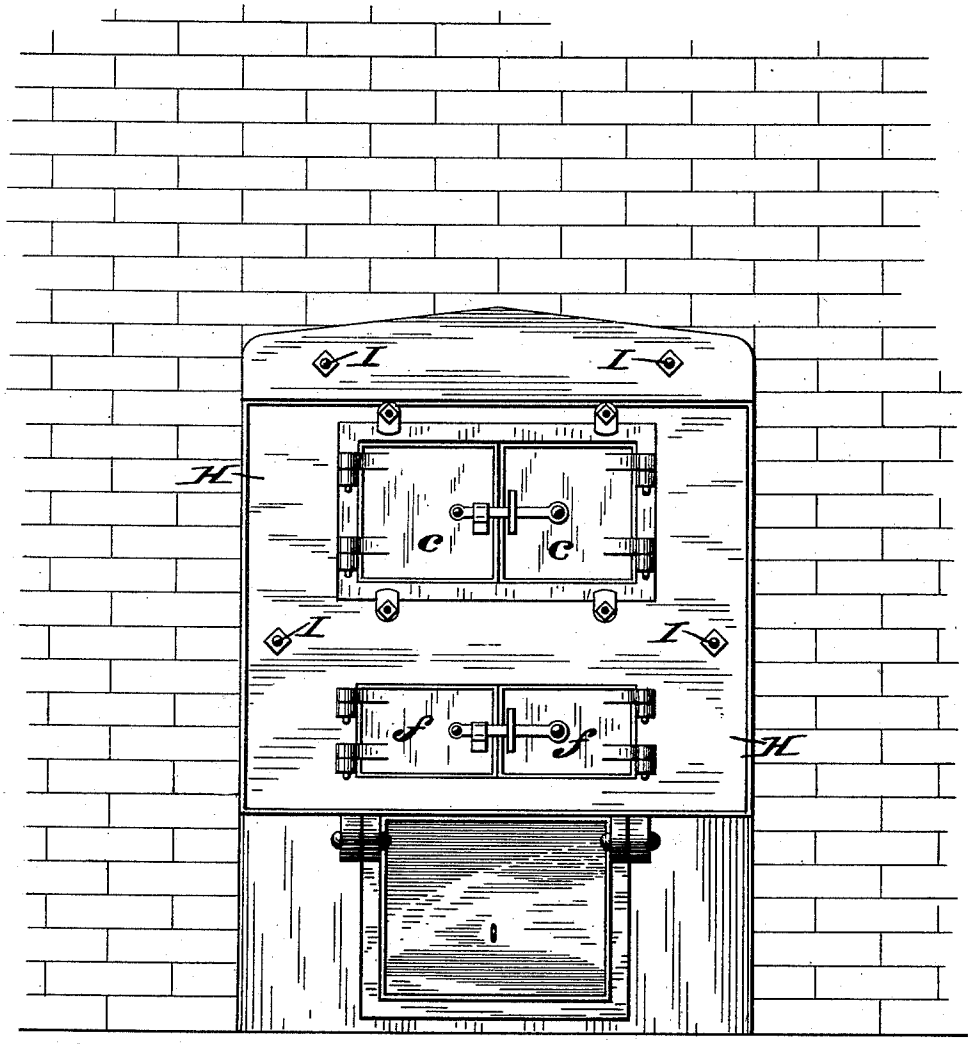
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J. A. PALMER.

BOILER FURNACE.

No. 393,579. Patented Nov. 27, 1888.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

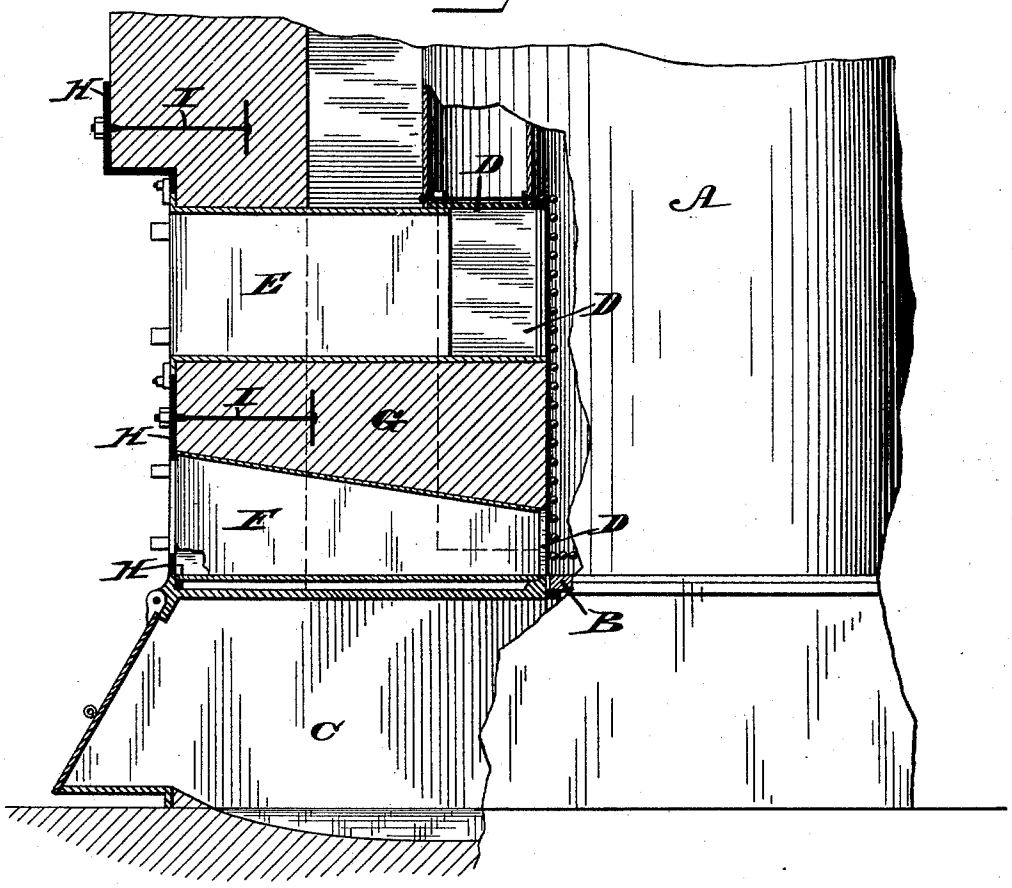
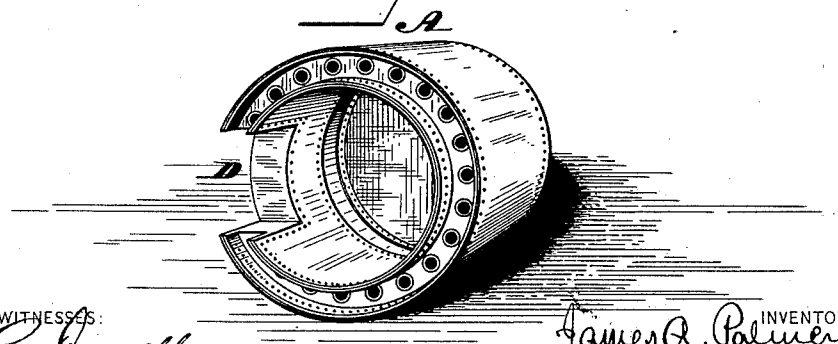


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES A. PALMER, OF PHILADELPHIA, PENNSYLVANIA.

BOILER-FURNACE.

SPECIFICATION forming part of Letters Patent No. 393,579, dated November 27, 1888.

Application filed June 1, 1888. Serial No. 275,731. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. PALMER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Boiler-Furnaces, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in boiler-furnaces, and has especial reference to what may be termed a "fire-front and anti-clinker door" for such furnaces.

In furnaces at present in common use, when found necessary to gain access to the interior for the purpose of repairs, a portion of the masonry which incloses the furnace must be broken away, and also the boiler must have an opening cut out of it large enough to allow a person to enter the boiler, or the entire structure must be taken apart for the purpose stated. This, as is evident, is a most serious and vital defect, as it consumes a considerable amount of time and labor and involves a great expense.

The object of my invention is to avoid the defect noted and provide a boiler which will allow of ready and easy access to the interior thereof for any purpose in a short time and without damage to the boiler. The said boiler extends downward on all sides except at the cut-away portion to the grade B, as shown in Figure 2, thereby forming a water-leg surrounding the interior combustion chamber above the grate and within the boiler.

A further object is to provide means for the purpose stated, which will be of simple construction, easy of application, thoroughly efficient, and inexpensive of production.

The invention consists in a boiler having a cut-out portion or door to receive the feed neck or throat and the anti-clinker-discharge passage; further, in the combination, with a boiler having a cut-out portion or door through its walls, of a feed-throat and anti-clinker passage received therein and a plate or casting connected therewith and forming a frame; and, finally, the invention consists in the novel details of construction hereinafter fully described, and particularly specified in the claims.

Fig. 1 represents a front view of a furnace with a fire-front embodying my invention applied thereto. Fig. 2 represents a vertical sectional view of a boiler with my improvement applied. Fig. 3 represents a perspective view of a boiler cut out in accordance with my invention, on a reduced scale.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A represents a boiler; B, the grate thereof, and C the ash-pit. The boiler A is provided with a cut-out portion or door, D. The said cut-out portion extends from above the fire-bed in the boiler downward through the bottom edge of the boiler.

E represents the feed throat or neck, having the doors *e*, and the inner end of said throat is received in the upper end of the cut-out portion D.

F represents the anti-clinker-discharge passage having the doors *f*. The inner end of said passage is received in the lower end of the cut-out portion or door, and the said passage rests or is supported upon the ash-pit.

In the space which is formed between the feed-throat and anti-clinker passage I place fire-brick, G, which tightly fills said space and retains the feed-throat and anti-clinker passage in place.

H represents a plate or casting, which is connected with the doors of the feed-throat and anti-clinker passage and is secured to the masonry by securing-rods I, as clearly shown.

From the foregoing construction it will be understood that if it is necessary to enter the boiler all that is required is to remove the plate H, and the feed-throat and anti-clinker passage can also be removed, allowing a person to enter the boiler through the cut-out portion or door.

The many advantages of the invention will be readily understood and appreciated by all skilled in the art, and hence need no further comment herein.

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

1. The combination, with the boiler having a cut-out portion, of a feed-throat and an anti-clinker passage formed by walls adapted to be received and retained in said cut-out portion, substantially as described.

2. The combination, with a boiler having a

cut-out portion, of a feed-throat and an anti-clinker passage formed by walls which are adapted to be received and retained in said cut-out portion and a plate or casting secured to the masonry connected to the feed-throat and anti-clinker-passage walls and forming a front, substantially as described.

3. The boiler A, with an interior combustion chamber and a cut-away portion, D, at one side, and at the base the grate B, the ash-pit C, a feed-throat leading into said combustion-chamber at the upper part of opening D, and the anti-clinker passage F, leading from said chamber at the lower portion of opening D, intervening fire-brick support G, and the plate H, with doors *e* and *f*, said parts being combined substantially as and for the purpose set forth.

JAMES A. PALMER.

Witnesses:
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A. P. JENNINGS.