

No. 760,582.

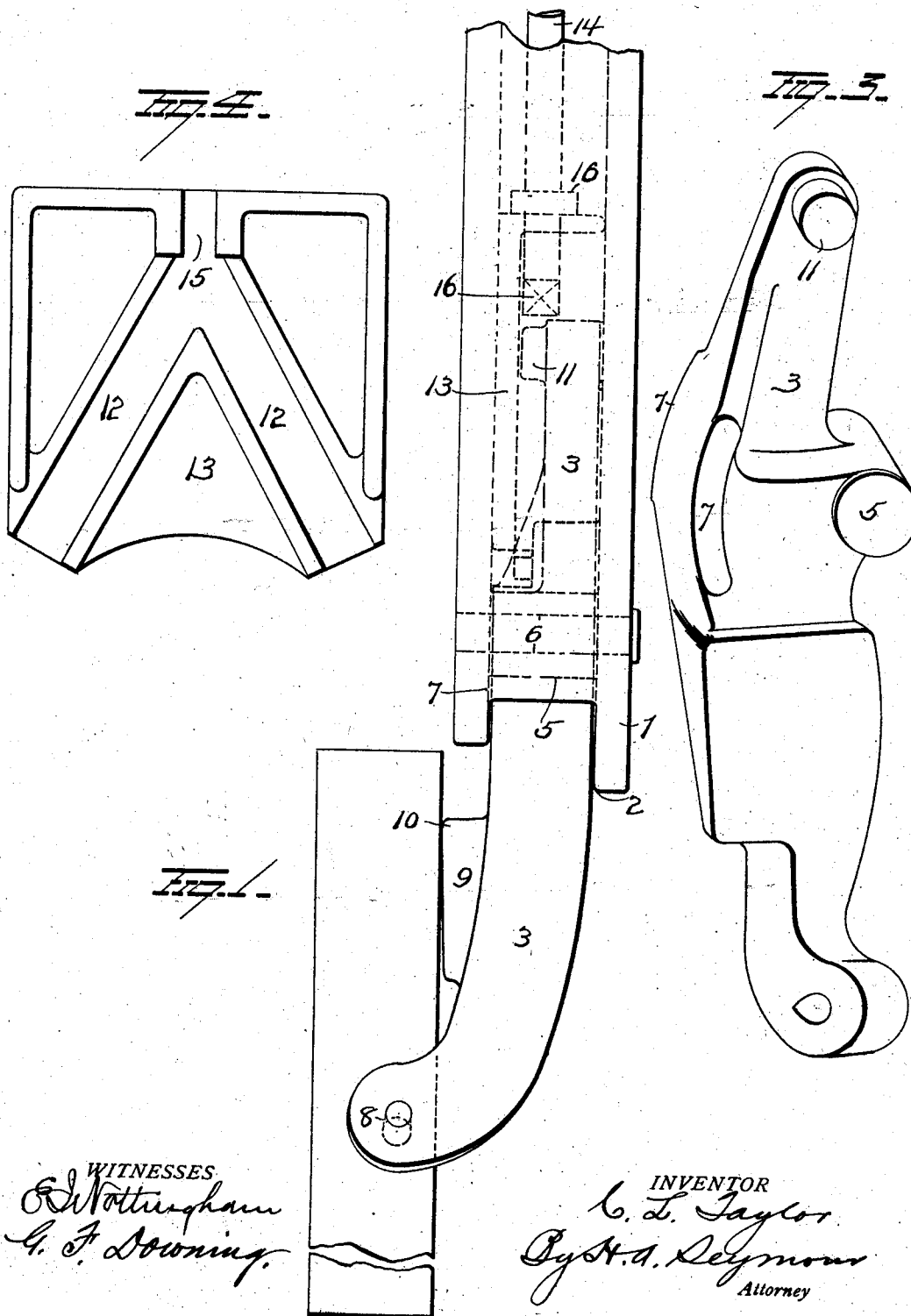
PATENTED MAY 24, 1904.

C. L. TAYLOR.
TONGS FOR FURNACE CHARGING CRANES.

APPLICATION FILED MAY 27, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES
E. W. Nottingham
G. F. Downing

INVENTOR
C. L. Taylor
By H. A. Seymour
Attorney

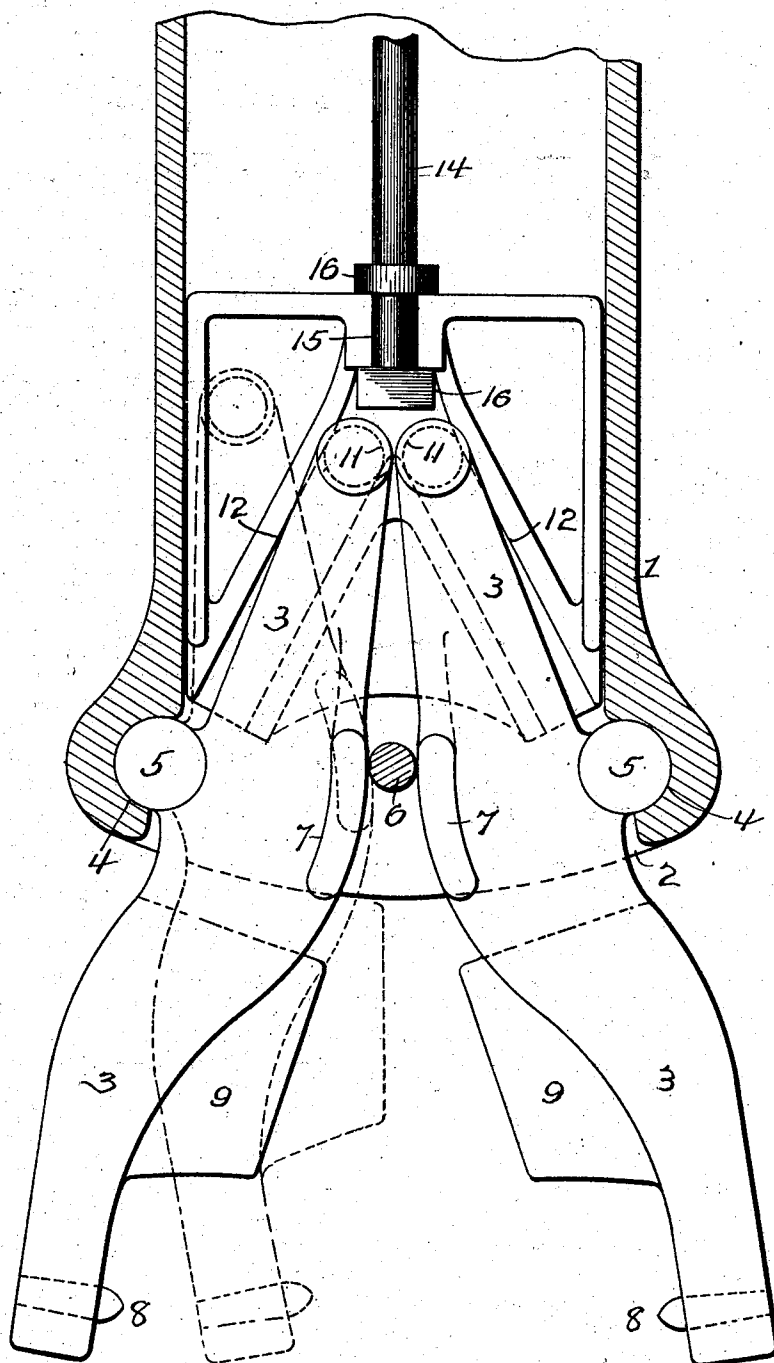
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Fig. 2

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UNITED STATES PATENT OFFICE.

CLARENCE L. TAYLOR, OF ALLIANCE, OHIO, ASSIGNOR TO THE MORGAN ENGINEERING COMPANY, OF ALLIANCE, OHIO.

TONGS FOR FURNACE-CHARGING CRANES.

SPECIFICATION forming part of Letters Patent No. 760,582, dated May 24, 1904.

Application filed May 27, 1903. Serial No. 159,043. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE L. TAYLOR, of Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Tongs for Furnace-Charging Cranes; 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.

My invention relates to an improvement in tongs for furnace-charging cranes, the object being to provide tongs so constructed that they may be readily and quickly removed from the tongs-carrying frame for repair or replacement.

A further object is to so construct the tongs that the hot slab or other object carried thereby will be supported wholly by the tongs-levers and out of contact with the tongs-carrying frame, so as to prevent the injury to the latter that would necessarily result from repeated contacts with hot slabs.

With these ends in view my invention consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of my improved device. Fig. 2 is a plan view, the upper section of the carrying-frame being removed. Fig. 3 is a detached view of one of the tongs-levers, and Fig. 4 is a view of the sliding head which actuates the tongs.

1 represents a tongs-carrying frame, preferably rectangular in shape. This frame is preferably carried by a frame suspended from the trolley of an overhead traveling crane and is hollow throughout its length, its outer end 2 being open for the reception of the tongs-levers 3, and is provided near its open outer end 2 with the curved seats 4, for the reception of the curved bearings 5, formed integral with each lever 3. The levers 3 are retained in place with their bearings in the seats by the removable pin 6, interposed between the levers and passing through holes in the top and bottom plates of the frame 1. The levers 3 are provided at their inner edges at points

opposite the bearings 5 with surfaces 7, projecting above and below the main bodies of the levers, the faces of these projecting parts 7 being machined and located, as shown, to provide bearing-surfaces at the tops and bottoms of the levers at these points and operate to prevent or take care of the twisting action of the levers when the slab or bloom is suspended from them.

The seats 4 and bearings 5 of the tongs-levers are of such size that when the pin 6 is interposed between the levers both levers will be locked in place; but with the pin 6 removed sufficient space is then provided for the inward movement of one lever a distance sufficient to disengage its bearing from its seat and when disengaged can be withdrawn without further resistance. After one tongs-lever has been withdrawn the other can then be moved inwardly and withdrawn through the open end of the carrier.

The bearings 5 are, as shown in Fig. 2, located between the ends of the levers. The front ends of the levers are curved outwardly and downwardly and terminate in a plane below the lower faces of the carrier, as shown in Fig. 1, and each is provided near its free end with a bit 8 for engaging the slab, and each is also provided at its lower edge with an inwardly-projecting block 9. These two blocks 9 form a rest or support for the end of the slab when the latter is engaged by the tongs and are preferably provided with upwardly-inclined lower faces, the rear ends of which are in a plane below the lower face of the carrier 1, so that when a hot slab is grasped by the tongs it may be overlapped by the carrier 1 without coming into contact with the latter, thus preventing the injury that would necessarily result from the repeated contacts of the hot slab with the frame.

Each tongs-lever 3 is provided at its inner end with a depending stud 11, which rests in a groove 12 in the sliding head 13. The two grooves in this head diverge outwardly. Hence a rearward movement of the head closes the tongs-levers, while the reverse movement opens them. The grooves in the head are open at their front ends, so as to permit of the free

and ready removal of the tongs-levers, as above explained.

Projecting rearwardly from the head 13 is the head-operating bar 14, the latter being
5 secured at its outer end to the devices employed for shifting the head. The inner end of this bar rests in a curved seat 15 in the rear or inner end of the head 13 and is retained therein against displacement by gravity and by the shoulders 16, which bear against
10 the front and rear faces of the inner end of the head. By thus detachably connecting the head to the operating-bar the head can be readily and quickly removed for renewal or
15 repairs.

It is evident that many slight changes might be resorted to in the relative arrangement of parts herein shown and described without departing from the spirit and scope of my invention. Hence I would have it understood
20 that I do not wish to confine myself to the exact construction herein shown and described; but,

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

1. The combination with tongs-carrying frame, of tongs each having a bit at its free end to engage the slab or ingot and an inwardly-projecting shoulder or abutment in rear of its bit, and means for actuating the tongs.

2. The combination with a tongs-carrying frame having curved seats, of tongs each having a curved bearing conforming to the seat in the frame, means for locking the tongs in place, and means for opening and closing the tongs.

3. The combination with tongs-carrying frame having curved recessed seats, and tongs each having a curved bearing conforming in shape to its seat in the frame, of a pin passing through the frame between the tongs for locking the latter in place and means for actuating the tongs.

4. The combination with tongs-carrying frame and tongs each having a bearing against the frame, of a pin interposed between the tongs for locking the latter to the carrying-frame, and means for actuating the tongs.

5. The combination with tongs-carrying frame and tongs each having an inwardly-projecting shoulder or abutment on the lower inner edge, of a removable pin carried by the frame and located between the tongs and means for actuating the tongs.

6. The combination with a tongs-carrying frame of tongs having bearing against said frame, a pin in the frame between the tongs for locking the latter in place, a sliding head having V-shaped groove therein engaged by studs on the inner ends of the tongs and means for moving said head to open and close the tongs.

7. The combination with tongs-carrying frame, tongs pivotally mounted in the frame and a sliding head located within the frame and connected to the tongs, of an operating-bar connected to the head within the frame.

8. The combination with tongs-carrying frame, tongs pivotally mounted in said frame, a head slidably mounted in the frame and a bar connected to the head within the frame, the said frame, tongs, head and bar being detachably connected.

9. The combination with a carrying-frame, tongs detachably connected to said frame and means for locking the tongs in place, of a head located within the frame and detachably connected to the tongs and an operating-bar detachably connected to the head within the frame, substantially as set forth.

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

CLARENCE L. TAYLOR.

Witnesses:

A. L. ROBERTS,
N. C. FETTERS.