

(No Model.)

2 Sheets—Sheet 1.

J. ROGER.
AUTOMATIC FEED MECHANISM.

No. 522,935.

Patented July 10, 1894.

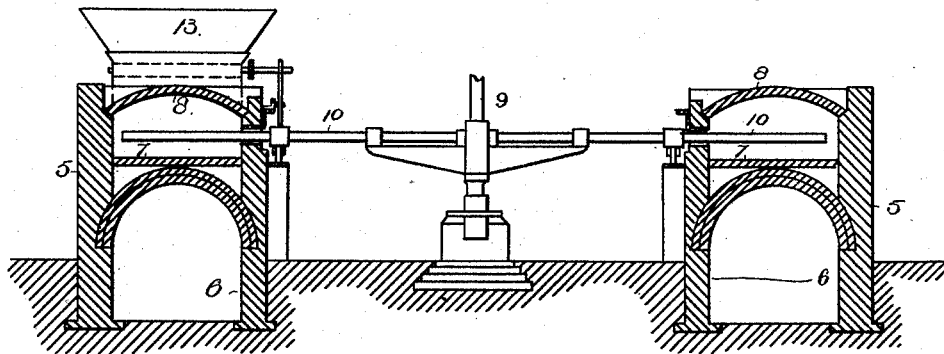


Fig. 1.

Fig. 2.

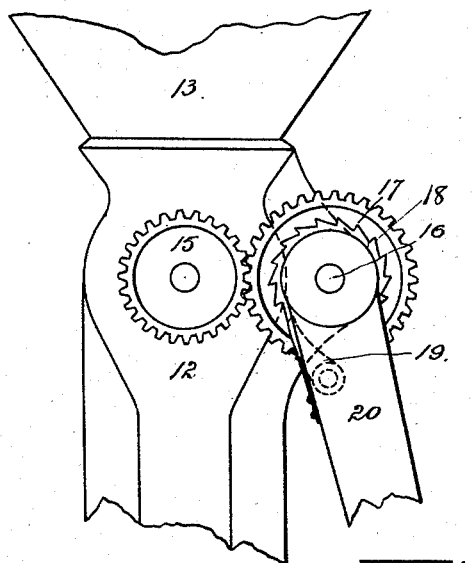


Fig. 4.

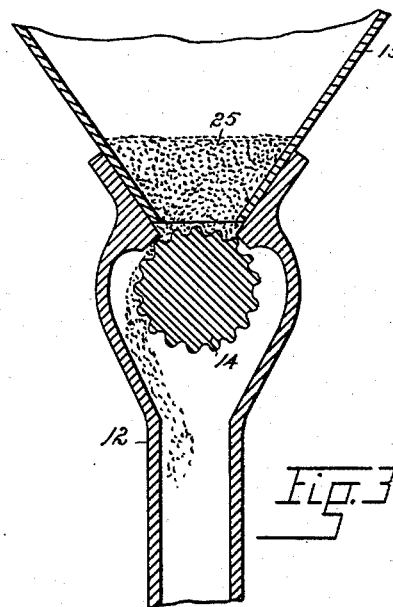


Fig. 3.

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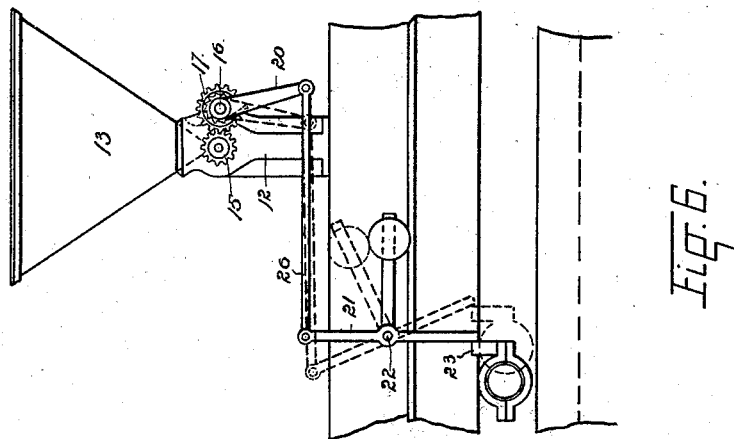


Fig. 6.

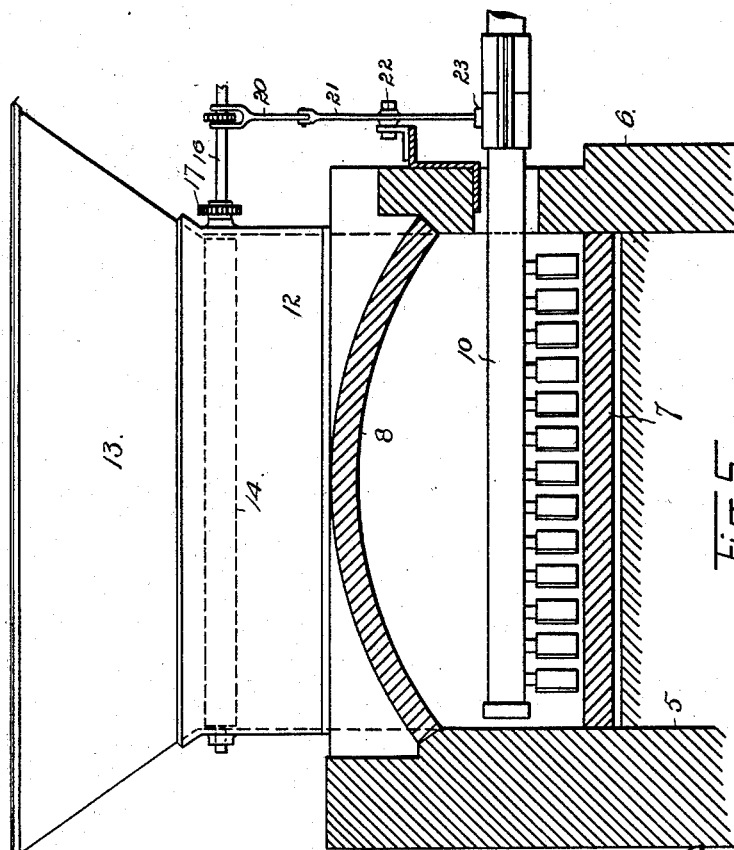


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN ROGER, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO
THOMAS B. STEARNS, OF SAME PLACE.

AUTOMATIC FEED MECHANISM.

SPECIFICATION forming part of Letters Patent No. 522,935, dated July 10, 1894.

Application filed June 26, 1893. Serial No. 478,838. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROGER, a subject of the Queen of Great Britain, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Automatic Feed Mechanism; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in automatic feed mechanism.

This invention is especially designed for use in connection with ore-roasting furnaces, and the construction will be described in this specification as attached to a turret or annular furnace.

My improved construction will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a section taken through an annular furnace provided with my improvement. Fig. 2 is a horizontal section taken through the lower part of the hopper in which the feed roller is journaled. Fig. 3 is a vertical section taken through the hopper and feed-roller. Fig. 4 is a fragmentary view in elevation of the feed mechanism. Fig. 5 is a fragmentary section of an annular furnace provided with the feed mechanism. Fig. 6 is a side elevation of the same.

Similar reference characters indicating corresponding parts or elements of the mechanism in the several views, let the numerals 5 and 6 designate the outer and inner walls of the furnace, 7 the hearth, 8 the arch, 9 the central rotating column, and 10 the rabble-arms projecting into the roasting chamber.

Supported above an opening in the arch of the furnace is a feed chute, 12, to the upper extremity of which is attached the hopper, 13. In the upper portion of this chute and just below the mouth of the hopper is located the corrugated feed roller, 14, journaled in the ends of the chute. At one end of the chute the journal projects far enough to attach a pinion, 15, which is made fast thereto. To the rear of the roller journal and in the same

horizontal plane therewith is located the shaft, 16, one extremity of which is journaled in the chute. This shaft is shown broken. It may, however, extend across the furnace and be connected with a chute on the opposite side if it is desired to feed the ore or other material to the hearth at more than one point. The opposite extremity of the shaft may, however, be supported in any suitable manner.

The shaft, 16, is provided with a fast gear, 17, which meshes with the pinion, 15. The shaft, 16, is further provided with a fast ratchet disk, 18, located a short distance from the gear and engaged by a pawl or dog, 19, attached to a forked arm, 20, movably supported upon the shaft. The lower extremity of this arm is pivoted to one extremity of a connecting-rod, 26, the opposite extremity of which is pivoted to a lever, 21, supported upon a fulcrum, 22. The lower arm of the lever projects into the path of the rabble-arms which are provided with lugs, 23, adapted to engage the extremity of the lever as the arms rotate. As the rabble-arm moves in a horizontal plane, and the lever extremity moves in the arc of a circle, the paths of the arm and the lever soon diverge sufficiently to release the lever which is returned to its normal position by a weighted arm, 24, attached to the lever and occupying a position at right angles thereto.

The operation of the mechanism will be readily understood. A quantity of ore is placed in the hopper, as shown at 25, Fig. 3. In the style of furnace shown, a series of rabble-arms is attached to the rotating column. As the arms rotate each arm acts upon the lever, 21, and moves it to the position shown in dotted lines in Fig. 6. This movement of the lever actuates the arm, 20, through the medium of the connecting rod, 26. From arm, 20, motion is transmitted to the feed roller, 14, through the medium of the ratchet and pawl, the shaft, 16, gear, 17, and pinion, 15, whereby the feed-roller is given a partial rotation every time the lever is actuated by a rabble-arm. At each movement of the roller a quantity of the ore is fed from the hopper to the chute and thence to the hearth of the furnace. The quantity of ore fed to the furnace during each movement of the feed-roller will, of course, depend upon the extent of

said movement which may be controlled or regulated by varying the size of the gear, 17.

Having thus described my invention, what I claim is—

- 5 In a turret or annular furnace having rotating rabble-arms moving above the hearth, mechanism for feeding the ore to the hearth, consisting of a chute supported above an opening in the arch of the furnace and connected with a suitable hopper or receptacle
10 for the ore, a roller longitudinally recessed and supported in the chute in proximity to the mouth of the hopper and provided with a spindle projecting outside the chute, a lever

suitably fulcrumed and having one arm projecting into the path of the rabble-arms and suitable connections between the other arm of the lever and the spindle of the feed roller whereby as the lever is actuated by the rabble-arms the feed roller is given the required
20 movement, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN ROGER.

Witnesses:

JAMES HENDERSON,
MARY A. WHEELER.