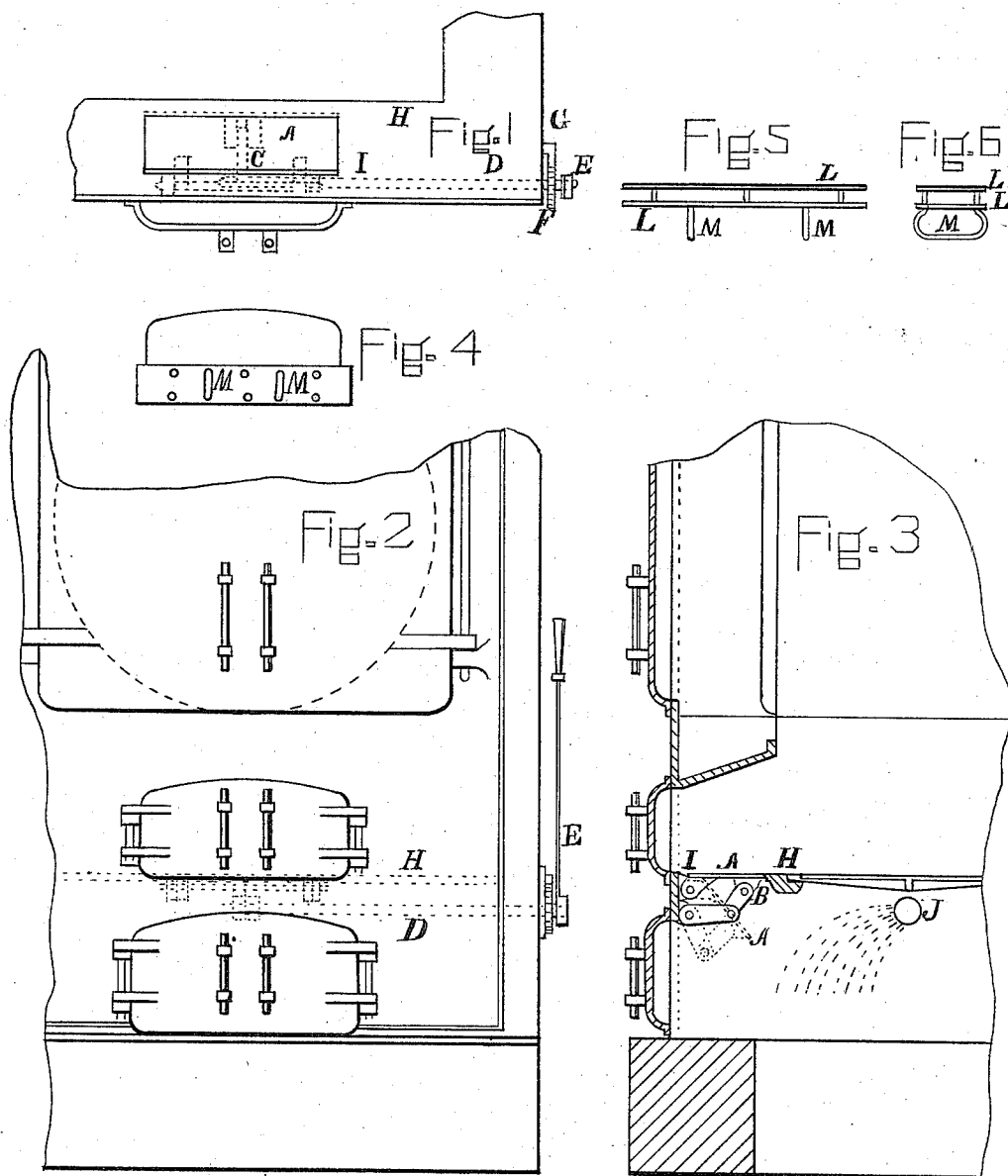


(No Model.)

D. W. EVANS.
BOILER FRONT AND FURNACE.

No. 579,387.

Patented Mar. 23, 1897.



WITNESSES:

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DAVID W. EVANS, OF PITTSBURGH, PENNSYLVANIA.

BOILER FRONT AND FURNACE.

SPECIFICATION forming part of Letters Patent No. 579,387, dated March 23, 1897.

Application filed June 22, 1896. Serial No. 596,434. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. EVANS, a citizen of the United States, residing at the city of Pittston, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Boiler Fronts and Furnaces; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to boiler-furnaces, and is a device for opening a place in the bearing-plate of the frame to admit of the cinders being dropped into the ash-pit instead of being raked out in front of the lower doors while cleaning the fires, thereby saving the intense heat and gases which annoy the fireman in this operation and saving the warping of the doors in the front, being a great relief to the fireman and a saving to the apparatus.

Figure 1 represents a plan or horizontal section showing the device. Fig. 2 represents the boiler-front. The dotted lines show the device. Fig. 3 represents the longitudinal vertical section. Fig. 4 represents a fender made to set into the door when it is open to prevent the fire and ashes from falling outside, also to protect the workman from the fire heat and make a rest for the handle of the poker and scraper. Fig. 5 represents a horizontal section of the fender. Fig. 6 represents a vertical section of the fender.

Like letters in different figures refer to the same pieces.

A represents the doors in the opening of the bearing-plate H between the grate and the door.

A' on the dotted lines represents the door dropped down and opened to allow the ashes and cinders to drop through.

I represents an opening by the side of the door A to admit air to effect a more complete combustion of the gases from the fuel and protect the inside of the doors and fronts from the effects of the heat.

B is a bar or link connecting the door A and crank C.

D is a shaft or rod connected to the crank C and running to the outside of the boiler-front and masonwork with hand-lever E attached to the end. On the shaft D next to the lever E is a ratchet F with pawl G.

K represents the guard, made of two plates L L, put together with rivets and washers with space between them, with handles M M, made to set into the door-frame or front plate N, the ends of which are made to set each side of the front plate at the outer edge of the dead-plate for the purpose of preventing the cinders from falling out in front and to keep the heat from the fireman, the guard to be used only at the time of cleaning the fires by lifting the pawl G and pushing the hand-lever E toward the rear of the boiler to a horizontal position. The trap-door A is brought down and opened, as represented by dotted lines in Fig. 3, which admits of the cinders and ashes dropping through into the ash-pit as they are raked forward instead of being raked out at the door. The guard K placed in the door-opening fully prevents the fire or ashes being raked out over the front. After cleaning the fire and putting the ashes down into the pit the hand-lever E is raised again to an upright position, closing the door A, when the pawl G engages with the ratchet F, holding it in position.

J represents a perforated pipe running under the center bearing-bar or under the grates through which water is thrown onto the ashes and cinders in the ash-pit to form steam to be forced through the fuel to facilitate the relighting of the fire and quench the fire in the pit at the same time.

Having thus fully described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. The boiler-front with combined dead-plate and grate-bar bearing with opening and drop door A, in combination with rod D, to which is attached the arm C, and lever-handle E, to open and close the same, substantially as shown and described.

2. The door in the combined dead-plate and

grate-bearing with the shaft D running to the side of the furnace with crank C, and hand-lever E, in combination with ratchet F, and pawl G, to hold the same in the position desired, substantially as shown and described.

5 3. The combined dead-plate and grate-bar bearing with door opening downward, with the shaft D, running to the side of the furnace with crank and lever in combination

with a perforated water-pipe running across 10 in the rear of the dead-plate under the grate-bars, substantially as described and shown.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID W. EVANS.

Witnesses:

E. B. PATTERSON,

K. M. BENJAMIN.