Sept. 15, 1925. 1,553,652

J. VRBA

CLAMPING AND PROTECTING CLIP FOR FURNACE LININGS

Filed Nov. 24, 1924

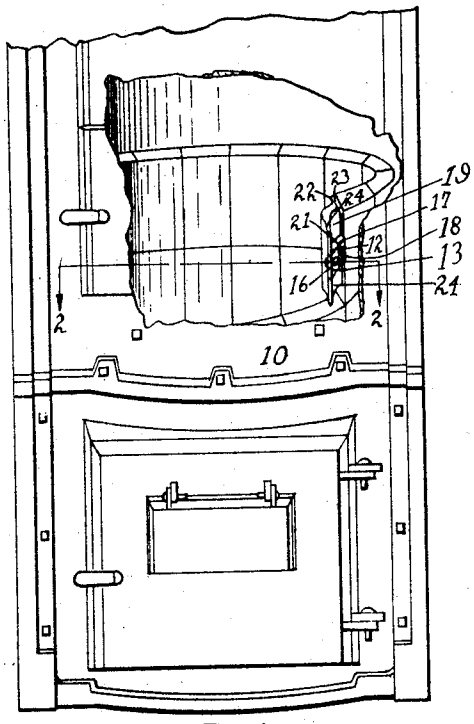


Fig. 1

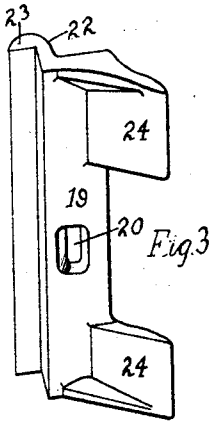


Fig. 3

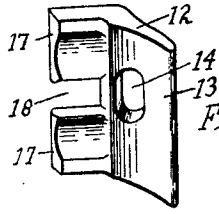


Fig. 4

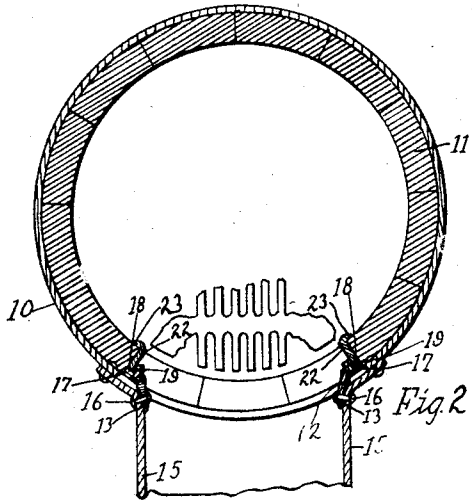


Fig. 2

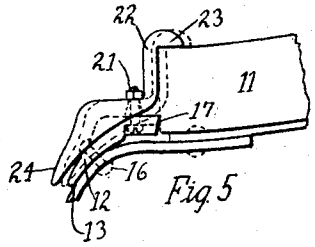


Fig. 5

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UNITED STATES PATENT OFFICE.

JAMES VRBA, OF MARSHALLTOWN, IOWA, ASSIGNOR TO LENNOX FURNACE COMPANY, OF MARSHALLTOWN, IOWA.

CLAMPING AND PROTECTING CLIP FOR FURNACE LININGS.

Application filed November 24, 1924. Serial No. 751,961.

To all whom it may concern:

Be it known that I, JAMES VRBA, a citizen of the United States, and a resident of Marshalltown, in the county of Marshall and State of Iowa, have invented a certain new and useful Clamping and Protecting Clip for Furnace Linings, of which the following is a specification.

In that class of furnaces which are lined with fire brick, there are usually two horizontally arranged rows of brick. The upper one terminates at the front on opposite sides of the fuel door. These fire brick are not always uniform in size or curvature, and it is often a matter of considerable difficulty to provide means for supporting the forward bricks of the row.

The object of my invention is to provide a clamping and protecting clip of simple, durable and inexpensive construction which is readily and easily adjustable to tighten the fire brick lining, and which is designed to fit furnaces of different diameters, and which is capable of being readily and easily removed, replaced or renewed, and which when in use will protect the forward edges of the fire brick from injury or damage by chunks of coal being thrown against them into the furnace.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a front elevation of a portion of a furnace with parts broken away to show the fire brick lining and one of my improved clips in position.

Figure 2 shows a horizontal sectional view on the line 2—2 of Figure 1.

Figure 3 shows a perspective view of the adjusting and protecting clip.

Figure 4 shows a perspective view of the stationary clip member; and

Figure 5 shows a top or plan view illustrating a portion of the furnace with my improved clamping device in position therein and a sectional fire brick in position in the clip. The dotted lines show the position of the adjustable clip member when adjusted to position for tightening the fire brick lining.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate generally the furnace, and 11 the upper fire brick lining. My improved clip device is made in two parts of cast metal. One part is designed to be permanently secured in the furnace, and comprises a body portion 12 having a curved flange 13 provided with a bolt opening 14, which curved flange is designed to fit against the side wall 15 of the fuel door opening adjacent to the interior of the furnace, as clearly shown in Figure 2, and to be permanently held in place by a bolt or rivet 16.

The clip member 12 is also formed with a flange member 17 shaped to extend outwardly around the interior of the furnace, as shown in Figure 2, and is formed at its central portion with a slot 18.

The adjustable and protecting clip member comprises a body portion 19 having a bolt opening 20 therein designed to receive a bolt 21, which may also be extended through the slot 18. From the body portion 19 there is projected inwardly toward the center of the furnace a protecting and clamping member 22 having a right angle extension 23 at its inner end designed to overlap the inner corner of the fire brick 11. At the other end of the body portion there are two curved arms 24 extended forwardly and inwardly above and below the body portion 12 and to rest against the part 15 of the furnace.

In practical use, the device is assembled within a furnace by first riveting or otherwise securing the clip member 12 in position. This may be readily and easily accomplished in any ordinary size or shape of furnace on account of the curvature of the part 12, which will lie flat against the furnace wall, as shown in Figure 2. Then the fire brick lining is placed in position and the parts 22 and 23 of the adjustable clip member are placed in engagement with the ends and inner corners of the fire brick adjacent to the furnace front, as shown in Figure 2. Then the bolts 21 are placed in position and the clip body portion 19 is moved rearwardly or forwardly until it firmly fits against and tightly clamps the fire brick lining in position, and this may be done readily and easily, because the bolt 21 passes through the slot 18.

When it is desired to remove or replace the fire brick lining, it is only necessary to

loosen the bolt 21, whereupon the clip member 19 may be removed and the fire brick lining removed. This may be done without disturbing the clip member 12.

When in use, it is obvious that the protecting clip member will receive the impact of all fuel or other articles thrown against it into the interior of the furnace, and thus protect the forward edges of the fire brick lining. The clip members are both so constructed that they may be reversed and used interchangeably on either side of the furnace, so that comparatively few parts need be carried in stock for purposes of repair and replacement.

I claim as my invention:

1. A clamping and protecting clip device for furnace linings comprising in combination a clip member designed to be permanently secured to a furnace, and formed with a slot to receive a bolt, a second clip member having a body portion shaped to engage that part of the first mentioned clip member in which the slot is formed, and being provided with a bolt opening to receive a bolt to extend through it and through the slot so that it may be adjusted relative to the first mentioned clip member, the second mentioned clip member being also formed with lugs to engage the upper and lower surfaces of the first mentioned clip member, and also with a part to extend rearwardly and around the inner forward corner of a fire brick lining, for the purposes stated.

2. In a device of the class described, the combination of a stationary clip member comprising a body portion having a curved flange formed with a bolt opening and designed to be permanently secured to a furnace, and also provided with an extension having a flat inner face and a horizontally arranged slot, and an adjustable protecting clip member comprising a body portion having a flat surface designed to engage the flat surface of the stationary clip member and having a bolt opening to receive a bolt which may also be received in said slot, said protecting clip member being formed with two projections extended above and below the stationary clip member and also being formed with an extension to extend around the front edge and inner corner of a fire brick lining, said parts being so shaped and arranged as to be reversible to fit on either side of a furnace, for the purposes stated.

Des Moines, Iowa, November 6, 1924.

JAMES VRBA.