No. 775,180. PATENTED NOV. 15, 1904.

J. E. JONES.

COKE PULLER.

APPLICATION FILED MAR. 24, 1904.

NO MODEL.

Fig. 1.

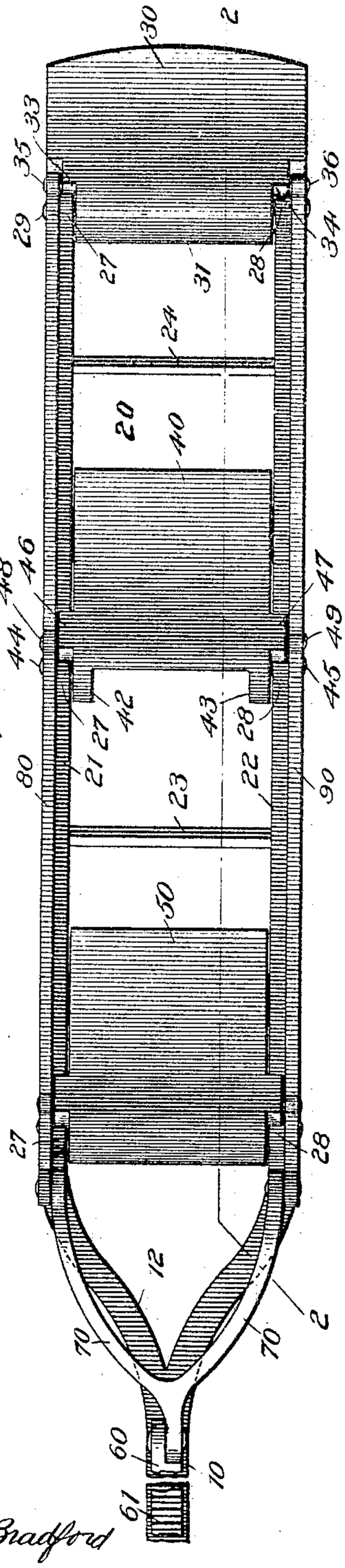
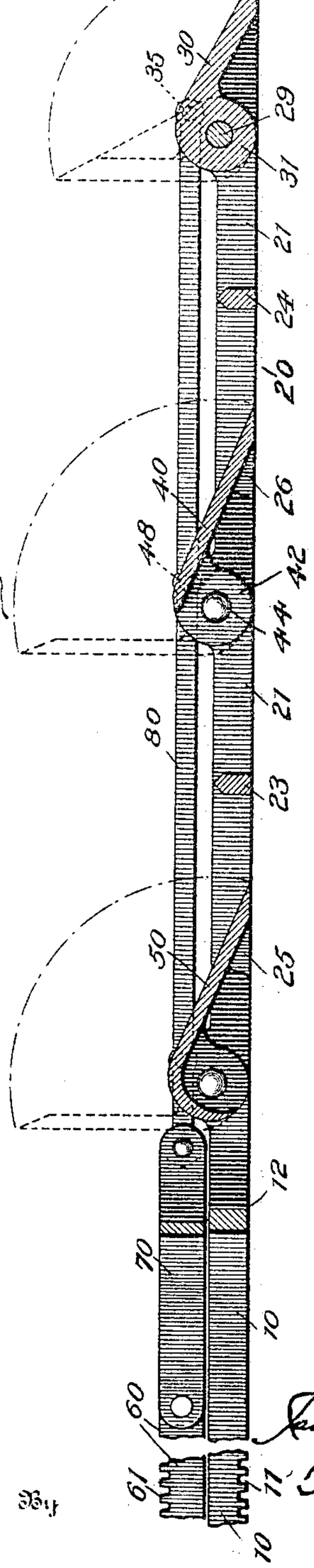


Fig. 2.



Witnesses

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No. 775,180. Patented November 15, 1904.

UNITED STATES PATENT OFFICE.

JAMES ELLWOOD JONES, OF SWITCHBACK, WEST VIRGINIA.

COKE-PULLER.

SPECIFICATION forming part of Letters Patent No. 775,180, dated November 15, 1904.

Application filed March 24, 1904. Serial No. 199,745. (No model.)

To all whom it may concern:

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

This invention relates to a coke-puller designed to be operated by machine for pulling coke from coke-ovens.

The object of the invention is to obtain the discharge of a large quantity of coke on a single stroke of the coke-puller.

Figure 1 of the accompanying drawings represents a plan of one embodiment of this invention, a portion of the actuating-bar being broken out. Fig. 2 represents a longitudinal vertical section thereof on line 2 2 of Fig. 1, omitting a fragment of the actuating-bar.

This coke-puller is designed to be mounted on a machine adapted to thrust it into and retract it from the coke-oven and preferably adapted to swing it laterally in either direction therein to engage the coke at the sides of the oven. The machine shown in my Patent No. 731,911, dated June 23, 1903, may be used for operating this coke-puller.

The coke-puller of the embodiment shown comprises an actuating-bar 10, provided at its front with a forked front end 12 and along its rear portion with rack-teeth 11. This bar corresponds to the bar 140 of said patent, and it is preferably rigid throughout. A frame 20, constituting the body of the coke-puller, is composed of parallel side bars 21 and 22, united integrally or otherwise with the forked outer end of the bar 10 and connected with each other by cross-ties 23 and 24. Ledges, as 25 and 26, are formed on or attached to one or both of the side bars of the frame and serve as rests or stops for the coke-extractors.

A swinging coke-extractor 30 is pivoted at the outer end of the frame 20 and consists of a hinged plate the upper face of which is disposed at a tangent to its pintle-socket 31. The front edge of this plate is preferably rounded to correspond with the contour of the oven-wall and preferably beveled on its under side where it rides over the bottom of the oven to give it a sharp edge for sliding under the coke. This plate is provided on its opposite sides near its rear edge with stepped recesses 33 and 34, and the front ends of the side bars 27 and 28 enter the rear steps of these recesses, and a pintle-rod 29 passes through said ends and through the pintle-socket of said plate. The plate is provided in the front steps of the rests with lateral studs 35 and 36, disposed eccentrically to the pivot of the plate. This extractor is adjustable into horizontal position for the instroke and into upright position for the outstroke. In the horizontal position the upper surface of the plate 30 acts like a wedge to lift and loosen the coke under which it passes from the caked mass of coke within the oven, and in the upright position the extractor serves to hold or grasp the loosened coke on the outstroke. A similar wedge-like extractor 40, adapted to serve as a coke-loosener on the instroke and as a coke-holder on the outstroke, is pivoted on the frame 20 in rear of the extractor 30. The plate of this extractor 40 is somewhat narrower than the plate of the extractor 30, so as to swing between the side bars of the frane, and it may be provided with two pintle-lugs 42 and 43 in lieu of a continuous pintle-socket. Pintles 44 and 45 pass through the side bars of the frame and engage these pintle-lugs. The plate is provided near its rear edge with lateral projections or lugs 46 and 47, which engage the tops of the side rails and serve as stops to arrest the downward swing of the plate. It is also provided with one or more eccentric lateral studs, as 48 and 49. Another wedge-like swinging coke-extractor 50 is pivoted at the rear of the frame behind the extractor 40 and is preferably of a width adapted to swing between the side bars. The side bars of the frame are preferably provided with rounded arc-shaped rests, as 27 and 28, concentric with the axis of the swinging plates, and the edges of the recesses or lateral projections adjacent to the pivot of the plate ride on these rests during the swinging motion thereof and tend to steady the motion of the extractors.

Suitable means are provided for swinging the extractors 30, 40, and 50 into horizontal

position for the instroke and into upright position for the outstroke. The means shown for this purpose comprise a bar 60, preferably mounted on the bar 10 and provided with rack-teeth 61. This bar may be actuated independently of the bar 10 by means similar to that shown in the patent referred to for actuating the bar 170 of said patent. A forked link 70 is pivoted at its rear end to the front end of the bar 60, and two bars 80 and 90 are pivoted at their rear ends to the front end of the forked link 70, extend parallel with the frame, and engage the eccentric studs, as 48, 35, 49, and 36, on the hubs of the swinging extractors, the front ends of said bars extending into the front steps of the recesses 33 and 34 of the plate 30.

In the use of this coke-puller the bar 10 is thrust outward from the machine, as above indicated, and the coke-puller proper at the outer end thereof is thereby pushed into the oven along the bottom thereof. The swinging extractors being in approximately horizontal or inclined position, as indicated in full lines in the drawings, have a wedge-like action and operate to lift and loosen the coke under which they pass. The coke-puller may be thrust into the oven through the full width thereof on a single stroke. At the end of the instroke the bar 60 is retracted, whereby the swinging extractors 30, 40, and 50 are turned into upright position, as indicated in dotted lines in Fig. 2. The bar 10 is then retracted and the coke-puller withdrawn from the oven, the swinging extractors being held or locked in upright position during the outstroke. In this position the extractors engage the mass of coke which was loosened on the instroke and push it outward on the outstroke through the oven-door. Then lateral thrusts may be made first to one side and then to the other, so as to discharge the oven of the coke contained therein.

A coke-puller on this principle may be constructed with a single swinging extractor; but a plurality of extractors disposed one behind the other increases the efficiency of the coke-puller.

I claim as my invention—

1. A coke-puller comprising a frame and a plurality of swinging wedge-like extractors disposed one behind another and adjustable to horizontal position to serve as coke-loosen-ers on the instroke and to upright position to serve as coke-holders on the outstroke, and means for swinging said extractors into different positions to adapt them to perform their separate functions in succession.

2. A coke-puller comprising a reciprocatory bar, a frame connected therewith, a wedge-like swinging extractor pivoted to said frame and provided with an eccentric stud at one side, a supplemental bar, a link-bar connected to said eccentric stud, and a link connecting said link-bar with said supplemental bar.

3. A coke-puller comprising a reciprocatory bar, a frame connected with said bar, a plurality of wedge-like swinging extractors pivoted to said frame and provided with eccentric studs, a supplemental bar, a link-bar connected to said eccentric studs, and a link connecting said link-bar with said supplemental bar.

4. A coke-puller comprising an elongated skeleton frame, a plurality of wedge-like swinging extractors pivoted one behind the other between the bars of said frame, lugs on said frame serving as stops for said extractors, studs on said extractors eccentric to the pivots thereof, a bar connected with said studs, and means for shifting said bar to swing said extractor into inclined and upright positions.

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Witnesses:
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