(No Model.) 2 Sheets—Sheet 1.

S. C. COLLIN.

CHARGING AND DRAWING APPARATUS.

No. 565,434. Patented Aug. 11, 1896.

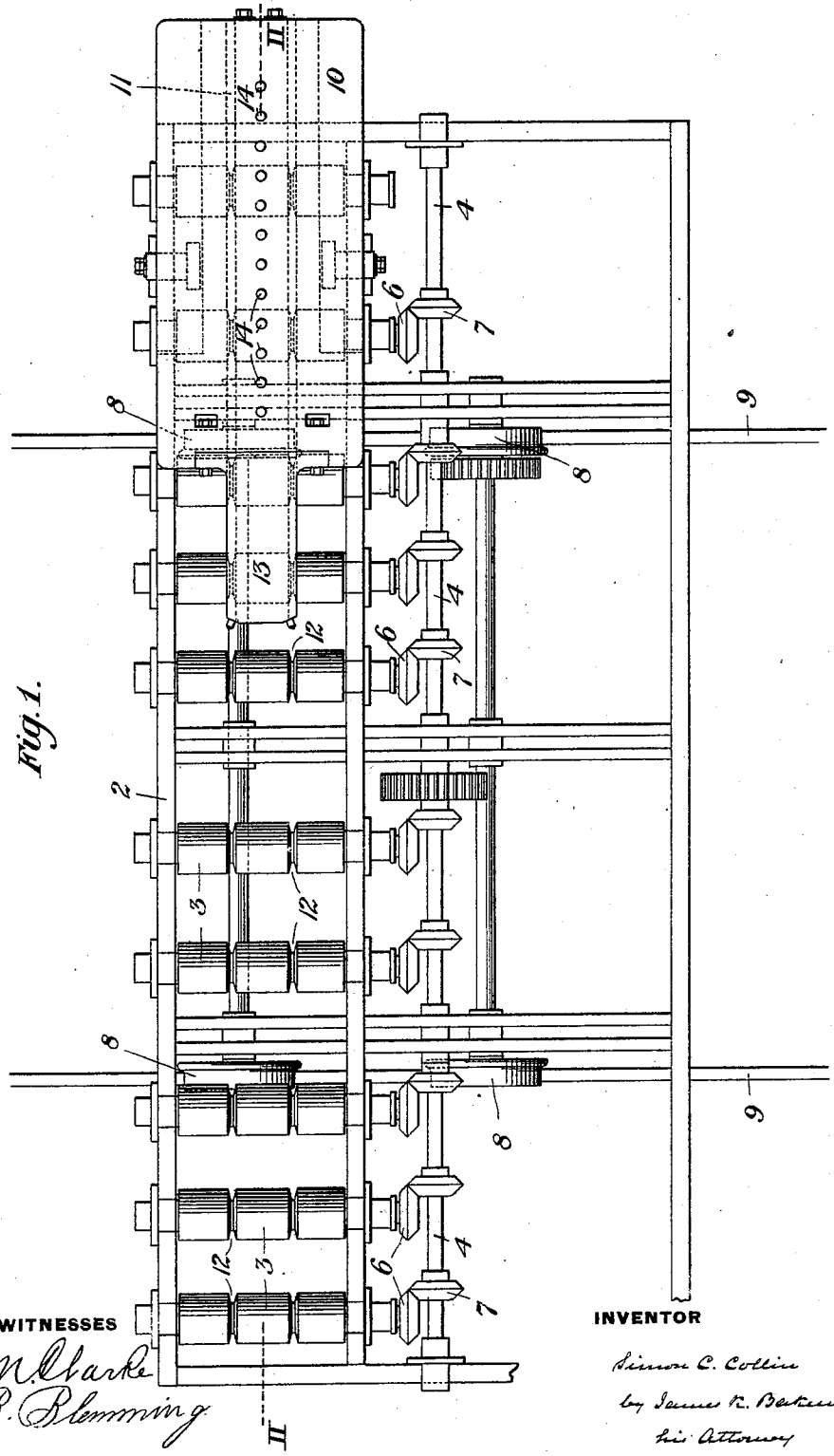

Fig. 1.

WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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CHARGING AND DRAWING APPARATUS.

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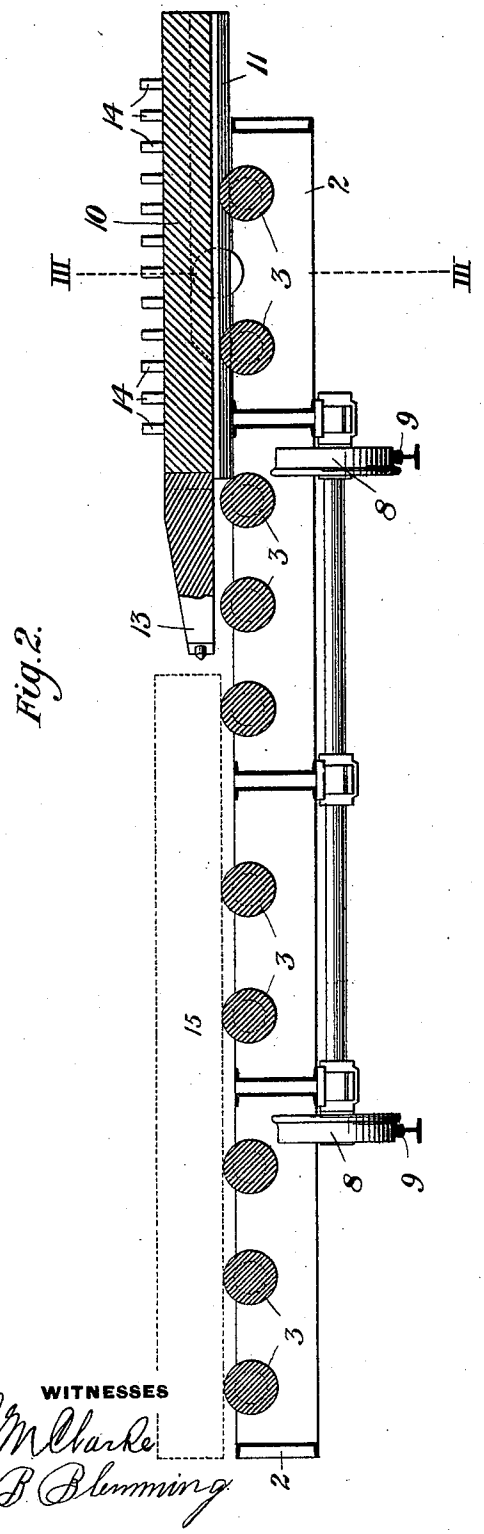

Fig. 2.

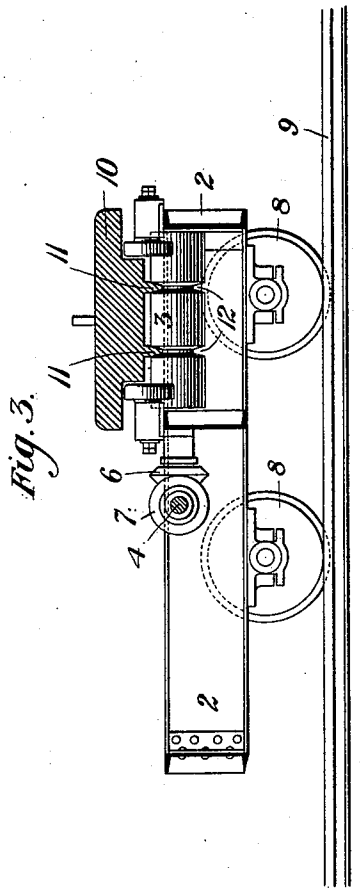

Fig. 3.

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UNITED STATES PATENT OFFICE.

SIMON C. COLLIN, OF WISSAHICKON, PENNSYLVANIA.

CHARGING AND DRAWING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 565,434, dated August 11, 1896.

Application filed April 26, 1895. Serial No. 547,218. (No model.)

To all whom it may concern:

Be it known that I, SIMON C. COLLIN, of Wissahickon, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Charging and Drawing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of feed-table provided with my improvement. Fig. 2 is a longitudinal sectional view on the line 11 11 of Fig. 1, and Fig. 3 is a cross-sectional view on the line 111 111 of Fig. 2.

My invention relates to an improvement in apparatus for charging and drawing metal to and from heating-furnaces; and it consists in a ram in combination with a feed-table, as is hereinafter described.

Although my improvement may be applied generally to the charging and drawing of metal bodies, it is specially applicable in the case of ingots, blooms, and billets, and I have shown it in the drawings as applied to feed-tables adapted to charge and draw billets to and from the heating-furnace preparatory to their passage through the rolls, without, however, desiring to confine or limit its application to this particular purpose or to limit myself to the use of the particular form of feed-tables shown in the drawings and hereinafter described.

In the drawings, 2 represents the feed-table, which may be of any of the forms now in general use, having feed-rollers 3, which are journaled in the frame or bed of the table and are connected with the driving-shaft 4 by gear-wheels 6 and 7. These rollers may be driven by electric or other power in the usual manner. The table 2 is mounted on wheels 8, running on the track 9, so that the table may be moved from the furnace to the rolls.

Resting on the rollers 3 is the ram 10, which is provided on its lower face with the longitudinal ribs 11, which fit in V-shaped grooves 12, formed in the rollers 3, so that the ram may be driven by frictional force imparted from the rollers. This ram may be formed of suitable castings bolted together, and where it is driven by friction it should be of sufficient weight to push or draw the billet or other body into or from the furnace. At the forward end of the ram is a head 13, adapted to bear against the end of the billet 15. Projecting from the top of the ram are pins 14, to which a chain may be hooked in drawing the billet from the furnace.

The operation is as follows: The billet 15 having been placed on the table 2 in front of the ram 10, the table is brought in front of the door of the furnace, and, power being applied to the rollers 3, the billet and the ram are carried forward until the billet partially enters the furnace and the rollers lose their power on the billet. The ram 10, however, resting on the rollers and being carried forward thereby, now bears against the billet and pushes it to the desired position in the furnace. When it is desired to withdraw the billet from the furnace, the table 2 is brought in front of the furnace-door and the billet is gripped with tongs having a chain attached, which chain is hooked to one of the pins 14. The ram 10 is then driven by the rollers 3 away from the furnace until the billet is drawn on the table and comes within the power of the rollers. The tongs and chain are then removed and the table is brought in front of the rolls.

The advantages of my improvement will be apparent to those skilled in the art.

I do not desire to limit my invention to the form of feed-tables shown and described, nor do I desire to limit myself to any particular connection or device for imparting power to the ram, as this may be varied by the skilled mechanic, as, for instance, substituting a rack for the ribs 11 and providing the grooves 12 with pinion-teeth adapted to mesh therewith, or independent motive force may be employed; also in certain cases in place of the pushing-head 13 I may employ grippers of the ordinary form mounted on a movable jib connected with the ram, in which case the grippers can be used for drawing the ingot or billet, as well as for charging.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an apparatus for charging heating-furnaces with metal and for drawing the same therefrom, a table comprising a continuous

series of similarly-formed feeding-rollers upon the forward rollers of which series the billet is to be placed, and a ram also supported on the feeding-rollers in rear of the position occupied by the billet and adapted to engage the billet to feed it forward and being also provided with means whereby it may be connected to the billet to withdraw the latter from the furnace; substantially as described.

2. In an apparatus for charging heating-furnaces with metal and for drawing the same therefrom, a table comprising a series of feeding-rollers upon the forward ones of which series the billet is to be placed, and a ram also supported on the feeding-rollers in rear of the position occupied by the billet whereby the ram does not act on the billet until the forward feeding-rollers fail to operate thereon; said ram being provided also with means for the attachment of drawing-tongs, substantially as described.

3. In an apparatus for charging heating-furnaces with metal and for drawing the same therefrom a feeding-table comprising a series of feeding-rollers upon the forward ones of which series the billet is to be placed, a ram having means for the attachment of drawing-tongs also placed upon said rollers and always in rear of the billet, said ram having longitudinal ribs, and said series of feeding-rollers having grooves within which the ribs fit; substantially as described.

4. In an apparatus for charging and drawing metal to and from heating-furnaces, a feed-table, and a ram movable therewith and provided with means for attachment of drawing-tongs and having also means at its forward end for engaging the billet to push it into the furnace; substantially as described.

5. In an apparatus for charging and drawing metal to and from furnaces, a feed-table and a ram movable therewith and having upwardly-projecting pins 14 whereby drawing-tongs may be attached to the ram; substantially as described.

In testimony whereof I have hereunto set my hand.

SIMON C. COLLIN.

Witnesses:
OLIVER S. KEELY,
GEORGE A. HARDMAN.