No. 632,331. Patented Sept. 5, 1899.

H. AIKEN.

CASTING APPARATUS.

(Application filed Dec. 1, 1898.)

(No Model.) 2 Sheets—Sheet 1.

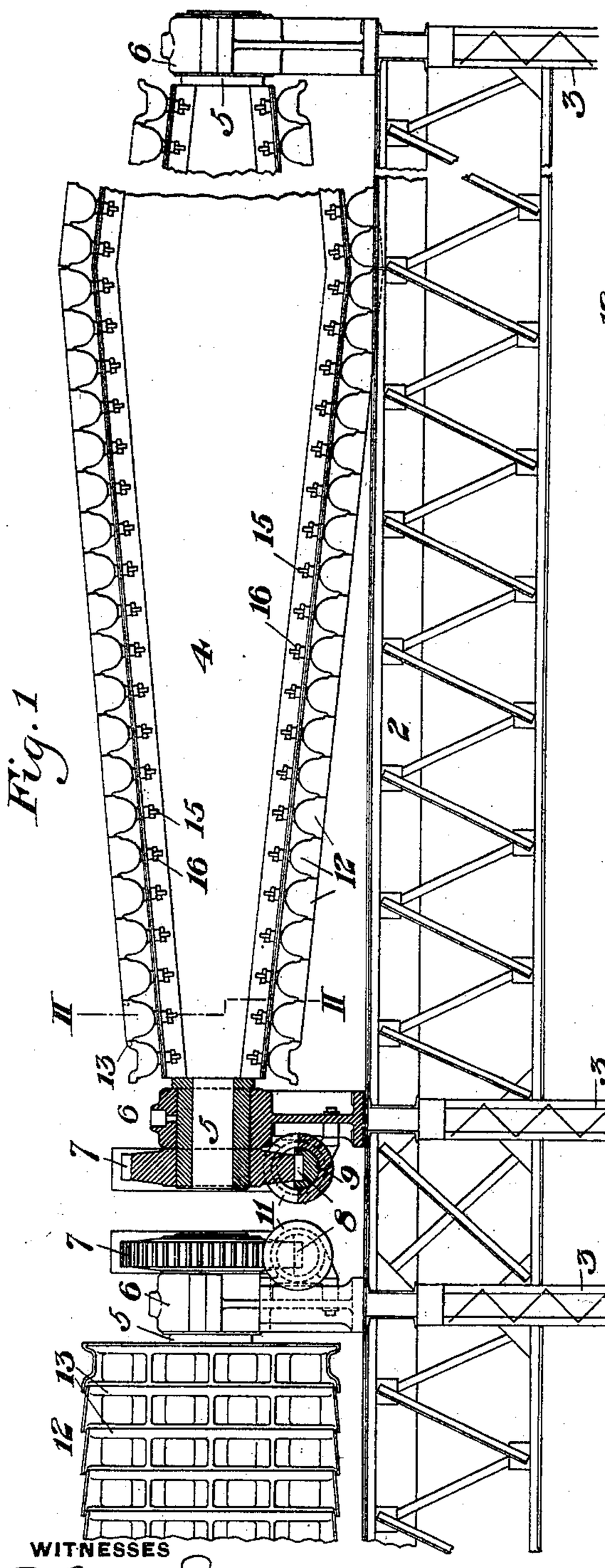

Fig. 1

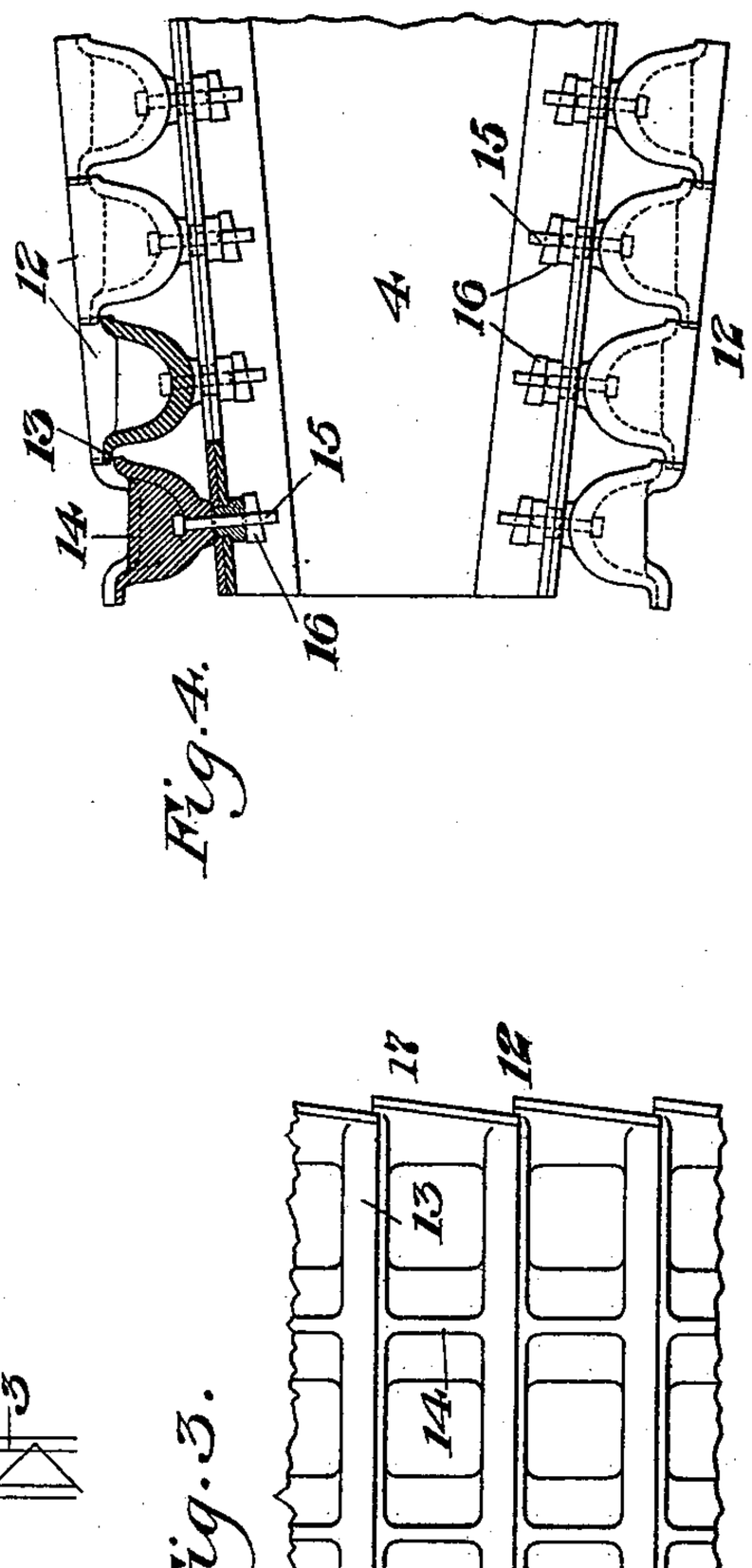

Fig. 4.

Fig. 3.

WITNESSES

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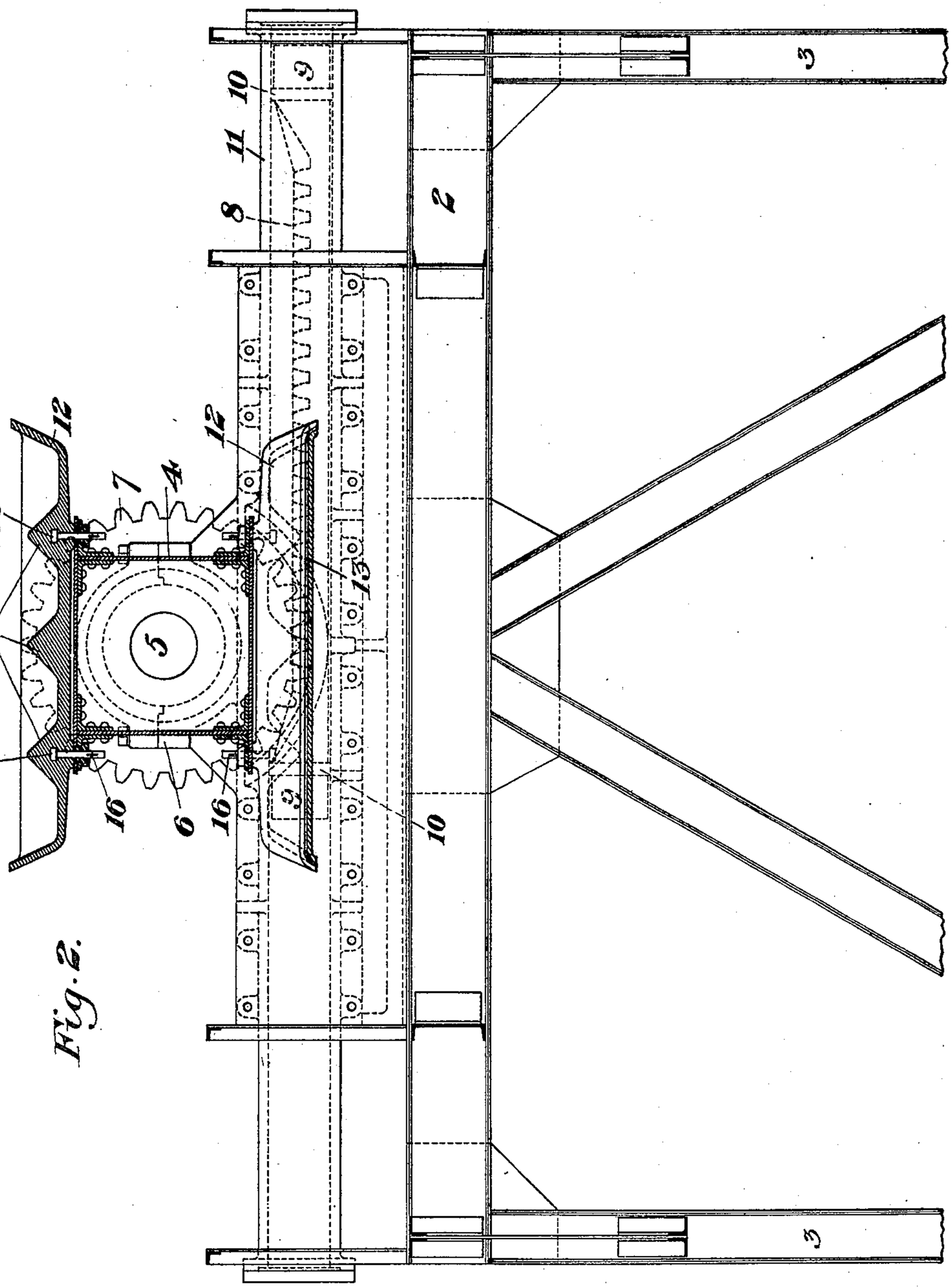

Fig. 2.

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UNITED STATES PATENT OFFICE.

HENRY AIKEN, OF PITTSBURG, PENNSYLVANIA.

CASTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 632,331, dated September 5, 1899.

Application filed December 1, 1898. Serial No. 697,947. (No model.)

To all whom it may concern:

Be it known that I, HENRY AIKEN, of Pittsburg, 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, forming part of this specification, in which—

Figure 1 is a partial side elevation, partly broken away, showing my improved casting apparatus. Fig. 2 is an enlarged cross-section of one of the casting-frames on the line II II of Fig. 1, and Figs. 3 and 4 are enlarged details showing the arrangement of the molds.

My invention relates to the casting of pig metal into metal molds, and more particularly to the casting into pigs of molten pig metal in a plant using the direct process.

Heretofore in plants where the molten pig metal was taken from the blast-furnace to a mixer and thence to the converters when the plant was shut down at the end of the week the metal tapped from the furnace was ordinarily cast into pigs in sand molds molded in the floor of the casting-house. This operation demanded a considerably larger force of workmen than was necessary when the metal was taken direct to the mixers and converters without casting into pigs, and hence the taking care of the metal during this interim involved considerable trouble and expense. My invention overcomes this difficulty and provides an apparatus for casting this metal into metal pig-molds which may be operated by the same force of men as used during the regular operating in the direct process and in which the metal may be cast continuously and expeditiously and the pigs delivered in piles at the desired points.

It will be understood that while my apparatus is especially adapted for use during the non-working intervals of a direct-process plant, it may be used continuously for the casting of pig metal.

In the drawings, 2 represents an elevated platform supported upon suitable posts 3 at the desired height above the ground-level. Upon this platform are rotatably mounted two casting-frames 4 4, these being preferably placed in line with each other, as shown in Fig. 1. Each frame consists of a girder having trunnions 5 at its ends carried in suitable bearings 6 upon the platform, one of the trunnions of each girder having a toothed wheel 7 engaged by a rack 8. This rack is preferably formed by teeth upon the intermediate portion of a plunger 9, having end collars or packings 10, which fit in the motive cylinder 11, extending across the platform. The central portion of this double-acting cylinder is provided with a slot, through which the toothed wheel extends so as to intermesh with the rack-teeth.

Each girder is formed with a web which widens toward the center of the girder, and to flanges on the girders are keyed two series of molds 12. Each mold is provided at one edge with a lip 13, which overlaps the edge of the next outer mold, and with inclined ends 17, which fit around the end of the next mold above. The molds being located along the inclined faces, any overflow from one mold will be directed into the next one of the series, thus avoiding any loss or waste. The molds are preferably provided with transverse partitions 14 and are secured to the girders by bolts 15, cast therein, these bolts being preferably slotted to receive keys 16.

The operation of the apparatus is as follows: The metal from the blast-furnace is brought in a ladle into position over one of the frames and is moved along over the molds, so as to fill them. As soon as this set of molds is filled the ladle is moved into position over the other frame, and the upper set of molds thereon is filled in the same manner. While the second set of molds is being filled the metal in the first set is cooling and will be chilled sufficiently to be dumped as soon as the second set is filled. This dumping is accomplished by admitting fluid to the motive cylinder 11 and rotating the frame through one hundred and eighty degrees. The chilled pigs drop from the one set of molds, and the other set is thus brought into position ready for filling. This second set then being filled, the first-poured set of the second frame is emptied by turning the frame, and the second set of the second frame is then filled, the operation going on continuously, the pouring alternating from one frame to the next.

The advantages of my invention will be apparent to those skilled in the art, since the

casting may be carried out easily with a small number of workmen and in a continuous manner.

The apparatus is simple and not liable to get out of order and may be constructed at comparatively small cost.

The form of the rotating frames, their supports, and the means for dumping them may be changed. More than two series of molds may be used upon each frame, and many other variations may be made in the form and arrangement of the parts without departing from my invention.

I claim—

1. In casting apparatus, a rotatably-mounted frame having an inclined series of molds secured thereto, said molds having overlapping lips; substantially as described.

2. In casting apparatus, a rotatably-mounted frame having oppositely-inclined faces and two or more series of molds secured to said faces, said molds having overlapping lips; substantially as described.

3. In casting apparatus, a rotatably-mounted frame having an inclined series of molds secured thereto, each mold having inclined ends overlapping the next adjacent mold; substantially as described.

4. In casting apparatus, a rotatably-mounted frame having an inclined series of molds secured thereto, each of said molds having along one side a lip overlapping the next mold below, and being provided with inclined ends overlapping the next adjacent mold; substantially as described.

In testimony whereof I have hereunto set my hand.

HENRY AIKEN.

Witnesses:
G. I. HOLDSHIP,
G. B. BLEMMING.