

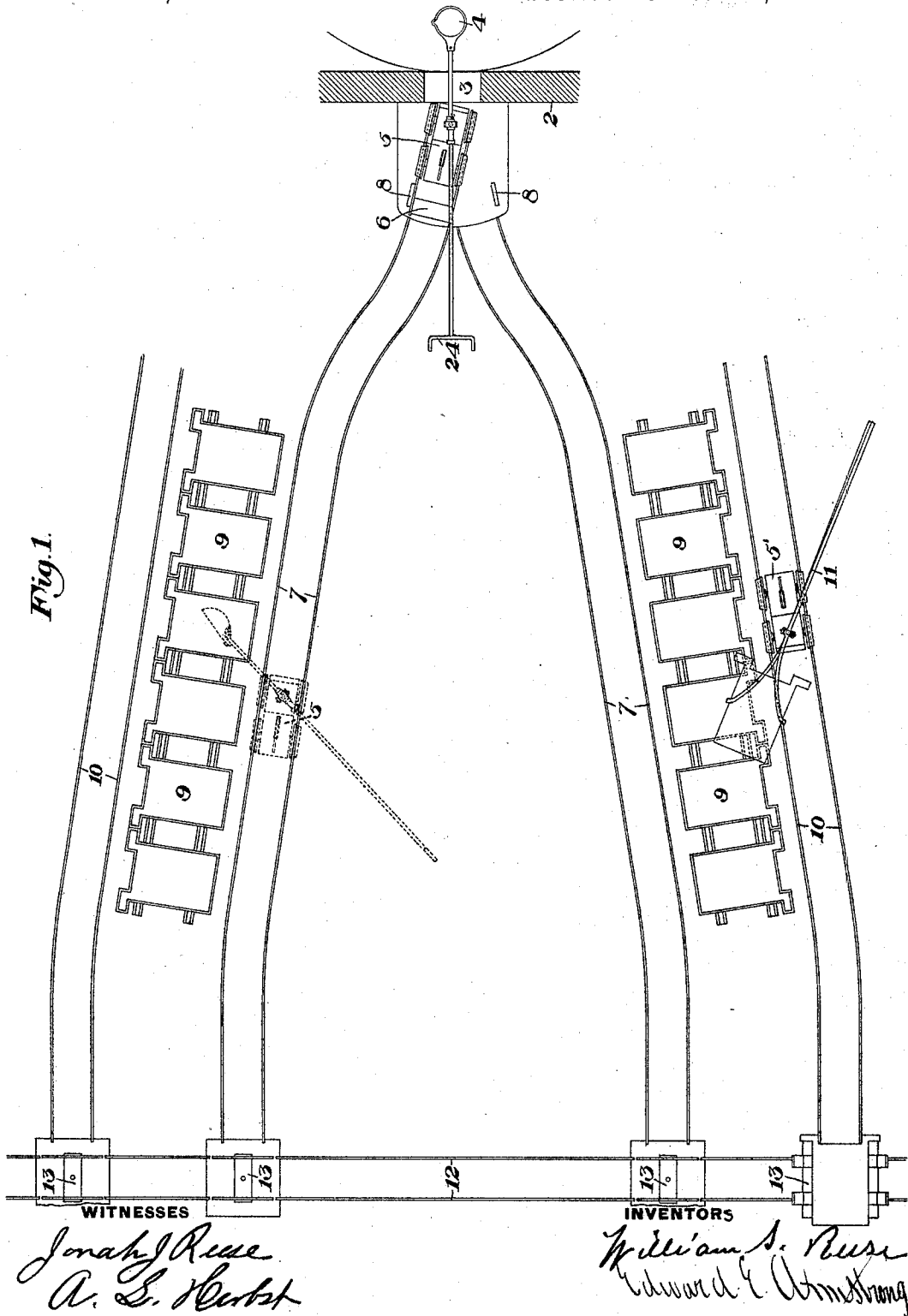
(No Model.)

3 Sheets—Sheet 1.

W. S. REESE & E. E. ARMSTRONG.
LADLING APPARATUS.

No. 585,629.

Patented June 29, 1897.



(No Model.)

3 Sheets—Sheet 2.

W. S. REESE & E. E. ARMSTRONG.
LADLING APPARATUS.

No. 585,629.

Patented June 29, 1897.

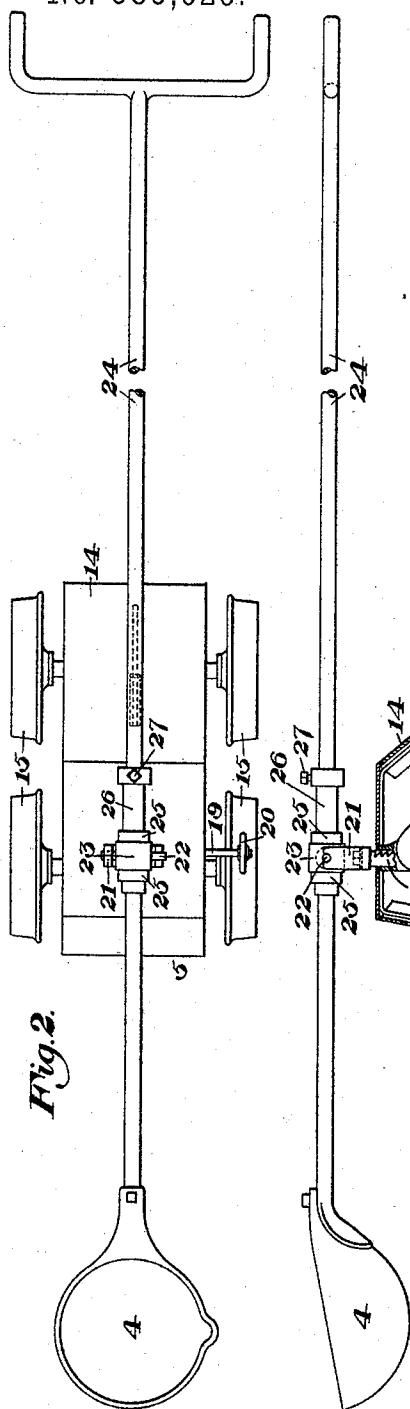


Fig. 2.

Fig. 3.

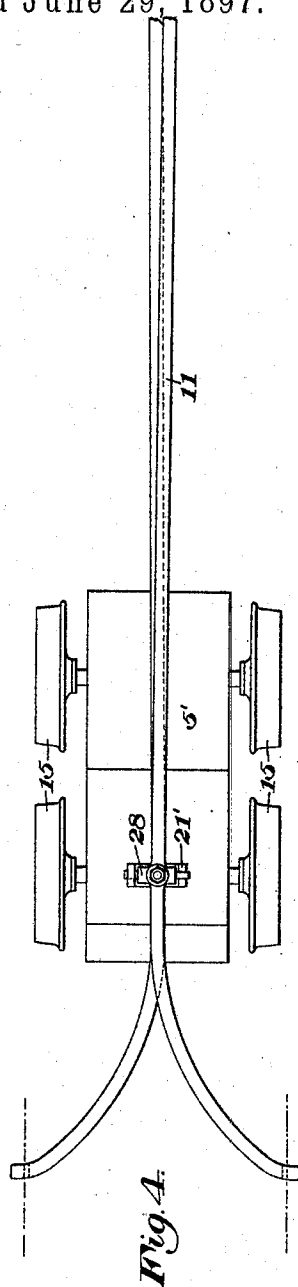


Fig. 4.

WITNESSES
Jonathan Reese
A. L. Herbert

INVENTORS
William S. Reese
Edward E. Armstrong

(No Model.)

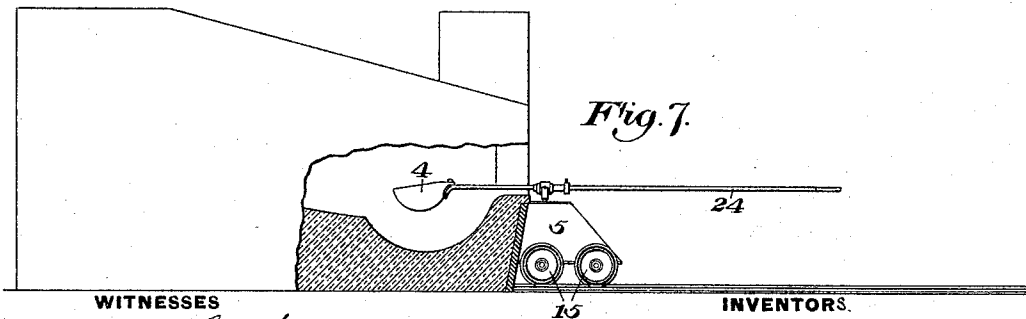
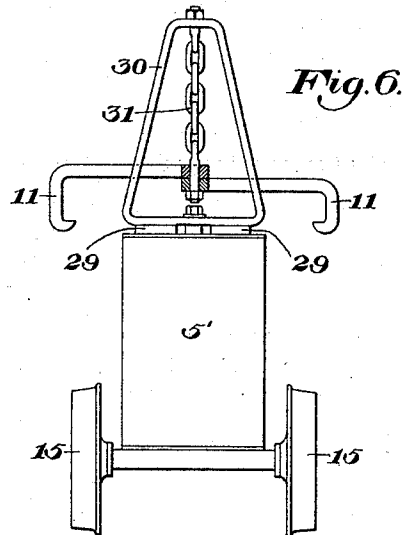
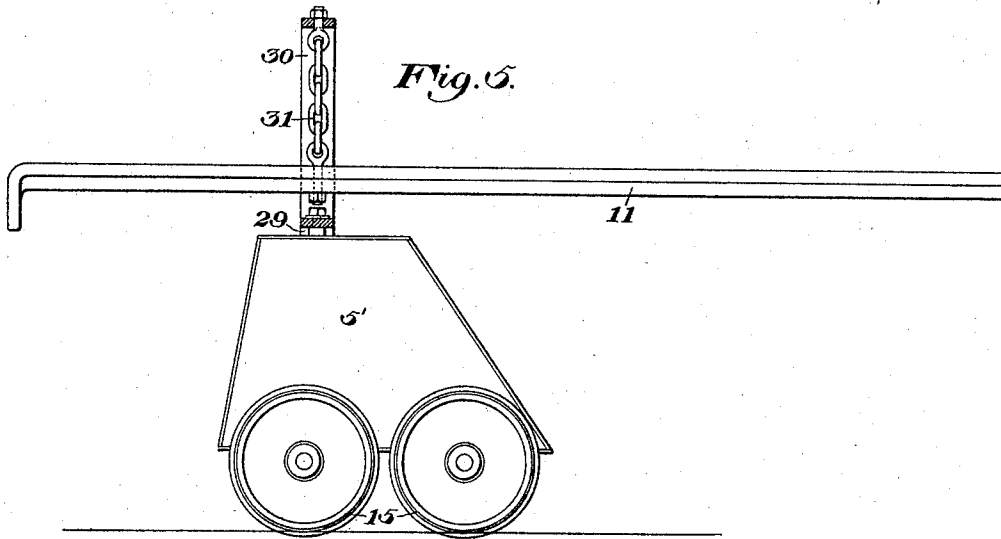
3 Sheets—Sheet 3.

W. S. REESE & E. E. ARMSTRONG.

LADLING APPARATUS.

No. 585,629.

Patented June 29, 1897.



WITNESSES

Warren V. Swartz
J. M. Conner

INVENTORS.

William S. Reese
Edward E. Armstrong
by Bassett & Bassett
their Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM S. REESE AND EDWARD E. ARMSTRONG, OF NATRONA, PENNSYLVANIA, ASSIGNORS TO THE PENNSYLVANIA SALT MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

LADLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 585,629, dated June 29, 1897.

Application filed December 24, 1896. Serial No. 616,861. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM S. REESE and EDWARD E. ARMSTRONG, of Natrona, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Ladling Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a diagrammatic plan view of our improved ladling plant. Fig. 2 is a top plan view of the ladle and car. Fig. 3 is a side elevation of the same, partly broken away. Fig. 4 is a top plan view of the extractor and its car. Fig. 5 is a side elevation, partly in section, showing our preferred form of mounting the extractor or tongs. Fig. 6 is a rear elevation of the same, partly in section; and Fig. 7 is a detail view of a portion of the furnace-wall hereinafter referred to.

Our invention relates to the ladling of metal from furnaces and the pouring of the same into molds and is designed to provide improved apparatus of this character by means of which the metal may be dipped from the furnace, cast into molds, and the ingots extracted and carried to the point desired.

In the drawings, referring to Fig. 1, 2 represents the side walls of a melting-furnace, having an opening 3, through which a ladle is moved to dip the metal from the molten bath in the furnace. The ladle 4 is mounted upon a car 5, which during the dipping rests upon a swinging switch portion 6 of the track, which portion may be arranged to register with either one of two diverging tracks 7 7. The switch is limited in its side movements by stops 8 8, which hold the same in register with one of the tracks. Along the outer sides of these tracks are placed two series of molds 9 9, into which the metal is poured from the ladle on the car traveling along either of the tracks. Outside each series of molds extend two tracks 10 10, upon which travels a car 5', carrying gripping-tongs 11, arranged to lift the ingots and carry them along the track to cars mounted on a track 12, extending transversely of the tracks 7 and 10. At the jun-

ture of the tracks 7 and 10 with the track 12 we provide turn-tables 13, by means of which the cars 5 5' may be used interchangeably upon the tracks 7 and 10.

The ladle-car, as shown in Figs. 2 and 3, consists of a hollow box structure 14, mounted upon four wheels 15, and having within it a jack 16 of the usual construction, comprising the vertically-moving rack-bar 17, which is raised and lowered by pawls operated through a handle 18 and a shaft 19, having a hand-wheel 20. To the upper end of the rack-bar is swiveled a yoke 21, the two upwardly-extending legs of which are provided with bearings for trunnions 22, extending from opposite sides of a collar 23, surrounding the ladle-handle 24. The collar 23 is held against longitudinal movement along the handle by rings 25 upon each side thereof, these rings being secured to a sleeve 26, which is held in any adjusted position upon the ladle-handle by a set-screw 27. The tongs 11 (shown in Fig. 4) are mounted in substantially the same way as the ladle, these tongs being fulcrumed to a bar 28, having trunnions supported within the yoke 21', carried at the upper end of a jack mounted similarly to that upon a ladle-car, and, if desired, a single car may be used for both the ladle and the tongs, the ladle being removed from the yoke and the tongs inserted in its place. We prefer, however, to mount the tongs as shown in Figs. 5 and 6, plates 29 being secured to the box structure upon the car, these plates having secured thereto a triangular-shaped frame 30, provided with a depending chain 31, to a bolt at the lower end of which the tongs are fulcrumed. By this device the tongs may be swung forward to grasp the ingot, and a longer leverage is thus obtained when the tongs swing back into position, enabling the operator to handle a much heavier ingot than with the device of Fig. 4.

In Fig. 7 we show the form of fore-plate for the furnace which we prefer to use, the portion of this fore-plate beneath the hole through which the ladle enters being undercut or rearwardly inclined, preferably at an angle corresponding to the angle of the front portion of the ladle-car, so as to allow the

car to approach more closely to the furnace, enabling the ladle to enter farther into the furnace-chamber and giving a longer leverage for the ladle, as the distance between the point of the fulcrum and the ladle proper may be shortened, thereby enabling the operator to handle a larger amount of metal.

The operation of the apparatus is apparent. The ladle-car being moved into the position shown in Fig. 1, the operator dips up a portion of metal from the bath, and, moving the ladle-car along one of the tracks 7, fills one of the series of molds 9. When the metal is chilled, the tongs are moved along their track and the ingots being lifted from the molds are carried to and deposited on cars movable along the track 12.

The advantages of our invention result from the fact that an operator can dip up a large amount of metal and pour the same with very little manual labor, while the whole system is compact and simple and occupies a comparatively small space.

Within the scope of the invention as defined in the claims modifications may be made by the skilled mechanic in the form and arrangement of the parts, since

What we claim is—

1. The combination with a furnace having a side opening for insertion of a ladle, of a ladle-track leading therefrom, a car movable along the track and carrying a dipping-ladle thereon, a series of molds arranged adjacent to the ladle-track, and a second track adjacent to the molds, and having a car traveling thereon, said car carrying tongs for removing the ingot; substantially as described.

2. The combination with a furnace, of a ladle-track extending therefrom, a car movable upon the track and having a swinging ladle arranged to enter the furnace and dip metal therefrom, a series of molds arranged adjacent to the track, a second track adjacent to the molds, gripping-tongs upon a car movable upon said second track, and a track extending transversely of the track for the tongs and having cars thereon arranged to receive the ingots; substantially as described.

3. The combination with a furnace having a side opening for the insertion of a ladle, of two ladle-tracks leading therefrom, a switch in front of the opening and arranged to register with either of said tracks, a car movable upon said tracks and having a dipping-ladle mounted thereon, a series of molds arranged alongside of each of said tracks, another pair of tracks adjacent to the molds and having a car thereon upon which gripping-tongs are mounted, and a track extending across the above-named tracks; substantially as described.

4. In metal-handling apparatus, a wheeled carriage having a jack structure thereon containing a vertically-movable bar, and a dipping-ladle having a rotatable connection with the said bar, the ladle being entirely supported upon the bar; substantially as described.

5. In metal-handling apparatus, a wheeled carriage having a jack structure thereon containing a vertically-adjustable non-rotatable bar, and a metal-handling appliance rotatably connected to the bar so as to swing in a plane normal to the axis of said bar; substantially as described.

6. A furnace having a side opening for insertion of the ladle, a track leading to the furnace, and a ladle mounted upon a car movable on the track and arranged to enter the opening, the base of the furnace beneath the opening being undercut or recessed to allow a near approach of the ladle-car; substantially as described.

7. The combination with a wheeled truck, of a framework thereon, a depending chain secured to the framework, and metal-handling tongs pivoted at the lower end of the chain and above the truck-body; substantially as described.

In testimony whereof we have hereunto set our hands.

WILLIAM S. REESE.

EDWARD E. ARMSTRONG.

Witnesses:

JONAH J. REESE,

A. L. HERBST.