

No. 775,178.

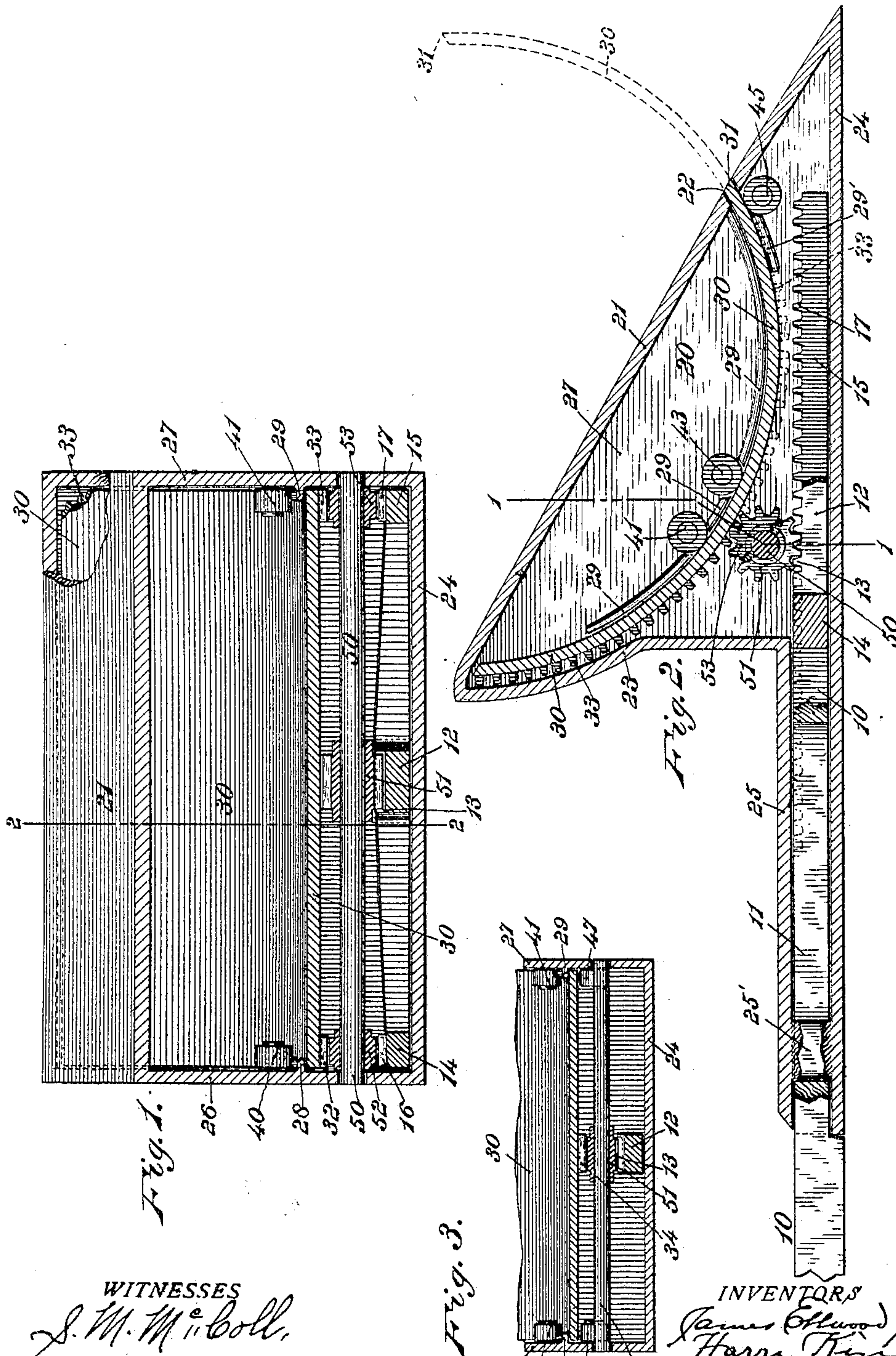
PATENTED NOV. 15, 1904.

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COKE PULLER.

APPLICATION FILED MAR. 24, 1904.

NO MODEL.



WITNESSES
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COKE-PULLER.

SPECIFICATION forming part of Letters Patent No. 775,178, dated November 15, 1904.

Application filed March 24, 1904. Serial No. 199,743. (No model.)

To all whom it may concern:

Be it known that we, JAMES ELLWOOD JONES, residing at Switchback, in the county of McDowell, in the State of West Virginia, and HARRY KING, residing at Washington, District of Columbia, citizens of the United States of America, have invented certain new and useful Improvements in Coke-Pullers, of which the following is a specification.

10 This invention relates to a coke-puller designed to be operated by machine for pulling coke from coke-ovens, and it is particularly adapted for discharging coke from beehive ovens.

15 The invention is herein shown as applied to a coke-puller comprising an underworking scraper operative on its instroke to loosen coke for withdrawal and on its outstroke to withdraw the loosened coke.

20 The object of the invention is to insure the withdrawal of the full depth of coke on the outstroke.

Figure 1 of the accompanying drawings represents a transverse section on line 1 1 of Fig. 2 of one embodiment of this invention. Fig. 2 represents a longitudinal section thereof on line 2 2 of Fig. 1. Fig. 3 represents a transverse section embodying another form of mechanism for operating the coke-holder.

30 The same reference-numbers indicate the same parts in all the figures.

This coke-puller is designed to be mounted on a machine adapted to thrust it into and retract it from the oven and swing it laterally in either direction to enable it to engage the coke at the sides of the oven. The machine shown in the expired United States Patent No. 446,936 may be used for this purpose.

40 The coke-puller comprises an actuating-bar 10, which is preferably rigid throughout and designed to be provided along its inner portion with rack-teeth or a rack-bar, (not shown,) corresponding to the rack-bar *a'* of said patent. This bar is provided with a longitudinal slot 11 and in its front portion with rack-teeth 13. Side-bars 14 and 15 are connected to the bar 10 and provided, respectively, with rack-teeth 16 and 17.

A scraper 20 is disposed at the outer end of the bar 10 and in the form shown is adapted to slide thereon. This scraper is hollow and of a wedge-like form and comprises a bottom plate 24 of a breadth equal to the desired width of the scraper, an inclined top plate 21, which extends upwardly and rearwardly from the front edge of the bottom plate, a back plate 23, which is preferably bulged outward in its upper part and connects the inner edges of the bottom and top plates and constitutes the thick side of the wedge-like body, and end plates 26 and 27, which close the ends of the scraper. The top-plate 21 is provided with a transverse slot 22 near the front end of the scraper. The scraper is preferably provided with a hollow shank 25, which incloses the bar 10 and is provided with a stud or cross-bar 25', which engages the slot 11 of the bar 10. The front portion of the bar 10, on which the scraper slides, is preferably recessed on its under side to correspond with the thickness of the bottom plate of the scraper and its shank. The end plate 26 is provided with a curved rib 28 and the end plate 27 with a similar curved rib 29, said ribs extending from the upper edge of the slot 22 to a point near the back plate 23. These plates are also provided with short ribs, as 29', extending backward from a point near the lower edge of said slot. The end plate 27 is also preferably provided with roller-studs 41 and 43, disposed in recesses in the rib 29, and with a roller-stud 45, disposed in front of the rib 29', and the plate 26 is provided with a roller-stud 40, corresponding to the stud 41 on plate 27 and with roller-studs corresponding to roller-studs 43 and 45 (not shown) on said plate.

An adjustable coke-holder 30, arc-shaped in form, is disposed when in closed position within the hollow scraper 20, the front end thereof projecting through the slot 22 and being preferably beveled to form a flush surface with the outer face of the top plate of said scraper. This arc-shaped coke-holder is provided on its under surface at one end with a segment-rack 32 and on the same surface at

the other end with a segment-rack 33. This arc-shaped coke-holder lies between the ribs aforesaid on the end plates 26 and 27, said ribs and the roller-studs serving as guides therefor.

A shaft 50 is journaled at its opposite ends in the end plates 26 and 27 of the scraper and provided with a central pinion 51 and near its opposite ends with pinions 52 and 53, the latter meshing with the segment-racks 32 and 33 on the arc-shaped coke-holder. The central pinion 51 meshes with the rack 13 on the front portion 12 of the bar 10. The pinions 52 and 53 may also mesh with the side rack-bars 14 and 15, connected with the central bar 10. In that form of embodiment illustrated in Fig. 3 the pinions 52 and 53 are omitted and the central pinion 51, which is driven by the rack-bar 12, meshes directly with the segment-rack 34, disposed centrally on the coke-holder 30, the segment-racks 32 and 33 being omitted.

The front edge of the scraper may be in any suitable form to adapt it to the oven in which it is designed to be used.

In the use of this coke-puller it is preferably mounted on a machine similar to that shown in said patent or any equivalent thereof. The coke-puller is thrust into the oven and retracted therefrom by the machine or by hand, if desired. The drawings show the coke-puller in position for an inward thrust. On the instroke the wedge-like scraper moves over the bottom of the oven underneath the caked mass of coke a sufficient distance to make a proper drawing thereof and operates as a wedge to lift the coke under which it passes, breaking and separating said coke from said caked mass. When the motion of the bar 10 is reversed and the said bar is drawn backward, the scraper remains stationary under the weight of coke behind it until the front end of the slot 11 in said bar engages the cross-bar 25' of the shank of said scraper. During this backward movement of the bar 10 the coke-holder 30 is thrust outward through the slot 22 by the action of the gearing referred to into the position indicated in dotted lines in Fig. 2, whereby it is adapted to engage and hold the mass of coke, including that which was directly above the scraper. The backward movement of the bar 10 is continued and the scraper is drawn backward while the coke-holder is in open position and pushes the coke behind it out through the door of the oven. The first few strokes of the coke-puller are preferably in a direct line, it usually requiring two or more drawings to remove the coke throughout the diameter of a coke-oven. After this is done lateral thrusts of the coke-puller are made, first to one side and then to the other, by means of the machine on which the coke-puller is mounted.

The shank of the scraper may be in the form of an elongated bar extending back to the machine or operator and be movable independ-

ently of the weight of coke to thrust the coke-holder into operative position.

We claim as our invention—

1. A coke-puller comprising an underworking wedge-like scraper movable over the bottom of a coke-oven and provided with a slot or opening, an adjustable arc-shaped coke-holder disposed within said scraper, and means for thrusting said arc-shaped coke-holder outward into operative position to hold coke on the outstroke.

2. A coke-puller comprising an underworking wedge-like scraper movable over the bottom of a coke-oven and provided with a slot or opening near its front end, an adjustable coke-holder disposed within said scraper, and means for thrusting said coke-holder through said slot into operative position to hold coke on the outstroke of the scraper.

3. A coke-puller comprising an underworking wedge-like scraper movable over the bottom of a coke-oven and provided with a slot or opening near its front end, an adjustable arc-shaped coke-holder disposed within said scraper, and means for thrusting said coke-holder through said slot into operative position to hold coke on the outstroke of the scraper.

4. A coke-puller comprising an underworking wedge-like scraper provided with a slot, an adjustable coke-holder disposed within said scraper and provided with a rack, a pinion meshing with said rack for thrusting said coke-holder outward through said slot into operative position to hold coke on the outstroke of the coke-holder, and means for actuating said pinion.

5. A coke-puller comprising an underworking wedge-like scraper provided with a slot, an adjustable arc-shaped coke-holder disposed within said scraper and provided with a segment-rack, a pinion meshing with said segment-rack for thrusting said coke-holder outward through said slot into operative position to hold coke on the outstroke of the coke-puller, and a rack-bar engaging said pinion for actuating it.

6. A coke-puller comprising an underworking wedge-like scraper movable over the bottom of a coke-oven and provided with a slot, an adjustable coke-holder adapted to be thrust through said slot into operative position, gearing for adjusting said coke-holder in operative position to hold coke on the outstroke of the coke-puller, and a bar provided with a rack for engaging said gearing.

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