Iron Fireman Manufacturing Company

Automatic Coal Burners

Portland, Oregon

Factories: PORTLAND, ORE.; CLEVELAND, OHIO; TORONTO, CANADA

Retail Branches or Subsidiaries

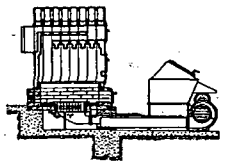
CHICAGO, ILL. MILWAUKEE, WIS. ST. LOUIS, MO. NEW YORK, N. Y.

Dealers in Principal Cities and Towns in the United States and Canada

IRON FIREMAN Automatic Coal Burners

"Forced Underfiring" Principle—Iron Fireman "Forced Underfiring" is based on the scientific principle of feeding fuel to the fire from below, under forced draft. From the conveyor screw, coal enters the firebox under the fire and is gradually forced upward into the flame. As the coal approaches the fire, it is gradually heated. The volatile gases are distilled off in the presence of an excess of oxygen and are thoroughly ignited while passing through the incandescent fuel bed. This insures complete combustion. The ash is fused into clinkers which are easily removed.

Advantages—Iron Fireman saves money and increases heating plant efficiency in four major ways: (1) Cuts fuel costs; (2) reduces labor costs; (3) provides steady, even heat or power; (4) eliminates the smoke nuisance.

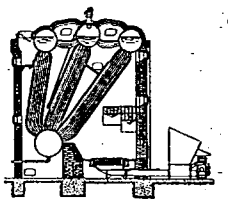


Typical Iron Fireman Installation under Cast Iron Boiler

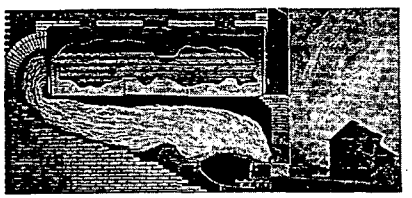
Installation and Sizes—Iron Fireman is made in a range of sizes for commercial heating and power plants up to 250 h.p. boilers, and also for homes. It can be installed quickly in practically any solid fuel boiler or furnace, old or new. If necessary, the installation can be made with practically no interruption of the service from the boiler.

Machines are shipped complete from the factory. All parts are standard and interchangeable.

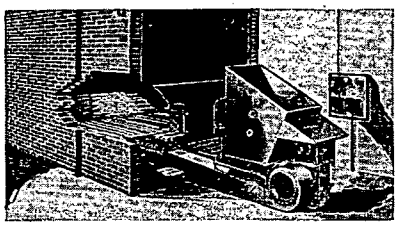
Features of Design and Construction—Construction and operation of the Iron Fireman are characterized by simplicity throughout. Outstanding features of design and construction are: (1) Pressed steel construction. (2) Gear shift for transmission—three speeds and neutral. (3) Continuous feed transmission. Gears run in bath of oil. (4) Electric motor—standard make. (5) V-belt drive. (6) Safety shear pin protects mechanism from damage. (7) Quiet ball bearing fan supplying forced draft to fire. (8) Automatic fire banking damper—conserves fuel and holds fire in proper condition when stoker is idle. (9) Positive pneumatic fume eliminator—an auxiliary air supply that insures positive movement of all gases through the fire. (10) Sectional retort especially designed to allow for heat expansion. (11) Dead plates of heavy iron and ribbed. (12) Sectional, self-cleaning tuyere blocks. (13) Conveyor screw cast of special Iron Fireman alloy steel from one-piece pattern. (14) Automatic electric controls, designed for and used exclusively on Iron Fireman.



Typical Iron Fireman Installation under Four Drum Water Tube Boiler

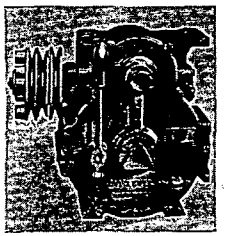


Iron Fireman in Operation. Installed under Horizontal Return Tubular Boiler. Low Bridge Wall. Hot "Blast Furnace" Fire



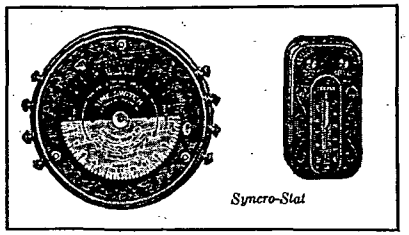
Cutaway View, showing details of Typical Iron Fireman Installation

Transmission and Continuous Feed Principle—The Iron Fireman speed reduction unit and its patented speed-change gears are an exclusive Iron Fireman development. This transmission drives the conveyor screw at a constant speed which in turn feeds the coal to the fire in a slow, steady stream at the required rate for proper burning. As a result a steady, non-agitated fire is obtained. The Iron Fireman transmission has three speeds and three neutrals. The gears can be shifted while the stoker is in operation; in fact more easily than when the stoker is idle, and it is impossible to strip gears while shifting. All the gears operate in a bath of lubricating oil and the unit is most quiet. In design, materials and precision of construction, the Iron Fireman transmission is like that of a fine automobile.



Iron Fireman Transmission

Automatic Controls—Iron Fireman starts and stops at the command of sensitive, accurate automatic controls. Directing controls govern stoker operation according to demands of time, temperature, or pressure. An example of the superiority of Iron Fireman directing controls is the "Syncro-Stat" which provides automatic control of day and night temperature. It is powered by a Telechron motor, thus eliminating winding or setting, and making it an accurate all-electric temperature regulator. Other directing controls include pressure regulators, hot water and furnace regulators and the "Timetactor" a device which runs the Iron Fireman during predetermined intervals in order to keep the fire alive during mild weather.



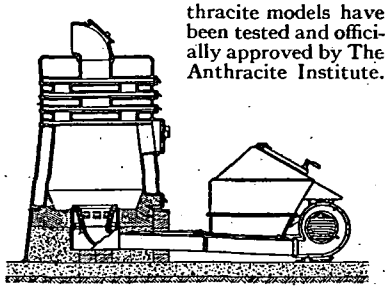
Syncro-Stat

The most important unit of the operating control system is the motor-driven relay switch. This device starts and stops the stoker motor at the command of the Syncro-Stat or other directing controls. In the case of the larger stokers a magnetic operating switch works in conjunction with the relay switch.

Important Factor in Plant Economy—Iron Fireman users report savings of from 15 per cent to 50 per cent on fuel costs alone. In a recent investigation of 342 users, fuel savings alone averaged an earning of 39.44 per cent a year on the total cost of their installations.

Iron Fireman for Homes—The Iron Fireman "De Luxe" model employs "Forced Underfiring" principle the same as larger machines, with simplified operation. The enclosed hopper accommodates sufficient small size coal for an ordinary day's consumption.

Can be recommended for any steam, hot water, vacuum or warm air furnace. Quickly installed. Models for both bituminous and anthracite coal. All anthracite models have been tested and officially approved by The Anthracite Institute.



Iron Fireman Installed in a Domestic Boiler

ENGINEERING SERVICE

The Iron Fireman organization is nation-wide. Trained men—backed by one of the largest manufacturing organizations in the field—are at your service to help you with the experience and practical heating information gained through servicing thousands of boiler rooms and heating plants in all parts of the country.

Any Iron Fireman engineer will gladly call and submit any additional information requested.

CATALOGUE AND INFORMATION

Catalogue No. 31 gives full information about the Iron Fireman. Descriptive folders give special data about installation in particular types of industries and in homes.

Secure them by addressing the factory or any Iron Fireman representative.