W. A. CAMPBELL & J. HYLAND.

Furnace-Feeder.

No. 221,517. Patented Nov. 11, 1879.

Fig. 1

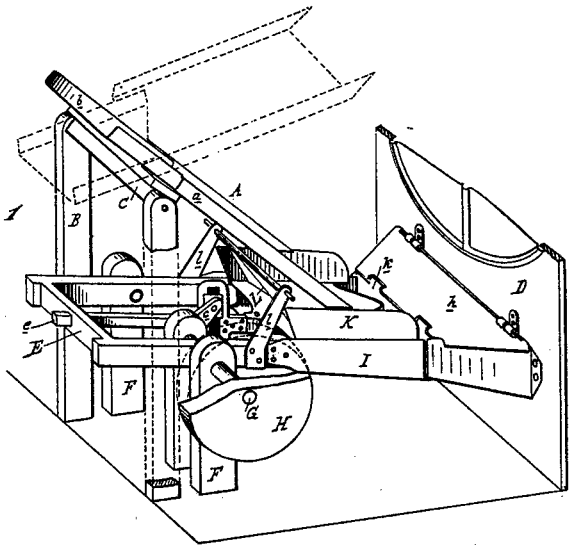


Fig. 3

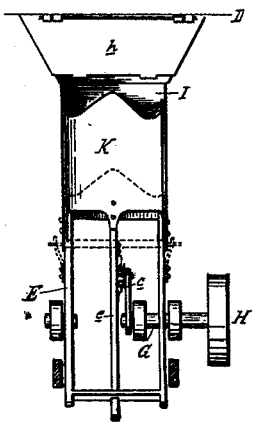


Fig. 2

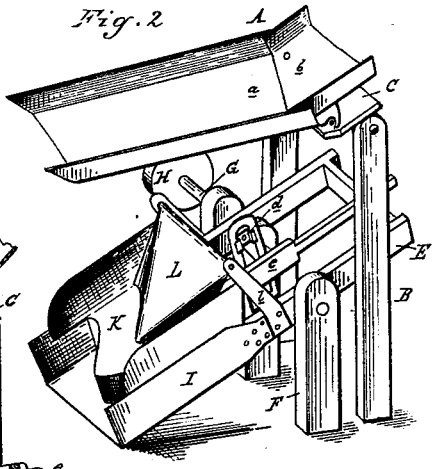
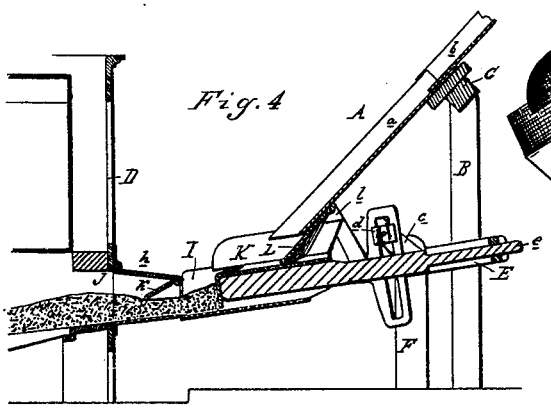


Fig. 4



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UNITED STATES PATENT OFFICE.

WILLIAM A. CAMPBELL AND JOSEPH HYLAND, OF MANISTEE, MICHIGAN.

IMPROVEMENT IN FURNACE-FEEDERS.

Specification forming part of Letters Patent No. **221,517**, dated November 11, 1879; application filed May 5, 1879.

To all whom it may concern:

Be it known that we, WILLIAM A. CAMPBELL and JOSEPH HYLAND, of Manistee, in the county of Manistee and State of Michigan, have invented certain new and useful Improvements in Furnace-Feeders, of which the following is a specification.

The object we have in view is to produce an automatic feeder for furnaces which can be readily thrown away or removed from the furnace-front when it is desired to reach the same for repairs or for other purposes; which will spread the fuel on the fire-bed of the furnace, and will be compact and convenient in construction and efficient in operation.

The device is intended more especially for feeding sawdust and the other refuse of sawmills or other wood-working establishments; but it can be efficiently used for feeding other kinds of fuel.

Our invention therein consists in the adjustability of the parts to give ready entrance to the furnace-front; in the peculiarly-situated guiding and scraping plate; in the form of the pusher to spread the fuel; in the manner of connecting and disconnecting the mouth-piece of the furnace with the chutes; and, further, in providing the peculiar mouth-piece with a hinged cover and door, all as fully hereinafter explained.

In the accompanying drawings, Figure 1 is a perspective view of our feeding device in connection with a furnace; Fig. 2, a perspective view of the same disconnected from the furnace, showing the adjustability of the parts; Fig. 3, a top view with the upper chute and the scraper removed, and Fig. 4 a vertical longitudinal section of the parts arranged as in Fig. 1.

Like letters denote corresponding parts.

A is the upper chute, secured to a rocking bar, C, pivotally mounted in the top of an upright frame, B. This chute terminates at its upper end at a convenient point to receive the fuel. The chute A is made in two parts, *a b*, the upper part, *b*, being rigidly attached to the rocking bar C, while the lower part, *a*, is pivoted thereto and adapted to be turned to one side.

The chute A can be thrown up on its pivot or turned aside at its lower end when it is desired to get at the front D of the furnace or to reach the other parts of the feeding device; or it can be turned to one side to discharge the fuel upon the furnace-room floor or into any receptacle provided for the purpose.

The lower part of the chute A may be pivoted to turn to either side, if desired, although the form shown is preferred; and the upright frame B can be constructed to rock back and forward, to throw the chute out of and into connection with the furnace.

In front of upright frame B are placed uprights F, between and to which is pivoted the frame E, one of the pivots being the shaft G, which carries on its end, outside of the uprights, the driving-pulley H. To the front end of the frame E is secured the horizontal box or chute I, of equal or greater width than the inclined chute A, which chute I rests at its forward end when in position upon the projecting lower edge of the mouth-piece J of the furnace. This mouth-piece J projects outwardly from the furnace-front D, to which it preferably is removably secured by means of hooks, bolts, screws, or turn-buckles. Above the mouth-piece J is hinged to the front D a cover, *h*, extending out nearly to the end of the chute I, but not so far that it will interfere with the vertical movement of such chute. The forward edge of the hinged cover *h* carries a hinged and swinging door, *k*, which is swung back by the fuel. This door can be arranged to slide vertically and to be opened by the advancing pusher, if desired.

K is a sliding pusher, which reciprocates upon the chute I, and receives motion from the shaft G, preferably through a crank, *c*, link *d*, and arm *e*; but a crank-and-pitman connection may be used. The forward end of the pusher K is constructed with a projecting center, so as to spread the fuel to the sides and distribute the same evenly upon the fire-bed of the furnace.

L is a guide and scraper, which is pivoted to standards *l*, rising from the frame E, and is placed between the lower end of the chute A and the top of the pusher. This pivoted scraper and guide receives the fuel from the chute A, guides the same into the chute I and upon

the pusher, and prevents such fuel from being carried back under the end of the chute A by the backward movement of the pusher.

The frame E can be thrown back on its pivots when it is desired to examine the furnace-front or for any other purpose, carrying with it the chute I, the pusher, and the guiding-scraper, and raising the chute A.

To examine the fire-bed or manipulate the fire in any manner, the chute can first be thrown back and the hinged cover and door raised, or such cover and door can be raised without disturbing the chutes. For repairs to the furnace, the mouth-piece and cover can be removed bodily therefrom.

The uprights supporting the chutes can be made portable by securing them to one or two base-frames, or they can be fixed in the floor of the furnace-room, as shown.

The operation of our devices will be easily understood and their advantages will be readily appreciated by those understanding the objections to feeders of this class heretofore.

What we claim as our invention is—

1. In automatic furnace-feeders, the combination of the vertically-swinging chute I with the reciprocating pusher working in such chute and swinging therewith, substantially as described and shown.

2. In automatic furnace-feeders, the combination of the vertically-swinging chutes A I and the reciprocating pusher K, working in the lower chute, substantially as described and shown.

3. In automatic furnace-feeders, the chute I, connected with the mouth of the furnace and having a reciprocating pusher for charging the fuel into the furnace, in combination with the chute A, swinging vertically and having a laterally-swinging lower end, substantially as described and shown.

4. In automatic furnace-feeders, the combination of the chutes and the sliding pusher with the guide and scraper L, situated between the lower end of the upper chute and the pusher, and receiving the fuel from the chute, substantially as described and shown.

5. In automatic furnace-feeders, the sliding pusher K, having centrally-projecting forward end, substantially as described and shown.

6. In automatic furnace-feeders, the mouth-piece J to the furnace, having projecting bottom plate, in combination with the vertically-swinging chute I, substantially as described and shown.

7. In an automatic furnace-feeder, the mouth-piece J, having hinged cover *h* and door *k*, substantially as described and shown.

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Witnesses:
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