

(No Model.)

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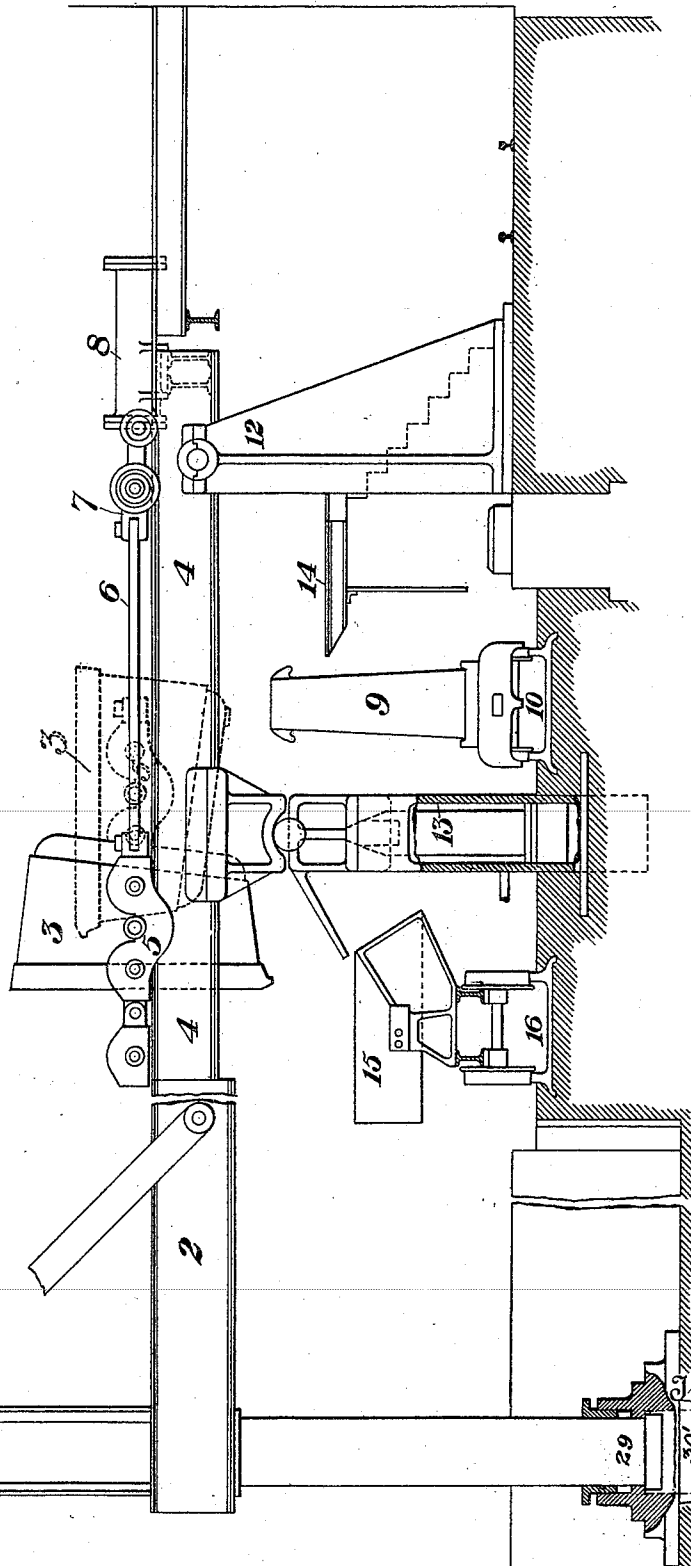
J. GAYLEY & P. D. MACKEY.

CASTING APPARATUS.

No. 553,458.

Patented Jan. 21, 1896.

Fig. 1.



Witnesses
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(No Model.)

3 Sheets—Sheet 2.

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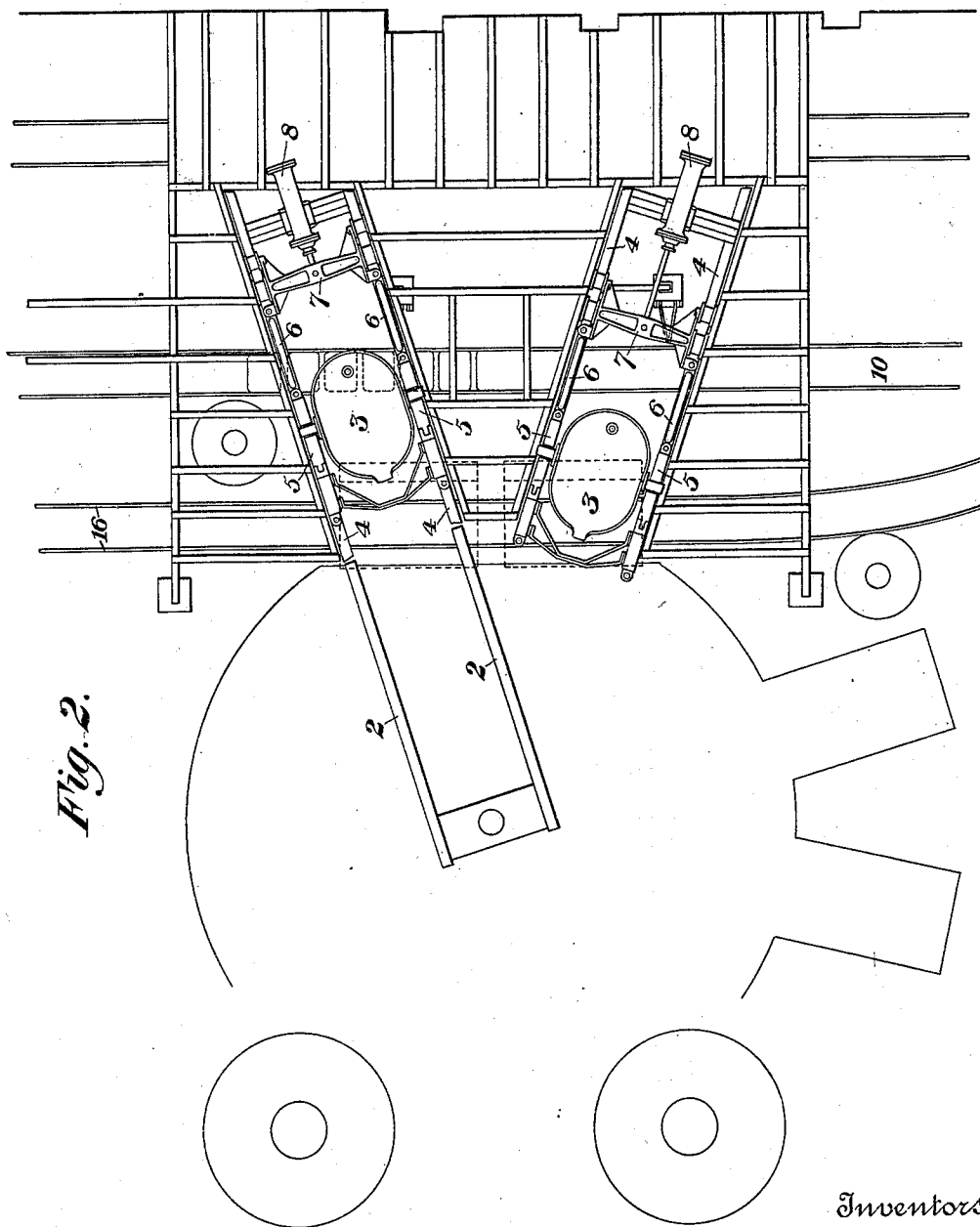


Fig. 2.

Witnesses

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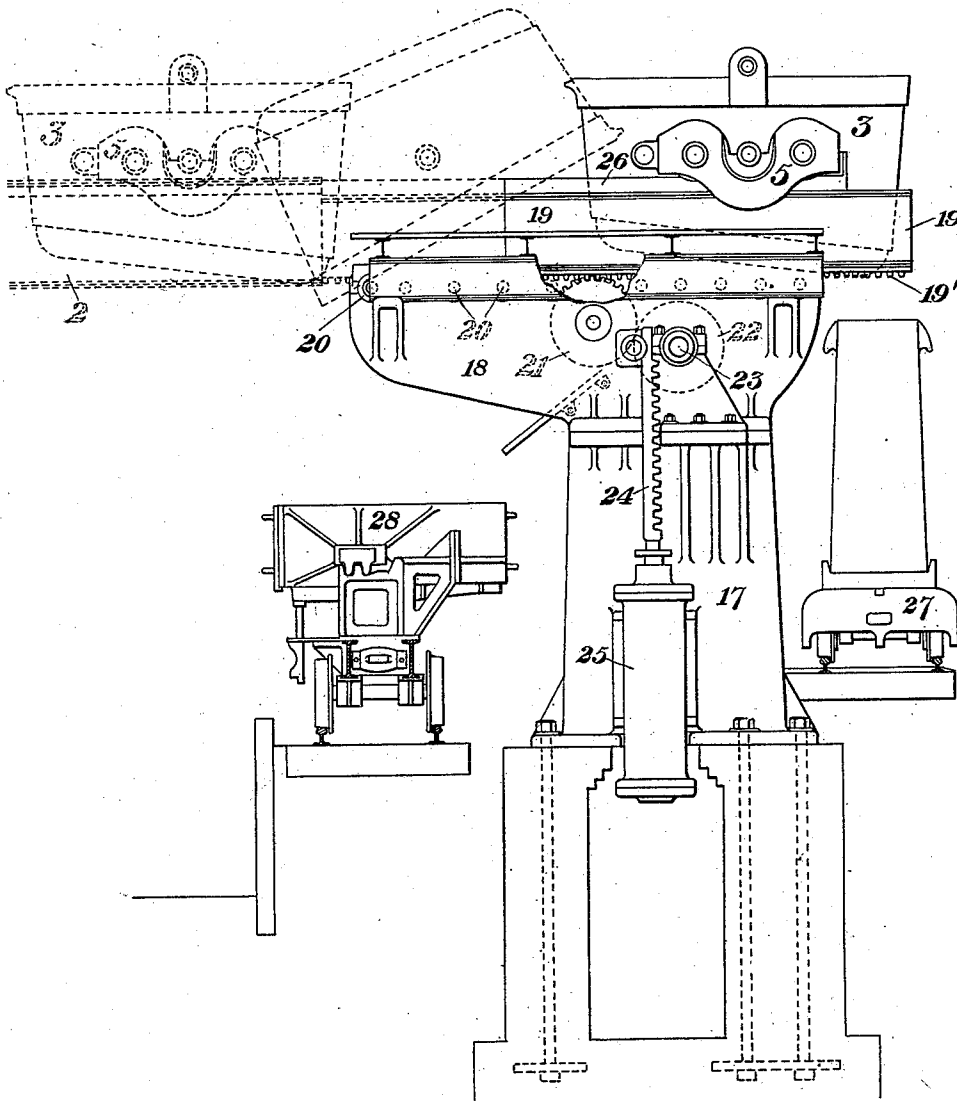
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Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES GAYLEY, OF BRADDOCK, AND PERRY D. MACKEY, OF WILKINSBURG,
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CASTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 553,458, dated January 21, 1896.

Application filed August 25, 1894. Serial No. 521,303. (No model.)

To all whom it may concern:

Be it known that we, JAMES GAYLEY, of Braddock, and PERRY D. MACKEY, of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Casting Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of our improved casting apparatus. Fig. 2 is a top plan view showing two ladle-stands, and Fig. 3 is a side elevation of a modified form.

Our invention relates to the casting of steel into ingots, and is designed to facilitate and quicken this operation.

In ordinary practice a ladle upon a ladle-crane is swung under the converter and filled and then swung over the molds and the metal tapped from the ladle while resting upon the crane. The ladle is then moved to a suitable point and, the cinder being emptied, the ladle is transferred and another put on the crane for the next heat. As the time of casting is about one minute per ingot, and from four to eight ingots are usually cast at one heat, it is evident that if the crane is relieved of the work of casting from four to eight minutes are saved at each cast, thus avoiding troublesome delays and increasing the output of the mill. Our invention attains this result; and it consists in a peculiar combination of a ladle-stand and ladle-crane, as hereinafter more fully described and set forth in the claims.

In the drawings, in which similar numerals indicate corresponding parts, 2 2 are the arms of a ladle-crane, upon which the ladle 3 receives the metal from the converter. Registering with the ends of the arms 2 are the beams 4 of the stand, upon which the ladle-truck 5 is moved from the crane by any suitable means, preferably by a hydraulic cylinder upon the crane. When moved upon the beams 4, the ends of the trucks are connected to rods 6 pivotally connected at their other ends to a wheeled cross-head 7, connected to the plunger of a hydraulic cylinder 8. By this cylinder the ladle is moved into the proper position over the molds 9, which are moved along a track 10 beneath the stand. The

beams 4 are pivoted at their rear ends to the supports 12, while their front ends rest upon a hydraulic cylinder 13, by which power the stand may be tilted vertically.

14 is the platform for the operator, and 15 is a cinder-car which moves along a track 16 and receives the cinder from the ladle when in the position shown by full lines in Fig. 1.

We place the stand at such a height that when the arms 2 of the crane register therewith the crane-plunger 29 will be at the top of its stroke, within its cylinder 30, thus binding the crane in position and preventing lateral movement.

We prefer to use two stands in each pit, as shown in Fig. 2, as in this way one stand is always ready to receive the filled ladle, these stands being placed radially to the crane.

In Fig. 3 we show a modified form of stand which is preferable where the space is limited and more room is required about the molds. In this form a single column 17 is firmly bolted to the foundation, the main beams or supports 18 which carry the track-beams 19 being secured thereto. The track-beams rest upon rollers 20 and are moved back and forth by the rack 19' intermeshing with the pinion 21, which is actuated by toothed wheels 22 on a shaft 23 which is rotated through the rack 24 secured to the plunger of a hydraulic cylinder 25. On the top of the track-beams is a track-plate 26, which is of sufficient thickness to attain the same level as the crane-arms. In this figure 27 is the mold-car and 28 the cinder-car, the ends of the track-beams 19 being moved past the ends of the supporting-beams 18 to bring the ladle over the molds.

The operation is apparent. The ladle resting upon its truck on the crane is filled and the crane being swung so that its arms register with the track upon the stand the ladle is moved upon the stand and the molds filled therefrom, each being brought to a point beneath the ladle-nozzle. The ladle is then moved forward and tipped to empty the cinder into the cinder-car and then turned to a suitable position for repairing and resetting the nozzle and stopper, when it is retransferred to the crane and the operations repeated.

Many other variations in the form and gen-

eral arrangement of the parts may be made by the skilled mechanic without departure from our invention, since

What we claim is—

- 5 1. The combination with a ladle-stand having a track thereon, of a ladle-crane comprising a fluid pressure cylinder having an upper
cylinder-head, a piston in said cylinder arranged to actuate the jib, and a track upon
10 said jib, the construction and arrangement being such that the two tracks are in alignment when the piston is in contact with the
cylinder-head, whereby the jib is held in alignment with the stand; substantially as described.
15
2. The combination with a ladle-stand having a track thereon and provided with means

for moving the ladle upon said track, of a ladle-crane comprising a fluid pressure cylinder having an upper cylinder-head, a piston
20 in said cylinder arranged to actuate the jib, and a track upon said jib, the construction and arrangement being such that the two tracks are in alignment when the piston is in
25 contact with the cylinder-head, whereby the jib is held in alignment with the stand substantially as described.

In testimony whereof we have hereunto set our hands.

JAMES GAYLEY.
PERRY D. MACKEY.

Witnesses:

W. A. HOLLAND,
J. N. GRIFFITH.