

(No Model.)

2 Sheets—Sheet 1.

J. W. WETMORE.

FUEL FEEDING DEVICE FOR FURNACES.

No. 501,979.

Patented July 25, 1893.

*Fig. 1.*

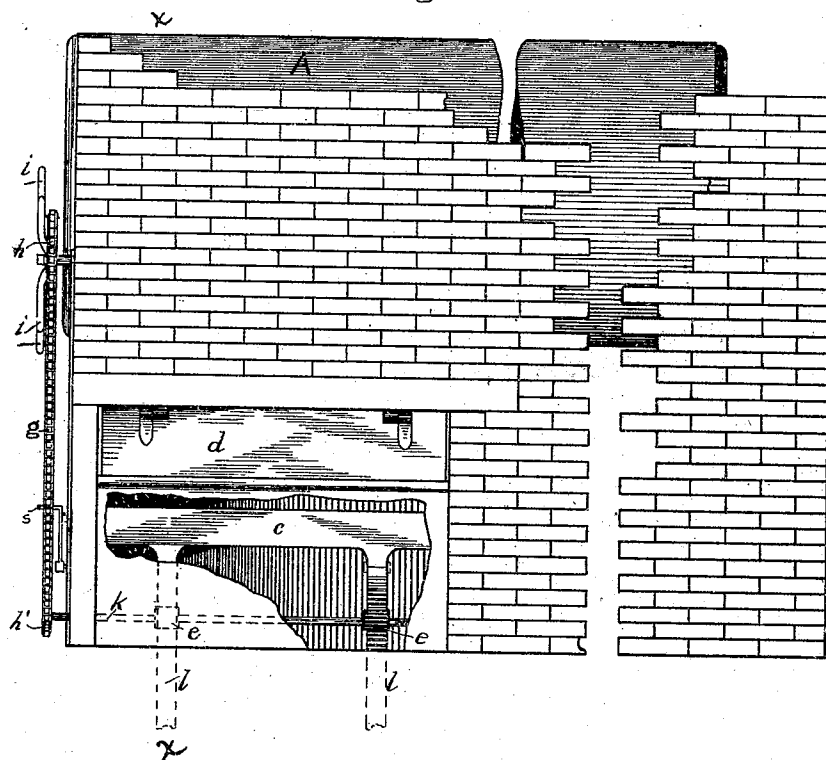
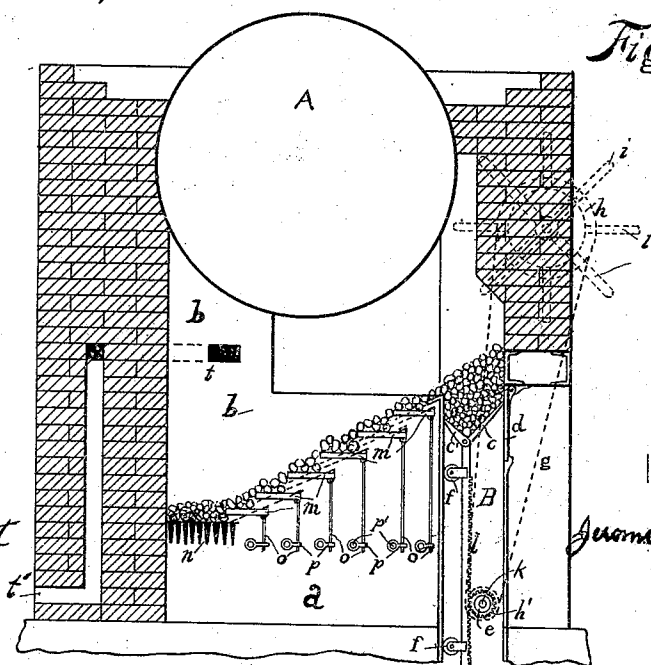


Fig. 2



WITNESSES  
L. D. Hamford  
Walter Scott

INVENTOR  
James M. Wetmore

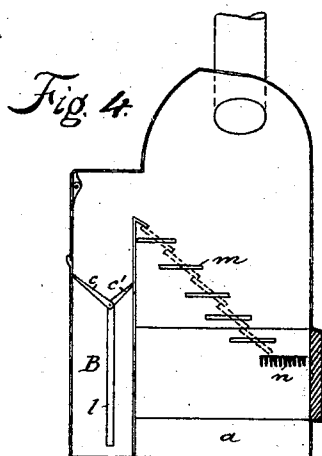
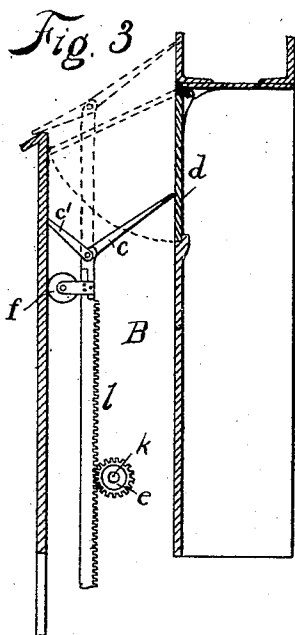
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# UNITED STATES PATENT OFFICE.

JEROME W. WETMORE, OF ERIE, PENNSYLVANIA.

## FUEL-FEEDING DEVICE FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 501,979, dated July 25, 1893.

Application filed January 2, 1892. Serial No. 416,752. (No model.)

*To all whom it may concern:*

Be it known that I, JEROME W. WETMORE, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Fuel-Feeding Devices for Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to improvements in fuel feeding devices for stoves and heating and other furnaces when the method of combustion is primarily surface burning.

The objects of my invention are to improve the construction of the fire box, the method of feeding the fuel to the fire and to prevent the production of smoke in the combustion. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1, is a side view of the improvement applied in the steam boiler furnace; Fig. 2, a cross section of the same through the line  $x x$ , Fig. 1; Fig. 3, an enlarged cross section of the fuel magazine; Fig. 4, an illustration of the application to the common stove.

A, is the boiler;  $a$ , ash pit; B, fuel magazine;  $b$ , a wall at the back end of the furnace chamber projecting about a foot inward from the furnace wall;  $c, c'$ , the fuel carrier;  $d$ , door opening into the fuel magazine and closing the opening into the furnace chamber while the magazine is being filled;  $e$ , lifting pinion wheels;  $f$ , friction wheels;  $g$ , chain belt connecting  $h$  and  $h'$ ;  $h$ , sprocket wheel supported on a shaft at a convenient distance above the floor;  $h'$ , sprocket wheel on the shaft K;  $i$ , lever arms on the wheel  $h$ , for convenience in turning it. There will be a ratchet wheel between  $h$ , and its supporting standard to hold the carrier from dropping back under its load.

K, is the shaft (supported by suitable bearings) carrying the two pinion lifting wheels  $e, e$ , and the sprocket wheel  $h'$ ;  $m$ , grate bars on the inclined plane of the furnace. Each of these is pivoted in bearings, perforated at

the back side and heavily flanged at the back edge to hold, and balance the weight of, the coal. The dotted lines show the positions of the bars when their contents are dumped.

$l$  represents the pinion bars by which the carrier is raised with its load of fuel;  $n$  the common grate bars at the foot of the inclined plane;  $o$ , the rods connecting the back edges of the bars  $m$ , with the dumping levers  $p$  or  $q$ ;  $p$ , lever bar fixed on the shaft  $p'$  and hinged to rod,  $o$ ;  $p'$  dumping shaft;  $t, t'$ , air flue through which air partially heated is thrown forward into the flame, the amount of air being regulated by a door at  $t'$ . By the door of the ash pit,  $a$ , the supply of air under the grates will be regulated. The carrier has ends fitting the ends of the magazine, but the narrow disk  $c'$ , is not riveted to the end.

The operation of the improvement is as follows: The carrier  $c, c'$ , is lowered one, two or more feet below the top of the magazine B. The door  $d$ , is swung back until it strikes the inner wall of the magazine and closes the opening into the fire chamber as shown by the dotted lines in Fig. 3. The fuel is then thrown into the magazine, the door,  $d$ , dropped to its place in the outer wall of the magazine and the loaded carrier raised until the coal will begin to fall down the grate bars,  $m$ . As the surface of the coal in the carrier is heated and burned, the carrier is gradually raised until  $c'$ , passes the inner wall of the magazine and drops to be in the plane of  $c$ , as shown by the dotted line in Fig. 3, when the carrier will be entirely emptied and be returned by levers  $i$ , down into the magazine and the door closed.

If the furnace be used under a boiler, the shell of the boiler over the fire can be very thick or may be coated so as to bring the fuel and gases to a high heat or the fire chamber may be brick arched to facilitate by high heat a complete combustion.

The wall,  $b$ , will serve as a vertical bridge wall and the products of combustion will be thrown and mixed behind it after being thrown over the surface of the coal in the carrier.

Preferably the grate bars are dumped one by one, beginning at the lower, but the dumping levers may be hinged at their ends so they can be shaken together.

What I claim is—

1. In a fuel magazine for stoves and furnaces, the combination of an upward moving, V-shaped carrier and the mechanism for raising and lowering it, an inclined grate and a door adapted to be opened to admit a charge of fuel to the magazine when the carrier is lowered and to be closed when the load on the carrier is to be raised, substantially as and for the purpose set forth.

2. In a surface burning stove or furnace, the combination of the vertical fuel carrier, the pinion bars, *l*, cog wheels *e*, shaft K, sprocket wheels *h h'*, chain belt *o*, friction wheels *f*, magazine B and inclined grate sur-

face substantially as and for the purpose set forth.

3. In the surface burning stove or furnace, the fuel door, *d*, closing the opening into the combustion chamber while opened to admit fuel supplies, in combination with the fuel magazine B, the carrier *c, c'*, the combustion chamber and the inclined grate, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JEROME W. WETMORE.

Witnesses:

CLARK OLDS,

WALTER SCOTT.