June 23, 1925. 1,542,877

S. P. HARMAN

MOBILE FURNACE STOKER

Filed Feb. 23, 1923

Fig. 1.

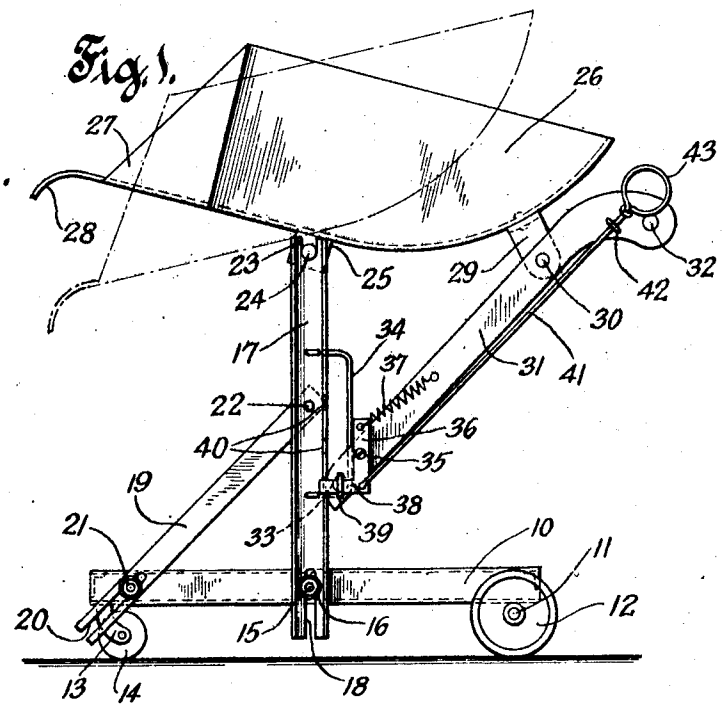


Fig. 2.

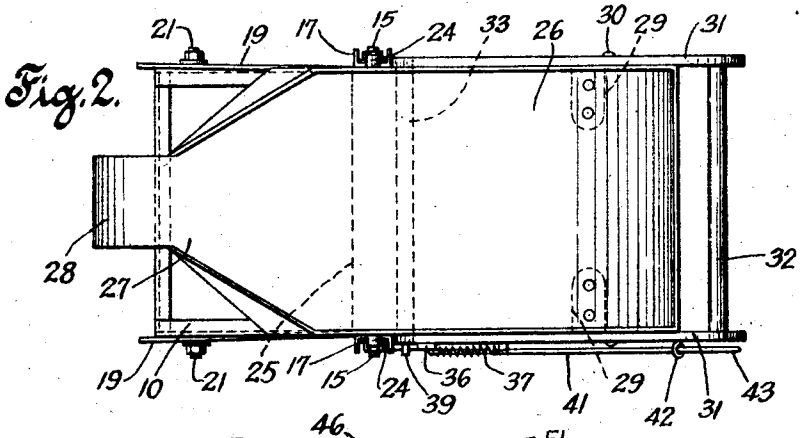
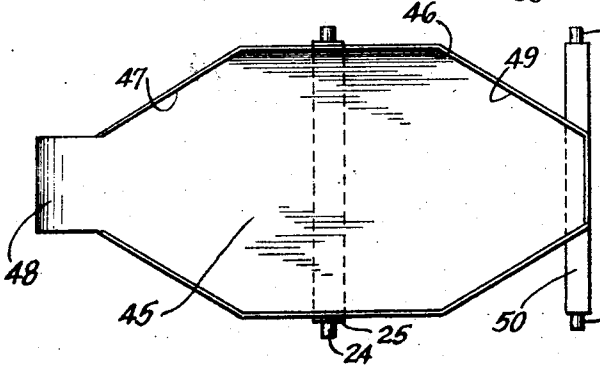


Fig. 3.



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UNITED STATES PATENT OFFICE.

STEVENS PALMER HARMAN, OF MAPLEWOOD, NEW JERSEY.

MOBILE FURNACE STOKER.

Application filed February 23, 1923. Serial No. 620,580.

To all whom it may concern:

Be it known that I, STEVENS PALMER HARMAN, citizen of the United States, and resident of Maplewood, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Mobile Furnace Stokers, of which the following is a specification.

This invention relates to improvements in stoking apparatus and more particularly to devices for feeding fuel to furnaces as used in connection with boilers for heating houses.

One of the objects of the invention is to provide an apparatus that can be operated in a practical manner without the exercise of severe manual labor and effort required under ordinary circumstances, involving no shoveling or raising of the fuel in feeding the same.

Another purpose is to produce a stoker, suited to be filled at the fuel supply bin with a quantity calculated to furnish the furnace for a considerable period of time, and trundled into a convenient position relative to the furnace door.

A further aim is in the provision of means for tilting or oscillating the fuel holding hopper, whereby such portion of its contents as may be desired is delivered directly into the furnace without waste or the distribution of dirt about the premises.

It is thus possible for one person to fill the stoker hopper, in the morning or evening, move it into proximity with the furnace and a weaker person operate it thereafter in supplying the fuel at such times as the furnace may require it.

These several aims, objects and purposes together with others that will appear as the description progresses, are accomplished by the novel construction, combination and arrangement of parts hereinafter described and shown in the accompanying drawing forming a material part of this disclosure, and in which:—

Figure 1 is a side elevational view of a stoker made in accordance with the invention.

Figure 2 is a top plan view of the same.

Figure 3 is a plan view showing a modified form of hopper.

The invention is composed of a rigid rectangular base frame, generally designated by the numeral 10, the same resting at one end on an axle 11 supported by wheels 12 adjacent the frame sides.

Rotatable in a vertical axis in the frame sides, near the front corners, are forked castoring means for moving the truck frame in straight or circular paths as required.

A bolt 15 passes through the frame approximately at the center of its length, the bolt being provided with nuts 16 adapted to securely clamp a pair of channel uprights 17, said bolt passing through slots 18 in the lower ends of the uprights so that they may be adjusted for height.

A pair of struts or braces 19 are similarly slotted as at 20 at their lower ends and are clamped in adjustment by the screws or bolts 21.

The other ends of the struts are held to the uprights 17 by pivotal rivets 22, as obviously in raising or lowering the uprights, the angle between them and the struts will change.

Formed in the upper ends of the uprights are relatively shallow slots 23 suited to contain pintles 24 extending out from a bar 25 fixed transversely below a hopper 26.

Said hopper, as shown in Figures 1 and 2, is made of heavy sheet metal, with parallel sides raised from the bottom plate, the latter being preferably curved at its rear portion from the bottom to the upper edge and narrowed at the front, as at 27, to enter a furnace door opening and down turned at its extremity 28 to engage over the sill of the opening.

Attached to the curved back of the hopper are a pair of oppositely disposed brackets 29 having between them a rod or bar 30 pivoted between a pair of levers 31 connected at their outturned ends by a handle bar 32.

Another rod 33 is fixed between the lower front ends of the levers, this rod being movable up or down alongside the uprights 17 and confined by loop guides 34 secured to the uprights.

One of the levers 31 has pivoted to it by the screw 35, a bell-crank lever, one end 36 being engaged with a pull-string 37 and the other angular end 38 is guided by a loop 39 to engage in any of the notches 40 formed in the channel.

A pull rod 41 is attached to the lever ele-

ment 38, adjacent the lower edge of the lever 31, passing through an eye 42 and terminates in a pull ring 43.

In the modification shown in Figure 3 the hopper 45 is formed with a level bottom having its raised sides 46 narrowed at the front as at 47 and formed with a down-turned or hook-shaped end 48 similar to 28 before indicated.

The rear portion of the hopper is also narrowed as at 49 and secured on a bar 50 having pintles 51, similar to the rod ends 30 and suited to enter the handle levers 31 as in the manner before described.

In operation, the stoker is trundled to the coal bins and the hopper filled with fuel. It is then moved adjacent the furnace, the hopper being in the position shown by the full lines in Figure 1. As the center of gravity of the loaded hopper is slightly in the rear of the trunnion bar 25, this position is readily maintained and is further assured by engagement of the detent 38 in the lowermost notch in the upright.

When it is desired to enter a charge of coal into the furnace, the door is opened and the end 28 of the hopper advances through into the fire box, it being understood that the uprights have been adjusted to a suitable height.

Thereupon by pulling on the ring 43, the detent will be withdrawn and moderate force in the lifting direction being applied to the handle bar 32, the hopper will be oscillated upon the pivots 24, causing the contents of the hopper to be transferred by gravity into the fire box, which action may be assisted by the use of a poker or suitable pusher device if desired.

At this time the hopper will assume a position shown by the broken lines in Figure 1, the detent then engaging in the upper notch of the uprights in a manner that will be readily understood.

The intermediate notch 40 might be used to maintain the hopper in a substantially horizontal position while not feeding coal to the furnace thus further reducing the amount of energy required to oscillate the hopper to feeding position.

From the foregoing it will be seen that a convenient and practical apparatus for the purpose has been disclosed, but as changes of construction could be made within the scope of the invention, it is intended that all matter contained in foregoing description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

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

1. A portable stoker comprising a wheeled and castored truck, uprights on said truck, a hopper pivotally mounted on said uprights, said hopper having a curved bottom at its rear, and a narrowed portion at the front adapted to enter a furnace, a hooked end on said narrowed portion, and means for tilting said hopper.

2. A portable stoker comprising a wheeled truck, uprights adjustable in height rigidly mounted thereon, a hopper having a contracted area at its rear, a trunnion bar fixed to said hopper at a point in advance of the center of gravity thereof, means on the front of said hopper adapted to engage with the opening of a fire box, means for tilting said hopper, and means for securing said hopper in its adjusted position.

3. A portable stoker comprising a movable truck, a hopper thereover, adjustable supports intervening said hopper and truck, means permitting said hopper to oscillate, a pair of levers pivotally engaged with the rear of said hopper, means on said supports for guiding and limiting the movement of said levers, and a detent adjacent one of said levers for maintaining said hopper in adjustment.

4. A portable stoker comprising a movable truck, uprights adjustable on said truck, means for clamping said uprights in adjustment, a hopper pivotally supported between said uprights, said hopper being arranged to carry a load substantially central of its length, means for varying the inclination of said hopper, means for maintaining the hopper in its angular adjustment and means formed with said hopper adapted to engage with a furnace.

Signed at New York in the county of New York and State of New York this 9th day of February A. D. 1923.

STEVENS PALMER HARMAN.