

No. 674,548.

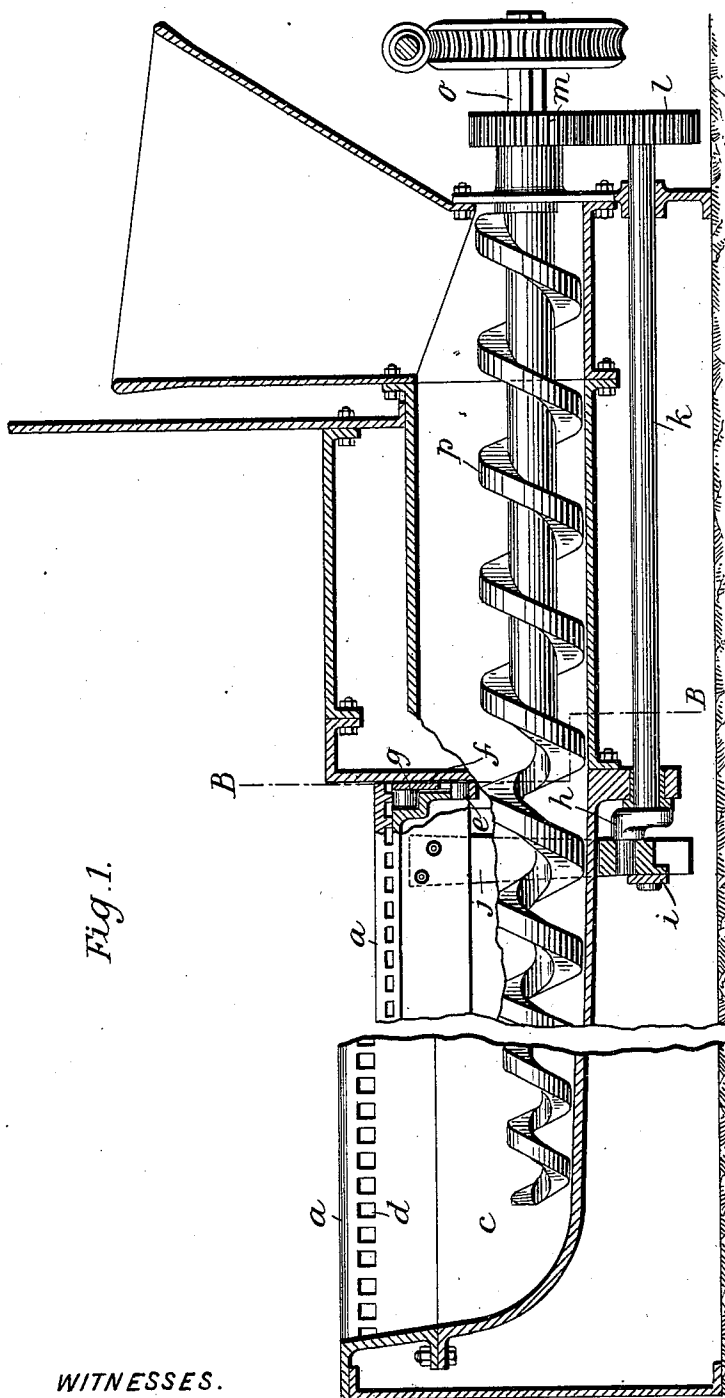
Patented May 21, 1901.

W. R. WOOD.
UNDERFEED FURNACE.

(Application filed Dec. 24, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

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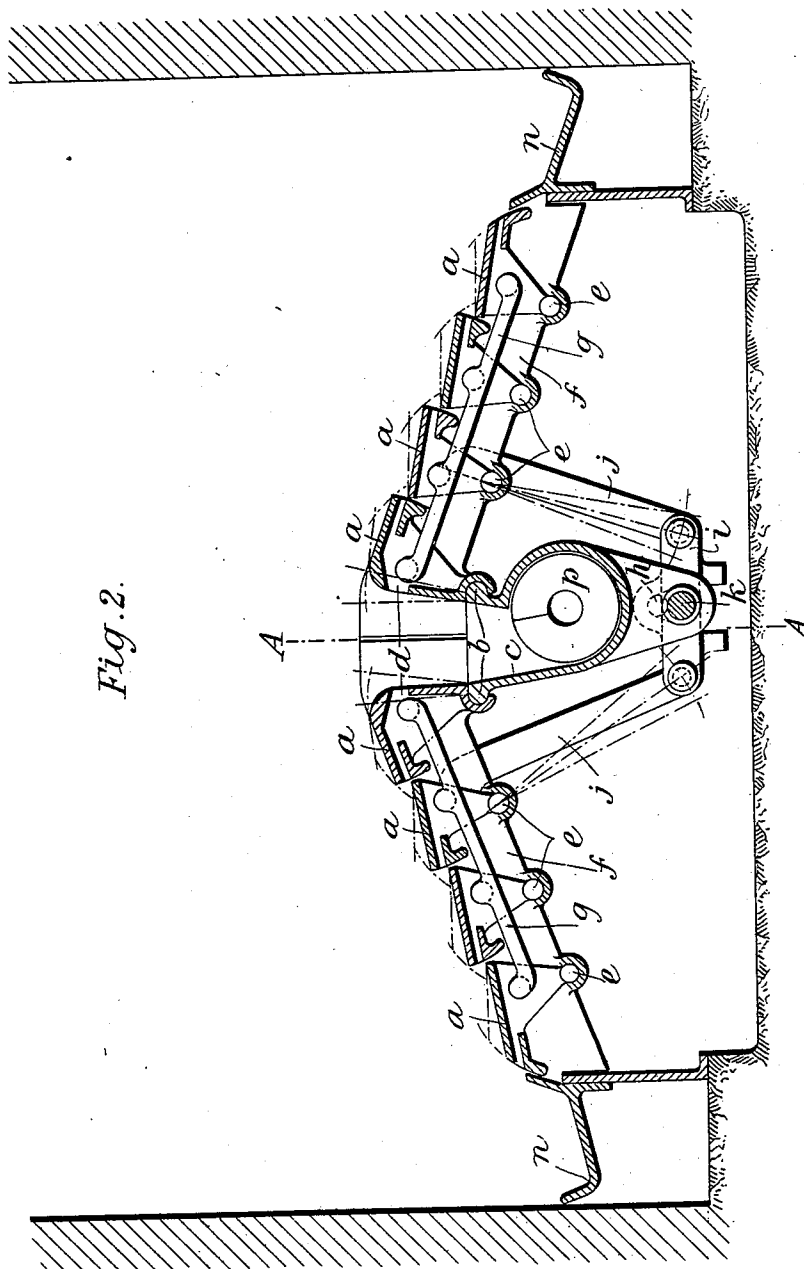
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2 Sheets—Sheet 2.

(No Model.)

Fig. 2.



WITNESSES.

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UNITED STATES PATENT OFFICE.

WILFRED ROTHERY WOOD, OF LONDON, ENGLAND, ASSIGNOR TO THE
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UNDERFEED-FURNACE.

SPECIFICATION forming part of Letters Patent No. 674,548, dated May 21, 1901.

Application filed December 24, 1900. Serial No. 40,940. (No model.)

To all whom it may concern:

Be it known that I, WILFRED ROTHERY WOOD, a citizen of the United States, residing in London, England, have invented a certain new and useful Improvement in Underfeed-Furnaces, of which the following is a specification.

The method of feeding fuel from below to furnaces is well known, and for the purpose of feeding it has been customary to employ a pusher or screw, which will carry the fuel to a fuel-trough, in which it gradually rises, becoming partially coked, and eventually it is pushed out of the trough onto the hearth of the furnace.

The present invention relates to improved apparatus by which the undue caking of the fuel is prevented and the draft is enabled to enter more freely into the mass, in addition to which a more even and wider distribution of the fuel over the furnace-bed may be secured.

One of the main features of the invention is to have a part of the fuel-trough movable, and this feature may be employed in connection with hearths of various kinds; but it is judged that it will be generally preferable to employ with the moving top of the fuel-trough rocking or moving grate-bars, and in the accompanying drawings an improved arrangement of such bars is indicated.

Figure 1 is a side sectional elevation on the line A A of Fig. 2, which in turn is a cross-sectional elevation on the line B B of Fig. 1.

In said drawings the inner hollow bars *a* of the rocking grate rest upon a bead *b* or are otherwise pivotally connected with the fuel-feed casing *c*, and they may also be provided with draft-openings *d*, directed toward the fuel-space rising therefrom. In like manner the lower ends of the other bars *a* are provided with trunnions *e* or are otherwise secured to or move on some fixed part, such as bar *f* of the structure, so as to secure a rising-and-falling motion or rocking of the bars, all of which on each side of the fuel-space being connected by a link or bar *g*, so that they will move in unison. The desired movement

may be imparted by means of a crank *h* or cam operating a cross-slide *i*, which in turn operates levers or rods *j*, connected to some part of the movable grate-bar system, such as to the downwardly-projecting web of one of the bars *a*, or other means of imparting motion may be employed. Motion may be imparted to the crank *h* by a shaft *k* and gears *l m*, driven from the feed-screw shaft *o* of feed-screw *p*.

With the construction as illustrated it will be obvious that as the fuel rises in the trough it will be subjected to a to-and-fro motion across the trough at approximately right angles to its line of rise, and such motion tends to break up the caked fuel and prevent its adhering to the sides and further tends to keep the draft-ports *d* clear, and thus permits the air to enter freely among the fuel. After the fuel leaves the trough it will be subjected to a further rising-and-falling motion as it passes over the other bars *a*, and thus will be constantly kept in a broken or divided condition, which enables the draft passing through the bars to enter thoroughly into it and secure complete combustion without smoke.

For the purpose of collecting the ashes carried down from bar to bar a trough *n* may be employed, or such ashes may fall into convenient ash-pits.

What I claim is—

1. In apparatus for underfeeding fuel to furnaces, the combination with feeding devices, of a fuel-feed trough with movable sides, and means for imparting motion to such sides so as to cause the fuel to move backward and forward across its line of rise, substantially for the purposes set forth.

2. In apparatus for underfeeding fuel to furnaces, the combination with feeding devices, of a fuel-feed trough with movable sides, a series of stepped and movable grate-bars, and means for imparting motion to the trough sides and grate-bars, substantially for the purposes set forth.

3. In apparatus for underfeeding fuel to furnaces, the combination with feeding de-

vices, of a fuel-feed trough with movable sides, a series of stepped and movable grate-bars, a shaft driven from the feed mechanism, and connecting-rods operated thereby
5 adapted to impart motion to the trough and grate-bars, substantially for the purposes set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILFRED ROTHERY WOOD.

Witnesses:

ALLEN PARRY JONES,
E. COTSWORTH.