No. 742,037. PATENTED OCT. 20, 1903.

W. KEARNS
COKE DRAWER.

APPLICATION FILED JUNE 27, 1903.

NO MODEL.

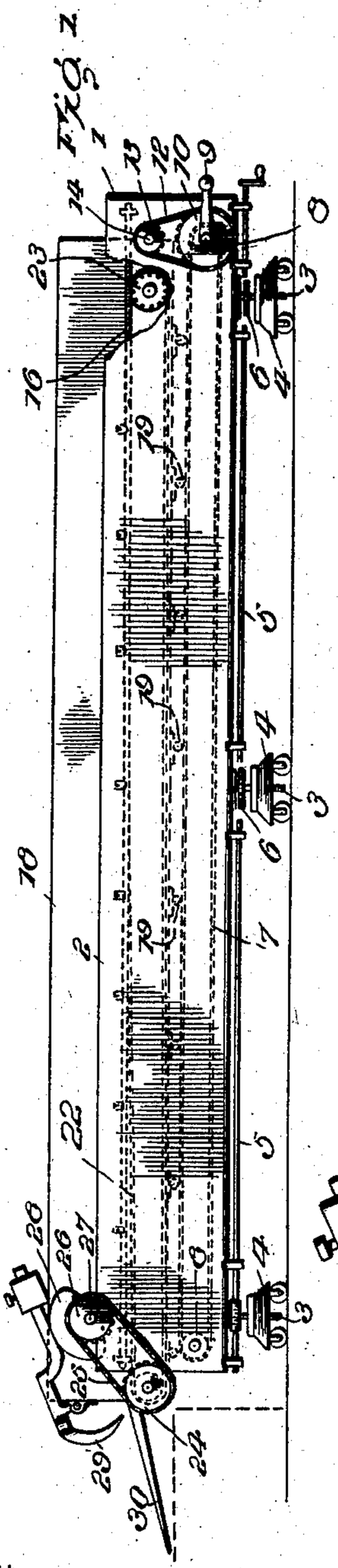

Fig. 1.

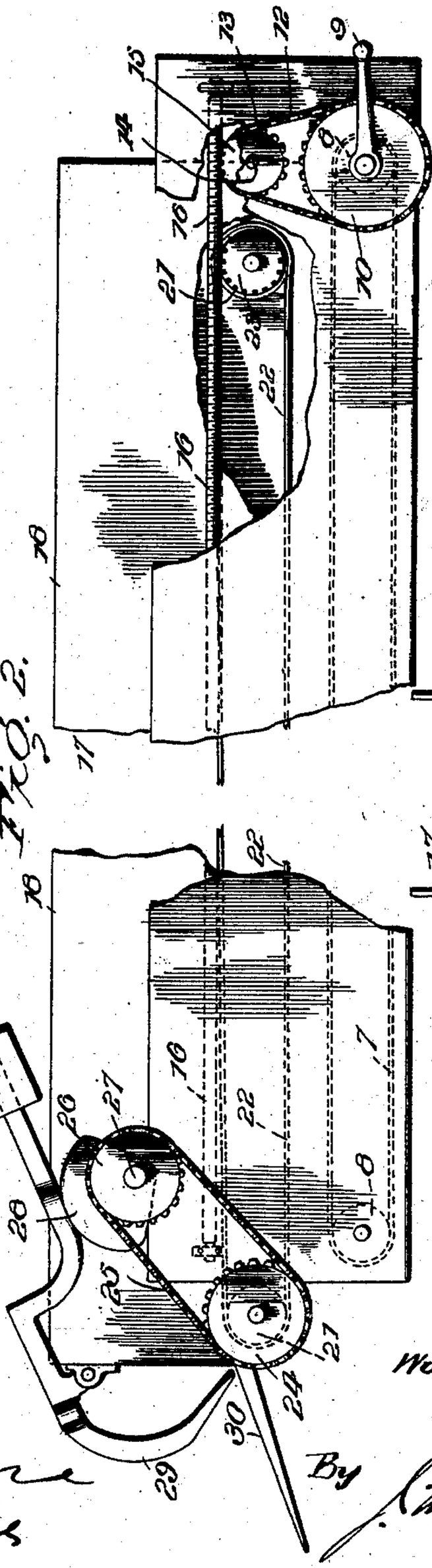

Fig. 2.

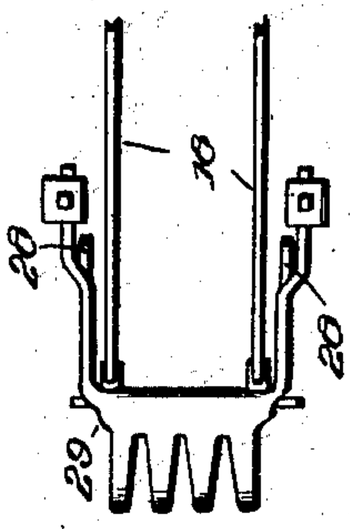

Fig. 4.

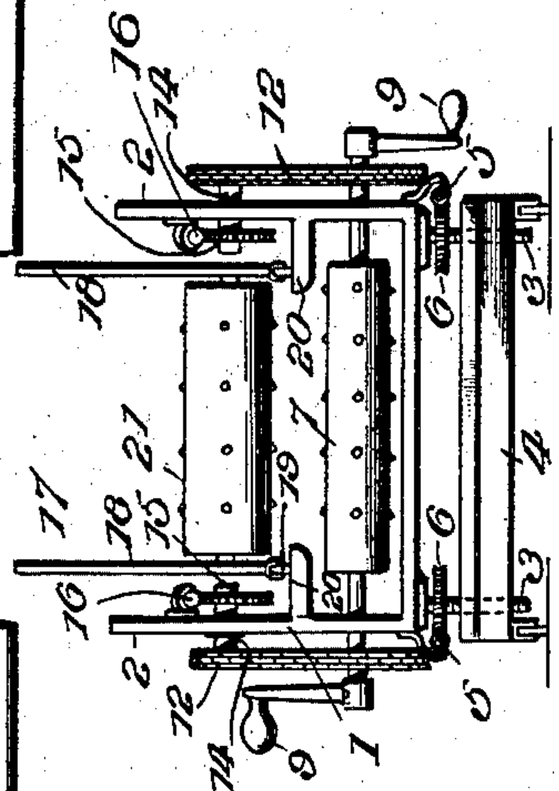

Fig. 3.

Witnesses
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No. 742,037. Patented October 20, 1903.

UNITED STATES PATENT OFFICE.

WILLIAM KEARNS, OF MAMMOTH, PENNSYLVANIA.

COKE-DRAWER.

SPECIFICATION forming part of Letters Patent No. 742,037, dated October 20, 1903.

Application filed June 27, 1903. Serial No. 163,399. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KEARNS, of Mammoth, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Coke-Drawers; 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.

The primary object of this invention is to provide a highly-efficient and easily-operated machine for drawing coke from a coke oven or furnace and transporting the same a suitable or desired distance, the entire machine being portable and capable of ready adjustment to suit varying conditions.

A further object is to provide simple and highly-efficient means for breaking the coke and forcing it from the floor of the oven, so as to enable it to be readily withdrawn from the latter.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation. Fig. 2 is a similar view, on an enlarged scale, with parts broken away. Fig. 3 is an end view. Fig. 4 is a detail plan view.

Referring to the drawings, 1 designates an oblong frame having parallel sides 2, connected at the bottom, from which depend screw-rods 3, adjustable in trucks 4, such adjustment being effected by cranked screw-rod 5 engaging worm-wheel 6, fast on rod 3. Extending longitudinally of this frame is an endless-belt conveyer 7, passed around drums 8, journaled in the sides of the frame, the shaft of the rear drum being equipped with cranks 9, by which power may be applied by hand, although it is obvious that the belt may be otherwise operated. On this shaft are sprocket-wheels 10, whose belts 12 engage smaller sprocket-wheels 13 on short shafts 14, mounted in the sides 2. On the inner ends of these shafts 14 are worm-wheels 15, which work in worm-shafts 16, extending longitudinally of frame 1, to the sides of which they are secured by any suitable means.

17 is a second frame located within the main frame 1 and adjustable longitudinally thereof. It embraces two parallel sides 18, having rollers 19, movable on tracks 20, extended inwardly from sides 2. The sides 18 form bearings for the journals of two drums 21, around which is passed an endless-belt conveyer 22. On the journals of one drum are worm-wheels 23, which mesh with the worm-shaft 16. It is by the turning of these shafts that the inner frame is moved longitudinally of the main frame. On the journals of the forward drum are sprocket-wheels 24 for actuating chains 25, engaging sprocket-wheels 26, fast on short shafts 27, mounted in the sides 18, and on these short shafts are cams 28. These latter are designed to engage the inner weighted arms of a clawer 29, fulcrumed on the inner end of frame 17. This clawer is formed with downwardly-extended curved fingers located above spearing-arms 30, extended from the end of frame 17 and designed to break the coke from the floor of the oven and cause it to travel over such arms by the action of the clawer. The reciprocation of the latter is effected by cams 28, and its action results in forcing the coke up over the incline presented by arms 30 and onto the endless conveyer-belt 22 of the extensible frame 17.

In practice the machine is positioned close to the door of a coke-oven and is adjusted vertically by the turning of screw-rod 5, so that the ends of the spearing-arms will firmly engage the floor of the oven. Power is then applied to the crank-shaft 9, thereby imparting motion to the conveyer-belts and the worm-shaft 16. The action of the latter causes the inner frame 17 to extend into the oven, with the spearing-arms moving over the floor thereof, so as to break the coke and force it upwardly. Under the constant reciprocation of the clawer the coke will be drawn or forced onto the belt conveyer 22 and by the latter discharged onto the lower belt conveyer 7, by which it will be carried farther away from the oven-door and dropped onto the ground or into suitable cars. At the completion of the withdrawing operation the motion of crank-shaft 9 is reversed, so as to draw the inner frame away from the oven and back into the outer frame, ready for a second use.

The advantages of my invention are apparent to those skilled in the art.

It will be seen that I have provided an extremely simple machine for effecting the withdrawal of coke, that the same is capable of ready adjustment to suit varying conditions, and that it is capable of being readily and easily operated.

I claim as my invention—

1. A device of the character described comprising, in combination, a frame or casing designed to be extended into a coke-oven, means for gradually advancing the same, an endless conveyer, an incline extending from the end of the frame, a clawer for forcing the coke up such incline, and means for actuating such clawer, substantially as set forth.

2. A device of the character described, comprising, in combination, a frame or casing, an endless conveyer therein, a second frame or casing movable longitudinally within the first-mentioned frame, means for so moving such second frame, an endless conveyer in the latter, an incline extending from the end of the said inner frame, a clawer mounted on the latter, above said incline, and means for actuating such clawer, substantially as set forth.

3. A device of the character described, comprising, in combination, a frame or casing, an endless conveyer therein, a second frame or casing movable longitudinally within the first-mentioned frame, an endless conveyer within such second frame, means mounted on the first frame for engaging and moving the second frame longitudinally and also for actuating the conveyer therein, means for actuating such latter means and also the conveyer in the first frame, and a clawer carried by said second frame for moving coke onto the conveyer of the latter, substantially as set forth.

4. The combination with the frame or casing and the endless conveyer therein, of the second frame movable longitudinally in said first frame, a second conveyer therein, worm-wheels carried by one of the journals of the latter conveyer, worm-shafts mounted on the first frame in mesh with said worm-wheels, means for actuating said worm-shafts and the conveyer of the first frame, and a clawer carried by said second frame, substantially as set forth.

5. The combination with the longitudinally-movable frame having a conveyer therein, of inclined spearing-arms extended from one end thereof, the pivoted clawer mounted in said frame above said arms, and means for actuating said clawer, as set forth.

6. The combination with the longitudinally-movable frame having a conveyer therein, of inclined spearing-arms extended from one end thereof, the clawer fulcrumed on said frame and having upright arms, and a shaft actuated by said conveyer and having a cam thereon for reciprocating said clawer, substantially as set forth.

7. The combination with the frame having inner tracks, the conveyer having a crank-shaft, trucks, screw-rods mounted therein and secured to said frame, and crank-rods for adjusting said screw-rods, of a second frame having rollers movable on said tracks, a second conveyer therein having worm-wheels, worm-shafts mounted on said first frame and in mesh with said worm-wheels, means actuated by the crank-shaft of the conveyer of the first frame for operating said worm-shafts, an incline extending from said second frame, a clawer mounted above such incline, and means actuated by said second conveyer for reciprocating said clawer, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM KEARNS.

Witnesses:
SAMUEL B. FOIGHT,
HARRY S. KLINE.