No. 630,285. Patented Aug. 1, 1899.

C. CAPPER.

APPARATUS FOR CASTING CRUCIBLE STEEL.

(Application filed May 12, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

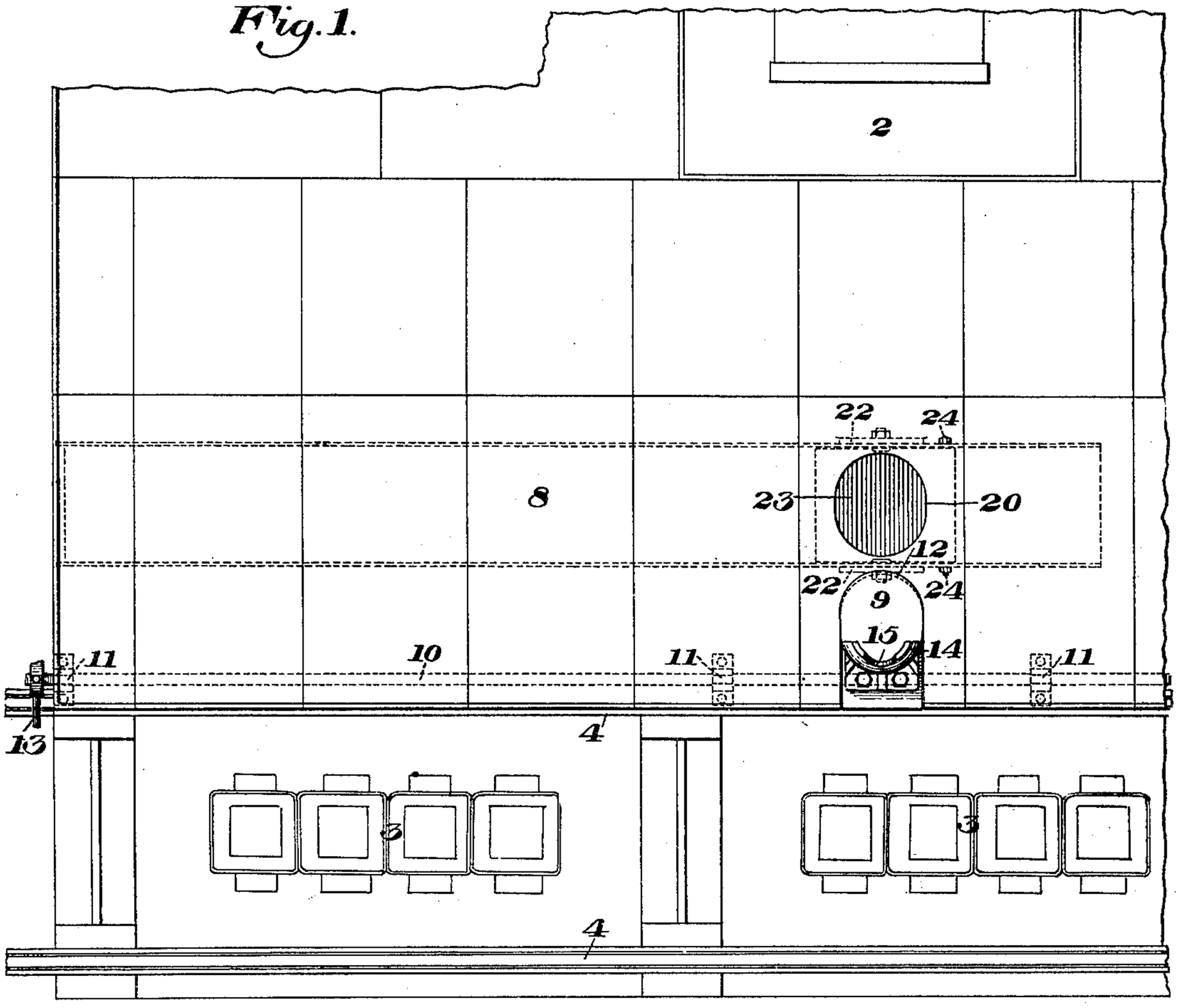

Fig. 2.

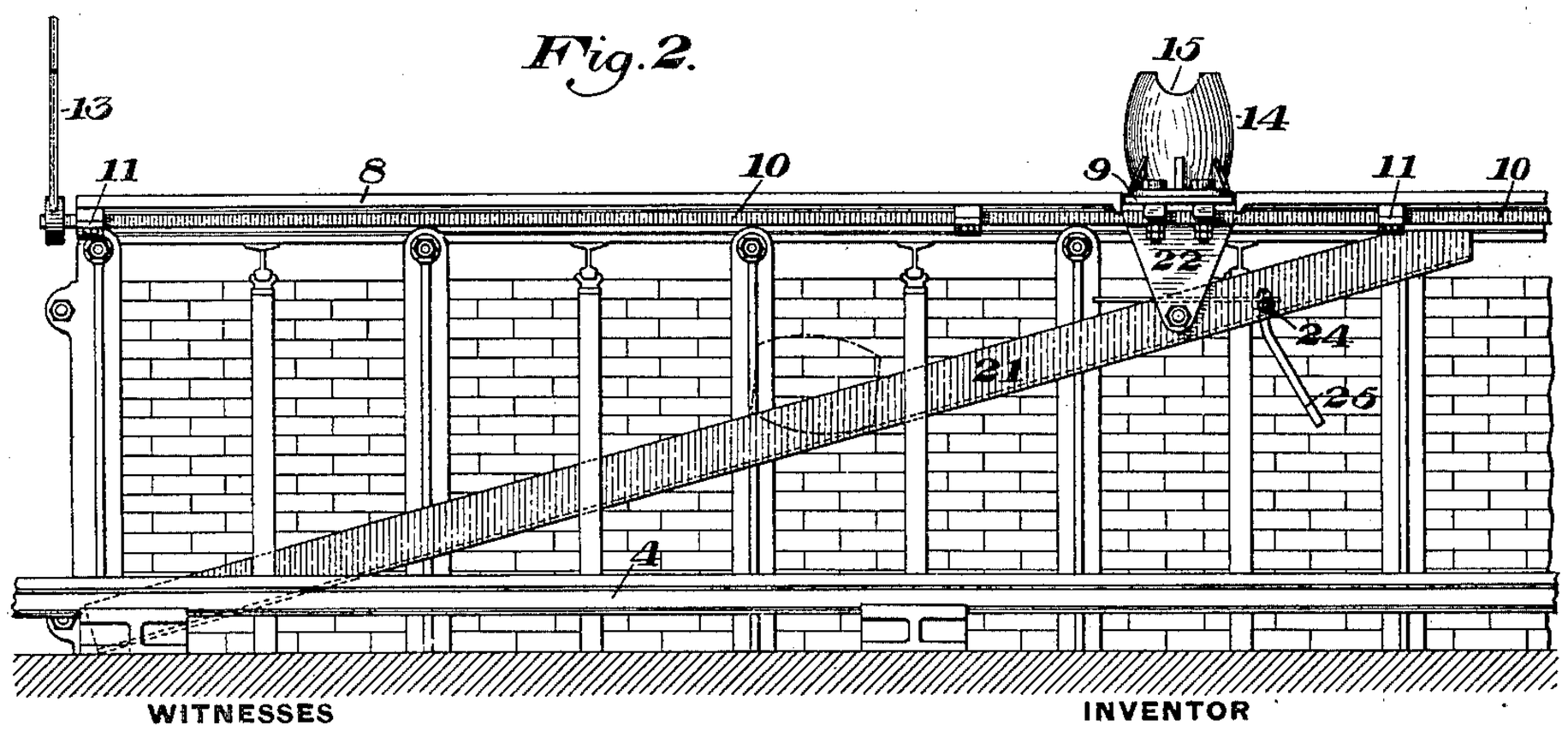

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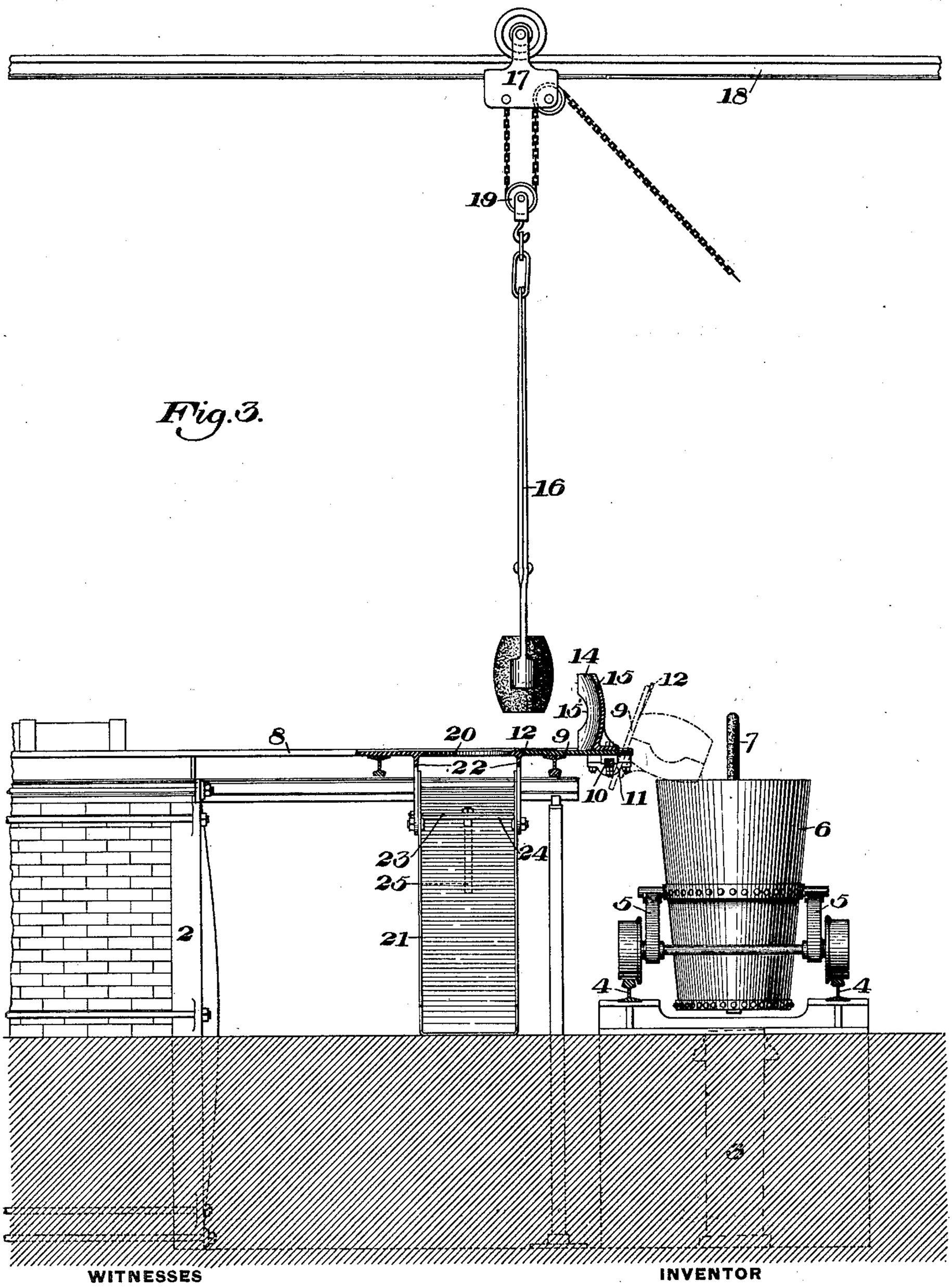
Fig. 3.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CASTING CRUCIBLE-STEEL.

SPECIFICATION forming part of Letters Patent No. 630,285, dated August 1, 1899.

Application filed May 12, 1898. Serial No. 680,433. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CAPPER, of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Casting Crucible-Steel, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view showing my improved apparatus. Fig. 2 is a front elevation of the same, and Fig. 3 is a sectional end elevation thereof.

My invention relates to the casting of steel from small crucibles into ingot-molds, and is designed to provide improved apparatus whereby this operation may be cheapened and facilitated.

In the drawings, 2 represents one of a series of crucible-furnaces in a steel plant. The ingot-molds are set in a pit 3, which extends longitudinally in front of the crucible-furnaces and over which is provided a track having rails 4 4, upon which travel the wheels of a truck 5, supporting a bottom pour-ladle 6, provided with the usual stopper 7.

The metal floor or platform 8 over the furnace is preferably extended out to the track, and at certain intervals therein I provide a tilting section or plate 9, which near its outer end is bolted to a squared shaft 10, supported in suitable bearings 11, while its inner end is provided with a projecting lip 12, which bears upon the adjacent plates and supports the section in a horizontal position. The shaft extends to the end of the platform and is provided with an actuating-lever 13 at that point. To the tilting plate or floor-section I bolt a curved holder or guard-plate 14, which is of a suitable size and shape to fit one side of the crucible and is notched at its top, as shown at 15, to prevent contact with the steel being poured and also at its sides, as shown at 15′, in order to allow the tongs to easily insert the crucible in this holder.

The tongs 16 are hung from an overhead trolley 17, moving on a track 18 by means of a suitable pulley-block 19, the hoisting-chain of which extends to one side, so that the tongs may be lowered into the furnace and, grasping the crucible therein, lifted out and moved along the track, the crucible then being lowered into the holder on the tilting table. The crucible need not be carefully placed at exactly the right position, since as soon as the table begins to swing the weight of the crucible and contents will cause it to slide into position in the holder.

The operator tilts the crucible upon the plate by swinging the shaft 10, thus bringing the holder, with its crucible, into the position shown in dotted lines on Fig. 3 and pouring its contents into the ladle upon the track.

Immediately in the rear of the tilting table the floor is provided with a large hole 20, beneath which extends a long inclined chute 21, which is supported by suitable hangers 22. Beneath the hole I provide a tilting plate 23, which is supported upon trunnions 24 and is provided with a counterweight 25, which will normally hold the plate in the position shown in Fig. 2.

When the operator has poured the crucible, he swings the shaft back with a sharp action, so that when it reaches its normal position the jar will cause the crucible to tip back from the holder and fall through the hole into the chute. The counterweighted plate serves to break or cushion the fall of the crucible, which then slides down the chute to a point where it may be easily removed for cooling and cleaning.

The apparatus does away with a large amount of the labor heretofore necessary in casting crucible-steel. The crucible is easily and quickly removed from the holder after pouring, and the whole apparatus is simple, easily constructed, and not liable to get out of order.

Many changes may be made in the arrangement of the furnaces, the tilting table and its holder, and in the chute or other receptacle for withdrawing the crucibles without departing from my invention as defined in my claims, since

I claim—

1. In apparatus for the manufacture of crucible-steel, a series of furnaces, a series of tilting holders mounted upon stationary frames, one adjacent to each furnace, means for carrying crucibles from each furnace to its holder, and a ladle-car arranged to travel

in front of said holders and to receive steel from the crucibles held thereby; substantially as described.

2. In apparatus for the manufacture of crucible-steel, a furnace, a tilting holder arranged to receive the crucible, and a chute adjacent to the holder and adapted to receive the crucible therefrom, and to convey it to a remote point; substantially as described.

3. In apparatus for the manufacture of crucible-steel, a series of furnaces, a series of tilting holders supported in bearings upon a stationary frame extending alongside the furnaces, means for transferring a crucible from each furnace to its holder, a track extending in front of the tilting holders, and a ladle movable along the track and arranged to receive the metal from the crucibles in the holders; substantially as described.

4. In apparatus for the manufacture of crucible-steel, a platform having a tilting crucible-holder, which is open in the rear, said platform having an opening adjacent to the tilting holder, and a receptacle below the opening; substantially as described.

5. In apparatus for the manufacture of crucible-steel, a furnace, a platform extending therefrom, and having a tilting section at its edge, a shaft arranged to tilt the section, a hole in the platform back of the section, a chute below the hole, and a track extending along the platform and having a ladle-car arranged to receive steel from a crucible carried upon the tilting section; substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES CAPPER.

Witnesses:
W. D. CORCORAN,
M. J. HICKEY.