March 8, 1949. C. D. BURNS 2,463,595

SLAG REMOVER

Filed April 5, 1946 2 Sheets-Sheet 1

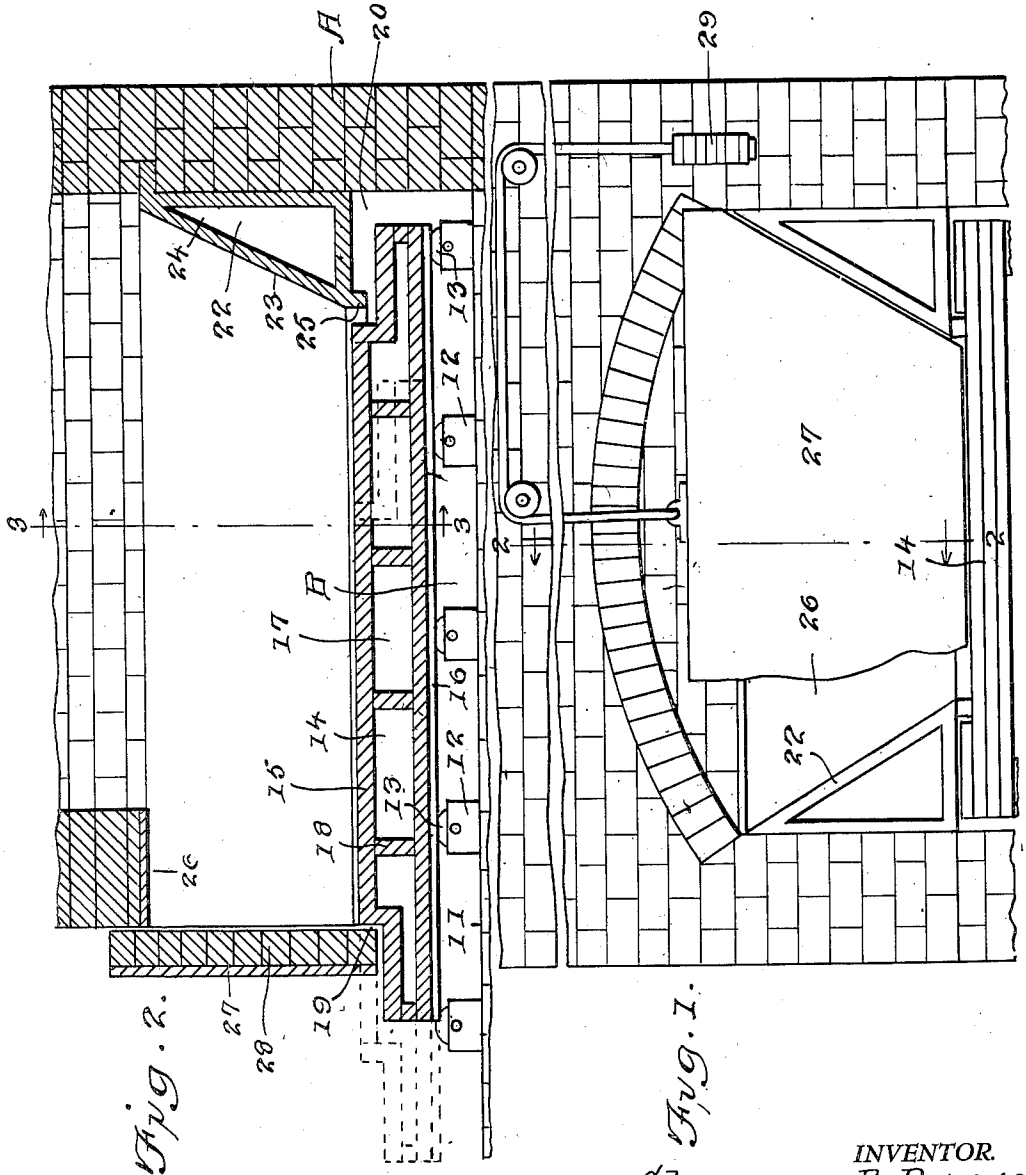


Fig. 2.

Fig. 1.

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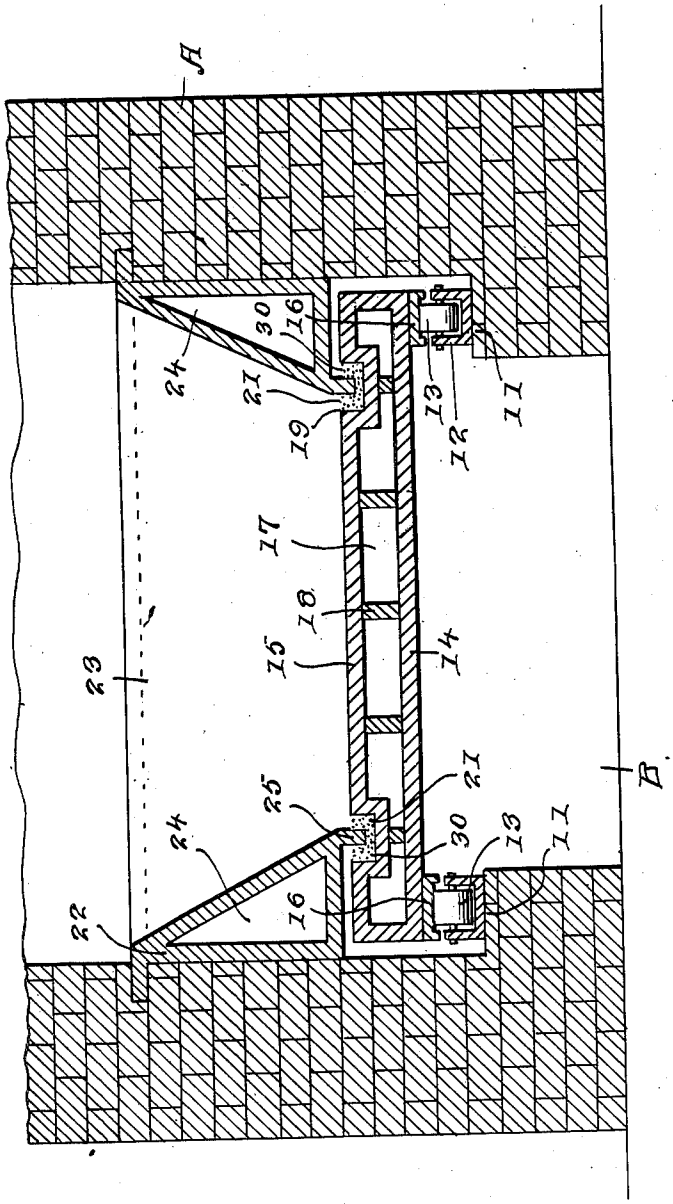


Fig. 3.

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SLAG REMOVER

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2 Claims. (Cl. 263—45)

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The invention relates to an open hearth furnace, and more especially to a slag remover for its slag-pit.

The primary object of the invention is the provision of a structure of this character, wherein slag or other waste material can be conveniently removed from an open hearth furnace with ease and dispatch, thereby eliminating the possibility of the slag fuses to the brick work of the furnace, which results in damaging the brick walling to the latter and replacement thereof.

Another object of the invention is the provision of a structure of this character, wherein a great saving of labor is had which is now used in cleaning out the furnace as well as the saving of costs in rebuilding such furnace, and time required in so doing.

A further object of the invention is the provision of a structure of this character, wherein the walling to the slag pit of a furnace is maintained cool, thus preventing the hot slag from bending to the sides so it can be removed freely without closing down the furnace and without loss thereof.

A still further object of the invention is the provision of a structure of this character, which is simple in construction, thoroughly reliable and efficient in operation, strong, durable, possessed of few parts, compact in assembly, readily and easily operated, and inexpensive to manufacture and install.

With these and other objects in view the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, which disclose the preferred embodiment of the invention and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a fragmentary front elevation, partly in vertical section of an open hearth furnace, showing the slag remover constructed in accordance with the invention applied.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a fragmentary elevation showing the half door and opening construction.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, A designates generally a portion of an open hearth furnace of the ordinary well known construction, and B the slag-pit therein, while assembled within

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this furnace at the latter is the slag remover constituting the present invention and hereinafter described in detail.

Built within the pit at opposite side walls 10 are horizontally disposed ledges 11, which are on a level with each other in parallel relation with one another, and at spaced intervals of the length of such ledges are fixedly held roller brackets 12, having horizontally journalled therein bearing rollers 13, for movably supporting a carriage 14 forming a trap bed with a raised top 15. This carriage 14 at its bottom face is formed channeled track rails 16 in which engage the rollers 13, as that such carriage can be moved in and out with relation to the pit B.

Between the top 15 and the bottom of the carriage 14 are vertically divided air ducts 17, created by partitions 18, while marginally of the said carriage at the top 15, both front and back thereof, are recesses 19 and 20, respectively then next to opposite side edges of such carriage are trough formations 21.

Within the pit B directly above the carriage location is a hopper-like body 22, having the downwardly tapered open center 23, and the side and rear air ducts 24, while marginally at the sides and rear end of such body 22 is a depending skirt 25, which intermatches the recess 20 and the trough formations 21 as best seen in Figures 1 and 2 of the drawings.

At the front opening 26 to the furnace A is supported a very easily movable cast iron door, a portion thereof being indicated at 27, and the entire door at its rear is lined with brick 28, while such door has a counterbalance 29 which is common, so that the furnace can be opened and closed in the usual manner with ease.

It should be seen that the brick walls of the pit B will be maintained cool in the use of the air ducts in the body 22, so that slag or other waste cannot fuse thereto, and by the air ways in the carriage prevent the latter becoming overheated. The trough like formations 21 are filled with sand 30, there being an interfitting relationship between the body 22 and the carriage 14, excepting at the open front of the furnace A, the aft skirt portion effects a stop for the carriage when moved inwardly of the pit B, as best seen in Figure 2 of the drawings.

The slag in a hot condition deposits directly on the carriage 14, which can be drawn outwardly of the furnace at the open front thereof, this being effected mechanically or otherwise.

What is claimed is:

1. In an open hearth a wall having a slag pit

therein, said wall having horizontally disposed ledges parallel to one another and extending along the sides of the same, a trap bed carriage, and roller devices for supporting the trap bed carriage on the ledges so that the carriage may be pulled out of the front of the furnace, said carriage having a raised top with recesses at the front and bottom ends thereof, trough formations extending along the opposite sides of the carriage top, a hopper-like body open at the front end and adapted to be supported upon the furnace wall above the carriage, said hopper-like body having a depending skirt portion extending into the recess at the rear of the carriage and into the trough formations along the sides thereof, and a furnace door adjustably mounted on the front of the furnace and adapted to extend into the recess at the front of the carriage.

2. In an open hearth furnace as defined in claim 1, said carriage having vertically-extending partitions therethrough to provide a plurality of air ducts thereof beneath the carriage top, and said hopper-like body including portions inclined from the top, portions flush with the wall surface, and other portions extending across the bottom between the inclined and flush wall portions whereby to form an air duct about the three sides of the hopper-like body to cool the inclined portions thereof, and said skirt portion depending from the bottom edge of the inclined portions and from the bottom portions of the body.

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