

No. 624,402.

Patented May 2, 1899.

W. SWINDELL.  
FUEL HOPPER.

(Application filed Dec. 14, 1898.)

(No Model.)

2 Sheets—Sheet 1.

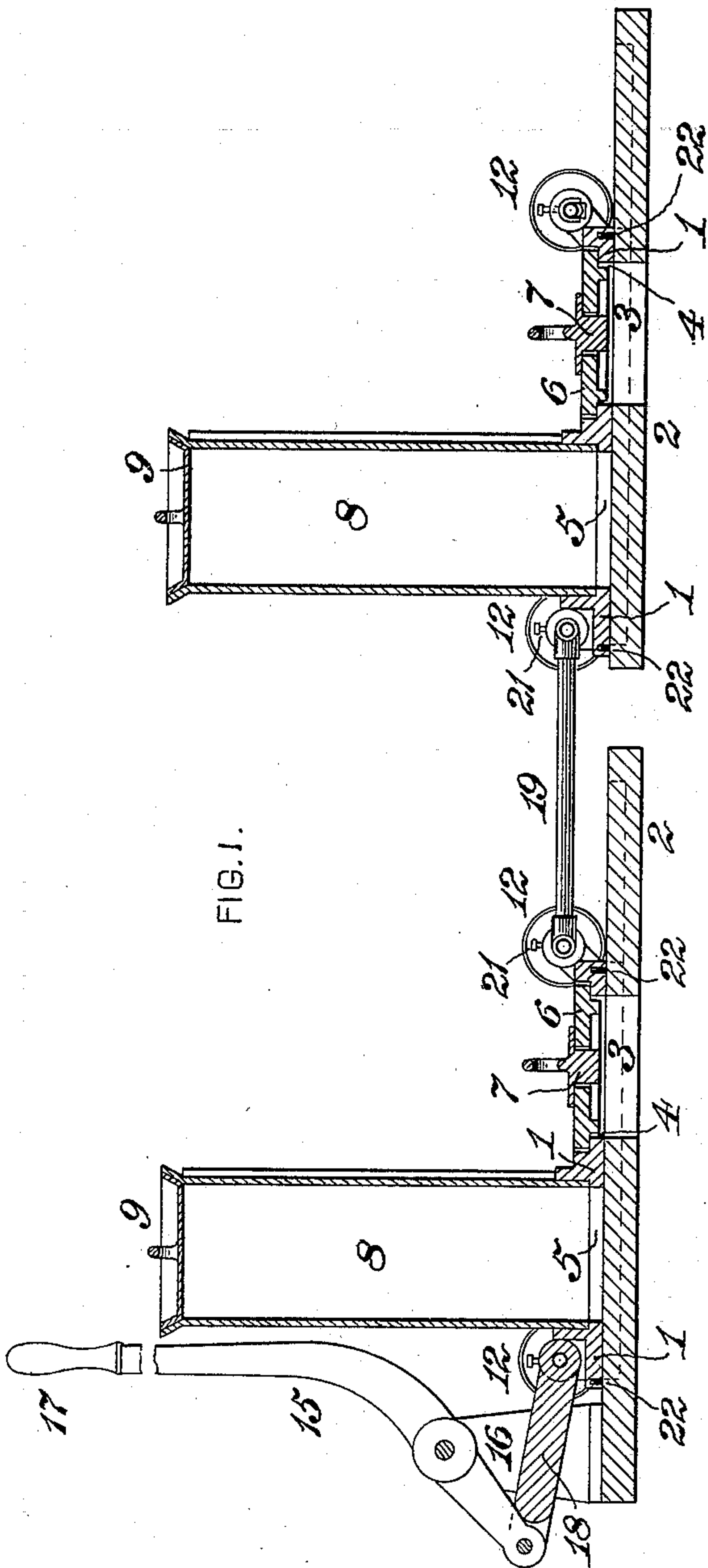


FIG. 1.

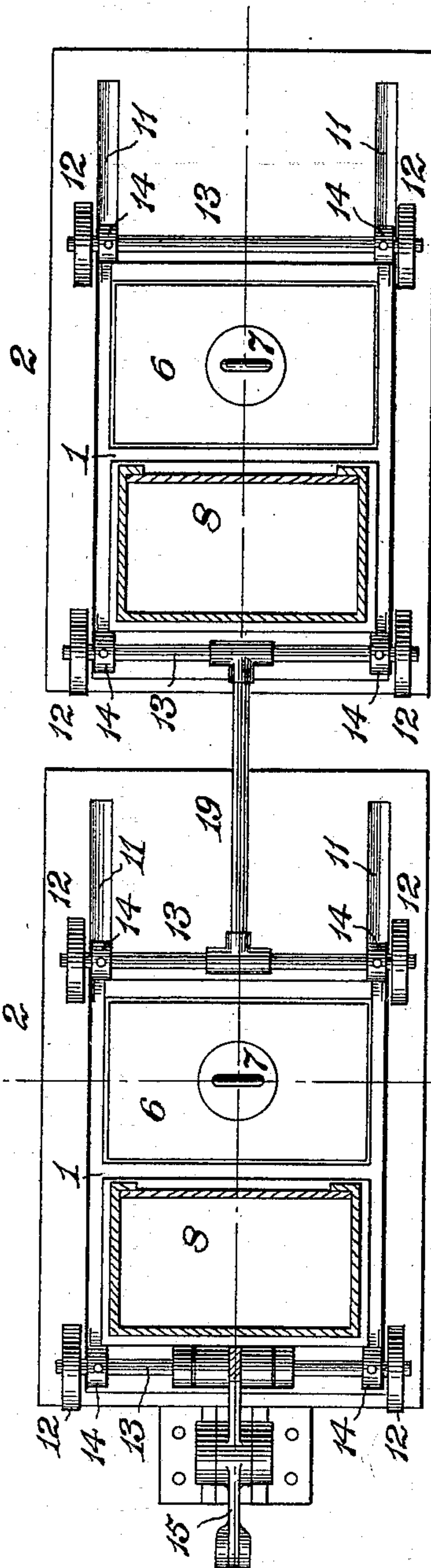


FIG. 2.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## FUEL-HOPPER.

SPECIFICATION forming part of Letters Patent No. 624,402, dated May 2, 1899.

Application filed December 14, 1898. Serial No. 699,214. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM SWINDELL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Fuel-Hoppers, of which improvement the following is a specification.

My present invention is an improvement upon that for which Letters Patent of the United States No. 270,149 were granted and issued to me under date of January 2, 1883; and its object is to facilitate and perfect the operation of apparatus of the general class of that set forth in said Letters Patent by the provision of means whereby the movements of the hopper may be more readily and expeditiously effected and escape of gas prevented.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a vertical longitudinal central section through a charging apparatus for gas-producers, illustrating an application of my invention; Fig. 2, a plan or top view of the same with the feed-hoppers in section; Fig. 3, an end view of one of the feed-hoppers; Fig. 4, a partial longitudinal central section, on an enlarged scale, through a feed-hopper and the cover-plate of a gas-producer; and Fig. 5, a transverse section, on the same scale, through the feed-opening and its lid.

As in my Letters Patent No. 270,149 aforesaid, a slide-plate 1 is fitted to traverse on the top or cover plate 2 of a gas-producer or other furnace and controls a feed-opening 3, formed therein. Openings 4 and 5, each corresponding, substantially, in shape and size with the feed-opening 3, are formed in the slide-plate 1, one or the other of which openings may, as desired, be brought into register with the feed-opening by movement of the slide-plate in the proper direction. The opening 4 is closed by a removable lid 6, having a central poke-hole, in which is fitted a removable plug 7. An open-bottomed feed-hopper 8 is fitted removably in the slide-plate 1 above and around the opening 5 thereof, the bottom end of said hopper being substantially similar in shape and size to the opening 5 and the top of the hopper being closed by a removable lid 9. Lateral tongues or tenons 10, which extend past the openings 4 and 5 and are preferably

of V-section, are formed on the lower side of the slide-plate and fit in corresponding grooves or ways 11 in the cover-plate 2.

Under my present invention the slide-plate 1 and its accessories are supported upon wheels or rollers 12, journaled upon the ends of transverse axles 13, which are preferably tubular and are fitted in openings in lugs 14 adjacent to the ends of the cover-plate and on opposite sides thereof. Rolling friction being thereby in the operation of the slide-plate substituted for the sliding friction induced under the construction of Patent No. 270,149 aforesaid, the power required for the movement of the slide-plate is correspondingly reduced under my present invention. The slide-plate is moved in opposite directions, so as to bring the bottom of the feed-hopper 8 into and out of register with the feed-opening 3, by a double-armed hand-lever 15, journaled in bearings 16 on the cover-plate 2 and having an operating-handle 17 on its upper arm, its lower arm being coupled by a link 18 with the slide-plate 1. The reduction of operating power effected by the employment of the supporting-rollers 12 enables the slide-plates of two or more producers to be actuated by a single lever, and in the construction shown in the drawings the adjacent axles of the slide-plates of two producers are connected by a coupling-rod 19 and both slide-plates are coincidentally operated by a hand-lever 15.

In order to compensate for wear and maintain the normal rolling contact of the rollers 12 with the surface of the cover-plate over which they traverse, means are provided for raising the slide-plate relatively to its axles 13 as may from time to time become necessary or desirable. To this end the axles 13 may be fitted in sockets 20, which are of inverted-U form and are fitted in recesses of corresponding form in the end lugs 14 of the slide-plate. Adjusting-screws 21 engage threaded openings in the lugs at right angles to the center lines of the axle 13, and by suitable adjustments of the screws 21 they may be caused to bear upon the upper sides of the sockets 20 and by their threaded engagement with the lugs 14 raise the slide-plate to such greater or less degree as may be required to allow proper clearance between its lower side and the top of the cover-plate 2, and



thereby to prevent sliding friction of the slide-plate on the cover-plate and cause the slide-plate to be borne wholly by the rollers 12. For this purpose of preventing escape of gas at the ends of the slide-plate when the same is raised to any appreciable extent above the cover-plate a transverse packing-plate 22, of metal, is fitted freely in the slide-plate 1 adjacent to each of its ends, said packing-plates being held by their own gravity in contact with the cover-plate irrespective of the relation of the slide-plate thereto and preventing gas which may pass out of the feed-opening 3 from escaping past them. The escape of such gas at the sides of the cover-plate is prevented by the lateral tongues or tenons 10.

In operation, the hopper 8 having been charged with fuel, the slide-plate is moved by the hand-lever until the bottom of the hopper is brought above the feed-opening 3 and the fuel is discharged by gravity thereinto. Upon the return of the slide-plate to the normal position shown in the drawings the feed-opening is closed by the lid 6, and the hopper may be recharged with fuel in readiness for a succeeding operation.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of a furnace or producer cover-plate provided with a feed-opening, a slide-plate, an open-bottomed fuel-hopper surrounding an opening in the slide-plate, means supporting the slide-plate and adapted to traverse on the cover-plate, and means for adjusting the slide-plate relatively to the cover-plate.

2. The combination of a furnace or pro-

ducer cover-plate provided with a feed-opening, a slide-plate, an open-bottomed fuel-hopper surrounding an opening in the slide-plate, rollers supporting the slide-plate and adapted to traverse on the cover-plate, lateral tongues or tenons on the slide-plate entering grooves in the cover-plate, means for adjusting the slide-plate relatively to the cover-plate, and transverse packing-plates fitting freely in the lower side of the slide-plate.

3. The combination of a furnace or producer cover-plate provided with a feed-opening, a slide-plate, an open-bottomed fuel-hopper surrounding an opening in the slide-plate, rollers supporting the slide-plate and adapted to traverse on the cover-plate, and adjusting-screws engaging threaded openings in the slide-plate and having their ends in position to bear on the axles of the supporting-rollers.

4. The combination of a plurality of furnace or producer cover-plates, each provided with a feed-opening, a slide-plate for each cover-plate, open-bottomed fuel-hoppers, each surrounding an opening in one of the slide-plates, rollers supporting the slide-plates and adapted to traverse on the cover-plates, means for adjusting the slide-plates relatively to the cover-plates, links connecting the slide-plates one to another, and a lever and connections for moving the slide-plates into and out of position for registering the fuel-hoppers with the feed-openings.

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Witnesses:

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