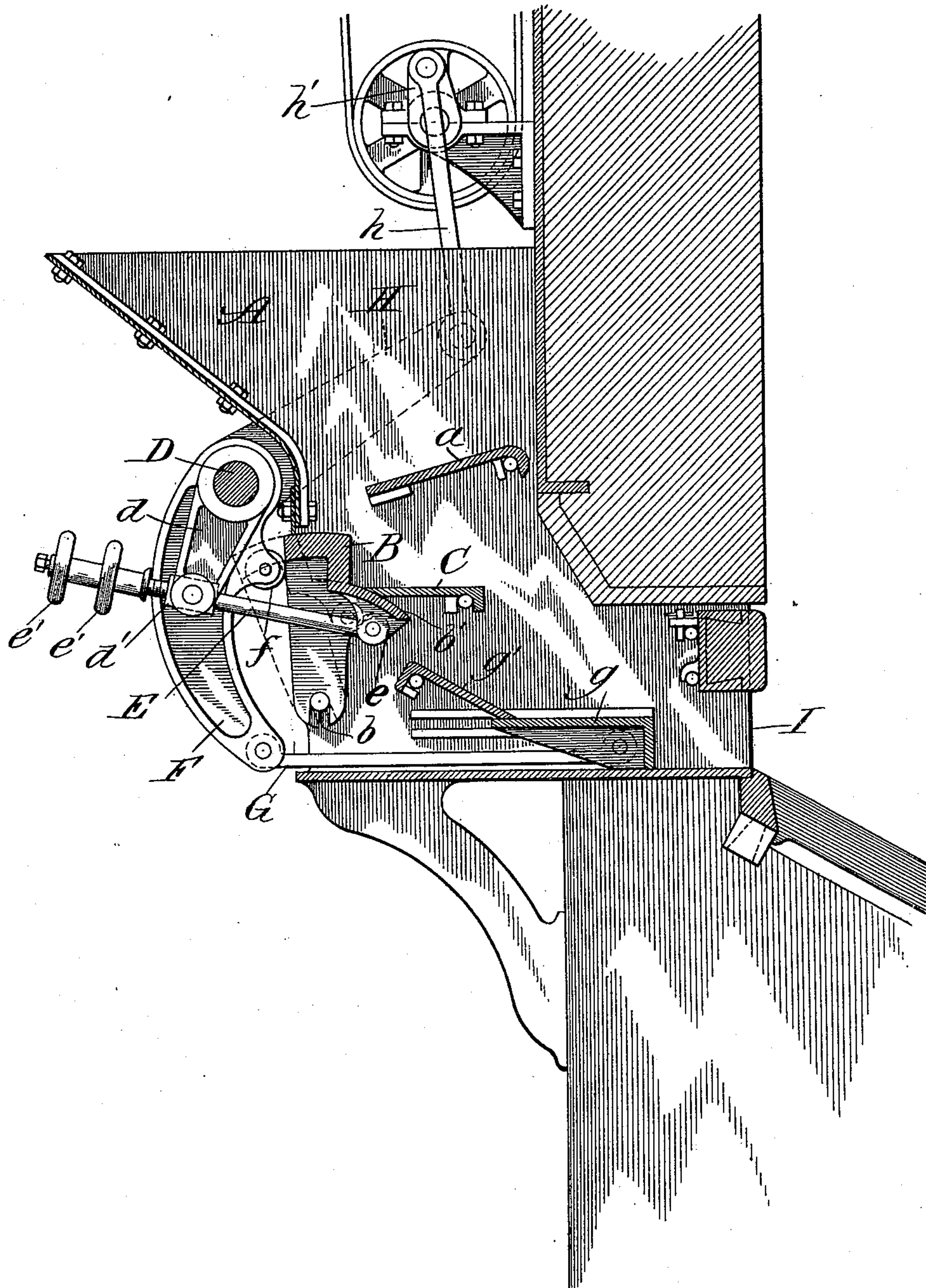


(No Model.)

F. M. FABER.  
MECHANISM FOR FEEDING FURNACES.

No. 583,866.

Patented June 1, 1897.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## MECHANISM FOR FEEDING FURNACES.

SPECIFICATION forming part of Letters Patent No. 583,866, dated June 1, 1897.

Application filed March 20, 1896. Serial No. 584,120. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK M. FABER, a citizen of the United States, residing at Riverside, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Mechanism for Feeding Furnaces, of which the following is a specification.

The object of my invention is to provide simple, economical, and efficient means for feeding fuel into furnaces; and the invention consists in the features and combinations hereinafter described and claimed.

The accompanying drawing is a vertical sectional elevation of my improved feeding mechanism, showing its relation to the furnace and fire-grate.

A is the hopper, through which coal, coke, or other fuel is introduced, and *a* a diaphragm or shelf at or near the bottom thereof for guiding or deflecting the fuel in its passage to the furnace; B, a "pusher" for passing the fuel forward toward the furnace or fire-grate, *b* pins or pivots for supporting the same, and *b'* a lip extending forward from the same; C, a shelf for receiving the fuel as it comes from the hopper; D, a rock-shaft, *d* an arm extending downwardly from the same, and *d'* a pivotal bearing connecting the arm to an adjusting-rod E, which rod is pivoted at its inner end to a lug *e*, forming part of the lip *b'*; *e' e'*, nuts on the outer end of the rod for adjusting the same and regulating the stroke of the pusher B; F, arms extending down from the shaft D, provided with a friction-roll *f* and connected at their lower ends to links G, which links are connected at their inner ends to a second pusher *g*, which pusher supports the lower end of an inclined shelf *g'*; H, an arm attached to the rock-shaft D, and *h* a rod connecting the same to crank mechanism *h'*, and I the opening through which the fuel is passed onto the fire-grates.

In ordinary stokers, as now constructed, the fuel-magazine is adjacent to the furnace, so that fuel stored therein often takes fire and is consumed, and as a result parts of the stoker are often burned out or seriously injured, and especially is this liable to be the case when the supply of fuel becomes low or

the fuel is not fed forward as rapidly as the fire burns back into the magazine or hopper. In present constructions, also, the mechanism is such as to prevent looking into or inspecting the furnace from the front, and there is no convenient way of inserting the "slice-bar" for "slicing" or stirring the fire on the part of the grate nearest the fuel-magazine. The special object of my invention is to overcome these objections.

My improved feeding mechanism is intended to be used with furnaces and grates of any form or construction. Described generally, it consists in making provision for the use of two pushers for shoving or moving the fuel forward onto the fire-grates in the furnace, these pushers being so related and connected to other parts as to enable this work to be rapidly and conveniently performed by power or hand, as desired. Described specifically, my improved feeding mechanism consists of the following parts, arranged with reference to each other in such way as to accomplish the objects specified:

The hopper or magazine for receiving the fuel is of course placed above the feeding mechanism and adapted to allow fuel to run down therefrom in proper position to be passed or moved forward toward the furnace. As it runs down from the hopper, the fuel falls upon or in front of the first pusher, which, as shown in the drawing, comes up against the edge of the hopper and is at the extreme limit of its forward stroke. By a backward movement of the adjusting-rod, however, the pusher may be drawn back and the fuel allowed to fall in front of it and onto the lip at its forward end and shelf resting on the same, the pusher and lip being then in the position shown in dotted lines. This backward movement is accomplished by crank mechanism operating upon the arms mounted upon the rock-shaft and pivotally secured to the adjusting-rod. When the crank mechanism is moved in one direction, it operates to cause the pivotal bearing and connecting-rod to come back and impinge against the adjusting-nuts thereon, and thus draws the rod and pusher backward. The position of these nuts, therefore, determines or regulates the length of the stroke and the backward movement of



the pusher. When the crank mechanism is moved in the opposite direction, it causes the friction-rolls to impinge against the upper edge of the pusher, and thus forces it forward into the position shown in the drawing. If a large piece of coal should become lodged or clogged between the pusher and the diaphragm at or near the bottom of the hopper, the forward movement of the pusher will cause it to become loosened or dislodged, the diaphragm being pivoted at its end farthest from the pusher and thus made capable of moving up and down at its other end as may be necessary for this purpose.

The fuel is passed forward from the shelf in front of the pusher by the coming in of new fuel from the hopper and forward movement of the same, as above described. The fuel falling down upon the inclined shelf and lower pusher is passed forward into the furnace by the reciprocating movement of the lower pusher, which is operated through links connecting it to the arms extending down from the rock-shaft and communicating with the crank mechanism, as above described. In this way the fuel is passed or moved forward from the time it leaves the hopper until it reaches the fire-grate in the furnace, and this without its being allowed to accumulate at any point where it may catch fire and burn in such way as to injure the stoker or parts thereof. If the driving mechanism should get out of order, the lower pusher and inclined shelf resting thereon can be readily removed and the construction thus adapted for shoveling fuel by hand into the furnace.

As will be seen, also, the arrangement of parts in my improved feeding mechanism is such as to permit ready inspection of the fur-

nace from the front and the insertion of a slice-bar for slicing or stirring the fire or removing clinkers from the walls of the furnace. The slice-bar may be passed between the upper pusher and inclined shelf resting on the lower pusher and on through the throat of the furnace, and the construction and relation of parts are such as to permit it to be handled or moved back and forth or up and down at pleasure.

Although I have described my invention somewhat minutely, it will be understood that I do not desire to limit myself to minor features or details of construction. On the contrary, I contemplate changing form and construction, omitting parts or using equivalents, as circumstances may suggest or render expedient.

I claim—

1. In mechanism for feeding furnaces, the combination of a hopper, a pusher under the hopper, a second pusher on a plane lower than the first one, and mechanism for operating the pushers, the second pusher being located with reference to the first one in such position as to leave an opening for the insertion of a slice-bar into the furnace, substantially as described.

2. In mechanism for feeding furnaces, the combination of a hopper, a pusher under the hopper, and a shelf or diaphragm on a plane higher than the pusher and pivoted at its end farthest therefrom, whereby its inner end may be raised to prevent clogging of fuel, substantially as described.

FRANK M. FABER.

Witnesses:

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