July 8, 1941. T. H. BANFIELD 2,248,294

HOPPER FOR STOKERS

Filed May 16, 1938 2 Sheets-Sheet 1

FIG. 1.

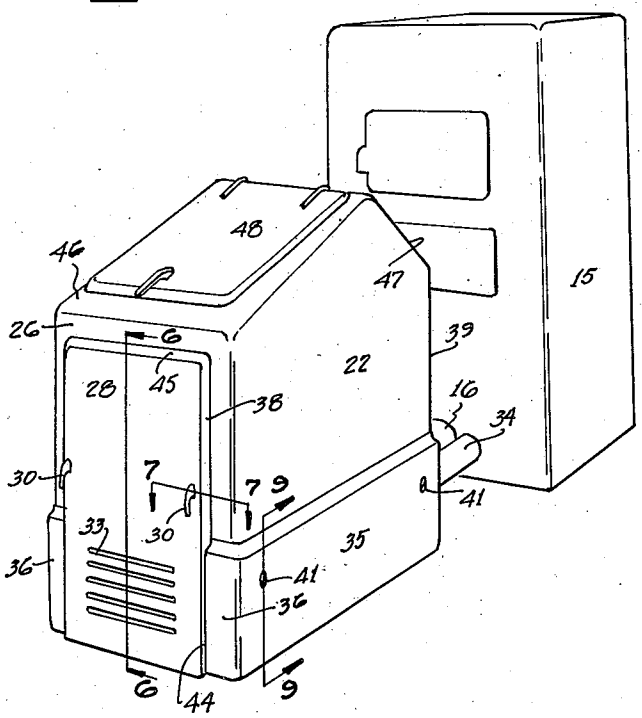


FIG. 2.

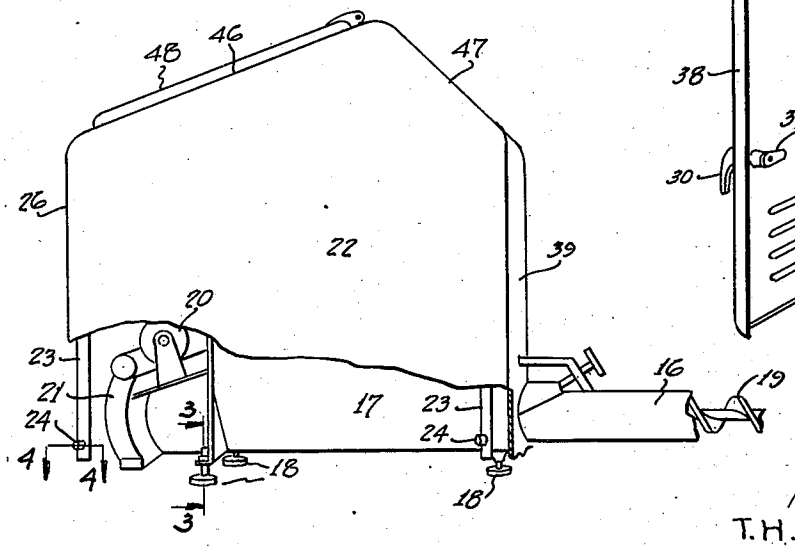


FIG. 3.

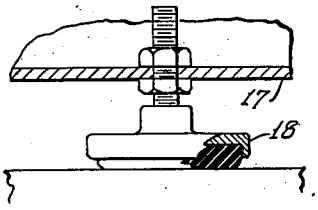


FIG. 4.

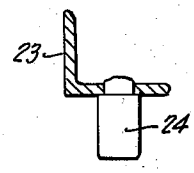
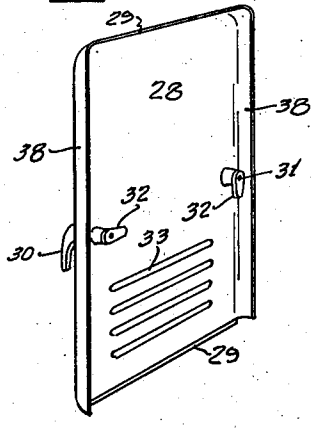


FIG. 5.



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HOPPER FOR STOKERS

Filed May 16, 1938 2 Sheets-Sheet 2

FIG. 6.

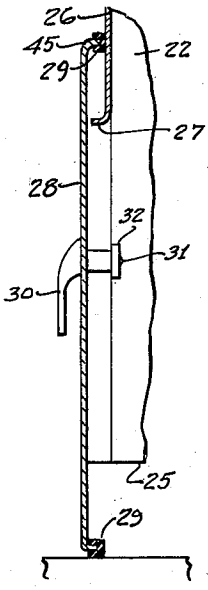


FIG. 7.

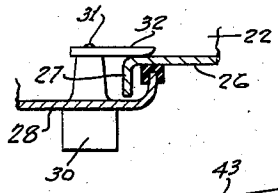


FIG. 8.

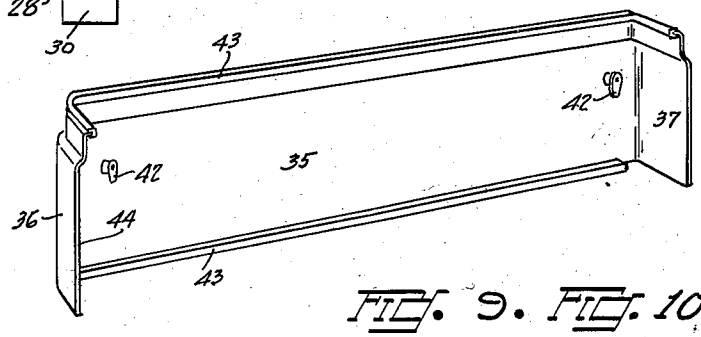


FIG. 9. FIG. 10.

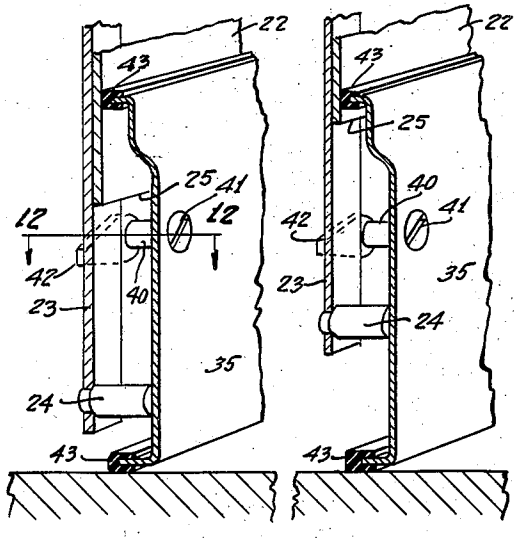


FIG. 12.

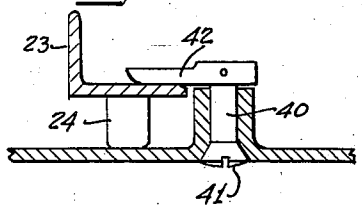
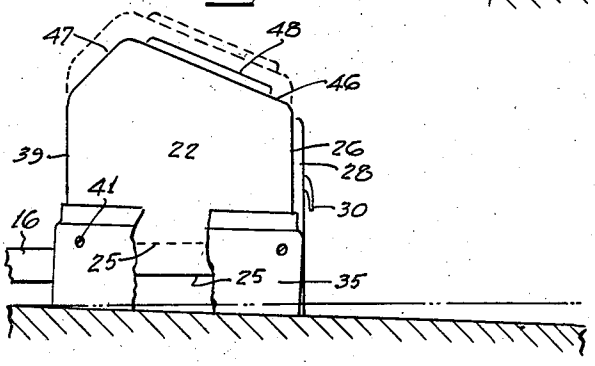


FIG. 11.



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UNITED STATES PATENT OFFICE

2,248,294

HOPPER FOR STOKERS

Thomas H. Banfield, Portland, Oreg., assignor to Iron Fireman Manufacturing Company, Portland, Oreg.

Application May 16, 1938, Serial No. 208,195

4 Claims. (Cl. 110—108)

This invention relates generally to coal stokers, and particularly to an improved form of enclosure for the hopper and a base for said enclosure.

The main object of this invention is to construct an enclosure and a hopper base by means of which a coal stoker may be placed upon a sloping floor and the stoker properly leveled, at the same time having its base enclosure in close contact with the floor itself.

The second object is to construct a hopper of the class described with a closure having an adjustable base adapted to permit of variations in the relative positions of the feed worm and the floor level.

The third object is to construct a device of the class described wherein a large portion of the vibrations imparted to the enclosure are absorbed or deadened by the base structure.

The fourth object is to so construct the device as to make it easily possible to vary the elevation of the stoker with relation to the floor line.

These and other objects are accomplished in the manner set forth in the following specification as illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view showing the complete unit in its relation to a furnace.

Fig. 2 is a side elevation of the device showing the base and door removed and a portion of the side cut away.

Fig. 3 is a section taken along the line 3—3 in Fig. 2.

Fig. 4 is a section taken along the line 4—4 in Fig. 2.

Fig. 5 is a perspective view of the interior of the door.

Fig. 6 is a fragmentary section taken along the line 6—6 in Fig. 1.

Fig. 7 is a section taken along the line 7—7 in Fig. 1.

Fig. 8 is a perspective view of one side of a hopper base.

Fig. 9 is a sectional perspective view taken along the line 9—9 in Fig. 1 showing the hopper in a lowered position.

Fig. 10 is a view similar to Fig. 9 but showing the hopper in a raised position.

Fig. 11 is a side elevation showing in a somewhat exaggerated manner a sloping floor and the manner in which my hopper base and base enclosure adapt themselves to such floors, also in dotted lines is shown the uppermost level to which the hopper may be raised.

Fig. 12 is a section taken along the line 12—12 in Fig. 9.

Similar numerals refer to similar parts throughout the several views.

Referring in detail to the drawings there is shown a furnace 15 which is connected by means of a coal conveying tube 16 to a hopper base 17 which is provided with adjustable feet 18 which are used for changing its elevation and for leveling purposes.

Coal is fed through the tube 16 by means of a coal feeding worm 19 which is driven by a motor 20 through a reduction gearing contained within the casing 21. The hopper 22 which is above the hopper base 17 may be of any desired shape. The hopper 22 has formed near its corners the posts 23 which have projecting from the lower ends thereof the rubber bumpers 24. The posts 23 project below the lower edge 25 of the hopper 22.

The front 26 of the hopper 22 is provided with a flanged opening 27 in front of which is placed a door 28 having a rubber covered edge 29. The door 28 is provided with handles 30 which are mounted on the rock shafts 31 on the inner ends of which are the latching levers 32. The door 28 is provided with louvers 33 by means of which air may be drawn into the fan (not shown) through which air is delivered through the duct 34 to the combustion chamber within the furnace 15.

On each side of the hopper 22 is placed a base enclosure member 35 having the inturned ends 36 and 37, the former of which extends to the flanged edge 38 of the door 28 and the latter of which extends around the back 39 of the hopper 22. Each member 35 is provided with a pair of revolvable bolts 40. Each bolt 40 has a slotted end 41 on its outer side and has mounted on its inner end a lever 42 which is adapted to engage the inner side of a post 23.

It will be observed that the levers 42 are adapted to engage the inner sides of the posts 23 and since the bumpers 24 are held in compression thereby, it can be seen that vibration is brought to a minimum. It is desirable to bind the upper and lower edges of the members 35 with rubber liners 43.

It can be seen from the foregoing that in the installation of this device, it is first necessary to raise the upper base 17 to the desired elevation and then level it by means of the adjustable feet 18. The members 35 are then put in place and lowered to the floor line and secured by rotating the bolts 40 by means of a screw driver which

causes the levers 42 to engage the posts 23 as shown in Fig. 12 placing the resilient bumpers 24 in compression.

It can be noted that the door 28 fits between the edges 44 of the inturned ends 36 and that the upper end 45 of the door 28 may assume its proper position with relation to the door opening 27 as is made necessary by the elevation of the hopper 22 itself.

It can thus be seen that regardless of the unevenness in the furnace room floor or the slope thereof, the stoker itself may be properly leveled and its base enclosing members 35 may be made to fit closely to the floor even though the members 35 may not be level. This condition will not be easily noticed because the top portions 46 and 47 also slope. The top portion 46 is provided with a hinged door 48 which is preferably made air tight.

It must be understood that the form of this invention illustrated in the drawings and described herein is only representative and that the details thereof may be varied without departing from the spirit of this invention.

I claim:

1. In a stoker casing, the combination of an elevated hopper having substantially vertical sides, means for leveling said hopper, a U shaped base board for partially enclosing the bottom of said hopper, means for adjusting said base board vertically with relation to said hopper and a door between the ends of said base board latched against one side of said hopper.

2. In a stoker casing, the combination of an elevated hopper having means for leveling same, vertically adjustable sides forming a skirt around the bottom of said hopper, said sides having inturned ends leaving an opening under one end of said hopper and a door adapted to occupy said open end and to extend above said base and a latch for securing said door against the front of said hopper.

3. A stoker casing having in combination an elevated hopper having substantially vertical sides, a leveling support therefor, base boards at opposite sides of said hopper having in-turned ends spaced from each other, said base boards being adjustable in a vertical direction, and a door disposed between one pair of base board ends and extending above said base boards, and latches for fastening said base boards and door to said hopper.

4. A stoker having in combination an elevated hopper having substantially vertical sides and provided with corner legs for supporting said hopper, vertically adjustable base boards at opposite sides of said hopper adapted to form closure for the bottom thereof, means for supporting said base boards on said corner legs, and a door adapted to occupy the space between one pair of base board ends and to be secured against said hopper.

THOMAS H. BANFIELD.