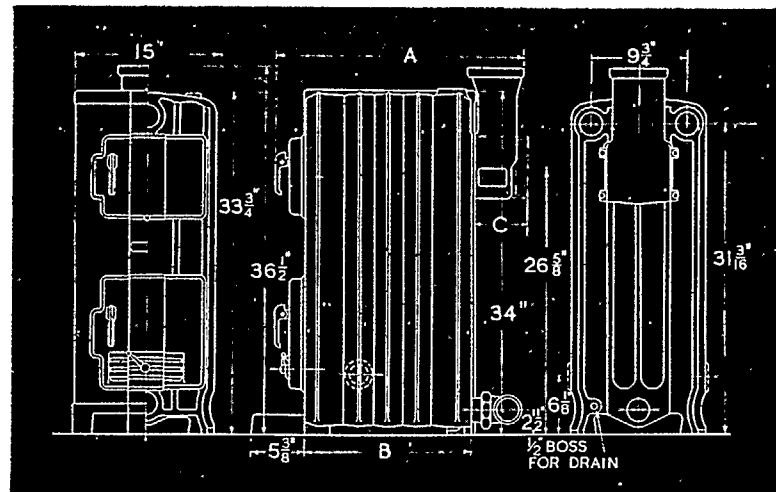
† Exposed portions of boiler and jacket enamelled same colour. Prices are for Mottled Grey: plain Dark Green, Dark Brown 25% extra: Cream and Black 50% extra.

‡ 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 Overall Length	B 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.

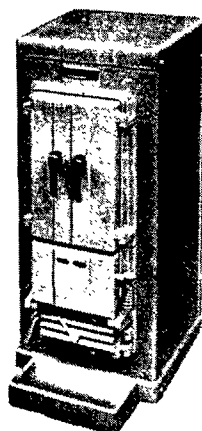
See pages 100-106 for MOUNTINGS.

CRANE

THE NEW CARLTON BOILER

OPEN FIRE

Registered Design No. 829726



ROOM
MODEL

WITH
ENAMELLED
JACKET

No.	B.Th.U.s per hour	Heating Power C.I. Radiation sq. ft. (gross)	External Surface B.Th.U.s* per hour	Grate Area sq. ft.	Fuel Capacity cu. ft.	Water Content 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 Tools
	Boiler	Jacket	Vitreous Enamel Finish extra† (grey mottled)	Boiler‡	Insulated Galvanized 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/-.

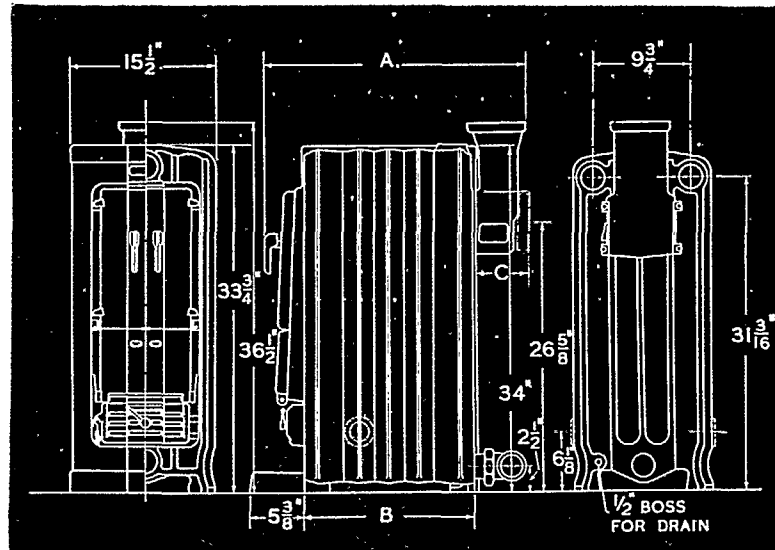
|| Lined with sheet asbestos.

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 Overall Length	B 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.

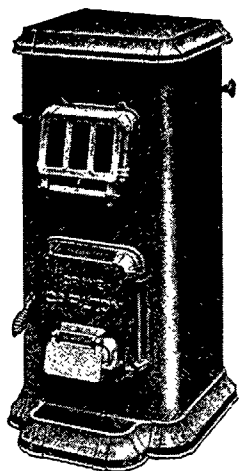
Dimensions and Prices of Smoke Pipe and Fittings shown on pages 96 and 97.

See pages 100-106 for MOUNTINGS.

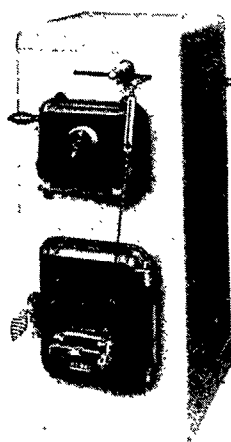
CRANE

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 per hour	Heating Power C.I. Radiation sq. ft. (gross)	*External Surface B.Th.U.s per hour	Boiler Heating Surface sq. ft.	Fuel Capacity cub. ft.	Grate Area sq. ft.	Water Content 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 Tools
	Boiler	Jacket	Vitreous Enamel Finish Extra†	Boiler‡	Insulated Galvanized 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.

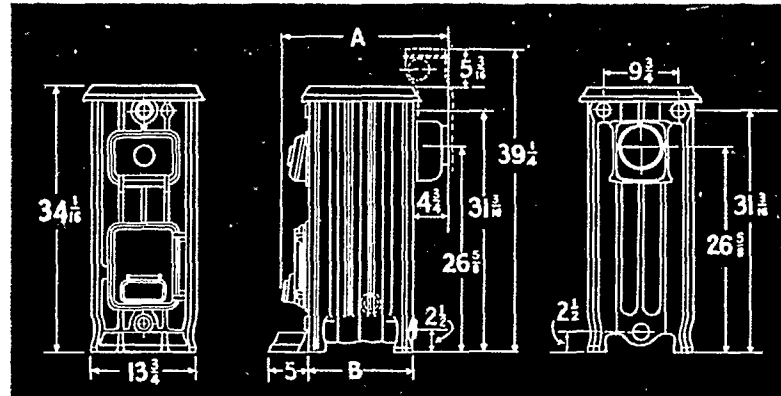
‡ Extra for Ash Tray, if required, 2/-

§ 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 Overall Length	B 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.

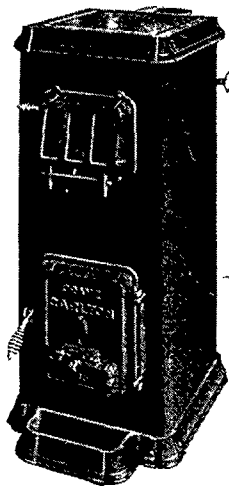
Dimensions and Prices of Smoke Pipes and Fittings shown on pages 96 and 97.

See pages 100-106 for MOUNTINGS.

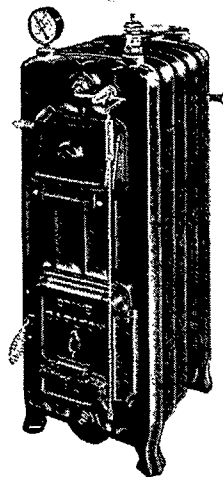
CRANE

THE CARLTON BOILER

SERIES No. 10



ROOM MODEL
WITH ENAMELLED JACKET



BASEMENT MODEL
WITHOUT JACKET

RATINGS AND CAPACITIES

No.	B.Th.U.s per hour	Heating Power C.I. Radiation sq. ft. (gross)	External Surface* B.Th.U.s per hour	Boiler Heating Surface sq. ft.	Fuel Capacity cu. ft.	Grate Area sq. ft.	Water Content 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 Tools
	Boiler £ s. d.	Jacket £ s. d.	Vitreous Enamel Finish extra† £ s. d.	Boiler‡ £ s. d.	Insulated Galvanized Steel Jacket! £ 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.

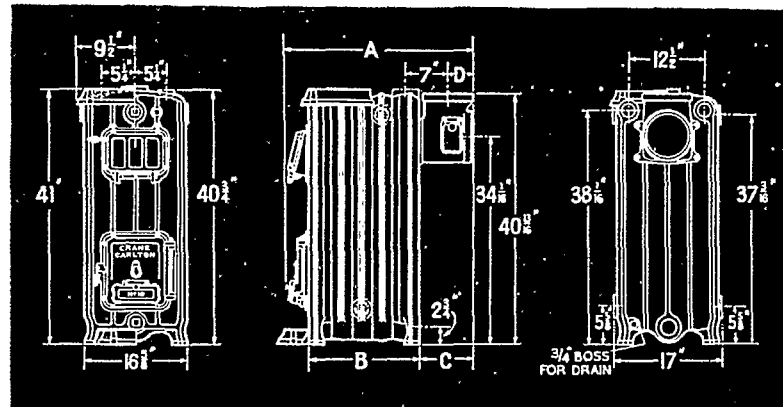
‡ Extra for Ash Tray, if required, 2/6.

|| 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 Overall Length	B 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.

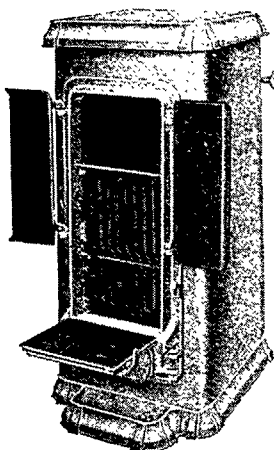
Dimensions and Prices of Smoke Pipe and Fittings shown on pages 96 and 97.

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. per hour	Heating Power C.I. Radiation sq. ft. (gross)	*External Surface B.Th.U.s per hour	Grate Area sq. ft.	Fuel capacity 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 Tools s. d.
	Boiler £ s. d.	Jacket £ s. d.	Vitreous Enamel Finish extra† (grey mottled) £ s. d.	Boiler‡ £ s. d.	Insulated Galvanized Steel Jacket! £ 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.

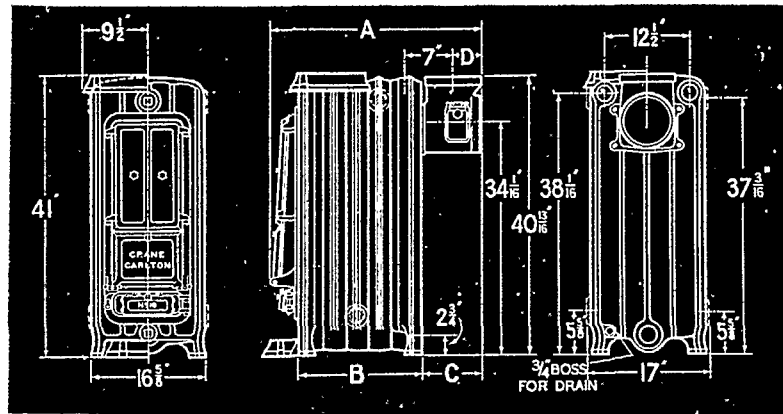
‡ Extra for Ash Tray, if required, 2/6.

|| 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 Overall Length	B 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.

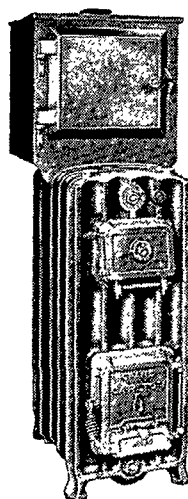
Dimensions and Prices of Smoke Pipe and Fittings shown on pages 96 and 97.

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 per hour	Heating Power C.I. Radiation sq. ft. (gross)	Boiler*			Vitreous Enamel Finish extra†			Stoking 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.

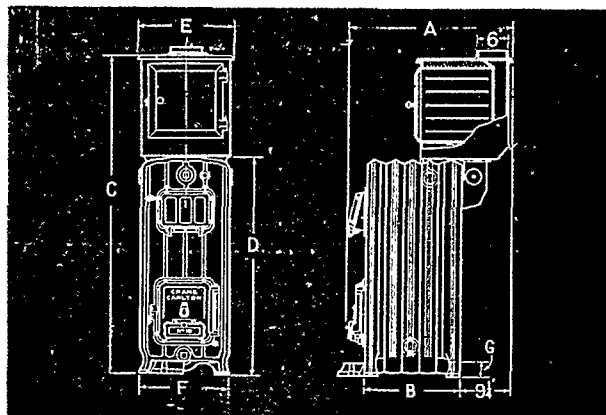
Bright parts chromium plated 3/- extra.

† 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 Overall Length	B Length of Boiler	Smoke Pipe 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.

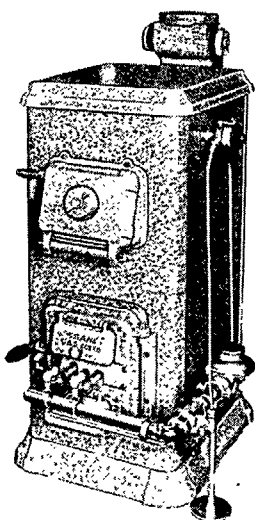
Dimensions and Prices of Smoke Pipe and Fittings shown on pages 96 and 97.

See pages 100-106 for MOUNTINGS.

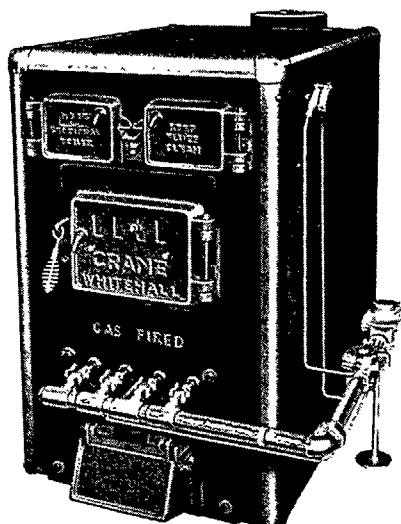
CRANE

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

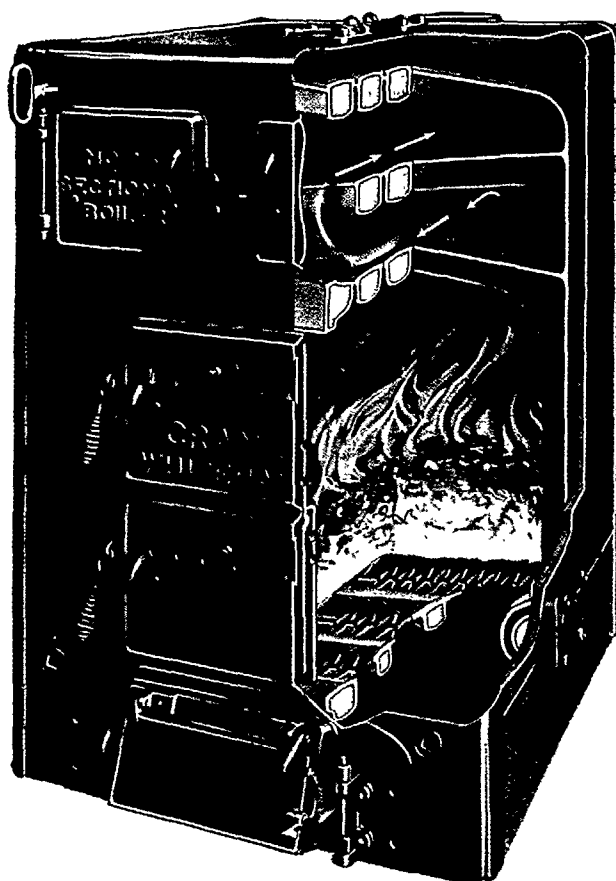
FOR CENTRAL HEATING OR INDIRECT HOT WATER SUPPLY

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

THE 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.

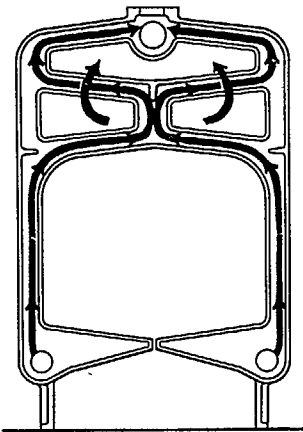
CONTROLLED WATER TRAVEL

THIS 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

ON 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.

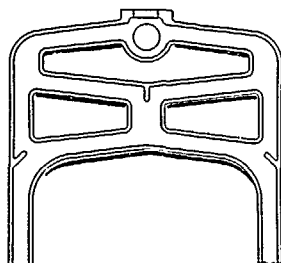


Diagram illustrating the large proportion of "ceiling" heating surface.

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

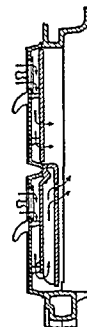
SCIENTIFICALLY DESIGNED GAS FLUES

FLUES 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

ANOTHER 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

WATER 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

TENDING 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

STILL 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.)

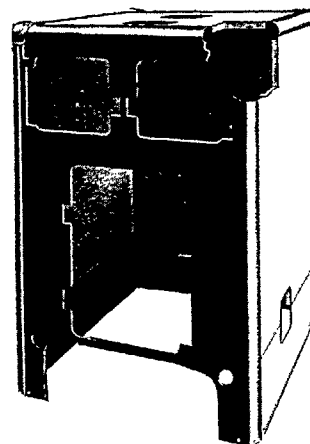
Flat surfaces of all sections are accurately ground by specially designed machines to give a tight, true fit. Putty groove gives added safeguard against air or gas leakage.

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.



WHITEHALL 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.

THE 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.

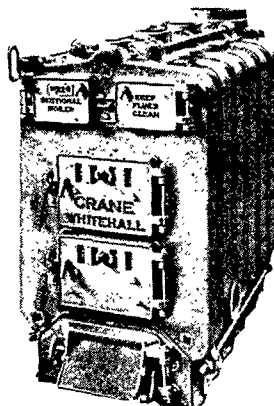
To meet the requirements of those who wish for a metal casing only, without insulation, a competitive jacket of galvanized sheet steel is also offered but the **insulated** jacket is recommended.

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 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.
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 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.
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.

THE No. 1 WHITEHALL BOILER

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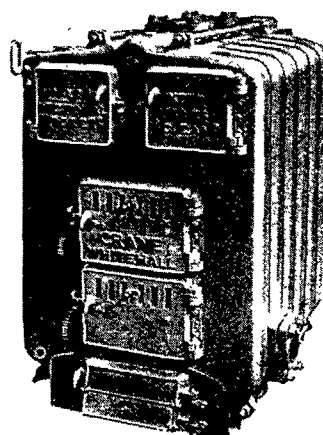
No.	Number of Sections	Length of Boiler A	Smoke Pipe Size	Screwed Tappings*	
				Flows on Top†	Returns at Side
14	4	22"	8"	One 3"	One 3"
15	5	28"	8"	One 3"	One 3"
16	6	34"	8"	Two 3"	Two 3"
17	7	40"	8"	Two 3"	Two 3"
18	8	46"	8"	Two 3"	Two 3"

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

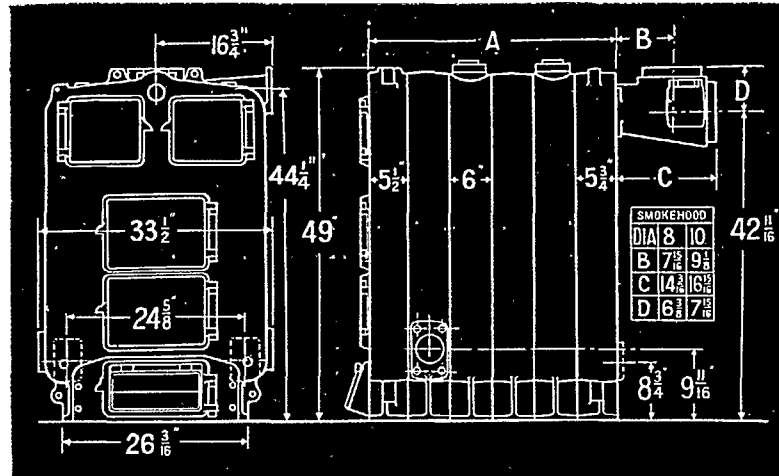
Prices for new tie rods and damper rods on application.

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 3/4"	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 1/4"	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".

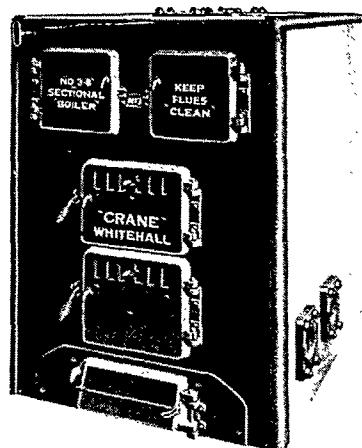
Customers should send sketch with order indicating desired position of tappings.

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

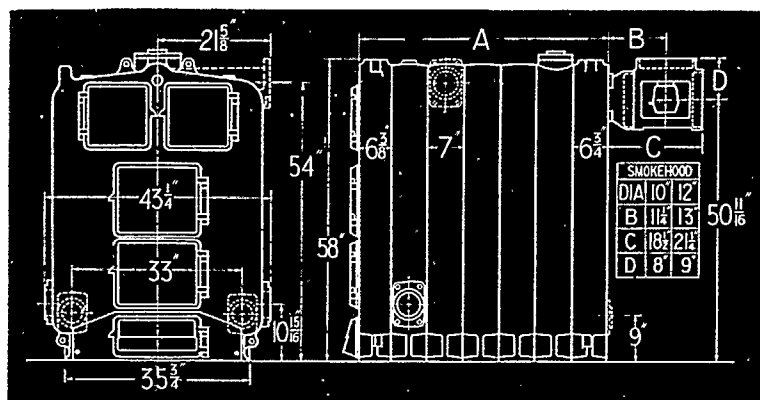
PRICES

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.

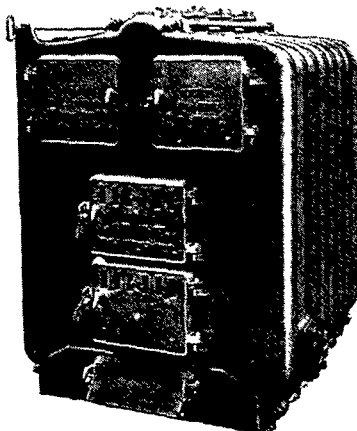
Customers should send sketch with order indicating desired position of tappings.

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 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.
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

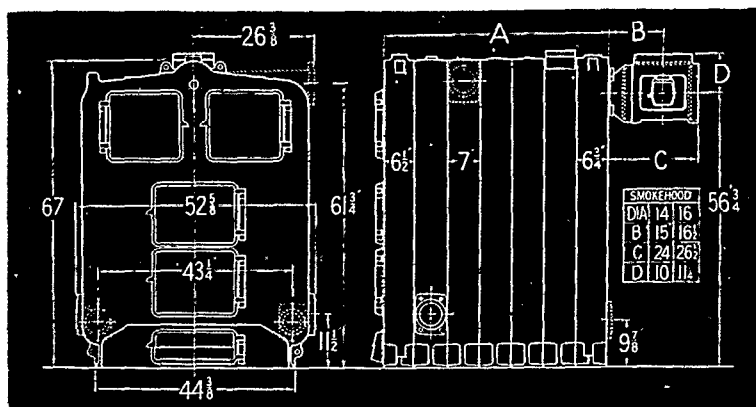
No.	Number of Sections	B.Th.U.s per hour	Boiler			Stoking Tools			Insulated Jacket in Colour			Non-insulated Galvanized Jacket.		
			£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
47	7	650,000	93	5	0	1	8	0	11	5	0	8	3	0
48	8	748,000	106	17	0	1	8	0	12	7	0	8	17	9
49	9	846,000	120	9	0	1	12	6	13	9	0	9	12	6
410	10	944,000	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 " 1 4 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.

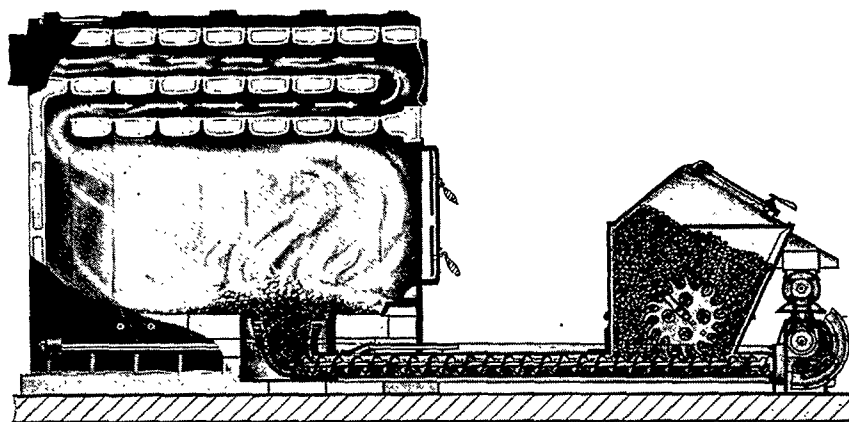
Customers should send sketch with order indicating desired position of tappings.

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

CRANE

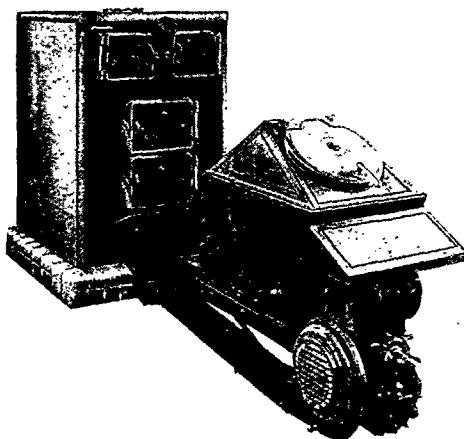
THE WHITEHALL BOILERS

FOR AUTOMATIC STOKER FIRING



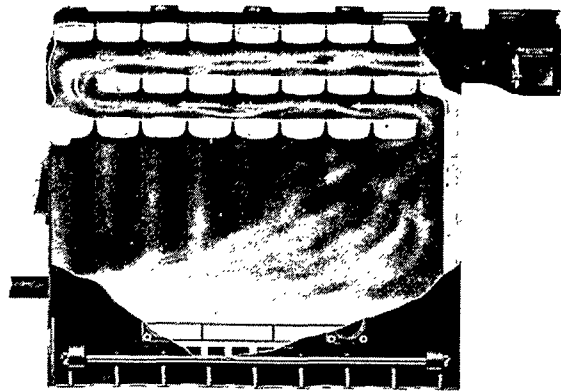
THE outstanding features of the design of the "Whitehall" Sectional Boiler render it peculiarly suitable for firing by a mechanical stoker.

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.

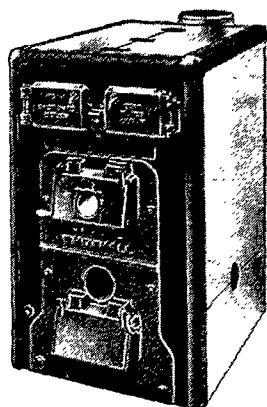
A $\frac{3}{4}$ " boss is provided on the smokehood for flue-stat or gauge.

CRANE

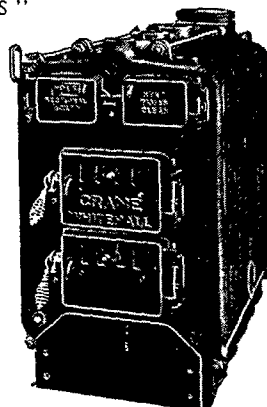
THE No. 1 WHITEHALL BOILER

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

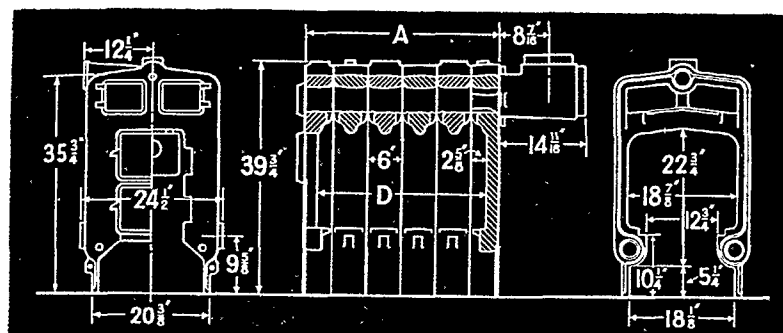
Extra Intermediate Sections, with nipples ... each £3 4 6

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 3/8".

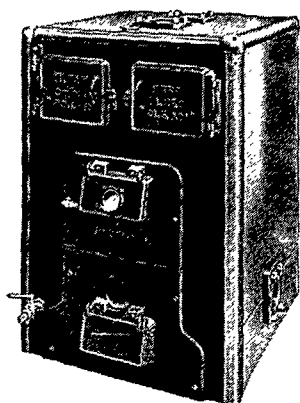
Customers should send sketch with order indicating desired position of tappings.

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

CRANE

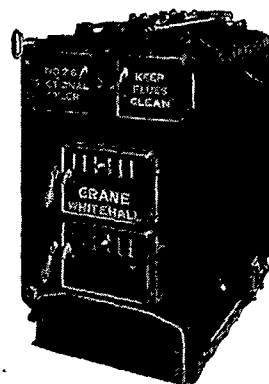
THE No. 2 WHITEHALL BOILER

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

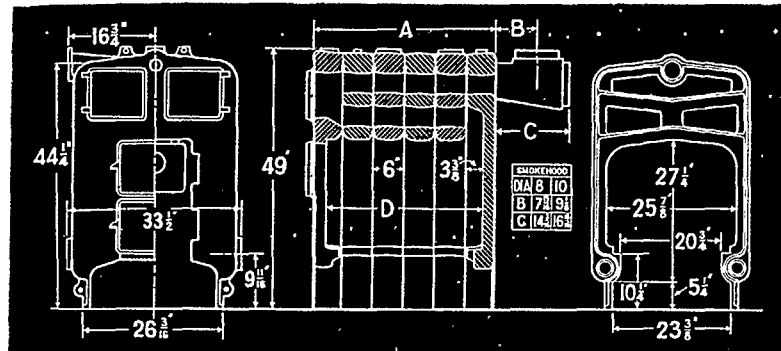
Extra Intermediate Sections, with nipples ... each £5 6 0

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 1/2" 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".

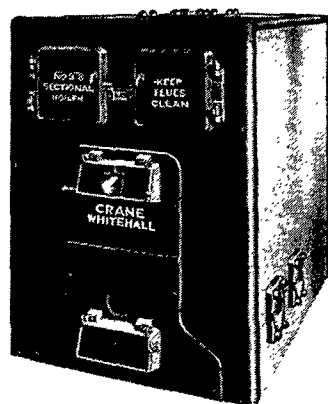
Customers should send sketch with order indicating desired position of tappings.

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

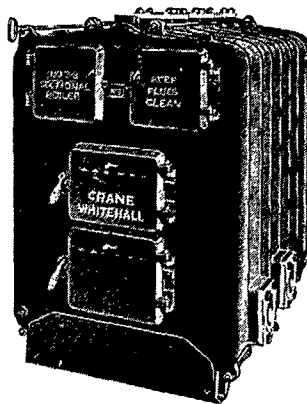
THE No. 3 WHITEHALL BOILER

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

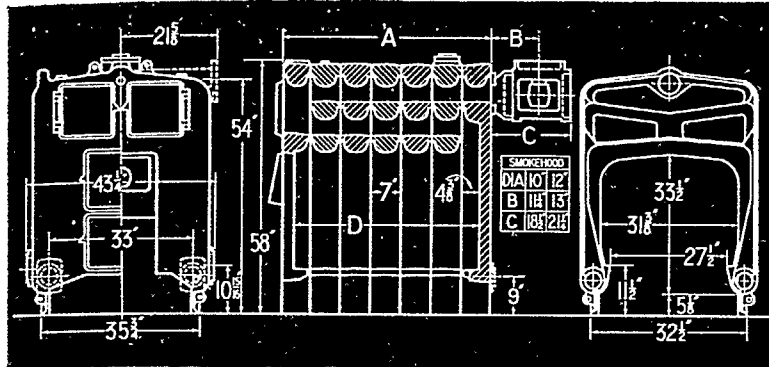
No.	Number of Sections	B.Th.U.s per hour	Boiler £ s. d.	Insulated Jacket in Colour £ s. d.	Non-insulated Galvanized Jacket £ s. d.
35 L & 35 LS	5	346,000	53 0 0	7 4 0	5 6 6
36 L & 36 LS	6	418,000	60 19 6	8 4 6	6 1 3
37 L & 37 LS	7	490,000	68 19 0	9 5 0	6 16 0
38 L & 38 LS	8	562,000	76 18 6	10 5 6	7 10 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.

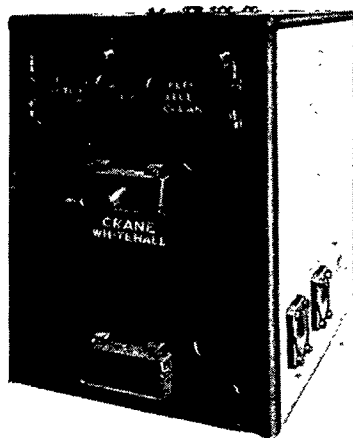
A battery of two or more boilers of the same length can be enclosed in a single jacket centre to centre of boilers 42".

CRANE

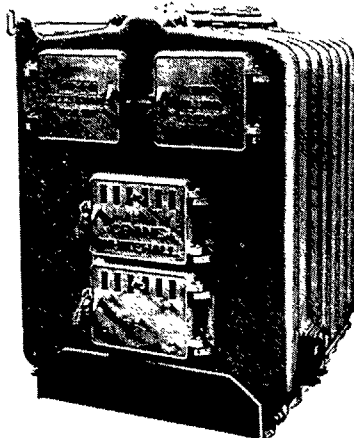
THE No. 4 WHITEHALL BOILER

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

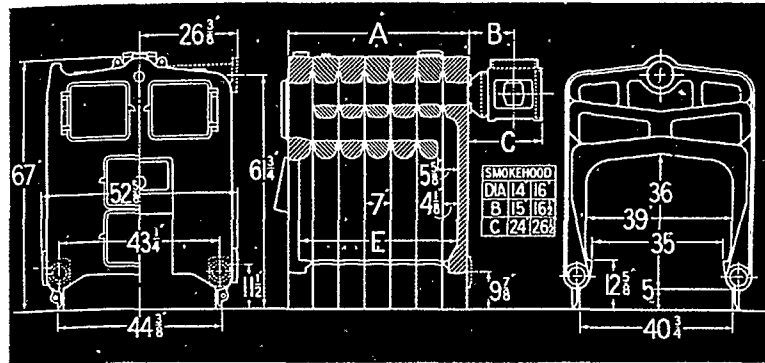
No.	Number of Sections	B.Th.U.s per hour	Boiler £ s. d.	Insulated Jacket in Colour £ s. d.	Non-insulated Galvanized Jacket £ s. d.
47 L & 47 LS	7	645,000	88 10 0	11 5 0	8 3 0
48 L & 48 LS	8	742,000	101 10 0	12 7 0	8 17 9
49 L & 49 LS	9	839,000	114 10 0	13 9 0	9 12 6
410 L & 410 LS	10	936,000	127 10 0	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

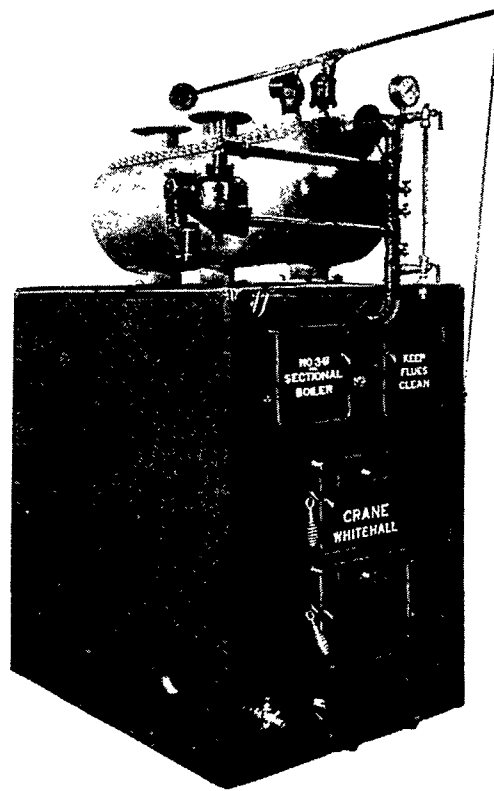
Series "LW" Whitehall Boilers have no waterway across front section opening and Nos. 2, 3 and 4 Boilers are provided with a special connecting header at back. (See page 81.)

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 per hour	Heating Power C.I. Radiation sq. ft.	Overall Height	Height to Water Level	Price £ 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.

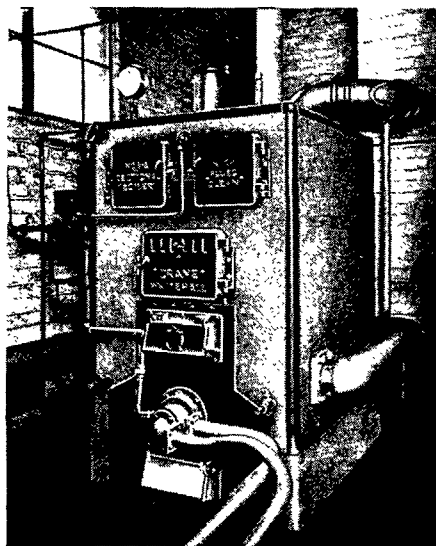
WHITEHALL BOILERS FOR SPECIAL SYSTEMS

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.

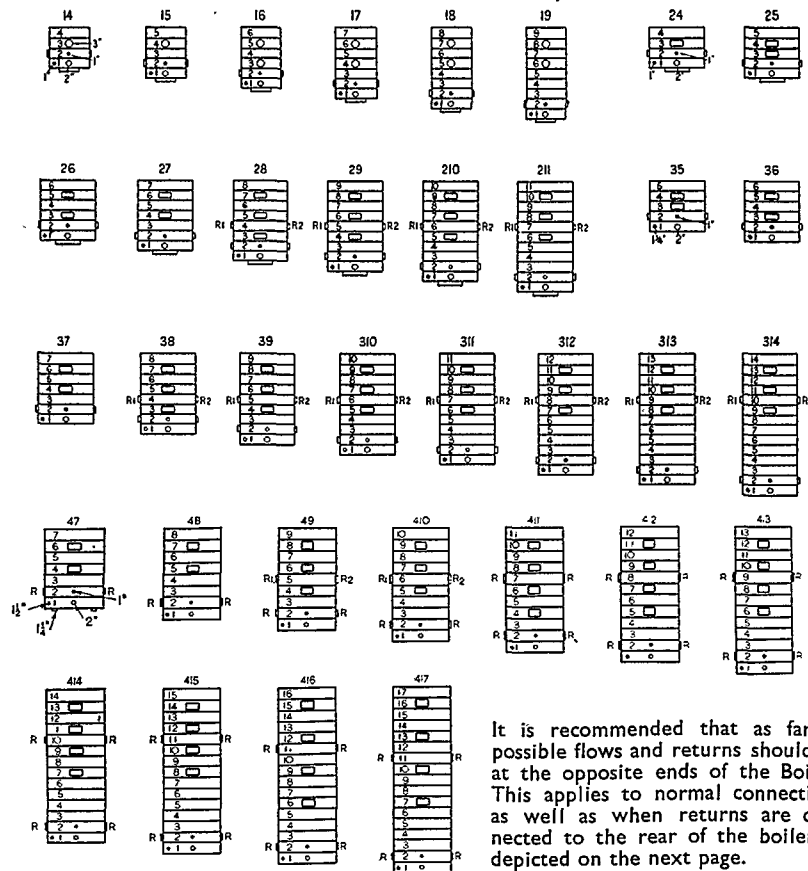
CRANE

WHITEHALL BOILER TAPPING DETAILS

THE 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*

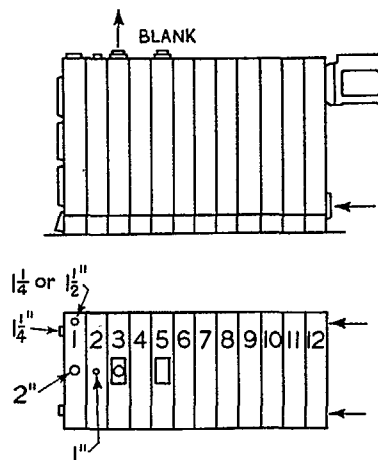
On Nos. 2, 3, and 4 Boilers, extra 4" (or 5" on No. 3 and 4) tapped flanges
Price, each tapping, 5/- nett

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.



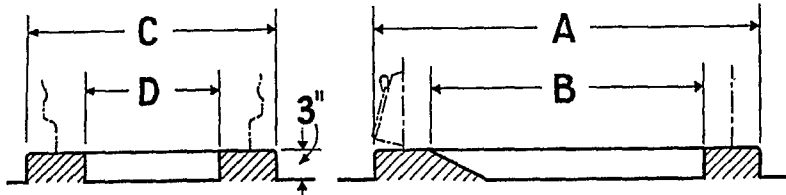
The diagram above indicates the application of the foregoing and also the standard tapping arrangement for boilers with rear returns.

See page 81 for particulars of cast-iron headers.

CRANE

THE WHITEHALL BOILERS

BASE AND ASHPIT DIMENSIONS



AN 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
	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

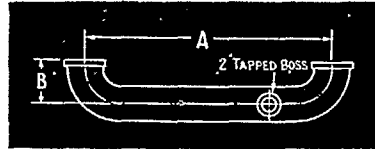
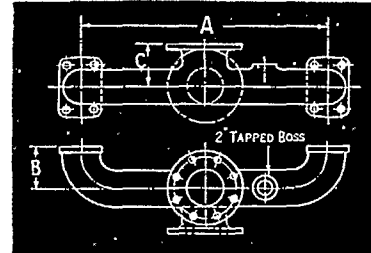


Fig. 970/1/2. Plain.

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



FLOW AND RETURN HEADERS

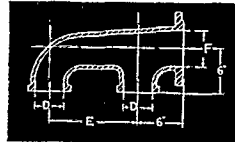


Fig. 987/8/9. Headers connecting flanged outlets of two alternate sections of Nos. 2, 3 and 4 Boilers.

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

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

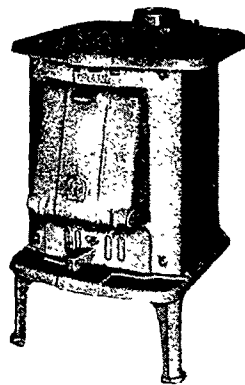
CRANE

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	Black finish with polished top*	Grey Mottled enamel finish (firepot painted aluminium)†	Extra for Enamelled Sideplates	Extra for Bower-Barffing Firepot	Extra for Shaking Grate
	£ s. d.	£ s. d.	£ s. d.	s. d.	£ s. d.	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.

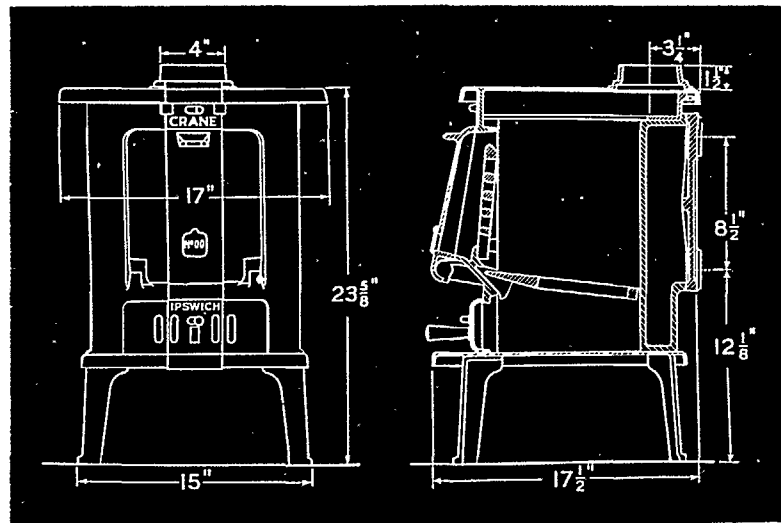
† Hotplate can be supplied ground and polished instead of enamelled at same price. Extra for dull nickel plated hotplate with enamelled boiler 7/9.

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.

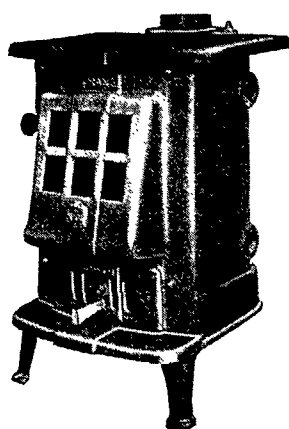
CRANE

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.

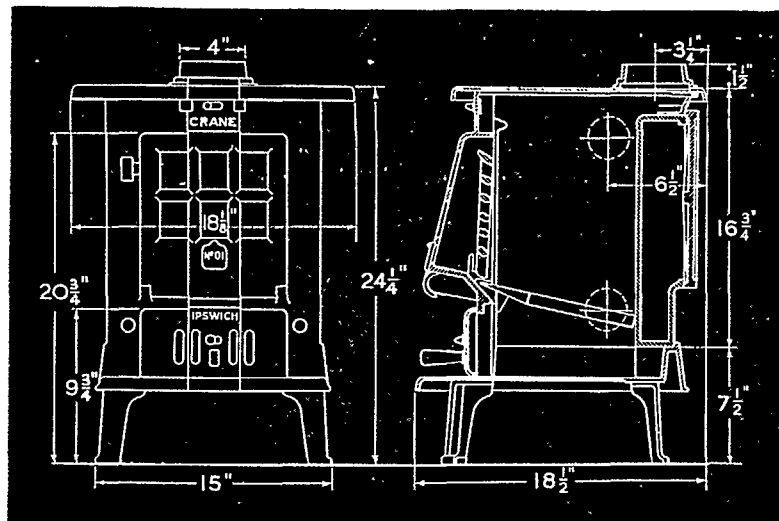
Extra for dull nickel plated hotplate with enamelled boiler, 8/6.

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.

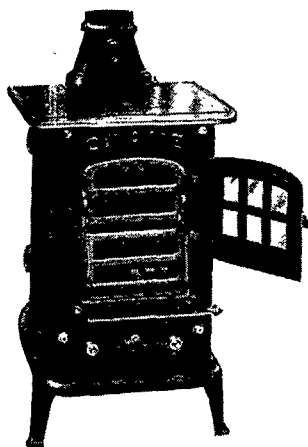
See pages 96 and 97 for Measurements and Prices of Smoke Pipe and Fittings in Black and Enamel finish.

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.

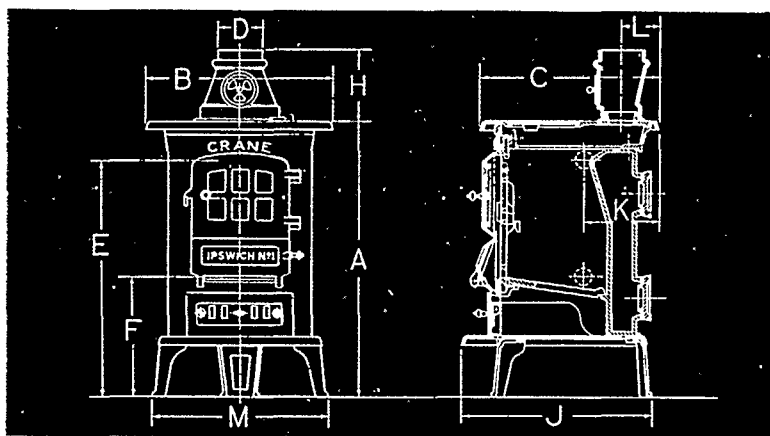
Boilers can be supplied in Cream Enamel finish with Black Enamelled hotplate. Prices on application.

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"	29½"	20"	19"	4½"	25¼"	9¼"	7¼"	20"	8½"	4¼"	18¼"	Four 1¼"	4½"
3	20" × 19¾"	29½"	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.

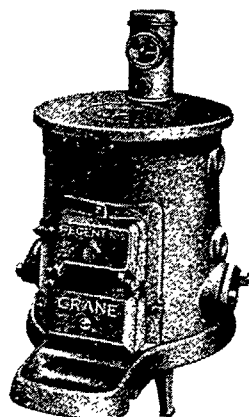
See pages 96 and 97 for Measurements and Prices of Smoke Pipe and Fittings in Black and Enamel finish.

For MOUNTINGS see pages 100-104.

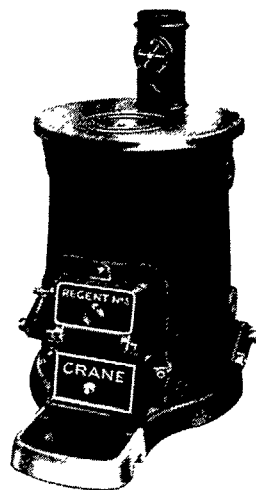
CRANE

REGENT DOMESTIC BOILER

FOR HOT WATER SUPPLY



No. 4
ENAMELLED FINISH,
AND WITH FEET



No. 5
BLACK, WITH POLISHED
HOTPLATE

RATINGS

No.	Heating 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.
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 with polished top £ s. d.	Boiler with nickel plated top £ s. d.	Grey Mottled Enamel Finish† £ s. d.	Baseplate s. d.	Grey Mottled Enamelled Baseplate £ s. d.	Extra for Bower-Barffed Rustless Firepot £ 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/-.

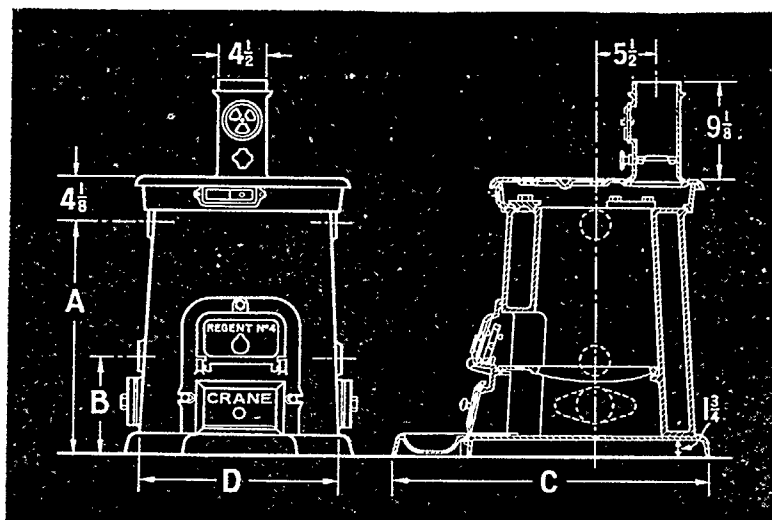
Stoking Tools, 4/- extra.

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	$21\frac{3}{4}$ "	$19\frac{1}{2}$ "	$20\frac{1}{2}$ "	$17\frac{5}{8}$ "	9"	$28\frac{1}{4}$ "	$18\frac{5}{8}$ "	$4\frac{1}{2}$ "	Four $1\frac{1}{2}$ "
5	$25\frac{3}{4}$ "	$19\frac{1}{2}$ "	$20\frac{1}{2}$ "	$21\frac{5}{8}$ "	9"	$28\frac{1}{4}$ "	$18\frac{5}{8}$ "	$4\frac{1}{2}$ "	Four $1\frac{1}{2}$ "

* Including Baseplate. Legs for No. 4 increase height $4\frac{1}{2}$ ".

All Boilers have two $3\frac{1}{2}$ " 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 $\frac{1}{2}$ " Draw-off Cock sent with Boiler unless otherwise instructed.

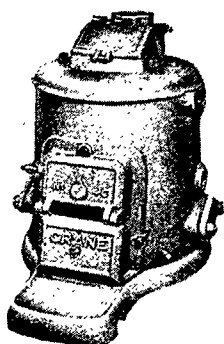
See pages 96 and 97 for Measurements and Prices of Smoke Pipe and Fittings in Black and Enamel finish.

For MOUNTINGS see pages 100-104.

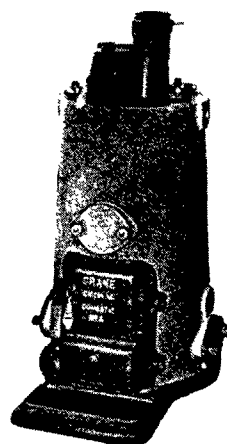
CRANE

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.

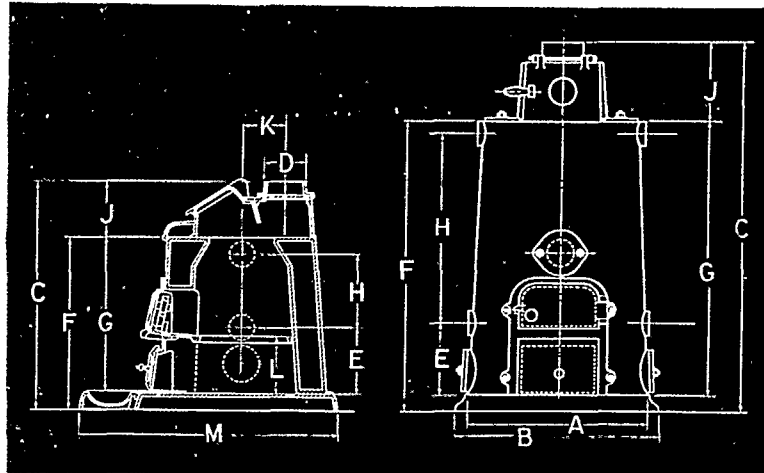
PRICES

No.	Boiler only	Grey Mottled Enamel Finish	Baseplate	Grey Mottled Enamelled 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 $\frac{3}{8}$ "	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 $\frac{3}{8}$ "	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 $\frac{1}{2}$ "

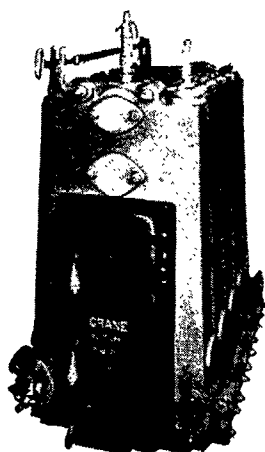
See pages 96 and 97 for Measurements and Prices of Smoke Pipe and Fittings in Black and Enamel finish.

For MOUNTINGS see pages 100-104.

CRANE

SECTIONAL DOMESTIC BOILER

FOR SOLID FUEL



RATINGS

No.	Boiler Heating Surface sq. ft.	Heavy Firing (At 11,000 B.Th.U.s per sq.ft.)		Normal Firing (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	

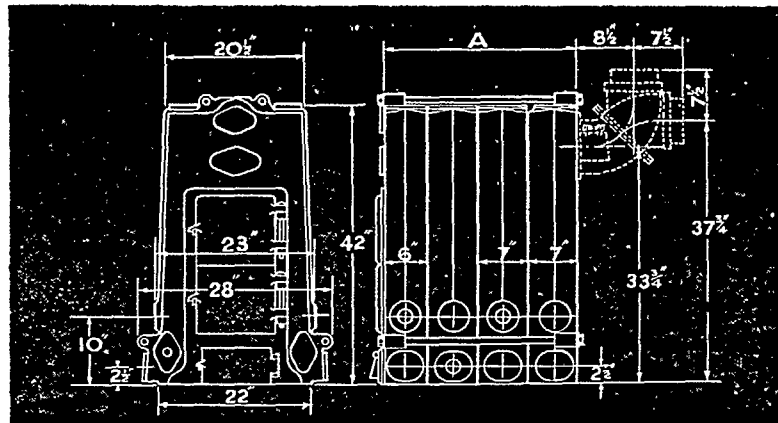
Prices of Oil Burning Boilers on application.

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

CRANE

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 ⁷ / ₈	4 ³ / ₈	5	6	7	8	10	12	14	16
	Approx. external diameter	4 ¹ / ₈	4 ⁵ / ₈	5 ¹ / ₄	6 ⁵ / ₁₆	7 ³ / ₈	8 ⁷ / ₁₆	10 ⁹ / ₁₆	12 ⁵ / ₈	14 ¹¹ / ₁₆	16 ³ / ₄
	Diameter of Spigot Band	—	—	5 ³ / ₈	6 ¹ / ₁₆	7 ¹ / ₂	8 ⁹ / ₁₆	10 ¹³ / ₁₆	12 ⁵ / ₈	15 ¹ / ₆	17 ¹ / ₈
SOCKET	Internal diameter ...	4 ³ / ₈	4 ⁷ / ₈	5 ⁵ / ₈	6 ³ / ₄	7 ¹ / ₂	8 ¹ / ₂	11 ¹ / ₄	12 ⁵ / ₁₆	15 ⁹ / ₁₆	17 ⁵ / ₈
	Internal depth ...	3 ¹ / ₈	3 ¹ / ₄	3 ¹ / ₄	3 ¹ / ₂	3 ¹ / ₂	4	4 ¹ / ₄	4 ¹ / ₄	4 ¹ / ₂	4 ¹ / ₂
	Diameter of Bends ...	5 ¹ / ₈	5 ³ / ₄	6 ³ / ₈	7 ³ / ₈	8 ¹ / ₁₆	10 ¹ / ₁₆	12 ⁹ / ₁₆	14 ³ / ₁₆	17 ¹ / ₈	19 ¹ / ₄

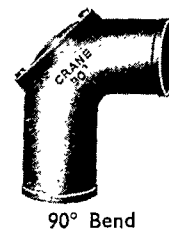
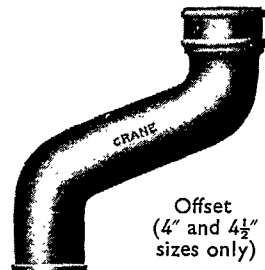
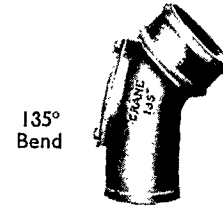
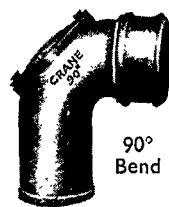
PRICES

		BLACK									
		4"	4 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	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

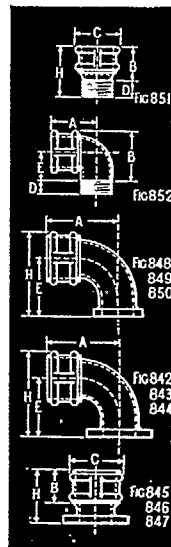


Fig. 852
HOT WATER ELBOW
SOCKET, SCREWED

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

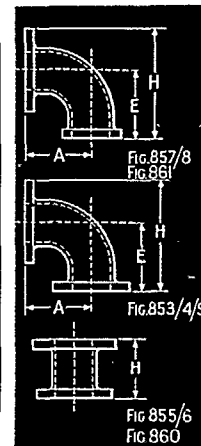
Figs. 853,
854 and 859FLANGED ELBOW, SIDE
FLOW OR VERTICAL
RETURNFigs. 855,
856 and 860

FLANGED STAND-PIPE

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

DIMENSIONS AND PRICES

Fig. No.	Size for "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

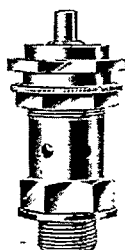


Fig. H226

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

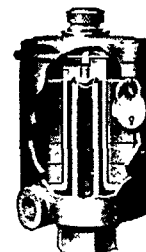


Fig. H 245

Size No.	Socket Screwed Gas	Tank Height in feet	Radiating Capacity in sq. ft.	Price of Valve £ s. d.	Price of Valve with Padlock £ s. d.
1	1/4"	35	50	1 14 6	1 15 6
1a	1/4"	50	to	1 14 6	1 15 6
1b	1/4"	70	700	1 19 6	2 0 6
2	1/2"	60	700	2 11 6	2 12 6
2a	1/2"	80	to	2 11 6	2 12 6
2b	1/2"	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 £ s. d.
17	1/2" gas thread	Up to 100,000 B.Th.U.s	1 6 0
18	3/4" " "	" " 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

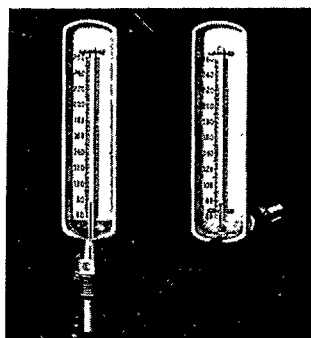
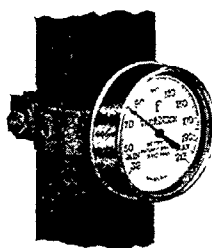


Fig. E170. Straight.
8/- each.
Iron—White enamelled.
Screwed $\frac{1}{4}$ " male. Scale—6".

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.

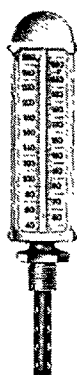
E176 20/-
E177 22/-
E186 32/-
E187 34/-



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

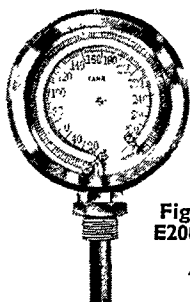
NOTE.—It is necessary to fit a mercury well (Fig. E191) with Figs. E176, E177, and E178

THERMOMETERS

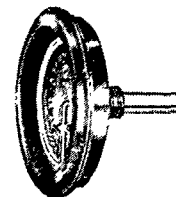
BRASS CASE

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

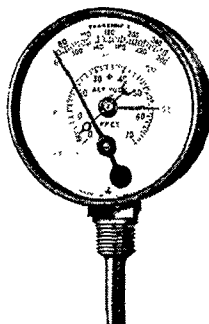


Fig. E210.

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.

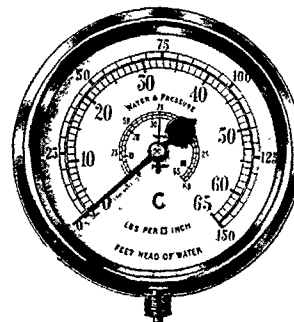


Fig. E215.

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

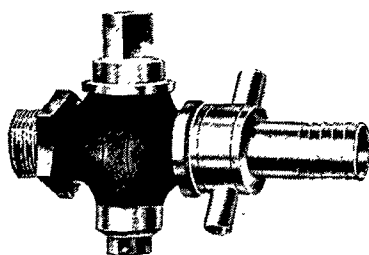


Fig. D342.

GLAND COCKS*
GUN METAL
FEMALE AND HOSE UNION

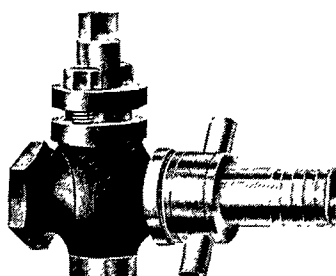


Fig. D344.

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

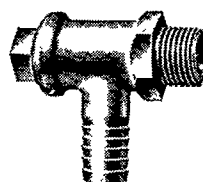


Fig. D343
Size $\frac{1}{2}$ "

GAS POKERS

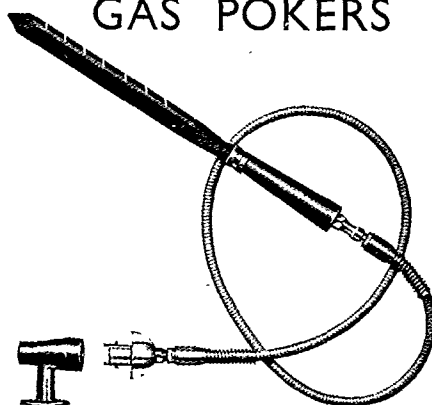


Fig. 995

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

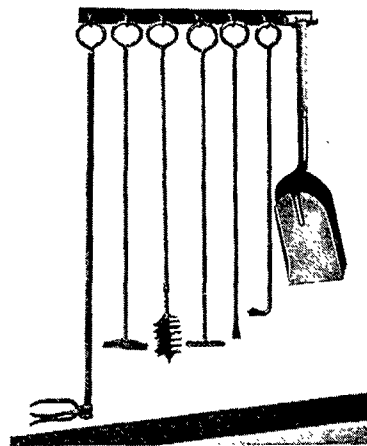
Price each - 4/6

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

Price each - 7/10

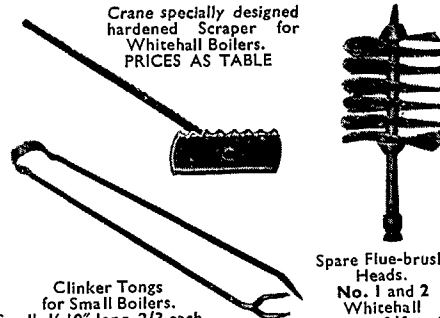
* See page 123 for female end gland cocks.

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 14LW—15LW	16—17 16LW—17LW	18—19 18LW—19LW	35—36 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 37LW—38LW	39—310 39LW—310LW	311—312 311LW—312LW	47—48 47LW—48LW	49—410 49LW—410LW	411—415 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

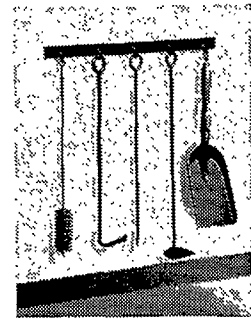
* With the Nos. 3 and 4 Whitehall Boilers a second flue head is provided without extra charge.

DOMESTIC BOILERS

Boilers No.	00	01	1—2	3—5 1c.5c.	8c.	9c.	Sect. 3—5	Sect. 6—7	Sect. 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	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/- "

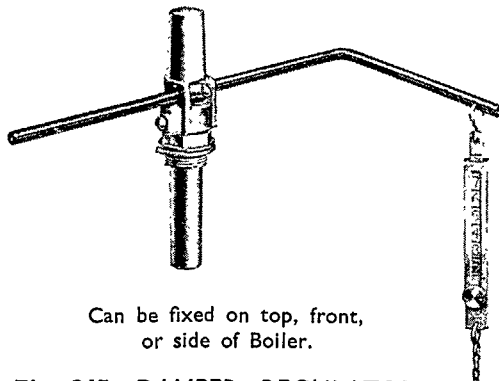


For Carlton Boiler

CRANE

CRANE DAMPER REGULATORS

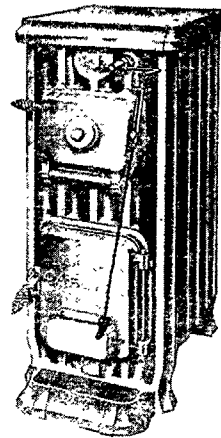
FOR HEATING AND
HOT WATER SUPPLY BOILERS



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.

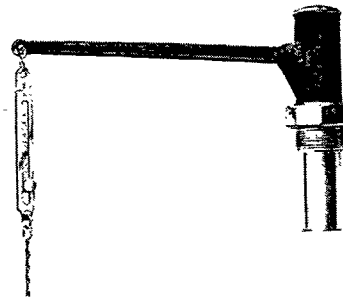
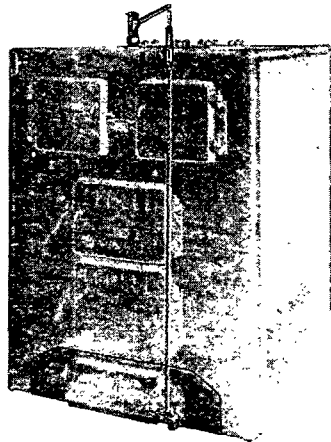


Fig. 866
DAMPER REGULATOR
(Screwed $1\frac{1}{2}$ ")

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.

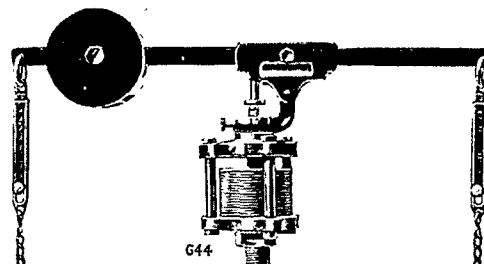


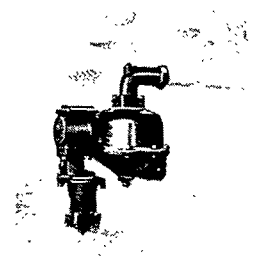
Fig. 868, Screwed 1", for pressures up to 10 lbs.

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

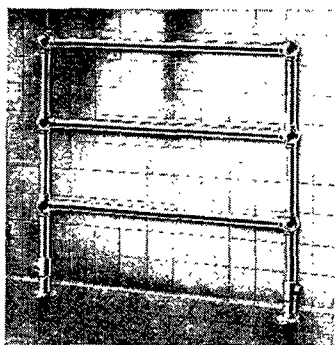


Fig. 870

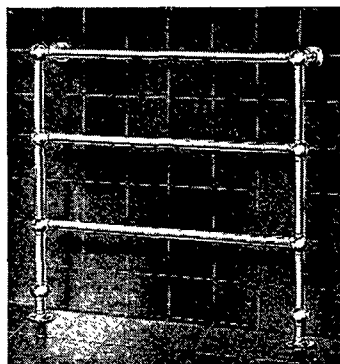


Fig. 871

<i>Dia. of Tube in.</i>	<i>Width in.</i>	<i>Height in.</i>	Fig. 870 £ s. d.	Fig. 871 £ 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

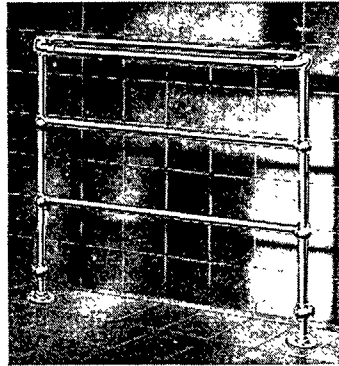


Fig. 872

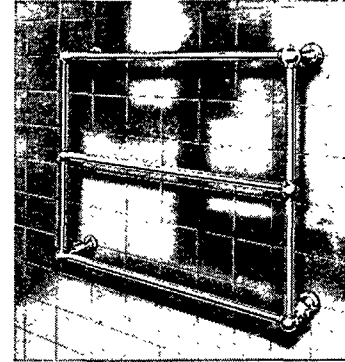


Fig. 873

<i>Dia. of Tube in.</i>	<i>Width in.</i>	<i>Height in.</i>	Fig. 872 £ s. d.	Fig. 873 £ 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
1¼	30	36	3 9 3	—
1¼	36	36	3 12 0	—
1¼	42	36	3 14 9	—
1¼	36	24	—	3 10 0
1¼	36	30	—	3 11 3
1½	30	36	4 9 3	—
1½	36	36	4 13 3	—
1½	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, 3¼" on 1", 3½" on 1¼", 4" on 1½".

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

TOWEL AIRERS

CHROMIUM PLATED

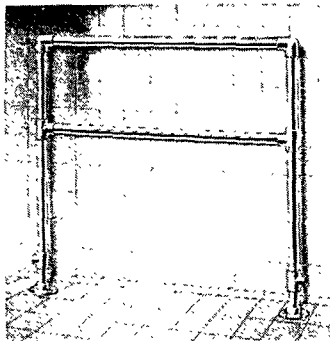


Fig. 874

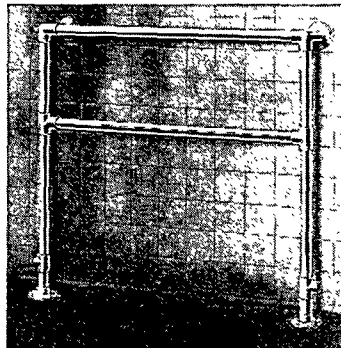


Fig. 879

Dia. of Tube in.	Width in.	Height in.	Fig. 874 £ s. d.	Fig. 879 £ 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", tappings supplied $\frac{3}{4}$ " size pointing outward
 unless otherwise instructed.
 Diameter of floor flanges, $3\frac{1}{4}$ ".

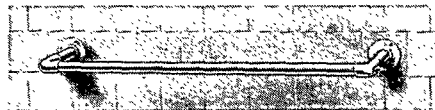


Fig. 875

TYPE	Dia. of Tube in.	Width in.	Fig. 875 £ 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

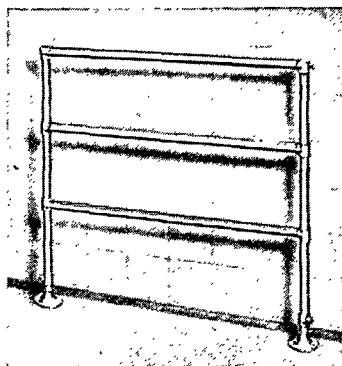


Fig. 876

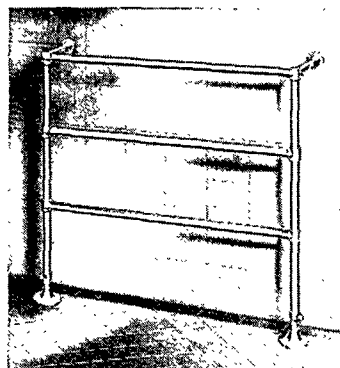


Fig. 878

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

Across Flats in.	Width in.	Height in.	Fig. 876 £ s. d.	Fig. 877 £ s. d.	Fig. 878 £ 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

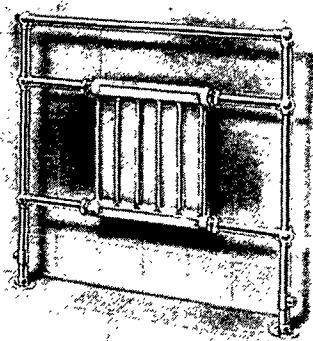


Fig. 886

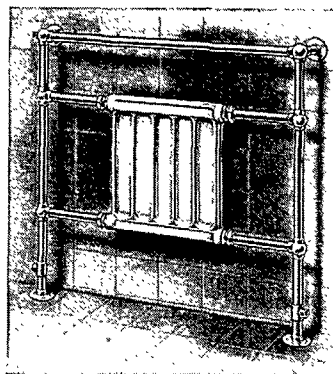


Fig. 887

Dia. of Tube in.	Width in.	Height in.	Approx. Heating Surface	Fig. 886 £ s. d.	Fig. 887 £ s. d.
1 1/4	30	36	8 1/2	4 12 3	5 0 3
1 1/2	36	36	9	4 15 9	5 3 9
1 3/4	42	36	9 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 3/4" size pointing outward unless otherwise instructed.

Diameter of floor flanges, 3 1/2".

TOWEL AIRER SUNDRIES

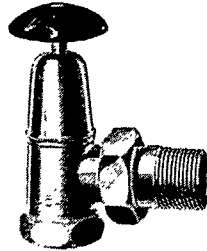
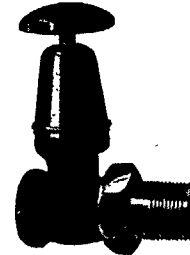
CHROMIUM PLATED AND POLISHED
VALVES AND UNIONSFig. D201
COMPOSITION WHEELFig. D202
WITH LOCK SHIELDFig. D241
ELBOW UNIONFig. D243
STRAIGHT UNIONFig. D221
COMPOSITION WHEELFig. D222
WITH LOCK SHIELD

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

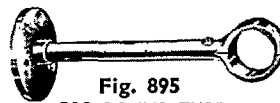
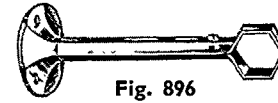
Fig. 895
FOR ROUND TUBEFig. 896
FOR HEXAGONAL TUBE

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

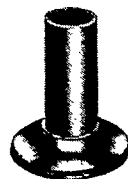
Fig. 897
FOR ROUND TUBE AIRERS

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. E66. POLISHED BRASS
SCHOOL BOARD PATTERN
WITH BIB NOSE



Fig. E60

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

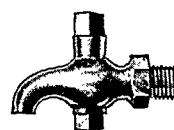


Fig. E66

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

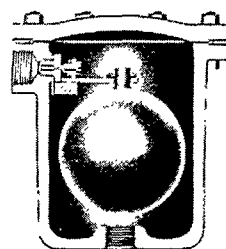


Fig. H101

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

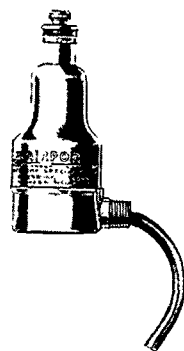


Fig. E70

Price ... 8/6
For pressures 0—10 lbs.

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

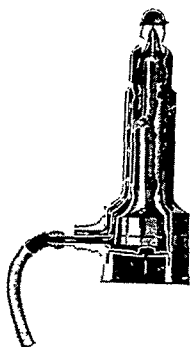


Fig. E78

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

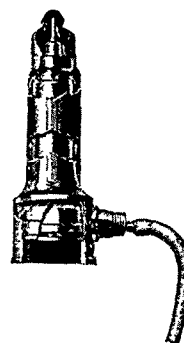
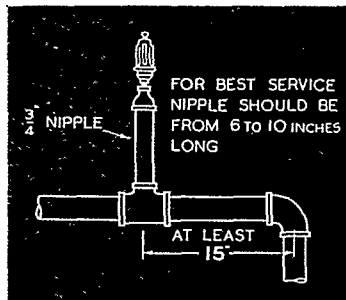


Fig. E75

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

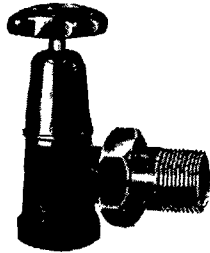


Fig. D201
COMPOSITION WHEEL

ANGLE VALVES



Fig. D241
ELBOW UNION

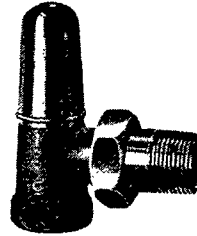


Fig. D202
LOCK SHIELD

Fig. D203
WITH CLOSED SHIELD

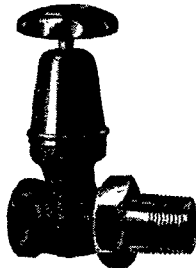


Fig. D221
COMPOSITION WHEEL

GATE VALVES

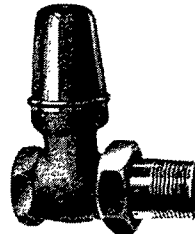


Fig. D222
LOCK SHIELD

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"
D201-2-3	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	—	—
D221-2-3	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
D241	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

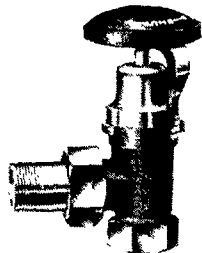
QUICK OPENING
REGULATING VALVES

Fig. D238
COMPOSITION WHEEL

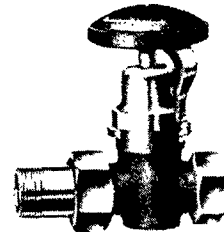


Fig. D239
COMPOSITION WHEEL



Fig. D243
STRAIGHT UNION

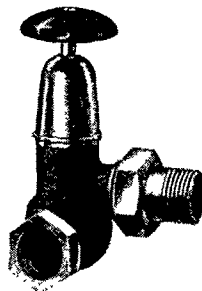


Fig. D212
COMPOSITION WHEEL
RIGHT HAND

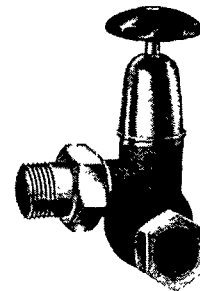


Fig. D211
COMPOSITION WHEEL
LEFT HAND

CORNER VALVES

Fig. D213, as Fig. D211
WITH LOCK SHIELD

Fig. D214, as Fig. D212
WITH LOCK SHIELD

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.

CRANE

RADIATOR VALVES

GATE VALVES

(FEMALE ENDS)

EASY CLEAN

HOFFMAN ADJUSTABLE
MODULATING VALVE



Fig. D231
COMPOSITION WHEEL



Fig. D232
Fig. D233
WITH CLOSED SHIELD



Fig. D78

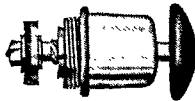


Fig. D240
FOR "PALL MALL" RADS.
Fig. D242
FOR HOSPITAL RADS.
WITH COMPO. WHEEL



Fig. D240
FOR "PALL MALL" RADS.
Fig. D242
FOR HOSPITAL RADS.
WITH LOCK SHIELD

CONCEALED VALVES

Fig. No.		Each					
		$\frac{1}{2}$ "	$\frac{3}{8}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"
D231-2-3	Matt Finish	4/6	5/-	6/-	7/6	10/3	13/6
	Polished	4/11	5/7	6/11	8/9	11/10	15/4
	Nickel Plated on Polished	5/4	6/1	7/4	9/1	12/1	16/-
	Chrom. Plated on Polished	5/6	6/5	7/7	9/6	12/7	16/11
	With Compo. Wheel—						
D240/2	Polished Brass	—	—	7/3	9/4	—	—
"	Chromium Plated	—	—	8/10	11/2	—	—
	With Lock Shield—						
D240/2	Polished Brass	—	—	7/3	9/4	—	—
"	Chromium Plated	—	—	8/10	11/2	—	—
D78		—	27/-	—	—	—	—

Prices of Concealed Valves include fitting blind nipple to Radiator.

LOCK SHIELD KEY



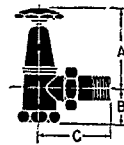
Fig. D260

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

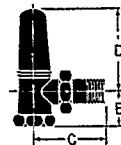
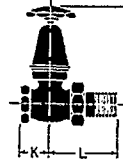
When ordering state size of valve for which key is required.

RADIATOR VALVES

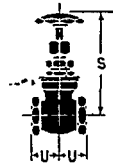
DIMENSIONS



D201

D202
D203

D221

D222
D223

D236



D237



D240



D242

Size	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	2"
A	$3\frac{1}{4}$ "	$3\frac{1}{4}$ "	$3\frac{1}{2}$ "	$4\frac{1}{8}$ "	$4\frac{3}{8}$ "	—	—
B	$1\frac{1}{8}$ "	$1\frac{1}{8}$ "	$1\frac{5}{8}$ "	$1\frac{1}{2}$ "	$1\frac{7}{8}$ "	—	—
C	$2\frac{1}{8}$ "	$2\frac{5}{8}$ "	$2\frac{1}{2}$ "	$2\frac{1}{2}$ "	$3\frac{1}{8}$ "	—	—
D	$2\frac{1}{8}$ "	$2\frac{1}{8}$ "	$2\frac{1}{8}$ "	$3\frac{1}{8}$ "	$4\frac{1}{8}$ "	—	—
J	$4\frac{1}{8}$ "	$4\frac{1}{8}$ "	$4\frac{1}{2}$ "	$4\frac{1}{8}$ "	$5\frac{7}{8}$ "	$6\frac{3}{8}$ "	$7\frac{7}{8}$ "
K	$1\frac{1}{8}$ "	$1\frac{1}{8}$ "	$1\frac{1}{8}$ "	$1\frac{1}{4}$ "	$1\frac{3}{8}$ "	$1\frac{3}{2}$ "	$1\frac{3}{8}$ "
L	$2\frac{1}{8}$ "	$2\frac{1}{8}$ "	$2\frac{1}{8}$ "	$2\frac{1}{8}$ "	$3\frac{1}{8}$ "	$3\frac{1}{2}$ "	$4\frac{3}{8}$ "
M	$3\frac{1}{4}$ "	$3\frac{1}{4}$ "	$3\frac{1}{8}$ "	$4\frac{3}{8}$ "	$5\frac{3}{8}$ "	$5\frac{3}{8}$ "	$6\frac{3}{8}$ "
N	—	$4\frac{1}{8}$ "	$4\frac{1}{8}$ "	5"	$5\frac{1}{8}$ "	$6\frac{1}{8}$ "	$7\frac{1}{8}$ "
O	—	$3\frac{1}{2}$ "	$1\frac{1}{8}$ "	$1\frac{7}{8}$ "	$1\frac{3}{8}$ "	$1\frac{7}{8}$ "	$1\frac{3}{8}$ "
P	—	$3\frac{1}{2}$ "	$3\frac{7}{8}$ "	$4\frac{7}{8}$ "	$5\frac{3}{8}$ "	$5\frac{3}{8}$ "	$6\frac{3}{8}$ "
Q	—	$4\frac{1}{8}$ "	$4\frac{1}{8}$ "	$5\frac{1}{8}$ "	$5\frac{1}{8}$ "	$6\frac{1}{8}$ "	$7\frac{1}{8}$ "
R	—	$3\frac{1}{8}$ "	$4\frac{1}{8}$ "	5"	$5\frac{1}{8}$ "	$6\frac{1}{8}$ "	$7\frac{1}{8}$ "
S	—	$4\frac{3}{8}$ "	$4\frac{3}{8}$ "	$5\frac{5}{8}$ "	$6\frac{1}{8}$ "	$6\frac{1}{8}$ "	$7\frac{1}{8}$ "
T	—	4"	$4\frac{1}{8}$ "	$5\frac{1}{8}$ "	$6\frac{1}{8}$ "	$6\frac{1}{8}$ "	$7\frac{1}{8}$ "
U	—	1"	$1\frac{1}{8}$ "	$1\frac{1}{2}$ "	$1\frac{3}{8}$ "	$1\frac{3}{2}$ "	$1\frac{3}{8}$ "
V	—	—	—	$3\frac{3}{8}$ "	$3\frac{1}{8}$ "	—	—
W	—	When Open	Open	$2\frac{1}{8}$ "	$2\frac{1}{8}$ "	—	—

CRANE

GUN METAL VALVES

GATE VALVES

WEDGE DISC

FOR WATER WORKING
PRESSURES UP TO
200 POUNDS



Fig. D236
COMPOSITION WHEEL

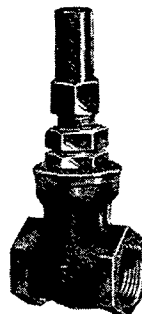


Fig. D237
LOCK SHIELD

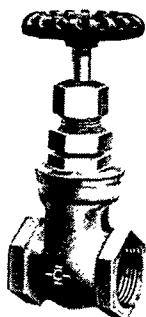


Fig. D151
IRON WHEEL

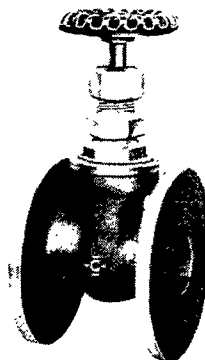


Fig. D160
IRON WHEEL
(B.S. Tables D and E)

Sizes:	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	2"	$2\frac{1}{2}$ "	3"
D236-7 Matt Finish	—	4/-	5/-	6/3	8/1	10/-	14/6	—	—	—
D151	3/10	3/10	3/10	4/9	6/-	7/8	9/5	13/10	22/4	27/10
D160	—	—	—	—	15/-	22/6	26/6	37/-	51/3	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.
SCREWED

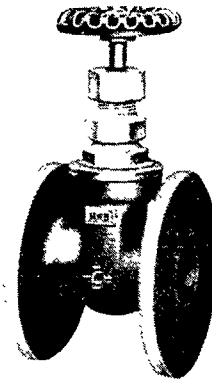


Fig. D164.
FLANGED B.S. TABLES D & E

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"	$1\frac{1}{2}$ "	$1\frac{1}{2}$ "
Prices	11/8	14/-	20/-

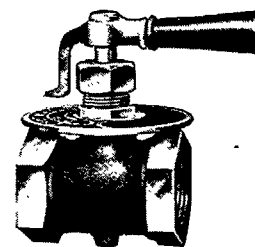


Fig. D76

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.

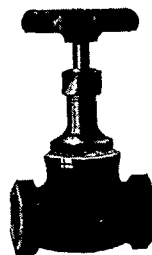
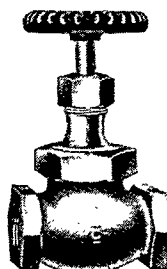


Fig. D5. Screwed
Fig. D6. Flanged
RENEWABLE DISC

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"
Fig. D1 ...	2/3	2/6	3/4	4/6	6/8	9/2	11/9	16/9	29/6	47/6
Fig. D5 ...	4/-	4/4	4/8	5/-	7/-	9/6	12/6	19/6	—	—
Fig. D6 ...	—	—	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"
Fig. D7 ...	5/-	5/8	7/6	10/-	12/6	18/-	23/9	36/3	61/6	91/6
Fig. D8 ...	—	—	15/-	19/-	25/6	34/6	45/-	73/6	105/-	140/-
Fig. D11	—	—	—	—	28/6	37/6	48/-	81/-	117/-	155/-

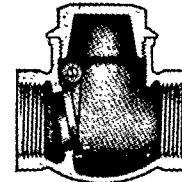
Renewable Disc Valves are provided with discs for steam, hot water, cold water, oil or compressed air. Please state on order which is required.
Flanged Valves are supplied undrilled unless otherwise ordered. Drilling charge 2d. per hole.

SWING CHECK VALVES

MAY BE USED IN A HORIZONTAL POSITION OR FOR
UPWARD FLOW

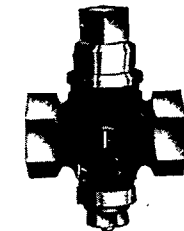
FOR STEAM WORKING PRESSURES UP TO 125 POUNDS
WATER WORKING PRESSURES NON-SHOCK UP TO 200 POUNDS

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."

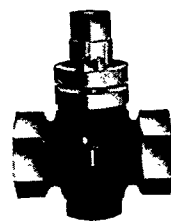


PLUG COCK

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

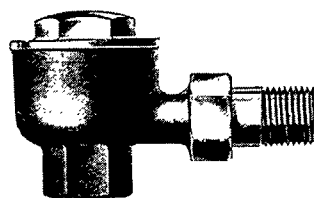


Fig. H74
Angle
Price £1/2/0

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

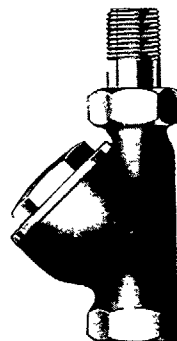


Fig. H77
Vertical

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

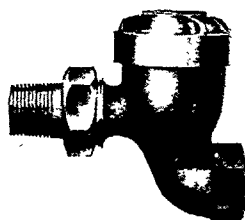


Fig. H70
Straight

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.

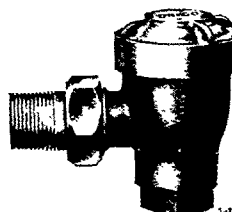


Fig. H71
Angle

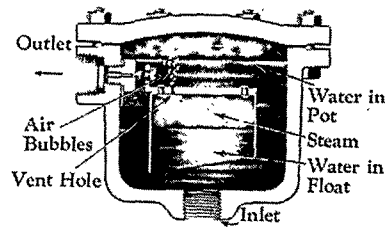
CRANE

CRANE INVERTED OPEN FLOAT STEAM TRAPS

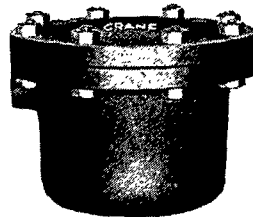
IRON BODY WITH GUN METAL WORKING PARTS
DISC AND SEAT OF STAINLESS STEEL

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.

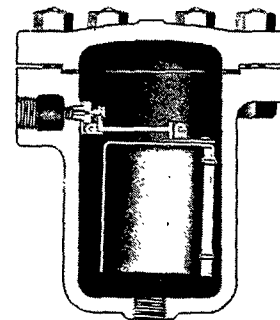


Fig. H52

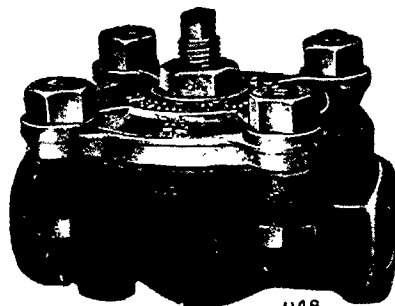
PRICES AND CAPACITIES. POUNDS OF CONDENSATION PER HOUR

No.: 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. Screwed Standard Gas Threads	Price Complete		Spare Parts		Continuous Discharge. Galls. per hour at 212° F.
	Cast Iron Female Ends	Gun Metal 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

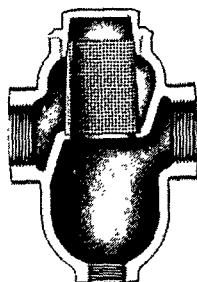


Fig. H121
CAST IRON

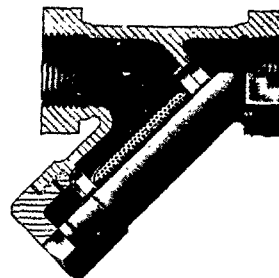


Fig. H112
GUN METAL

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"
Fig. H121 ...	11/3	14/-	18/-	22/6	27/9	47/6
Fig. H112 ...	14/-	15/-	22/-	39/9	40/9	57/-

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"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "
Fig. H151	113/6	123/6	139/6	157/6	197/6
Fig. H152	133/6	144/6	158/-	189/6	237/6

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

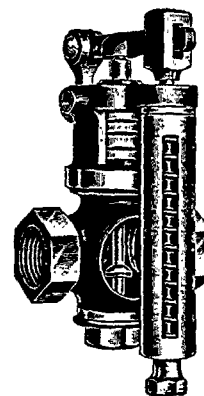


Fig. H151 Screwed
Fig. H152 Flanged

CRANE

EXPANSION JOINTS

GUN METAL

SCREWED ENDS
GUN METAL
THROUGHOUT



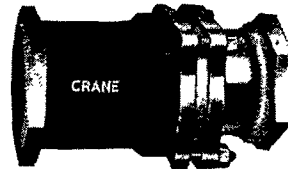
FOR STEAM WORKING
PRESSURES
UP TO 100 POUNDS

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 $\frac{1}{8}$ "	7 $\frac{1}{4}$ "	7 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	8 $\frac{1}{8}$ "	9 $\frac{1}{8}$ "	10 $\frac{1}{8}$ "

CAST IRON

IRON BODY
GUN METAL
SLEEVES



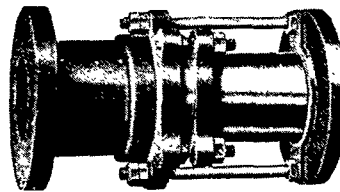
FOR STEAM
WORKING PRESSURES
UP TO 50 POUNDS

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 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	5"
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 $\frac{1}{2}$ "	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"

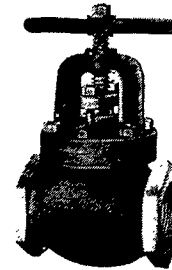


Fig. F351
SCREWED

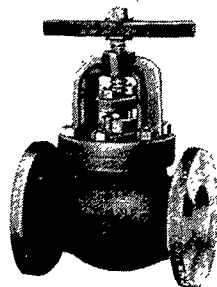


Fig. F352
FLANGED B.S. TABLES D and E

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"	7¼"	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

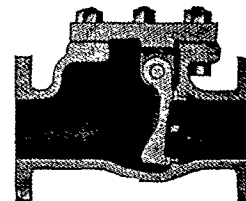


Fig. F440 SCREWED
Fig. F442 FLANGED

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

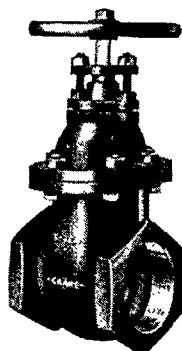


Fig. F51
SCREWED ENDS

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

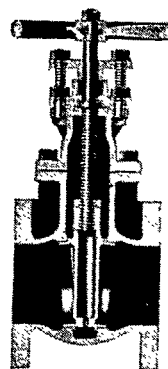


Fig. F52
SECTIONAL VIEW

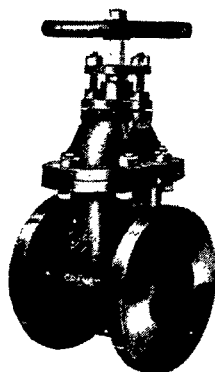


Fig. F52
FLANGED ENDS
BRITISH STANDARD
TABLES D and E FLANGES

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"	11¾"	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"

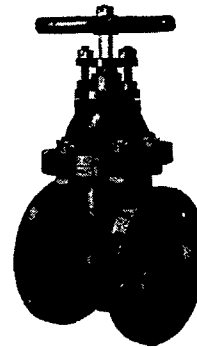


Fig. F62
NON-RISING STEM
FLANGED

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."

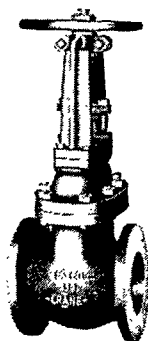


Fig. F81

Fig. F89 M.W.B.
FLANGED
B.S. TABLES 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

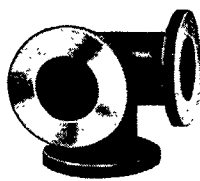
CAST IRON FLANGED FITTINGS

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



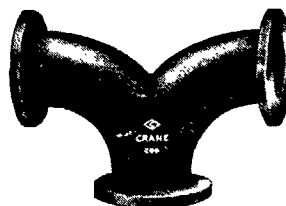
No. A56
FLANGED BENDS



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.

CRANE CAST IRON FLANGED FITTINGS

BRITISH STANDARD TABLES D and E FLANGES

TEST PRESSURE 200 POUNDS HYDRAULIC

FACED FLANGES

Sizes	A51 Flanged Elbows, Equal, Reducing		A53 Flanged Elbow Side Outlet	A54 45° Flanged Elbows	A55 Flanged Elbows with Duck- foot	A56 Flanged Bends	A57 45° Flanged Bends	A61 Flanged Long Sweep Twin Bends	A59 Flanged Twin Elbows	A59 Flanged Twin Elbows 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.

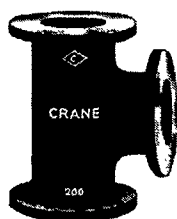
Flanged Fittings throughout are supplied undrilled unless ordered otherwise. Standard drilling charge is 2d. per hole.

CRANE

CAST IRON FLANGED FITTINGS

BRITISH STANDARD TABLES D and E FLANGES

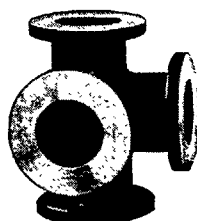
TEST PRESSURE 200 POUNDS HYDRAULIC



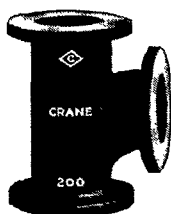
No. A63
FLANGED TEES



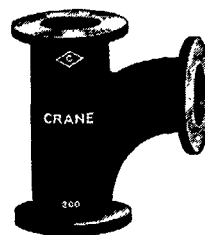
No. A63
REDUCING FLANGED TEES
REDUCING IN RUN OR BRANCH



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	A63 <i>Flanged Tees Equal and Reducing</i>	A66 <i>Flanged Tees Side Outlet</i>	A68 <i>Flanged Single Sweep Tees</i>	A70 <i>Flanged Long Single Sweep Tees</i>
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.

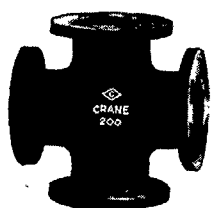
Flanged Fittings throughout are supplied undrilled unless otherwise ordered. Standard drilling charge is 2d. per hole.

CRANE

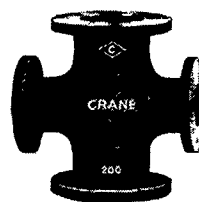
CAST IRON FLANGED FITTINGS

BRITISH STANDARD TABLES D and E FLANGES

TEST PRESSURE 200 POUNDS HYDRAULIC



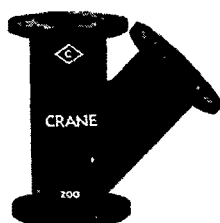
No. A72
FLANGED CROSSES



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

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

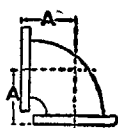
For General Dimensions—see page 138.

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

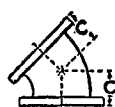
CRANE

CAST IRON FLANGED FITTINGS

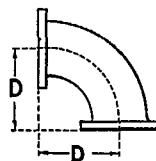
GENERAL DIMENSIONS



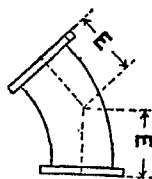
No. A51. Equal.
Reducing.



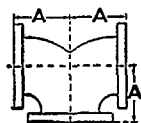
No. A54



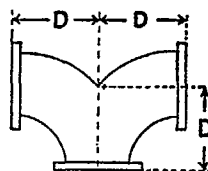
No. A56



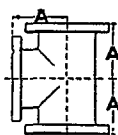
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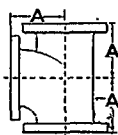
No. A59. Equal.
Reducing.



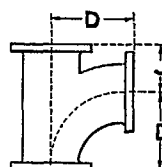
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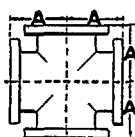
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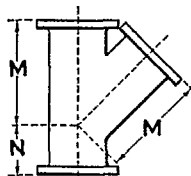
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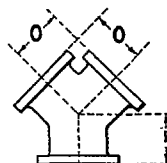
No. A70



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

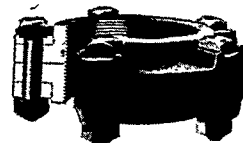
Fig. A142

Sizes:	1/2"	1/2"	3/4"	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/4"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"
Diameter	3 1/2"	3 3/4"	4"	4 1/4"	5 1/4"	6"	6 1/2"	7"	7 1/2"	8"	8 1/2"	9"	9 1/2"	10"	10 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"
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"
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"
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"
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"
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"
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

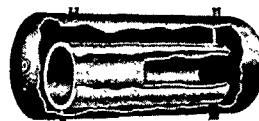


Fig. 936
COPPER

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 £ s. d.	Test Pressure lbs. per sq. in.	Working Pressure ft. head of water	GAUGES		PRICE £ 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

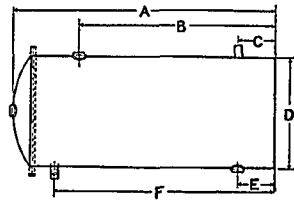
* Extra for Bolted Head on application

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 £ s. d.	Test Pressure lbs. per sq. in.	Working Pressure ft. head of water	GAUGES		PRICE £ 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 6	—	—	—	—	—
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

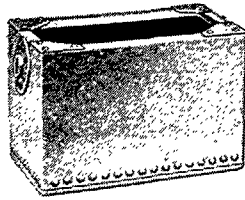


Fig. 939

GALVANIZED FEED AND EXPANSION CISTERNS

FOR SMALL HEATING INSTALLATIONS

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

*Cap- acity Gallons	DIMENSIONS			SIZE OF CONNECTIONS			Gauges	PRICE Without Cover	PRICE With loose 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 Approx.	Dimensions		16 G. Tested to 5 lbs. Pressure = 10 ft. Head of Water			14 G. Tested to 15 lbs. Pressure = 30 ft. Head of Water			12 G. Tested to 20 lbs. Pressure = 40 ft. Head of Water			10 G. Tested to 25 lbs. Pressure = 50 ft. Head of Water		
	Diameter Inside	Height 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	{ 18 × 27 }		1	19	1	2	3	7	2	10	0	2	16	11
28	{ 15 × 39 }		1	19	9	2	4	1	2	11	3	2	19	0
31	{ 18 × 30 }		2	0	4	2	5	0	2	12	9	3	1	7
34	{ 18 × 33 }		2	2	8	2	7	4	2	15	1	3	3	5
37	{ 18 × 36 }		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 × 48 }		2	12	9	2	18	0	3	7	7	3	17	7
56	{ 20 × 42 }		2	16	0	3	2	1	3	12	3	4	2	11
60	{ 20 × 48 }		—	—	—	3	4	8	3	14	11	4	6	11
65	{ 22 × 51 }		—	—	—	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 Approx.	Dimensions		16 G. Tested to 5 lbs. Pressure = 10 ft. Head of Water	14 G. Tested to 15 lbs. Pressure = 30 ft. Head of Water	12 G. Tested to 20 lbs. Pressure = 40 ft. Head of Water	$\frac{1}{2}$ " Tested to 25 lbs. Pressure = 50 ft. Head of Water
	Diameter Inches	Height 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 }					
21	15 × 33		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 }					
25	15 × 39		2 3 0	2 7 9	2 15 1	3 2 7
28	{ 18 × 30 }					
28	15 × 42		2 3 9	2 8 7	2 16 7	3 4 11
31	{ 20 × 27 }					
31	18 × 33		2 4 5	2 9 7	2 17 9	3 7 9
34	18 × 36		2 7 1	2 12 1	3 0 5	3 9 8
37	{ 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 }					
42	20 × 36		2 13 0	2 18 11	3 8 5	3 17 7
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 Approx.	Dimensions			20 G.	18 G.	16 G.	14 G.	12 G.	1"	3/8"
	Length Ft. In.	Width Ft. In.	Depth 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
300	5 0	3 9	3 0							
	7 0	3 6	2 8			8 19 7	9 15 9	10 12 1	12 0 4	18 0 3
	4 0	4 0	4 0							
400	x6 0	3 7	3 0			9 12 0	10 4 8	11 10 11	13 4 11	19 2 9
	8 0	3 9	2 8							
	5 0	4 0	4 0							
500	x6 0	4 0	3 4				12 6 0	13 16 1	15 16 3	22 6 9
	8 0	4 0	3 0							
	6 0	4 0	4 0							
600	7 0	4 0	4 0					15 11 4	17 17 8	25 8 4
	8 0	4 0	4 0							
	9 0	4 0	4 0					17 8 11	19 11 7	27 14 8
700	8 0	4 0	4 0					18 19 0	21 4 3	30 6 0
	9 0	4 0	4 0					20 4 1	23 1 11	32 10 8
	1000	8 0	5 0	4 0				21 9 4	24 19 5	34 15 4

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 Approx.	Dimensions			20 G.	18 G.	16 G.	14 G.	12 G.	$\frac{1}{8}$ "	$\frac{3}{16}$ "
	Length	Width	Depth							
	Ft. In.	Ft. In.	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 5	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							
	x2 5	1 10	1 10	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							
	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
100	3 0	2 6	2 2							
	x3 2	2 3	2 3	2 1 5	2 7 8	2 14 0	3 2 9	3 15 5	4 10 4	8 13 4
	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
250	5 0	3 0	2 8	—	—	6 5 7	7 0 8	7 15 8	8 17 0	13 9 1
300	6 0	3 0	2 8	—	—	7 1 11	8 3 3	8 15 8	10 0 9	14 18 4
350	x4 6	3 7	3 0	—	—	7 18 3	8 15 8	9 14 7	11 2 9	16 13 1
400	6 6	3 3	2 8	—	—	—	—	—	—	—
450	5 0	3 9	3 0	—	—	—	—	—	—	—
500	7 0	3 6	2 8	—	—	—	—	—	—	—
550	x6 0	3 7	3 0	—	—	—	—	—	—	—
600	8 0	3 9	2 8	—	—	—	—	—	—	—
650	5 0	4 0	4 0	—	—	—	11 6 0	12 11 0	14 8 8	20 13 4
700	x6 0	4 0	3 4	—	—	—	—	—	—	—
750	8 0	4 0	3 0	—	—	—	—	—	—	—
800	6 0	4 0	4 0	—	—	—	—	14 8 8	16 12 8	23 10 3
850	7 0	4 0	4 0	—	—	—	—	16 6 4	18 9 1	25 13 1
900	8 0	4 0	4 0	—	—	—	—	17 11 4	19 14 0	28 0 9
950	9 0	4 0	4 0	—	—	—	—	18 16 7	21 9 4	30 2 0
1000	8 0	5 0	4 0	—	—	—	—	20 1 7	23 4 4	32 3 3

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 Approx.	Dimensions (Assuming Handhole Side is regarded as the Top).			16 G. Tested to a Pressure of 1 lb. per sq. inch. For a Working Head of 1½ feet	14 G. Tested to a Pressure of 3 lbs. per sq. inch. For a Working Head of 4½ feet.	12 G. Tested to a Pressure of 7½ lbs. per sq. inch. For a Working Head of 10 feet	1" $\frac{1}{2}$ " Tested to a Pressure of 10 lbs. per sq. inch. For a Working Head of 15 feet
	Length Ft. In.	Width Ft. In.	Depth 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	x3 2	2 3	2 3	—	—	—	7 5 7
	2 6	2 6	2 6				
100				—	—	—	8 4 5

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"	$\frac{3}{4}$ "	$\frac{4}{-}$	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.

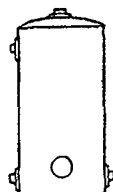
EXTRAS TO OPEN TOP CISTERNS

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).

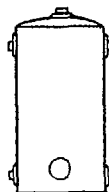
Up to and including 8 ins. 12/8	Up to and including 10 ins. 16/4	Up to and including 12 ins. 18/11	Up to and including 14 ins. 21/4	Up to and including 18 ins. 28/9	each extra.
BRIDGED LIDS ...	Single with Cast Bridge, up to	8 ins. mean diam.	...	...	25/1 extra.
(Mean diameter of Hole)	" " Wrought	"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



A.



B.



C.



D.



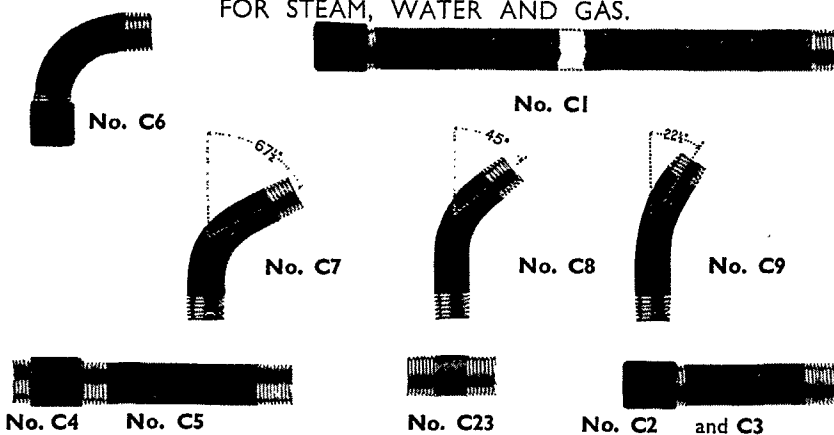
E.

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	1/8"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"	6"
TUBES.															
C1	Tubes—														
	2 ft. long & over, per ft.	-/4	-/4 1/2	-/5 1/2	-/6 1/2	-/9 1/2	1/1	1/4 1/2	1/10	2/10	3/3	4/-	4/5	6/-	7/6
C2	Pieces—														
	12" to 23 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	4" to 1 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
	Long Screws—														
C4	12" to 23 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 1 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 1/2	2/7 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 1/2	1/11 1/2	2/3 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 1/8 in. to 3/8 in.—8 feet and up, and sizes 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 1/8 in. to 3/8 in.—8 feet and up, and sizes 1/2 in. to 6 in.—15 feet and up)—

- (a) Screwed, without sockets, less 2 1/2 % on the net.
(b) Plain ends, without sockets, less 3 1/2 % on the net.

EXTRAS.

Random lengths under 15 feet are charged as follows:—

	2 ft. to under 4 ft.	4 ft. to under 6 ft.	6 ft. to under 8 ft.	8 ft. to under 15 ft.
Screwed and Socketed	15 %	7 1/2 %	3 1/2 %	2 1/2 % less gross.
Screwed without Sockets	7 1/2 %	3 1/2 %	2 1/2 %	1 1/2 % " "
Plain Ends without Sockets	3 1/2 %	1 1/2 %	1 1/2 %	2 % " "

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

N.B.—In 1/8 in., 1/4 in. and 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 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

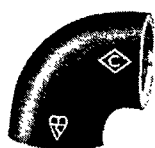
British Standard



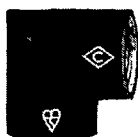
100 lbs. Air Tested
Under Water *

MALLEABLE IRON FITTINGS

PLAIN



No. 101
ELBOWS,
EQUAL AND REDUCING



No. 102
SQUARE ELBOWS



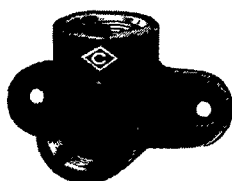
No. 103
ELBOWS, M. & F.



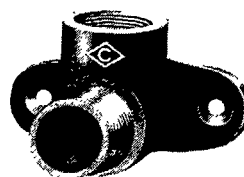
No. 105
ELBOWS, 45°



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/-	15 $\frac{1}{2}$	22 $\frac{1}{2}$
102	—	—	-6 $\frac{1}{2}$	-8 $\frac{1}{2}$	1/-	15 $\frac{1}{2}$	22 $\frac{1}{2}$
103	-7 $\frac{1}{4}$	-7 $\frac{1}{4}$	-7 $\frac{1}{4}$	-9 $\frac{1}{2}$	1/1 $\frac{1}{4}$	17 $\frac{1}{4}$	—
105	-5 $\frac{1}{2}$	-5 $\frac{1}{2}$	-6 $\frac{1}{2}$	-8 $\frac{1}{2}$	1/-	15 $\frac{1}{2}$	22 $\frac{1}{2}$
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 $\frac{1}{4}$	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 $\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

CRANE

British Standard



100 lbs. Air Tested
Under Water *

MALLEABLE IRON FITTINGS

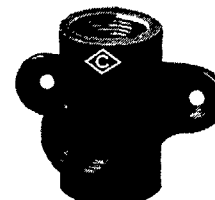
PLAIN



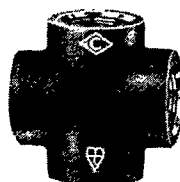
No. 115
TEES,
EQUAL AND REDUCING



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	$5/7\frac{1}{4}$	$7/7\frac{1}{4}$	$9/7\frac{1}{2}$	$16/9\frac{1}{2}$	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

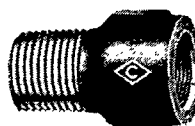
PLAIN



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 1/2	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.

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. 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	—	—	—	-4 $\frac{1}{4}$	-6 $\frac{1}{2}$	-8 $\frac{1}{2}$	1/1 $\frac{1}{4}$	1/7 $\frac{1}{4}$
147	-2 $\frac{3}{4}$	-2 $\frac{3}{4}$	-3	-3 $\frac{3}{4}$	-6	-8	1/-	1/4 $\frac{3}{4}$
149	—	—	-6	-7 $\frac{1}{4}$	-9 $\frac{1}{2}$	1/-	1/6	2/-
150	-2 $\frac{1}{2}$	-2 $\frac{1}{2}$	-3	-3 $\frac{1}{4}$	-4 $\frac{1}{4}$	-5 $\frac{3}{4}$	-7 $\frac{3}{4}$	-10 $\frac{1}{4}$
151	-6 $\frac{1}{2}$	-6 $\frac{1}{2}$	-8 $\frac{1}{2}$	-9 $\frac{1}{2}$	1/2 $\frac{1}{2}$	1/8 $\frac{1}{2}$	2/7 $\frac{1}{4}$	3/6
152	-7 $\frac{1}{4}$	-7 $\frac{1}{4}$	-9 $\frac{1}{2}$	-10 $\frac{3}{4}$	1/3 $\frac{1}{2}$	1/10 $\frac{3}{4}$	2/9 $\frac{1}{2}$	3/9 $\frac{1}{2}$
155	-6 $\frac{1}{2}$	-6 $\frac{1}{2}$	-8 $\frac{1}{2}$	-9 $\frac{1}{2}$	1/2 $\frac{1}{2}$	1/8 $\frac{1}{2}$	2/7 $\frac{1}{4}$	3/6

No.	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	5"	6"	—
146	2/1 $\frac{1}{4}$	—	—	—	—	—	—	—
147	1/10 $\frac{3}{4}$	3/3 $\frac{1}{2}$	5/-	7/-	9/-	21/7 $\frac{1}{4}$	30/7 $\frac{1}{4}$	—
149	3/-	5/-	9/-	—	—	—	—	—
150	1/5 $\frac{1}{4}$	2/1 $\frac{1}{4}$	3/4 $\frac{3}{4}$	4/7 $\frac{1}{4}$	6/-	12/-	18/-	—
151	5/-	9/-	14/-	18/-	24/-	63/-	94/-	—
152	5/6	10/-	16/-	21/-	27/6	72/-	108/-	—
155	5/-	9/-	14/-	18/-	24/-	63/-	94/-	—

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 *

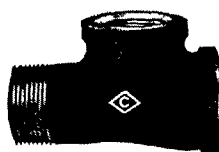
MALLEABLE IRON FITTINGS

BANDED

FOR STEAM WORKING PRESSURES UP TO 150 POUNDS
FOR WATER WORKING PRESSURES UP TO 200 POUNDS



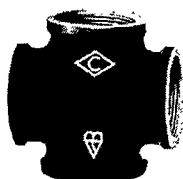
No. 161
TEES,
EQUAL AND REDUCING



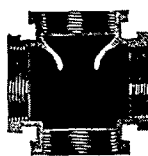
No. 163
TEES,
MALE AND FEMALE



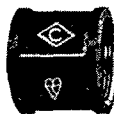
No. 167
TONGUE TEES,
EQUAL AND REDUCING



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 $\frac{1}{2}$	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 $\frac{1}{4}$	-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 $\frac{1}{4}$	-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 $\frac{1}{4}$	4/4 $\frac{3}{4}$	7/-	9/6	12/-	21/-	30/-	—
177	2/7 $\frac{1}{4}$	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 *

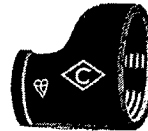
MALLEABLE IRON FITTINGS

BANDED

FOR STEAM WORKING PRESSURES UP TO 150 POUNDS
FOR WATER WORKING PRESSURES UP TO 200 POUNDS



No. 179
REDUCING SOCKETS



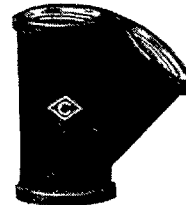
No. 180
ECCENTRIC SOCKETS



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	—	—	—	—	—	1/-	1/6	2/-
180	—	—	—	—	—	1/4	1/9 $\frac{1}{2}$	2/4 $\frac{3}{4}$
181	—	—	—	—	—	1/9 $\frac{1}{2}$	3/-	4/-
185	—	—	—	—	—	1/2 $\frac{1}{2}$	1/2 $\frac{1}{2}$	1/9 $\frac{1}{2}$
187	—	—	—	—	—	3/-	4/2 $\frac{1}{2}$	6/-
188	—	—	—	—	—	2/10 $\frac{3}{4}$	4/4 $\frac{3}{4}$	6/-

No.	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	5"	6"	—
179	3/-	4/9 $\frac{1}{2}$	7/8 $\frac{1}{2}$	10/4 $\frac{3}{4}$	13/-	24/-	37/-	—
180	3/2 $\frac{1}{2}$	5/2 $\frac{1}{2}$	8/6	—	16/-	—	—	—
181	5/9 $\frac{1}{2}$	9/6	15/3	19/6	26/-	—	—	—
185	2/3 $\frac{1}{2}$	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



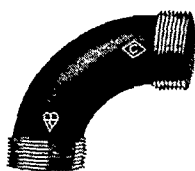
100 lbs. Air Tested
Under Water *

LONG SWEEP

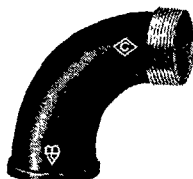
MALLEABLE IRON FITTINGS

BANDED

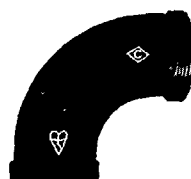
FOR STEAM WORKING PRESSURES UP TO 150 POUNDS
FOR WATER WORKING PRESSURES UP TO 200 POUNDS



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/-	1/4 $\frac{3}{4}$	2/2 $\frac{1}{2}$	3/3 $\frac{1}{2}$	4/9 $\frac{1}{2}$
192	-8 $\frac{1}{2}$	-10 $\frac{3}{4}$	1/1 $\frac{1}{4}$	1/6	2/3 $\frac{1}{2}$	3/6	5/-
193	-9 $\frac{1}{2}$	1/-	1/2 $\frac{1}{2}$	1/8 $\frac{1}{2}$	2/6	3/10 $\frac{3}{4}$	5/6
194	-6	-7 $\frac{3}{4}$	-9 $\frac{1}{2}$	1/1 $\frac{1}{4}$	1/9 $\frac{1}{2}$	2/7 $\frac{1}{4}$	3/9 $\frac{1}{2}$
195	-6 $\frac{3}{4}$	-8 $\frac{3}{4}$	-10 $\frac{3}{4}$	1/2 $\frac{1}{2}$	1/9 $\frac{1}{2}$	2/9 $\frac{1}{2}$	4/-
196	-7 $\frac{3}{4}$	-9 $\frac{1}{2}$	1/-	1/4 $\frac{3}{4}$	2/-	3/2 $\frac{1}{2}$	4/6

No.	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"	5"	6"
191	7/-	13/-	19/-	28/-	38/-	80/-	120/-
192	7/6	14/-	21/-	30/-	42/-	87/-	130/-
193	8/3 $\frac{1}{2}$	15/4 $\frac{3}{4}$	23/-	33/-	46/-	92/-	140/-
194	5/6	10/6	15/2 $\frac{1}{2}$	22/6	30/-	69/-	110/-
195	6/-	11/2 $\frac{1}{2}$	16/9 $\frac{1}{2}$	24/-	33/7 $\frac{1}{4}$	76/-	120/-
196	7/-	13/-	18/4 $\frac{3}{4}$	27/-	37/-	81/-	130/-

For Dimensions—see General Catalogue.

* Fittings 2 $\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

CRANE

British Standard



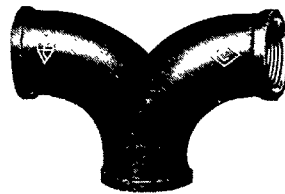
100 lbs. Air Tested
Under Water *

LONG SWEEP

MALLEABLE IRON FITTINGS

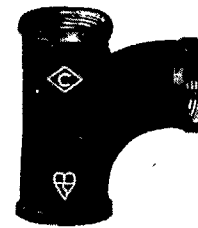
BANDED

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



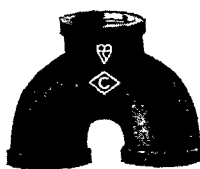
No. 213

OPEN RETURN BENDS



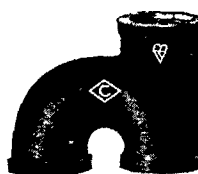
No. 214

WIDE RETURN BENDS



No. 215

BACK OUTLET RETURN
BENDS



No. 216

SIDE OUTLET RETURN
BENDS

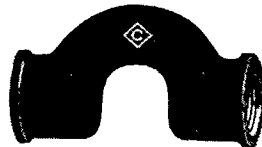
No.	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	$1\frac{1}{2}$ "	2"	$2\frac{1}{2}$ "	3"	4"
211	$\frac{1}{2} \times 1$ 1/-	$\frac{3}{4} \times 1\frac{1}{4}$ 1/7 $\frac{1}{2}$	$1 \times 1\frac{1}{2}$ 2/4 $\frac{1}{2}$	$1\frac{1}{4} \times 1\frac{3}{4}$ 3/4 $\frac{1}{2}$	$1\frac{1}{2} \times 2\frac{1}{4}$ 4/8 $\frac{1}{2}$	$2 \times 2\frac{3}{4}$ 6/8 $\frac{1}{2}$	—	—	—
212	$\frac{1}{2} \times 1\frac{1}{4}$ 1/3 $\frac{1}{2}$	$\frac{3}{4} \times 1\frac{1}{2}$ 1/10 $\frac{3}{4}$	$1 \times 1\frac{7}{8}$ 2/9 $\frac{1}{2}$	$1\frac{1}{4} \times 2\frac{1}{4}$ 4/-	$1\frac{1}{2} \times 2\frac{1}{2}$ 5/6	2×3 9/-	—	—	—
213	$\frac{1}{2} \times 1\frac{1}{2}$ 1/4 $\frac{3}{4}$	$\frac{3}{4} \times 2$ 2/1 $\frac{1}{2}$	$1 \times 2\frac{1}{2}$ 3/-	$1\frac{1}{4} \times 3$ 4/4 $\frac{3}{4}$	$1\frac{1}{2} \times 3\frac{1}{2}$ 6/-	2×4 9/- 2×5 12/6	$2\frac{1}{2} \times 4\frac{1}{2}$ 15/3 $\frac{1}{2}$	3×5 22/8 $\frac{1}{2}$	4×6 47/6
214	—	$\frac{3}{4} \times 4$ 4/4 $\frac{3}{4}$	1×4 5/- 1×6 8/-	$1\frac{1}{4} \times 6$ 10/-	$1\frac{1}{2} \times 6$ 12/-	2×6 14/-	3×8 33/7 $\frac{1}{4}$	—	—
215	$\frac{1}{2} \times 1\frac{1}{2}$ 2/2 $\frac{1}{2}$	$\frac{3}{4} \times 2$ 2/10 $\frac{3}{4}$	$1 \times 2\frac{1}{2}$ 4/1 $\frac{1}{2}$ 1×4 6/-	$1\frac{1}{4} \times 3$ 5/8 $\frac{1}{2}$	$1\frac{1}{2} \times 3\frac{1}{2}$ 7/8 $\frac{1}{2}$	2×4 14/6	—	—	—
216	$\frac{1}{2} \times 1\frac{1}{2}$ 2/1 $\frac{1}{2}$	$\frac{3}{4} \times 2$ 3/2 $\frac{1}{2}$	$1 \times 2\frac{1}{2}$ 4/6	$1\frac{1}{4} \times 3$ 6/6	$1\frac{1}{2} \times 3\frac{1}{2}$ 9/-	2×4 15/-	—	—	—

For Dimensions—see General Catalogue.

* Fittings $2\frac{1}{2}$ " size and over tested 300 lbs. hydraulic.

TESTED

MALLEABLE IRON FITTINGS



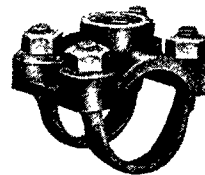
No. 221
CROSSOVERS



No. 222
FEMALE OFFSETS



No. 229
PIPE SADDLE
ONE BOLT



No. 230
PIPE SADDLE
TWO BOLT

No.	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "
221	$2\frac{1}{2}$	$3\frac{1}{2}$ $\frac{3}{4} \times 1\frac{1}{2}$	$4\frac{1}{2}$ $1 \times 1\frac{1}{2}$	—
222	—	$2\frac{1}{2}$	$3\frac{1}{2}$	$1\frac{1}{2} \times 2$ 5/-

No.	Size of Main Tapped for Branch	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	2"	3"	4"	6"
229	Price	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	2"	3"	4"	6"
		$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	$1\frac{1}{4}$ "	2"	3"	4"	6"
		4/2	4/2	4/6	5/3	5/3	6/3	7/3	8/4

No.	Size of Main Tapped for Branch	4"	5"	6"	8"	10"	12"	14"	16"
229	Price	4"	5"	6"	8"	10"	12"	14"	16"
		2 $\frac{1}{2}$ "-3"	1 $\frac{1}{2}$ "-1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "-3"	1"-1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "-3"	
		16/8	7/6	9/-	16/8	9/4	10/5	20/10	

No.	Size of Main Tapped for Branch	$\frac{1}{2}$ "	2"	$2\frac{1}{2}$ "	3"	4"	5"	6"
230	Price	$\frac{1}{2}$ "	2"	$2\frac{1}{2}$ "	3"	4"	5"	6"
		$\frac{1}{2}$ "	$\frac{1}{2}$ "-1 $\frac{1}{2}$ "	$\frac{3}{4}$ "-1 $\frac{1}{2}$ "	$\frac{3}{4}$ "-2"	$\frac{3}{4}$ "-2"	1"-3"	1"-2"
		8/4	8/4	10/5	10/5	12/6	23/-	23/-

No.	Size of Main Tapped for Branch	6"	7"	8"	9"	10"	10"	12"
230	Price	6"	7"	8"	9"	10"	10"	12"
		2 $\frac{1}{2}$ "-4"	1"-4"	1"-4"	1 $\frac{1}{2}$ "-4"	2"-5"	6"	2"-6"
		48/-	54/-	54/-	71/-	83/6	105/-	117/-

TESTED

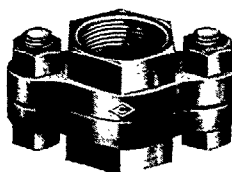
MALLEABLE IRON FITTINGS



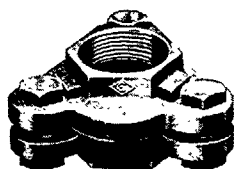
No. 233
ROUND FLANGES
B.S. TABLE D. DIAMETERS



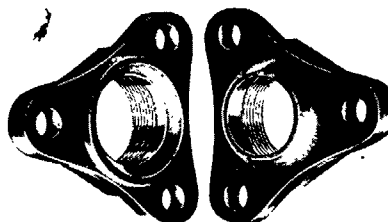
No. 234
OVAL FLANGES



No. 236
TWO-BOLT UNIONS



No. 237
THREE-BOLT UNIONS



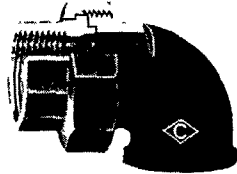
No. 238
THREE-BOLT UNIONS, WITH GROUND-IN
BALL AND SOCKET JOINT

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	$-7\frac{1}{2}$	$-9\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$2\frac{1}{2}$	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/-	$\frac{21}{6}$	—	—	—	—

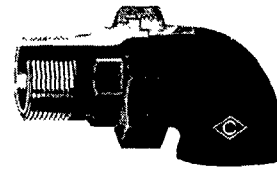
CRANE

UNIONS AND UNION FITTINGS MALLEABLE IRON

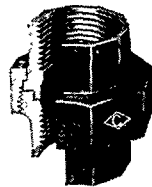
FLAT-FACED SEATING
GASKETS EXTRA



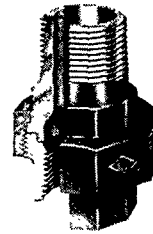
No. 246
UNION ELBOWS, FEMALE



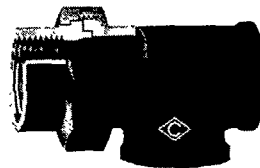
No. 247
UNION ELBOWS, MALE AND FEMALE



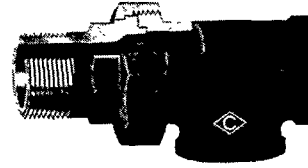
No. 241
STANDARD UNIONS.
GASKETS EXTRA



No. 242
STANDARD UNIONS, M. & F.,
GASKETS EXTRA



No. 249
UNION TEES, FEMALE



No. 250
UNION TEES, MALE AND FEMALE

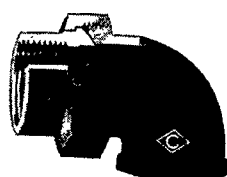
No.	$\frac{1}{8}$ "	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"
241	1/7 $\frac{1}{2}$	1/7 $\frac{1}{2}$	2/-	2/4 $\frac{1}{2}$	3/-	3/7 $\frac{1}{2}$	4/9 $\frac{1}{2}$	6/4 $\frac{1}{2}$	9/-	16/-	25/-	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.

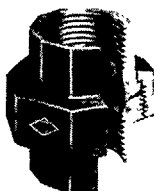
CRANE

UNIONS AND UNION FITTINGS MALLEABLE IRON

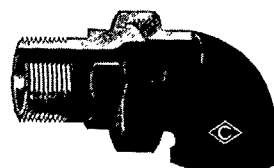
ALL IRON. GROUND SEAT



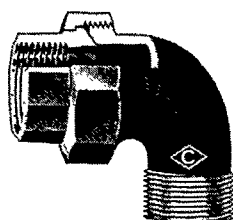
No. 261
UNION ELBOWS,
FEMALE



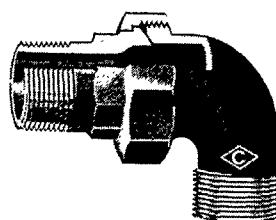
No. 256
FEMALE UNIONS



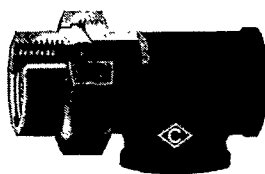
No. 262
UNION ELBOWS,
M. & F.



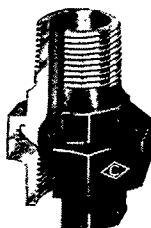
No. 259
FEMALE UNION WITH MALE ELBOW



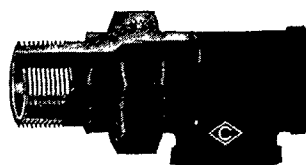
No. 260
MALE UNION WITH MALE ELBOW



No. 264
UNION TEES, FEMALE



No. 257
MALE AND FEMALE

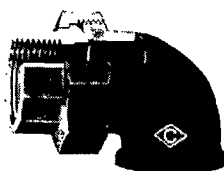


No. 265
UNION TEES, M. & F.

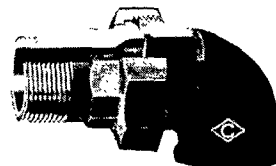
No.	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	3 $\frac{1}{2}$ "	4"
256	2/1 $\frac{1}{2}$	2/4 $\frac{1}{2}$	2/10 $\frac{1}{2}$	3/7 $\frac{1}{2}$	4/4 $\frac{1}{2}$	5/9 $\frac{1}{2}$	7/9 $\frac{1}{2}$	11/-	19/6	31/6	46/-	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



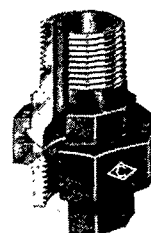
No. 276
RAILROAD UNION ELBOWS,
FEMALE



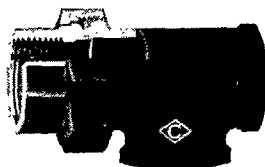
No. 277
RAILROAD UNION ELBOWS,
MALE AND FEMALE



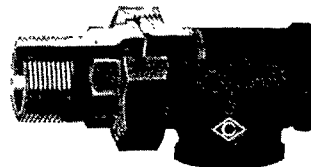
No. 271
RAILROAD UNIONS, FEMALE



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	—	—	—	—

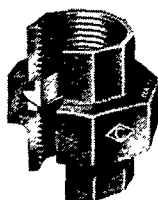
CRANE

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

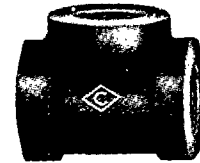
FOR STEAM WORKING PRESSURES UP TO 125 POUNDS
FOR WATER WORKING PRESSURES UP TO 175 POUNDS

BANDED

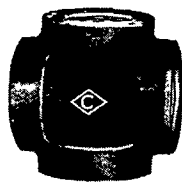


No. A1
ELBOWS, R.H.

No. A3
ELBOWS R. & L

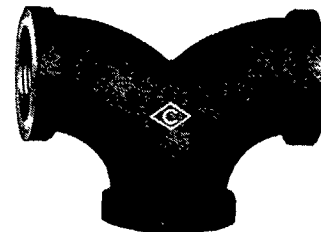


No. A6
TEES EQUAL

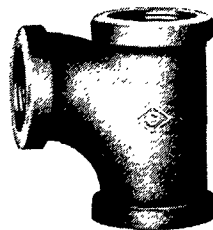


No. A11
CROSSES

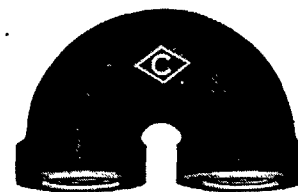
No. A12
REDUCING CROSSES



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

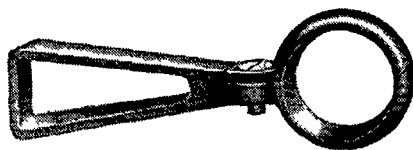


Fig. 502

SCREW ON

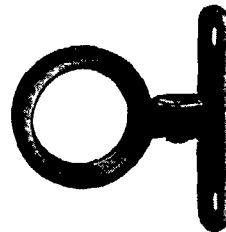


Fig. 501

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	$-\frac{1}{2}\frac{1}{2}$	$-\frac{1}{3}$	$-\frac{1}{3}\frac{1}{4}$	$-\frac{1}{3}\frac{3}{4}$	$-\frac{1}{4}\frac{1}{2}$	$-\frac{1}{6}\frac{1}{2}$	$-\frac{1}{8}\frac{1}{2}$	1/-	$\frac{1}{4}$	$\frac{1}{9}$	$\frac{2}{4}$	$\frac{2}{8}$
501	Galvanized	$-\frac{1}{2}\frac{3}{4}$	$-\frac{1}{3}\frac{1}{2}$	$-\frac{1}{3}\frac{3}{4}$	$-\frac{1}{4}$	$-\frac{1}{5}\frac{1}{2}$	$-\frac{1}{7}\frac{1}{2}$	$-\frac{1}{9}\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{7}$	$\frac{2}{1}$	$\frac{2}{7}$	$\frac{3}{-}$
502	Black Japanned	$-\frac{1}{2}\frac{1}{2}$	$-\frac{1}{2}\frac{3}{4}$	$-\frac{1}{3}\frac{1}{4}$	$-\frac{1}{3}\frac{1}{2}$	$-\frac{1}{4}\frac{1}{2}$	$-\frac{1}{6}\frac{1}{2}$	$-\frac{1}{8}$	1/-	$\frac{1}{6}$	$\frac{1}{11}$	$\frac{2}{6}$	$\frac{3}{-}$
502	Galvanized	$-\frac{1}{3}$	$-\frac{1}{3}\frac{1}{4}$	$-\frac{1}{4}$	$-\frac{1}{4}\frac{1}{4}$	$-\frac{1}{5}\frac{1}{2}$	$-\frac{1}{7}\frac{1}{2}$	$-\frac{1}{9}\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{9}$	$\frac{2}{3}$	$\frac{2}{10}$	$\frac{3}{6}$

LONG SHANK

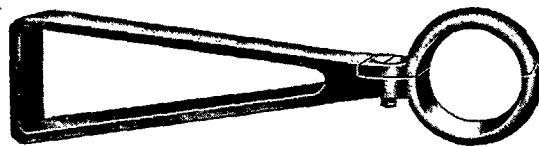


Fig. 503

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 ...	$-\frac{1}{6}$	$-\frac{1}{6}\frac{1}{2}$	$-\frac{1}{8}$	$-\frac{1}{10}\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{6}$	$\frac{2}{-}$	$\frac{2}{4}$	$\frac{4}{-}$	$\frac{4}{6}$
503	Galvanized ...	$-\frac{1}{7}$	$-\frac{1}{7}\frac{1}{2}$	$-\frac{1}{10}$	$\frac{1}{1}$	$\frac{1}{4}$	$\frac{1}{9}$	$\frac{2}{6}$	$\frac{2}{10}$	$\frac{5}{-}$	$\frac{5}{6}$

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

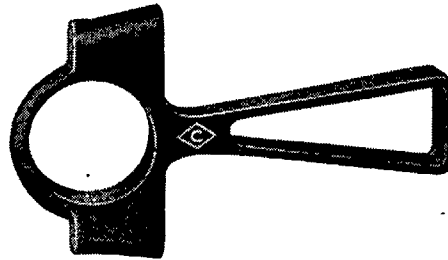
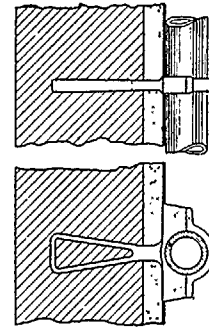


Fig. 506



$\frac{1}{2}$ "	$\frac{3}{4}$ "	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

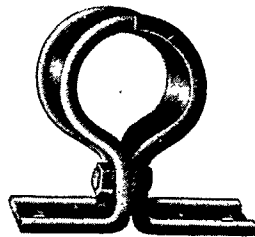


Fig. 507
BLACK AND GALVANIZED

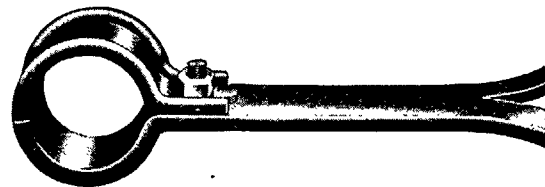


Fig. 508
BLACK AND GALVANIZED

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 $\frac{1}{2}$	-/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 $\frac{1}{2}$	-/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.

CRANE

PIPE BRACKETS

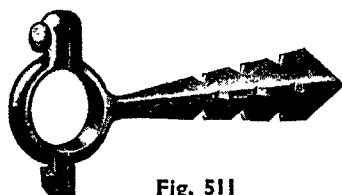


Fig. 511

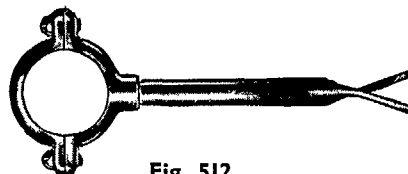


Fig. 512

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

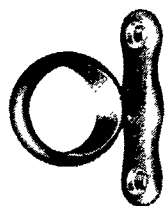


Fig. 513
SOLID HOLDERS

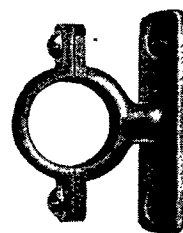


Fig. 514
SPLIT HOLDERS

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

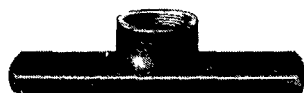


Fig. 515
BACK PLATES



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 $\frac{1}{4}$	-/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- 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: Screwed for Iron Pipe	$\frac{1}{2}$ " $\frac{1}{4}$ "	$\frac{3}{4}$ " $\frac{1}{4}$ "	1" $\frac{1}{4}$ "	$1\frac{1}{4}$ " $\frac{1}{4}$ "	$1\frac{1}{2}$ " $\frac{3}{8}$ "	2" $\frac{3}{8}$ "	$2\frac{1}{2}$ " $\frac{1}{2}$ "	3" $\frac{1}{2}$ "	$3\frac{1}{2}$ " $\frac{1}{2}$ "	4" $\frac{1}{2}$ "
Prices 	-3	-4	-4½	-5	-6½	-7	-10½	1/1	1/4	1/5

PIPE HANGERS

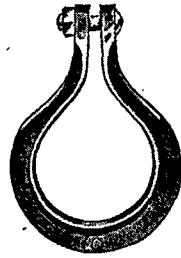


Fig. 527
MALLEABLE IRON
HINGED
(COMPLETE)



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	—

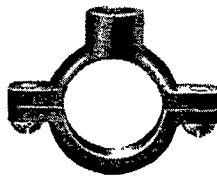


Fig. 529
PIPE RINGS (SPLIT)

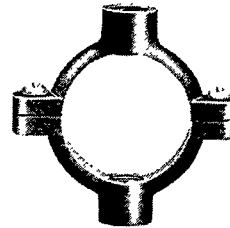


Fig. 530
PIPE RINGS (DOUBLE)

Fig. No.	Sizes: Screwed:	$\frac{3}{8}$ " $\frac{1}{2}$ "	$\frac{1}{2}$ " $\frac{3}{4}$ "	$\frac{3}{4}$ " 1"	1" $1\frac{1}{4}$ "	$1\frac{1}{4}$ " $\frac{3}{8}$ "	2" $\frac{3}{8}$ "	$2\frac{1}{2}$ " $\frac{1}{2}$ "	3" $\frac{1}{2}$ "	$3\frac{1}{2}$ " $\frac{1}{2}$ "	4" $\frac{1}{2}$ "	5" $\frac{1}{2}$ "	6" $\frac{1}{2}$ "
529	Black ...	-4	-4	-5	-5 $\frac{1}{2}$	-6 $\frac{1}{2}$	-7	1/-	1/2	1/6	1/10	3/-	4/-
	Galvd. ...	-4 $\frac{1}{2}$	-4 $\frac{1}{2}$	-5 $\frac{1}{2}$	-6	-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	-7 $\frac{1}{2}$	-9 $\frac{1}{2}$	1/3 $\frac{1}{2}$	1/7	2/-	2/3	4/6	5/6
	Galvd. ...	-5	-5	-6	-7 $\frac{1}{2}$	-8	-9 $\frac{1}{2}$	1/7	2/6	2/10	5/7	6/10	—



Fig. 531
SOLID PIPE RINGS

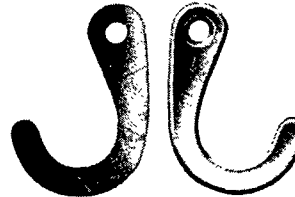


Fig. 532
CALLIPER HOOKS

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 $\frac{1}{2}$	-5 $\frac{1}{2}$	-7 $\frac{1}{2}$	-8	-10 $\frac{1}{2}$	2/-	2/4	3/-	4/-

CRANE
MALLEABLE IRON PIPE HANGERS



Fig. 551



Fig. 552

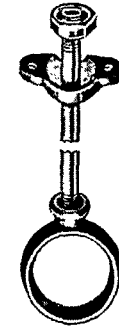


Fig. 553

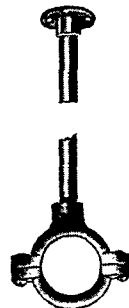


Fig. 560

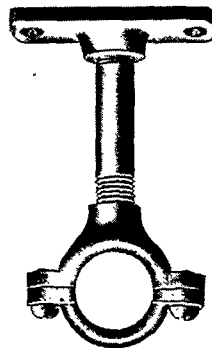


Fig. 561

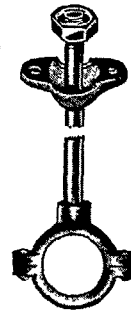


Fig. 566

Above are combinations built up from separate units
Any combination quoted for on receipt of Specification

CRANE

ROLLER BRACKETS AND CHAIRS

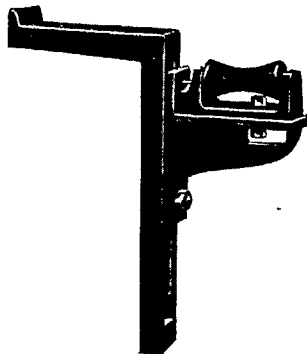


Fig. 577

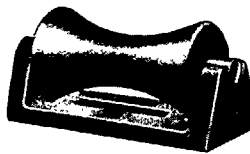


Fig. 573

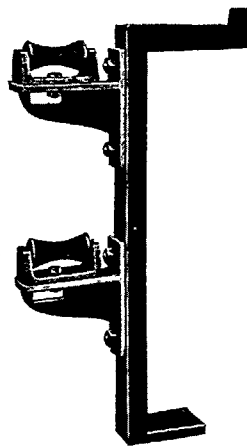


Fig. 578

Figure No.	Sizes:	No. 1 Small	No. 2 Medium	No. 3 Large	No. 4 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 13/16"	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

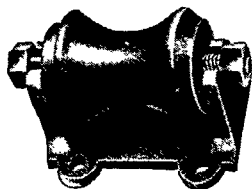
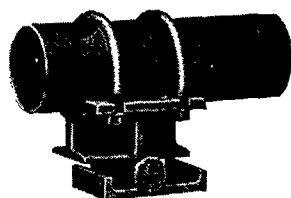


Fig. 574

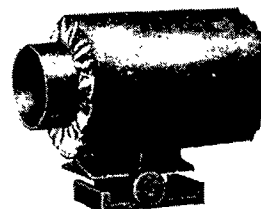
Number	1	2	3	4	5	6	7
For Pipe Sizes:	2"	2½"	3"	3½"	4"	5"	6"
Roller and Chair Complete ...	3/-	3/4	3/6	3/10	4/2	5/-	6/-

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

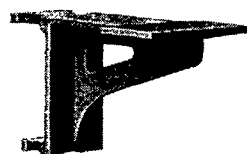


Fig. 592

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

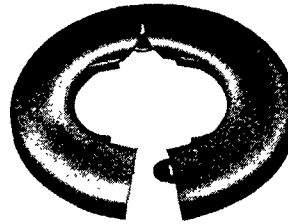


Fig. 582
ROLLED STEEL, HINGED

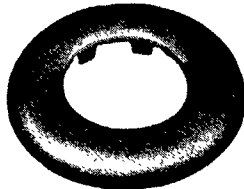


Fig. 585
ROLLED STEEL, ONE-PIECE

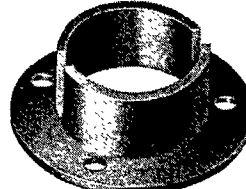


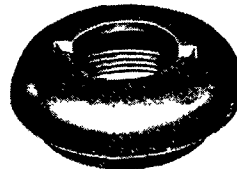
Fig. 588
CAST IRON

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 $\frac{1}{2}$	-/5 $\frac{1}{2}$	-/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



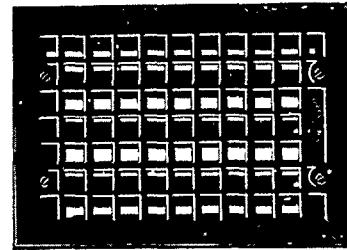
THIMBLES

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 in.	Black Japanned s. d.	Size of Opening in.	Black Japanned s. d.	Size of Opening in.	Black Japanned 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

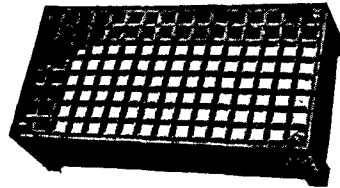


Fig. 914

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" s. d.	9" × 9" s. d.	12" × 6" s. d.	12" × 9" s. d.	12" × 12" s. d.	14" × 9" s. d.	18" × 6" s. d.	18" × 9" 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" s. d.	9" × 9" s. d.	12" × 6" s. d.	12" × 9" s. d.	12" × 12" s. d.	14" × 9" s. d.	18" × 6" s. d.	18" × 9" 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

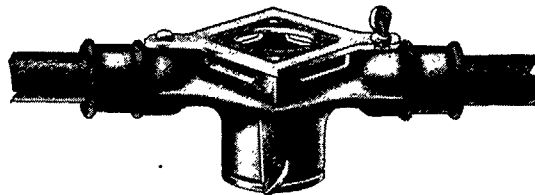


Fig. T5

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	1" — 1/2"	...	...	...	...	...	...	1 13 4
	No. 1	1 1/4" — 1"	...	...	...	...	...	...	2 3 9
	No. 1A	1 1/2" — 1"	...	...	...	...	...	...	1 11 3
	No. 1B	1 3/4" — 1"	...	...	...	...	...	...	2 10 0
	No. 1 1/2	1 3/4" — 1 1/4"	...	...	...	...	...	...	1 19 7
	No. 1 1/2 A	1 3/4" — 1 1/2"	...	...	...	...	...	...	2 7 11
	No. 1 1/2 B	1 3/4" — 1 1/2"	...	...	...	...	...	...	2 16 3
	No. 1 1/2 C	1 3/4" — 1 1/2"	...	...	...	...	...	...	2 7 11
	No. 1 1/2 D	1 3/4" — 1 1/2"	...	...	...	...	...	...	1 19 7
	No. 2	1 1/4" — 2"	...	...	...	...	...	...	3 0 5
	No. 2B	1 1/4" — 2"	...	...	...	...	...	...	3 10 10
	No. 3	2 1/2" — 3"	...	...	...	...	...	...	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	1", 1 1/4", 1 1/2", 1 3/4", 2"	5/8", 3/4", 7/8", 1", 1 1/8"	3/8", 1/2", 5/8", 3/4", 7/8"	7/16", 1/2", 5/8", 3/4", 7/8"	1/2", 5/8", 3/4", 7/8", 1"	...	...	...	...	...	...	2 5 10
	No. OSL3	1 1/4", 1 1/2", 1 3/4", 2"	5/8", 3/4", 7/8", 1"	3/8", 1/2", 5/8", 3/4", 7/8"	7/16", 1/2", 5/8", 3/4", 7/8"	1/2", 5/8", 3/4", 7/8", 1"	...	...	...	...	...	...	2 5 10
	No. ISL1	1 1/2", 1 3/4", 2"	5/8", 3/4", 7/8"	3/8", 1/2", 5/8", 3/4", 7/8"	7/16", 1/2", 5/8", 3/4", 7/8"	1/2", 5/8", 3/4", 7/8", 1"	...	...	...	...	...	...	3 2 6
	No. ISL4	1 1/2", 1 3/4", 2"	5/8", 3/4", 7/8"	3/8", 1/2", 5/8", 3/4", 7/8"	7/16", 1/2", 5/8", 3/4", 7/8"	1/2", 5/8", 3/4", 7/8", 1"	...	...	...	...	...	...	3 19 2
	No. ISL5	1 1/2", 1 3/4", 2"	5/8", 3/4", 7/8"	3/8", 1/2", 5/8", 3/4", 7/8"	7/16", 1/2", 5/8", 3/4", 7/8"	1/2", 5/8", 3/4", 7/8", 1"	...	...	...	...	...	...	4 15 10
	No. 1 1/2 SL2	1 1/2", 1 3/4", 2"	5/8", 3/4", 7/8"	3/8", 1/2", 5/8", 3/4", 7/8"	7/16", 1/2", 5/8", 3/4", 7/8"	1/2", 5/8", 3/4", 7/8", 1"	...	...	...	...	...	...	4 7 6

For Spare Parts—see General Catalogue.

CRANE ADJUSTABLE STOCKS AND DIES

GENUINE ARMSTRONG

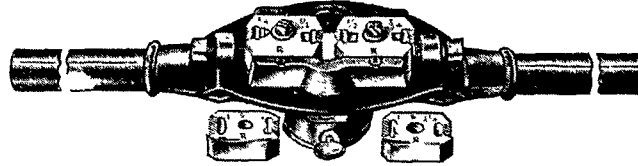


Fig. T15

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"

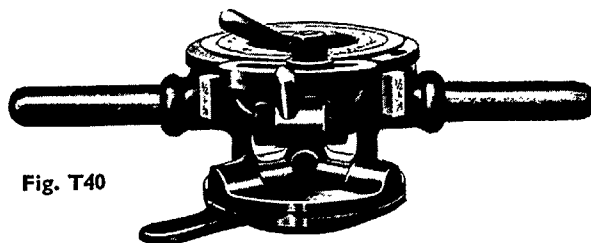


Fig. T40

The list prices include the stock or die holder, a complete set of right-hand pipe dies and a set of tubular handles.

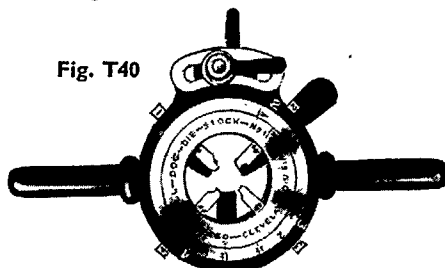


Fig. T40

"Bull-Dog"
Sets are not made with cutting-off apparatus.

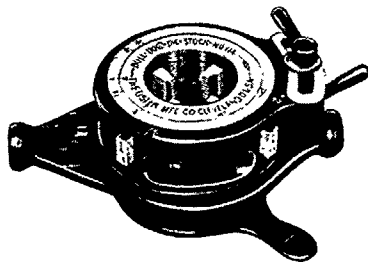
These Tools can be equipped with dies for left hand.

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: Except No. 114X, which is for B.S.T.I Copper Pipe	Fig. T40 PLAIN		Fig. T41 RATCHET		
		No. of Dies per Stock	Price Complete	Set No.	Sets of Dies per Stock	Price Complete
111	$\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and $\frac{3}{4}$ " ...	2	70/10	—	—	—
111½	$\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and $\frac{3}{4}$ " ...	3	83/4	—	—	—
112	$\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and $\frac{3}{4}$ "; 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	$\frac{1}{2}$ " and $\frac{3}{8}$ "; 1" and 1½"; 1½" and 2" ...	3	141/8	—	—	—
114½	$\frac{1}{2}$ " and $\frac{3}{8}$ "; 1" and $\frac{3}{4}$ "; 1" and 1½"; 1½" 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 of Dies per Stock	Fig. T42 Price Complete	Fig. T46 Dies per set
111C No. of Threads per inch	$\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and 1" ...	2	83/4	18/9
	18 16			
112C No. of Threads per inch	$\frac{1}{2}$ " and $\frac{3}{8}$ "; $\frac{1}{2}$ " and $\frac{3}{4}$ "; 1" and 1½"; 1½" ...	4	135/5	21/11
	18 16 16 14			
113C No. of Threads 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 Set Nos.		To Thread Pipes	$\frac{1}{8}$ " & $\frac{1}{4}$ "	$\frac{3}{8}$ " & $\frac{1}{2}$ "	$\frac{1}{2}$ " & $\frac{3}{4}$ "	1" & $1\frac{1}{4}$ "	1" & $1\frac{1}{2}$ "	$1\frac{1}{2}$ " & 2"	2"	$2\frac{1}{2}$ " & 3"	$3\frac{1}{2}$ " & 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	—	—	29/2	—
115½ and 115½R ...	"	—	—	—	—	—	29/2	—	29/2	—	—	29/2	—
117 and 117 R ...	"	—	—	—	—	—	—	—	—	—	—	33/4	33/4
117½ and 117½R ...	"	—	—	—	—	—	—	—	—	—	—	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"

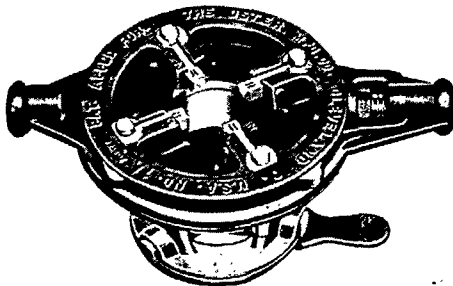


Fig. T50
PLAIN AND RATCHET TYPE
Nos. 1 and 1A.

"RECEDER"

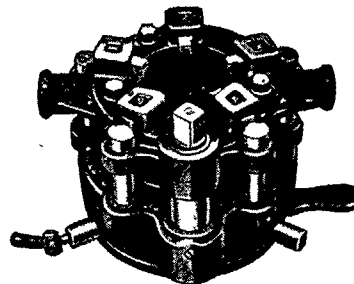


Fig. T51
GEARED TYPE

	Fig. T50		Fig. T51
	No. 1 Plain Type	No. 1A Ratchet Type	Geared Type
	With Universal Chuck	With Chuck	With Universal Chuck
Pipe Threading Sizes: Number of Sets and Dies:	1" to 2" 4	1" to 2" 4	2½" to 4" 4
Tool complete with one set of Dies for each size Pipe	£4 0 0	£5 0 0	£20 16 8
Extra Dies per set (any size) ...	4 pieces 6/3	4 pieces 6/3	5 pieces 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

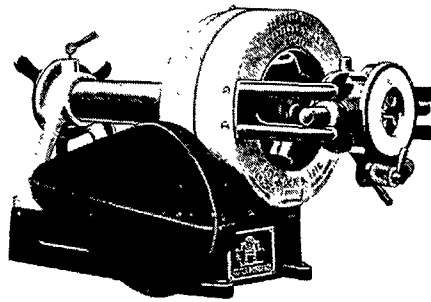


Fig. T60

Size No. 412 (with Electric Motor)

Size No. 412. For Screwing, Cutting and Fitting Pipe up to 2".

" No. 414. " " " " " " 1/2" to 4"

TOM THUMB MACHINES

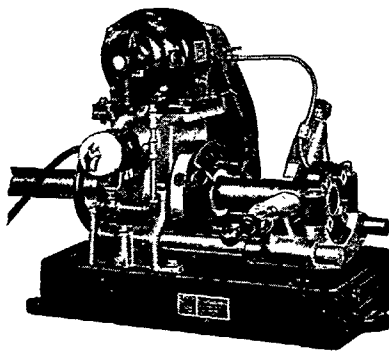


Fig. T70

For Screwing, Cutting and Reaming Pipe 1/2" to 2".

For further particulars of above Machines—see General Catalogue.

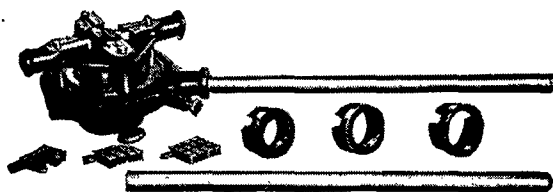


THE ADJUSTABLE DIE HEAD

CRANE

TOLEDO STOCKS AND DIES

RATCHET ADJUSTABLE



No. T84

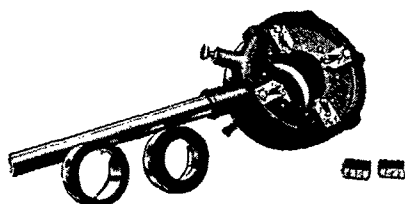
Capacity 1" to 2"

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"

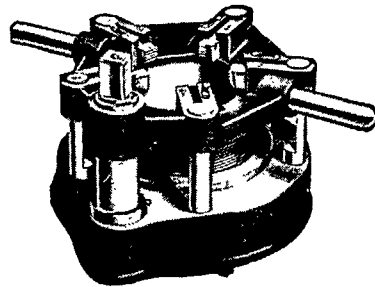
Light and compact, weighs about 37 lbs. Direct acting and using "TOLEDO" receding die principle, operates more easily on these sizes than other direct-acting tools.

PRICE £9 7 6

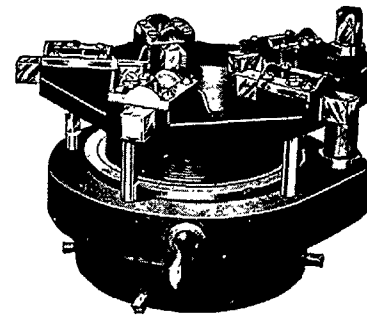
EXTRAS: Dies, each size per set £1 1 6

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

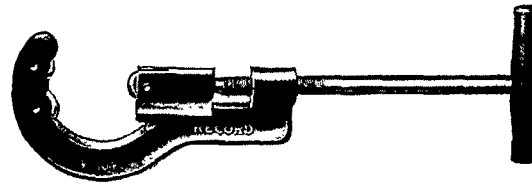


Fig. T110

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

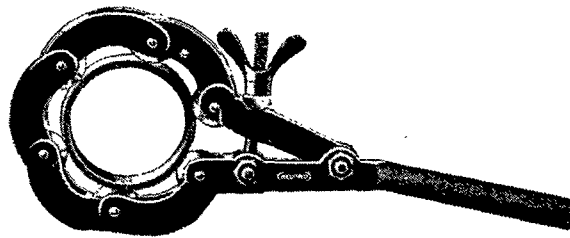


Fig. T120

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/-	65/-	72/6	80/-	87/6	95/-	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

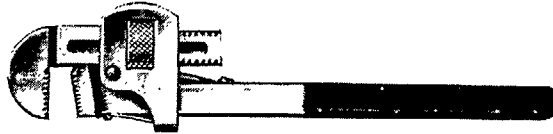


Fig. T125

T126 (with Wood Handle)

Fig. No.	Length:	6"	8"	10"	14"	18"	24"	36"	48"
	Takes pipe from	$\frac{1}{8}"$ to $\frac{1}{2}"$	$\frac{1}{8}"$ to $\frac{3}{4}"$	$\frac{1}{8}"$ to 1"	$\frac{1}{4}"$ to $1\frac{1}{2}"$	$\frac{1}{4}"$ to 2"	$\frac{1}{4}"$ to $2\frac{1}{2}"$	$\frac{1}{4}"$ to $3\frac{1}{2}"$	$\frac{1}{4}"$ to 5"
T125	Steel Handle ...	—	9/3	12/-	16/-	23/-	39/6	83/6	125/-
T126	Wood Handle Price ... each	8/4	9/6	13/3	17/9	—	—	—	—

CHAIN PIPE WRENCHES

DROP-FORGED STEEL

DOUBLE-ENDED REVERSIBLE JAWS

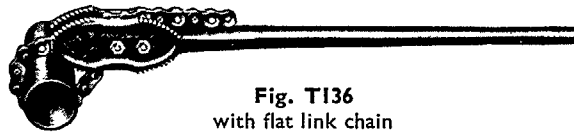


Fig. T136

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

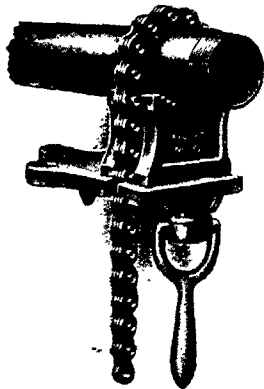


Fig. T155

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

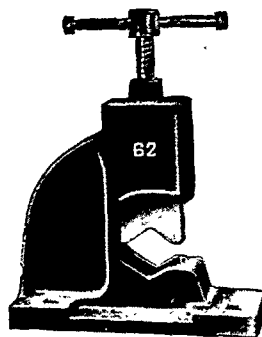


Fig. T157
CAST IRON

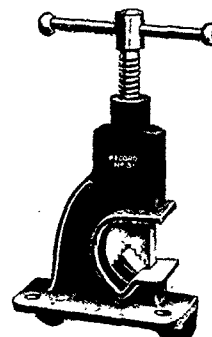


Fig. T159
MALLEABLE IRON

Figure No.		Size No.:	61	62	63	64	66
T157	To take Pipe	...	$\frac{1}{8}$ "-1 $\frac{1}{4}$ "	$\frac{1}{4}$ "-2"	$\frac{1}{2}$ "-3"	$\frac{3}{4}$ "-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 $\frac{1}{2}$ "	$\frac{1}{2}$ "-2"	—	—
	Price ...	...	13/-	17/6	22/-	—	—

HINGED PIPE VICES

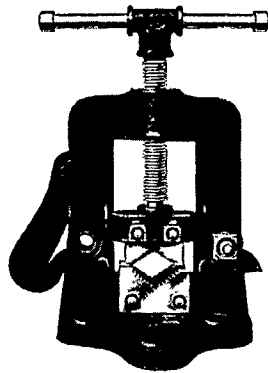


Fig. T161

To take Pipe $\frac{1}{8}$ " 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 (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 Ins.	Price 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

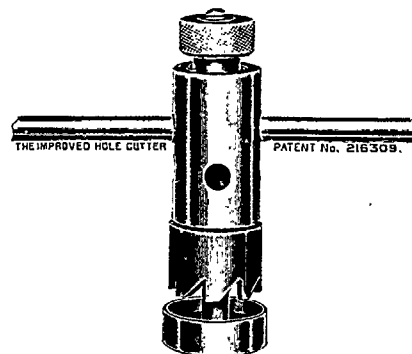


Fig. No. T204

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

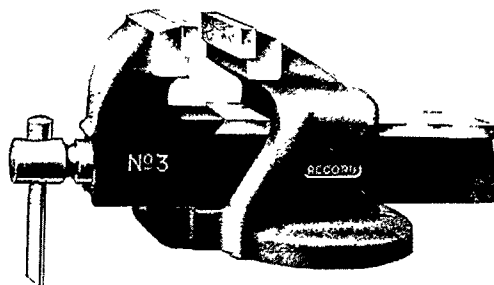


Fig. T173

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

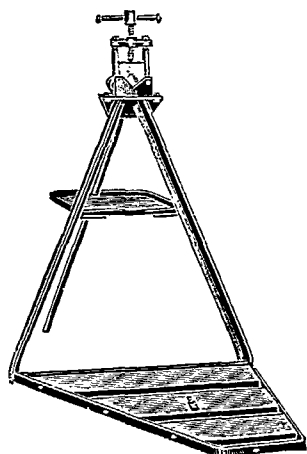


Fig. T165

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 ⅜" to 2" ...	54/-

		No. 1 ⅜"-2"	No. 2 ¼"-4"
T171	With "Vulcan" pattern Chain Pipe Vice ...	58/-	95/-

HACK SAW FRAMES

ADJUSTABLE 8 IN. TO 12 IN.

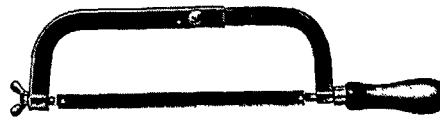
Price
3/4 each

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

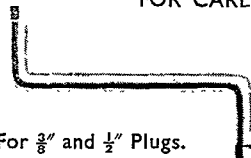
Fig. T193

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

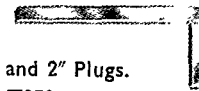
FOR CARLTON AND WHITEHALL BOILERS.



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

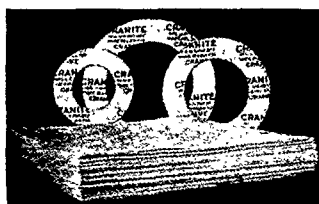
CRABENITE ASBESTOS COMPOSITION
SHEET PACKING

Fig. C101

This High Pressure Jointing is particularly suitable for flanged joints on high and low pressure, superheated 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 $\frac{1}{4}$ 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
$\frac{5}{8}$ "	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

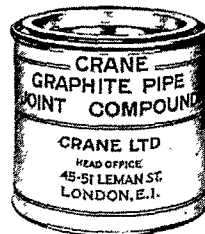


Fig. E290
GRAPHITE

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 } 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", $1\frac{1}{2}$ "	All/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.

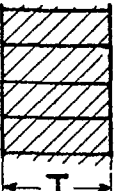
In addition to matter contained in previous catalogues, tables on chimney flues, pipe sizing, etc., have been added.

Whilst every care has been given to their preparation, the information and figures cannot, of course, be guaranteed.

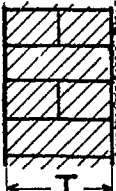
HEAT LOSS COEFFICIENTS (AIR TO AIR)

B.Th.U.s per hour per square foot of surface per degree difference (Fahr.)

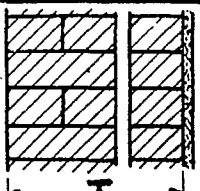
① BRICK WALLS.

PLAIN.		
		
T	K.	
4½	0.5	
9	0.35	
13½	0.27	
18	0.23	
22	0.20	
27	0.18	

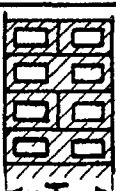
② BRICK WALLS.

PLASTER ONE SIDE.		
		
T	K.	
4½	0.45	
9	0.33	
13½	0.25	
18	0.22	
22	0.19	
26	0.17	

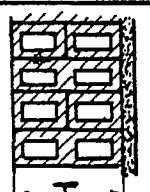
③ BRICK WALLS.

2" AIR SPACE - PLAST'D		
		
T	K.	
11	0.25	
16	0.20	
20	0.17	
24	0.15	
28	0.14	

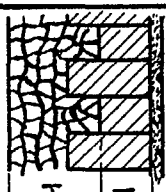
④ BRICK WALLS.

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	

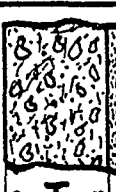
⑥ PORTLAND STONE

STONE & BRICK PLAST'D			
			
T	T ₁	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	

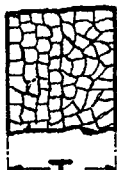
CRANE

HEAT LOSS COEFFICIENTS (AIR TO AIR)

B.Th.U.s per hour per square foot of surface per degree difference (Fahr.)

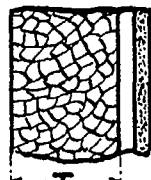
⑨

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

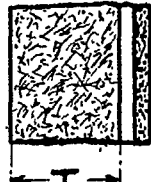
⑪

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.)

(17) ASBESTOS WALLS

FLAT SHEETS	
	K
	0.70

(18) TIMBER WALLS.

1" T. & G. BOARDS.	
	T.
	K.
	1" 0.45
	1 1/2 0.35

(19) 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

(20) PARTITIONS.

STUDS, PLASTER ONE SIDE.	
	T.
	K.
	4 0.55

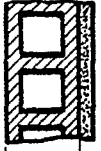
(21) FRAME WALLS

WEATHER BRDS. LATHE & PLAST.	
	T.
	K.
	7/16 0.44

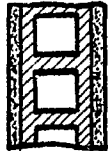
(22) PARTITIONS.

4" STUDS PLAST'D BOTH SIDES.	
	T.
	K.
	4 0.33

(23) HOLLOW PARTITIONS.

4" PLAST'D ONE SIDE.	
	T.
	K.
	4 0.43

(24) 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.)

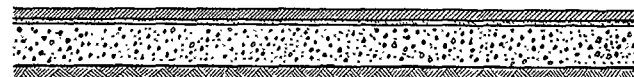
FLOORS—Heat loss downwards

Fig. 25



4 in. Concrete on earth Coefficient 0.55
 6 in. Concrete on earth Coefficient 0.49

Fig. 26



1½-in. Wood Blocks, ¼-in. Screed and 5-in. Concrete on earth Coefficient 0.25

Fig. 27

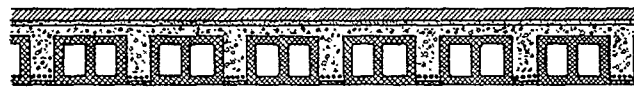


Fig. 28

Wood Block Floor 1½ 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 4½-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

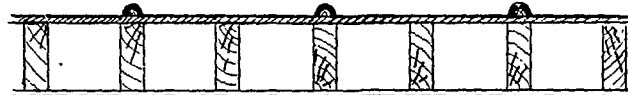
ROOFS (flat) AND FLOORS (Heat loss upwards)

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

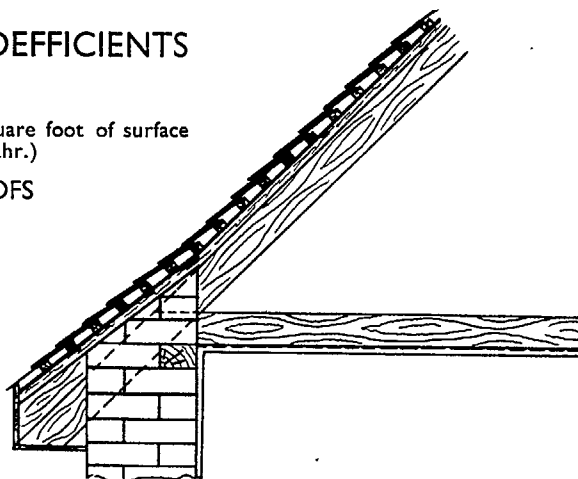
CRANE

HEAT LOSS COEFFICIENTS (AIR TO AIR)

B.Th.U.s per hour per square foot of surface
per degree difference (Fahr.)

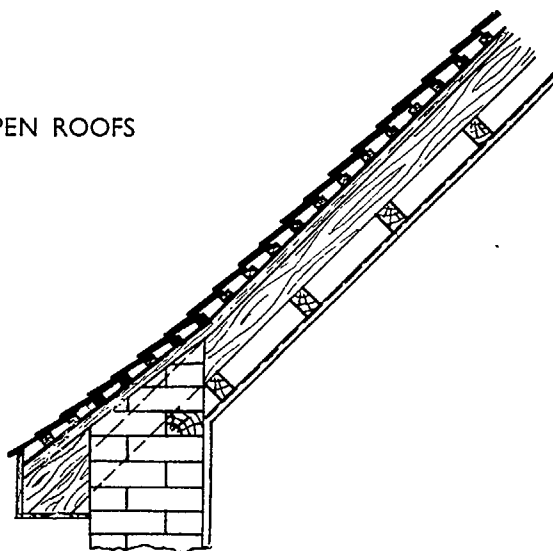
CEILINGS AND ROOFS

(Closed Roof Spaces)



- | | | |
|----------------|---|------------------|
| Fig. 38 | Slates or tiles on battens and rafters only. Lath and plaster ceiling to room | Coefficient 0.35 |
| Fig. 39 | Ditto, with 1-in. tongued and grooved boards under tiles | Coefficient 0.25 |
| Fig. 40 | Ditto, with Roofing Felt between tiles and boards | Coefficient 0.19 |

OPEN ROOFS



- | | | |
|----------------|--|------------------|
| Fig. 41 | Slates or tiles on battens and rafters only | Coefficient 0.80 |
| Fig. 42 | Ditto, but with 1-in. tongued and grooved boards | Coefficient 0.35 |
| Fig. 43 | Ditto, with Roofing Felt between tiles and boards | Coefficient 0.25 |
| Fig. 44 | 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 (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	1.89	—	—	—	—	—	—	—	—
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 (mean Rad. temp. assumed 155°F.)			Accelerated Circulation (mean Rad. temp. assumed 170°F.)			LP or Vapour Systems (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
$\frac{1}{4}$	42	45	48	51	56	59	63	95	98	103
$\frac{3}{8}$	53	56	60	64	70	75	80	118	123	130
$\frac{1}{2}$	60	64	70	74	80	85	90	135	140	147
$\frac{5}{8}$	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.
Very large Halls and Churches	$\frac{1}{2}$ per hour
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.
$\frac{3}{8}$	$\frac{11}{16}$	.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
$\frac{3}{4}$	$\frac{11}{16}$	.019	1.16	3	$3\frac{1}{2}$	.3053	6.326
1	$1\frac{1}{4}$	.0339	1.6	4	$4\frac{1}{2}$	.5426	8.282
$1\frac{1}{4}$	$1\frac{11}{16}$	.053	2.36	5	$5\frac{1}{2}$	.848	10.17
$1\frac{1}{2}$	$1\frac{3}{2}$	.0763	3.00	6	$6\frac{1}{2}$	1.221	12.57

PIPE FACTORS

Nominal Size of Pipe Inches	For converting lineal feet to square feet		For converting square feet to lineal feet		Nominal Size of Pipe 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 Flue Inches	Area Square 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 of Pipe	SIZE OF PIPE IN INCHES										
	$\frac{3}{8}$ "	1"	$1\frac{1}{8}$ "	$1\frac{1}{2}$ "	2"	$2\frac{1}{2}$ "	3"	$3\frac{1}{2}$ "	4"	5"	6"
1 Ft.	0.275	0.346	0.434	0.494	0.622	0.753	0.916	1.046	1.175	1.455	1.739
2	0.5	0.7	0.9	1.0	1.2	1.5	1.8	2.0	2.4	2.9	3.5
3	0.8	1.0	1.3	1.5	1.9	2.3	2.7	3.1	3.5	4.4	5.2
4	1.1	1.4	1.7	2.0	2.5	3.0	3.6	4.2	4.7	5.8	7.0
5	1.4	1.7	2.2	2.4	3.1	3.8	4.6	5.2	5.8	7.3	8.7
6	1.6	2.1	2.6	2.9	3.7	4.5	5.5	6.3	7.0	8.7	10.5
7	1.9	2.4	3.0	3.4	4.4	5.3	6.4	7.3	8.2	10.2	12.1
8	2.2	2.8	3.5	3.9	5.0	6.0	7.3	8.4	9.4	11.6	13.9
9	2.5	3.1	3.9	4.4	5.6	6.8	8.2	9.4	10.6	13.1	15.7
10	2.7	3.5	4.3	4.9	6.2	7.5	9.1	10.5	11.8	14.6	17.4
11	3.0	3.8	4.8	5.4	6.8	8.3	10.0	11.5	12.9	16.0	19.1
12	3.3	4.1	5.2	5.9	7.5	9.0	11.0	12.5	14.1	17.4	20.9
13	3.6	4.5	5.6	6.4	8.1	9.8	11.9	13.6	15.3	18.9	22.6
14	3.8	4.8	6.1	6.9	8.7	10.5	12.8	14.6	16.5	20.3	24.3
15	4.1	5.2	6.5	7.4	9.3	11.3	13.7	15.7	17.6	21.8	26.1
16	4.4	5.5	6.9	7.9	10.0	12.0	14.6	16.7	18.8	23.2	27.8
17	4.7	5.9	7.4	8.4	10.6	12.8	15.5	17.8	20.0	24.7	29.6
18	5.0	6.2	7.8	8.9	11.2	13.5	16.5	18.8	21.2	26.2	31.3
19	5.2	6.6	8.3	9.4	11.8	14.3	17.4	19.9	22.3	27.6	33.1
20	5.5	6.9	8.7	9.9	12.5	15.0	18.3	20.9	23.5	29.1	34.8
21	5.8	7.3	9.1	10.4	13.0	15.8	19.2	21.9	24.7	30.5	36.5
22	6.0	7.6	9.6	10.9	13.7	16.5	20.2	23.0	25.9	32.0	38.3
23	6.3	8.0	10.0	11.3	14.3	17.3	21.1	24.0	27.0	33.5	40.0
24	6.6	8.3	10.4	11.9	14.9	18.0	22.0	25.1	28.2	34.9	41.7
25	6.9	8.6	10.9	12.3	15.6	18.8	22.9	26.1	29.3	36.3	43.5
26	7.1	9.0	11.3	12.8	16.2	19.5	23.8	27.2	30.5	37.8	45.2
27	7.4	9.4	11.7	13.3	16.8	20.3	24.7	28.2	31.7	39.3	47.0
28	7.7	9.7	12.2	13.8	17.4	21.0	25.6	29.3	32.9	40.7	48.7
29	8.0	10.0	12.6	14.3	18.0	21.8	26.6	30.3	34.1	42.2	50.4
30	8.3	10.4	13.0	14.8	18.7	22.5	27.5	31.4	35.3	43.6	52.1
31	8.5	10.7	13.5	15.3	19.3	23.3	28.4	32.4	36.4	45.1	53.9
32	8.8	11.1	13.9	15.8	19.9	24.1	29.3	33.4	37.6	46.5	55.6
33	9.1	11.4	14.3	16.3	20.5	24.8	30.2	34.5	38.8	48.0	57.4
34	9.4	11.7	14.7	16.8	21.2	25.6	31.1	35.5	40.0	49.5	59.1
35	9.6	12.1	15.2	17.3	21.8	26.3	32.0	36.6	41.1	50.9	60.8
36	9.9	12.5	15.6	17.8	22.4	27.0	33.0	37.6	42.3	52.4	62.6
37	10.2	12.8	16.1	18.3	23.0	27.8	33.9	38.7	43.5	53.8	64.3
38	10.5	13.2	16.5	18.8	23.7	28.5	34.8	39.7	44.6	55.2	66.0
39	10.7	13.5	16.9	19.3	24.3	29.3	35.7	40.8	45.8	56.7	67.8
40	11.0	13.8	17.4	19.8	24.9	30.1	36.6	41.8	47.0	58.2	69.5
41	11.3	14.2	17.8	20.3	25.5	30.8	37.6	42.9	48.2	59.6	71.3
42	11.5	14.5	18.2	20.8	26.1	31.6	38.5	43.9	49.4	61.1	73.0
43	11.8	14.9	18.7	21.3	26.8	32.3	39.4	45.0	50.6	62.5	74.8
44	12.1	15.2	19.1	21.8	27.4	33.1	40.3	46.0	51.7	64.0	76.5
45	12.4	15.6	19.5	22.2	28.0	33.8	41.2	47.0	52.9	65.5	78.2
46	12.7	15.9	20.0	22.7	28.6	34.6	42.2	48.1	54.0	67.0	80.0
47	12.9	16.3	20.4	23.2	29.2	35.3	43.0	49.1	55.2	68.4	81.7
48	13.2	16.6	20.8	23.7	29.9	36.1	43.9	50.2	56.4	69.8	83.5
49	13.5	17.0	21.3	24.2	30.5	36.8	44.8	51.2	57.6	71.2	85.1
50	13.8	17.3	21.7	24.7	31.1	37.6	45.8	52.3	58.7	72.7	87.0
60	16.5	20.8	26.0	29.6	37.3	45.2	55.0	62.8	70.5	87.3	104.3
70	19.3	24.2	30.4	34.6	43.5	52.7	64.1	73.2	82.3	101.9	121.7
80	22.0	27.7	34.7	39.5	49.8	60.2	73.3	83.7	94.0	116.4	139.1
90	24.8	31.1	39.1	44.5	56.0	67.8	82.4	94.1	105.7	131.0	156.5
100	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 Fahr.	Degrees Centigrade	Degrees Fahr.	Degrees Centigrade	Degrees Fahr.	Degrees Centigrade	Degrees Fahr.	Degrees 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 I—1928

TABLE B
FOR WATER PRESSURES 50 TO 130 POUNDS PER SQUARE INCH
(SUPERSEDING TABLE I OF REPORT No. 10—1914)

TABLE C
FOR WATER PRESSURES 130 TO 175 POUNDS PER SQUARE INCH
(SUPERSEDING TABLE I OF REPORT No. 10—1904)

Tables B and C				6 (a)		6 (b)		6 (f)	
1	2	3	4/5	Thickness of flange					
Nominal Pipe Size	Diam. of Flange	Diam. of Bolt Circle	Number and Dia. of Bolts	Cast Iron		Cast Steel and Bronze		Iron or Steel (Stamped or forged)	
				Table		Table		Table	
				B in.	C in.	B in.	C in.	B in.	C in.
1	3 $\frac{3}{4}$	2 $\frac{5}{8}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
1 $\frac{1}{4}$	4	2 $\frac{7}{8}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
1 $\frac{1}{2}$	4 $\frac{1}{2}$	3 $\frac{1}{4}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
2	4 $\frac{3}{4}$	3 $\frac{7}{8}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
2 $\frac{1}{2}$	5 $\frac{1}{4}$	3 $\frac{1}{2}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
3	6	4 $\frac{1}{2}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
3 $\frac{1}{2}$	6 $\frac{1}{2}$	5	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
4	7 $\frac{1}{4}$	5 $\frac{3}{4}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
4	8	6 $\frac{1}{2}$	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
*4	8 $\frac{1}{2}$	7	4	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
5	9	7 $\frac{1}{2}$	8	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
6	10	8 $\frac{1}{4}$	8	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
7	11	9 $\frac{1}{4}$	8	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
8	12	10 $\frac{1}{4}$	8	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
9	13 $\frac{1}{4}$	11 $\frac{1}{2}$	8	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
10	14 $\frac{1}{2}$	12 $\frac{3}{4}$	8	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
*11	16	14	8	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
12	17	15	8	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
13	18	16	12	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
*14	19 $\frac{1}{4}$	17 $\frac{1}{4}$	12	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
15	20 $\frac{3}{4}$	18 $\frac{1}{2}$	12	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
16	21 $\frac{1}{2}$	19 $\frac{1}{4}$	12	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
*17	22 $\frac{3}{4}$	20 $\frac{1}{2}$	12	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
18	24	21 $\frac{3}{4}$	12	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
19	25 $\frac{1}{4}$	23	12	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
*20	26 $\frac{1}{2}$	24	12	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
21	27 $\frac{3}{4}$	25 $\frac{1}{4}$	16	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
22	29	26 $\frac{1}{2}$	16	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
*23	30	27 $\frac{1}{2}$	16	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
24	31	28 $\frac{1}{2}$	16	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
	32 $\frac{1}{2}$	29 $\frac{3}{4}$	16	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$

* 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 Pipe Size	Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Thickness of Flange		
in.	in.	in.		in.	Cast Iron in.	Cast Steel and Bronze in.	Iron or Steel (stamped or forged), screwed or riveted on with boss, or welded on with fillet in.
$\frac{1}{2}$	$3\frac{3}{4}$	$2\frac{5}{8}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
$\frac{3}{4}$	4	$2\frac{7}{8}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
1	$4\frac{1}{2}$	$3\frac{1}{4}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
$1\frac{1}{4}$	$4\frac{3}{4}$	$3\frac{5}{8}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
$1\frac{1}{2}$	$5\frac{1}{4}$	$3\frac{7}{8}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
2	6	$4\frac{1}{2}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
$2\frac{1}{2}$	$6\frac{1}{2}$	5	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
3	$7\frac{1}{4}$	$5\frac{3}{4}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
$3\frac{1}{2}$	8	$6\frac{1}{2}$	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
4	$8\frac{1}{2}$	7	4	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
* $4\frac{1}{2}$	9	$7\frac{1}{2}$	8	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
5	10	$8\frac{1}{4}$	8	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
6	11	$9\frac{1}{4}$	8	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
7	12	$10\frac{1}{4}$	8	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
8	$13\frac{1}{4}$	$11\frac{1}{2}$	8	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
9	$14\frac{1}{2}$	$12\frac{3}{4}$	8	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
10	16	14	8	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
*11	17	15	8	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
12	18	16	12	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
*13	$19\frac{1}{4}$	$17\frac{1}{4}$	12	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
14	$20\frac{3}{4}$	$18\frac{1}{2}$	12	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
15	$21\frac{1}{2}$	$19\frac{1}{2}$	12	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
16	$22\frac{3}{4}$	$20\frac{1}{2}$	12	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
*17	24	$21\frac{1}{4}$	12	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
18	$25\frac{1}{4}$	23	12	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
*19	$26\frac{1}{2}$	24	12	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
20	$27\frac{3}{4}$	$25\frac{1}{4}$	16	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
21	29	$26\frac{1}{2}$	16	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
*22	30	$27\frac{1}{2}$	16	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
*23	31	28	16	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
24	$32\frac{1}{2}$	$29\frac{3}{4}$	16	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$

* 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.

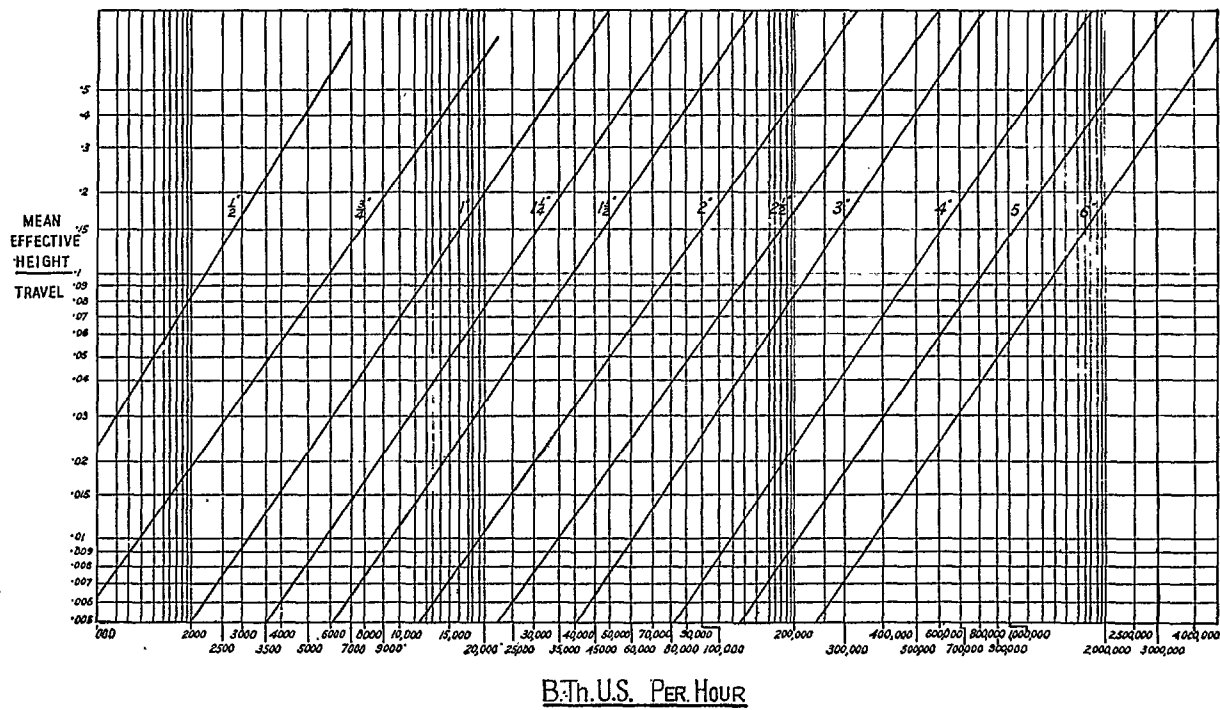
Radiator	2,500	×	20 ft.	=	50,000	86,500 ÷ 9,000 gives mean effective height 9.5 ft.
"	3,000	×	11 ft.	=	33,000	
"	3,500	×	1 ft.	=	3,500	
Total	9,000 B.Th.U.s				86,500	
Height ÷ travel is	$\frac{9.5}{105} = .09$					

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

CRANE



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 Inches	Equivalent length of Pipe from Boiler to Farthest Radiator, Including Main and Riser. (See Note 4.) Supply Main Dripped and Branches to Risers Dripped— Steam and Condensate flowing in same direction. Based on 4 oz. Total Pressure Drop**						Maximum Capacities		
	100 Ft.	200 Ft.	300 Ft.	400 Ft.	500 Ft.	600 Ft.	Supply Risers Up-Feed	Branches to Supply Risers and Radiators Not Dripped	
	A	B	C	D	E	F	G	H	I*
$\frac{3}{8}$	—	—	—	—	—	—	—	—	—
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 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	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$
26—80	$\frac{1}{4}$	$\frac{1}{4}$	1	$\frac{1}{2}$	$\frac{3}{4}$
81—100	$\frac{1}{4}$	$\frac{1}{4}$	$1\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$
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	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$
301—450	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$\frac{1}{2}$	$\frac{3}{4}$
451—700	2	2	$2\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$

Table reproduced by the courtesy of the C. A. Dunham Company.

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, inches of Mercury	Absolute Pressure Lbs. per sq. inch	Temperature Fahrenheit	Total Heat above 32° F.		Latent Heat Heat Units per lb.
			In the Water Heat Units per lb.	In the Steam Heat Units 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	$6\frac{1}{4}$	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	$10\frac{3}{4}$	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	$16\frac{1}{4}$	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	$18\frac{1}{4}$	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	$19\frac{1}{4}$	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. to sq. cm.	Sq. cm. to sq. in.	Sq. ft. to sq. m.	Sq. m. to sq. ft.	Sq. yd. to sq. m.	Sq. m. to sq. yd.	Acres to hectares	Hectares to acres	Sq. mi. to sq. km.	Sq. km. to 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. to cu. cm.	Cu. cm. to cu. in.	Cu. ft. to cu. m.	Cu. m. to cu. ft.	Cu. yd. to cu. m.	Cu. m. to cu. yd.	Gallons to cu. ft.	Cu. ft. to gallons
1.	16.39	0.06102	0.02832	35.31	0.7646	1.308	0.1337	7.481

CONVERSION OF VOLUMES OR CAPACITIES

	Liquid ounces to cu. cm.	Cu. cm. to liquid ounces	Pints to litres	Litres to pints	Quarts to litres	Litres to quarts	Gallons to litres	Litres to gallons	Bushels to hecto- litres	Hecto- litres to 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 to grams	Grams to grains	Ounces (avoir.) to grams	Grams to ounces (avoir.)	Pounds (avoir.) to kilo- grams	Kilo- grams to pounds	Short tons (2000 lb.) to metric tons	Metric tons (1000 kg.) to short tons	Long tons (2240 lb.) to metric tons	Metric tons to 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 sq. in. to kilograms per sq. cm.	Kilograms per sq. cm. to pounds per sq. in.	Atmospheres to pounds per sq. in.	Pounds per sq. in. to atmospheres	Atmospheres to kilograms per sq. cm.	Kilograms per sq. cm. to atmospheres
1.	0.0703	14.22	14.70	0.0680	1.033	0.9678

CONVERSION OF ENERGY, WORK, HEAT

	Ft.-lb. to kilogram- metres	Kilogram- metres to ft.-lb.	Ft.-lb. to B.Th.U.s	B.Th.U.s to ft.-lb.	Kilogram- metres to large calories	Large calories to kilogram- metres	Joules to small calories	Small calories to joules
1.	0.1383	7.233	0.001286	777.5	0.002344	426.6	0.2390	4.183

CONVERSION OF POWER

	Horsepower to kilowatts	Kilowatts to horsepower	Metric horsepower to kilowatts	Kilowatts to metric horsepower	Horsepower to metric horsepower	Metric horsepower to 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 m².
 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 ²	=	.3687 B.Th.U. per square foot
One B.Th.U. per square foot	=	2.712 Calories per m ²
One Calorie per m ² 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 ² 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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