No. 878,102. PATENTED FEB. 4, 1908.

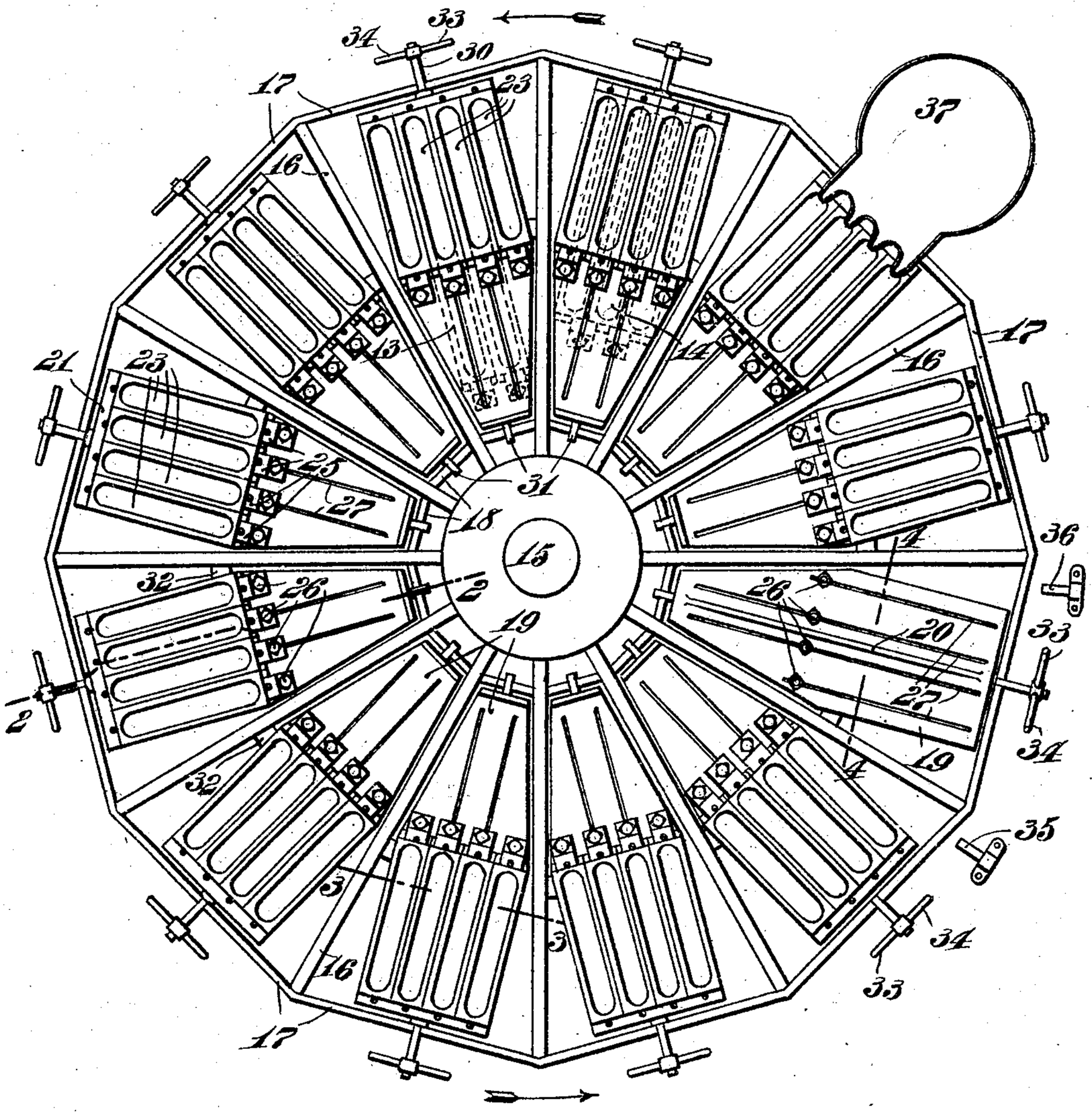
A. L. WALKER.

CASTING MACHINE.

APPLICATION FILED DEC. 4, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

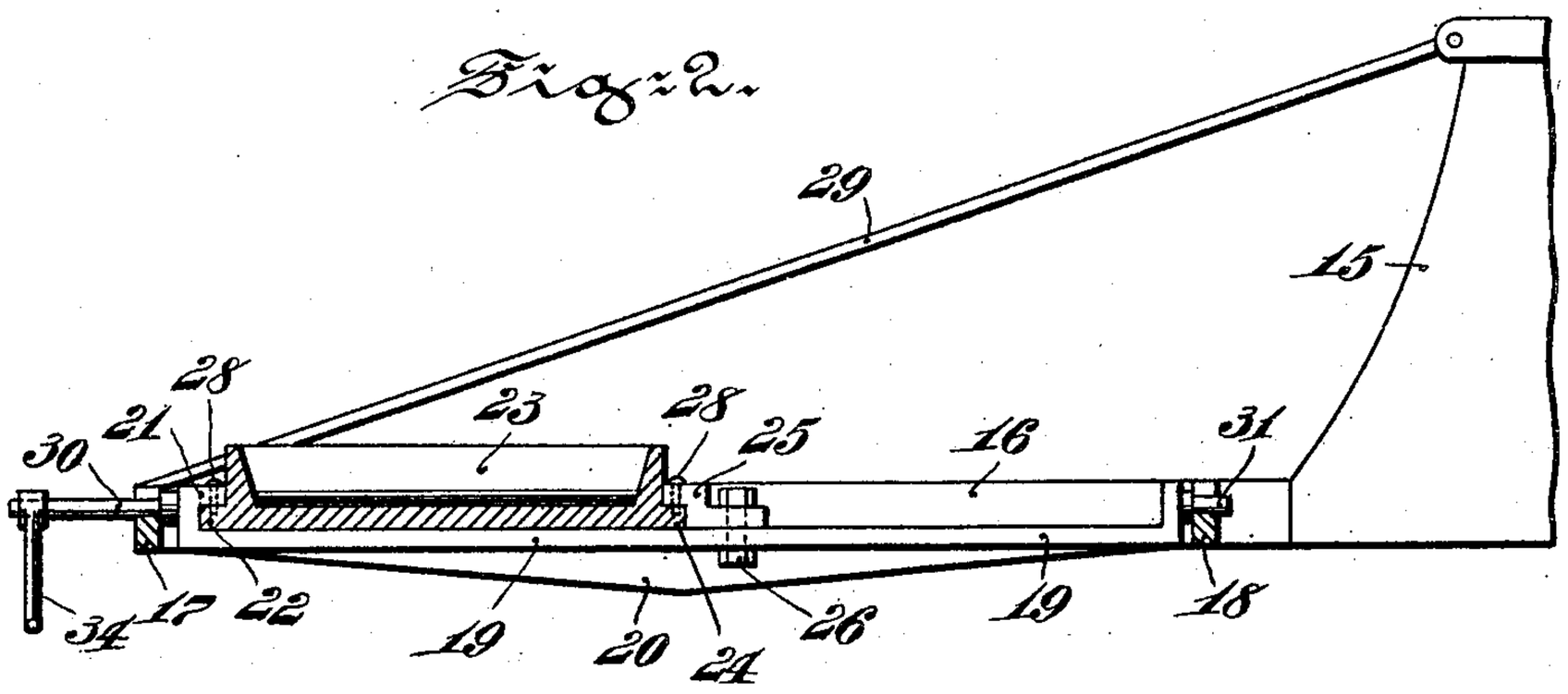

Fig. 3.

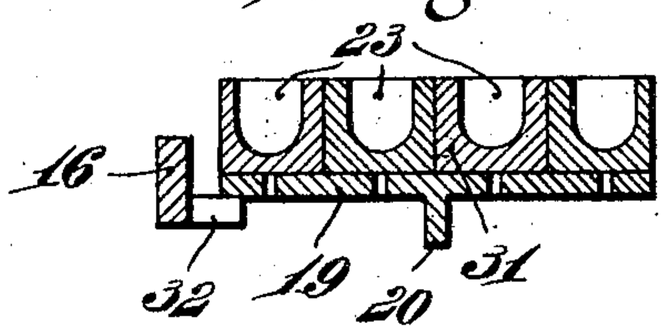

Fig. 4.

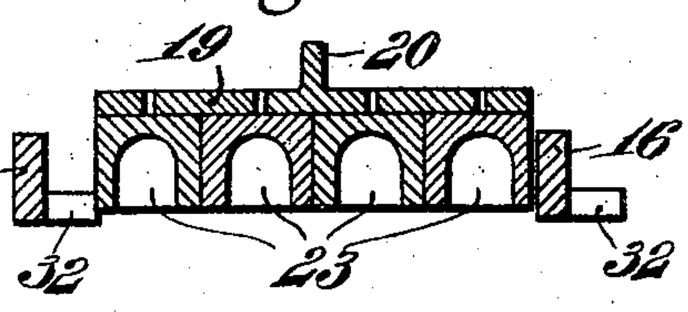

Fig. 5.

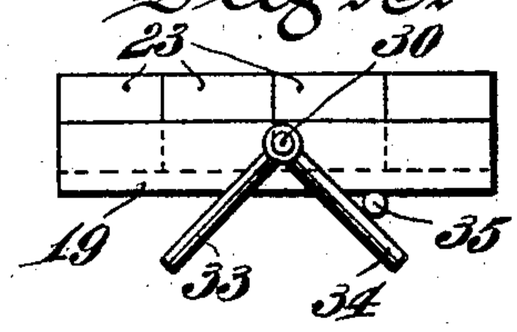

Fig. 6.

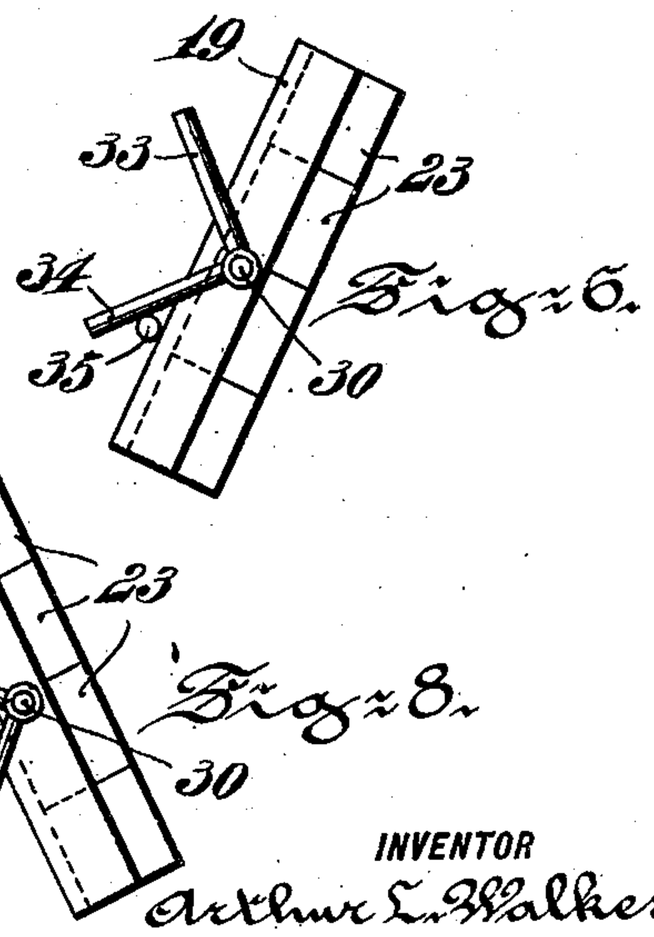

Fig. 7.

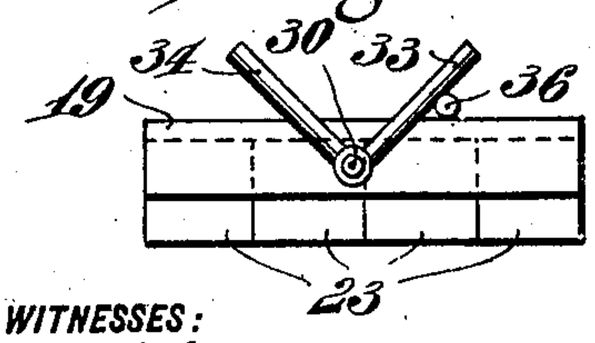

Fig. 8.

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UNITED STATES PATENT OFFICE.

ARTHUR L. WALKER, OF DONGAN HILLS, NEW YORK.

CASTING-MACHINE.

No. 878,102. Specification of Letters Patent. Patented Feb. 4, 1908.

Application filed December 4, 1906. Serial No. 346,227.

To all whom it may concern:

Be it known that I, ARTHUR L. WALKER, a citizen of the United States, residing at Dongan Hills, in the county of Richmond, Staten Island, State of New York, have invented a new and useful Casting-Machine, of which the following is a specification.

My invention relates to improvements in casting machines.

My object is to provide improved means for casting wire bars, ingots, anodes and the like.

My invention comprises improved means for supporting the molds and for securing the same in position so that they will not sag and so that they may readily be removed and replaced by molds of different size.

My invention also comprises improved means for operating the mold supporting means so as to discharge the bars or ingots cast therein and so as to return the mold again to the operative position.

Referring to the drawings:—Figure 1 is a plan view of my device. Fig. 2 is a vertical section on line 2, 2 of Fig. 1. Fig. 3 is a vertical cross-section on line 3, 3 of Fig. 1. Fig 4 is a vertical cross-section on line 4, 4 of Fig. 1. Figs. 5, 6, 7 and 8 are end elevations showing the tripping device in different positions.

Similar numerals refer to similar parts throughout the several views.

My improved structure comprises the central revolving piece 15, to which is secured the radiating arms 16 connected at their outer ends by the cross bars 17, and near their inner ends by the cross bars 18. These arms may be of any suitable number and set at any required angle with respect to each other, to suit the size of molds desired to use. The structure thus formed is further braced by a series of tie rods 29 extending from the top of member 15 to cross-bars 17. Upon cross bars 17 and 18 are trunnioned the mold supporting plates 19, preferably formed with a supporting rib 20, as shown in Fig. 2, to prevent sagging of said plates. As these plates are all alike a description of one will serve as a description of all. At the outer end of plate 19 are provided the lugs 21 adapted to overlap coöperating projections 22 on the molds 23. Similar projections 24 at the other end of the molds 23 are engaged by the clamping members 25, secured by the bolts 26, movable in the slots 27. Each plate is shown as provided with four slots and is therefore capable of holding four molds. The number of slots may of course be varied to suit the requirements. As the clamping members 25 are movable along the slots 27, it is obvious that molds of different length may be secured to the plate 19. Longer molds than those shown in solid line, are indicated in dotted lines at 13 and 14 in Fig. 1. Set screws 28 may also be used to add to the security of engagement between the lugs 21 and clamps 25 and molds 23. The trunnions 30 and 31 of mold plate 19 are placed a little off the center say one-half inch so that in the horizontal position one side of the mold plate 19 will rest on a lug 32 extending from arm 16. That is to say looking at the mold and supporting plate as shown in Fig. 3 the side to the left of the trunnions being the longer side, will rest by gravity on lug 32. These lugs 32 are so proportioned that when the mold plate 19 is inverted as shown in Fig. 4, the heavier side will be to the right of the trunnions and the lower outside edge of the furthest mold 23 to the left of the trunnion, will engage with the outer edge of lug 32, and will be held in said position by gravity until the mold plate is again actuated.

As a convenient means for inverting the molds and returning them to normal position after they have discharged their castings, I provide the structure shown in Figs. 1, 5, 6, 7 and 8 which consists in providing the two arms 33 and 34 on the outer trunnion 30 of each mold plate. I also provide the two stationary rods or fingers 35 and 36.

The operation of this device is as follows: Assuming that the molds start in the operative position as the four are shown which are in alinement with the four-lipped ladle in Fig. 1, the metal is poured by this ladle into said four molds and the structure is then rotated to bring another set of molds in line with the ladle when the operation is repeated. As the molds which have been filled move with the revolving structure in the direction indicated by the arrow in Fig. 1, the arm 34 comes into engagement with the finger 35 as shown in Fig. 5. This causes the mold plate to turn with its molds into the position shown in Fig. 6 from which it is obvious that the mold will fall by gravity into the position shown in Fig. 4 and will be held in such position until, by a further rotation of the rotating structure, the arm 33 encounters

the finger 36, as shown in Fig. 7, causing the mold plate and molds to turn into a position shown in Fig. 8 from which position it is obvious that the structure will fall by gravity into the initial position as shown in Fig. 3.

As stated above, my device is especially adapted for casting wire bars, ingots, anodes and the like, and my purpose is to provide improved adjustable means for securing, and means for supporting the molds of different sizes, so that the same may readily be removed, and also so as to prevent the sagging of the molds, which has been the cause of trouble in machines now in use in making wire bars, where the molds sag, due to their great length between supports. By the means above described I am enabled to use molds of different lengths and to change said molds quickly; and, in that the mold or mold supporting plates prevent the sagging of the molds, not nearly so much copper need be used in making said molds, and consequently not so much metal need be tied up thereby.

What I claim is:—

1. In a casting machine, the combination of a rotatable structure or carrier, supporting members having trunnioned relationship with the carrier, and molds disengageably connected with the trunnioned supporting members.

2. In a casting machine, the combination of a rotatable structure or carrier, supporting members having trunnioned relationship with the carrier, a plurality of molds, and adjustable means for securing the molds to the trunnioned supporting members.

3. In a casting machine, the combination of a rotatable structure or carrier, supporting members having trunnioned relationship with the carrier, a plurality of molds, and adjustable means adapted to be operated independently with respect to each mold for securing the molds to the trunnioned supporting members.

4. In a casting machine, the combination of a rotatable structure or carrier, supporting members having trunnioned relationship with the carrier, molds adapted to be disengageably connected with the supporting members, and clamping means on the trunnioned supporting members having a movable element for accommodating different sized molds.

5. In a casting machine, the combination of a rotatable structure, a plurality of removable molds, mold supporting members eccentrically trunnioned on the rotatable structure and means for limiting the pivotal movement of the trunnioned members.

6. In a casting machine, the combination of a rotatable structure, a plurality of removable molds, mold supporting members eccentrically trunnioned on the rotatable structure and means for limiting in both directions the pivotal movement of the trunnioned members.

7. In a casting machine, the combination of a rotatable structure, a plurality of removable molds, mold supporting members eccentrically trunnioned on the rotatable structure and projections connected with said rotatable structure for limiting the pivotal movement of the mold supporting members.

8. In a casting machine, the combination of a rotatable structure, a plurality of removable molds, mold supporting members eccentrically trunnioned on the rotatable structure, projections on the rotatable structure for limiting the pivotal movement in either direction of the trunnioned members.

9. In a casting machine, the combination of a rotatable structure, a plurality of removable molds, mold supporting members trunnioned on the rotatable structure, clamping means on said trunnioned member having a movable element to permit of the engagement and disengagement of molds of different sizes.

10. In a casting machine, the combination of a rotatable structure, a plurality of removable molds, mold supporting members trunnioned on the rotatable structure, adjustable means for disengageably securing the molds thereto, and means for tripping the trunnioned members to discharge the contents of the molds.

11. In a casting machine, the combination of a rotatable structure, a plurality of removable molds, mold supporting members trunnioned on the rotatable structure, adjustable means for disengageably securing the molds thereto, means for tripping the trunnioned members, to discharge the contents of the molds, and means for returning said members to normal position after such discharge.

12. In a casting machine, the combination of a rotatable structure comprising a centrally disposed member provided with radiating arms having supporting tie rods connecting the outer ends of said radiating arms with the central member, said radiating arms also connected at their outer ends and near their inner ends with cross bars, a plurality of molds having a disengageable trunnioned relationship with said cross bars, and means whereby several molds are supported by a single pair of trunnions.

13. In a casting machine, the combination of a rotatable structure comprising a centrally disposed member provided with radiating arms connected at their outer ends and near their inner ends with cross bars and a plurality of mold supporting members trunnioned on said cross bars, and a plurality of molds disengageably connected with each supporting member.

14. In a casting machine, the combination of a rotatable structure, a plurality of molds, mold supporting members eccentrically trunnioned on said rotatable structure so that said trunnioned members will be heavier on one side of their axes of rotation than the other, means for tripping said trunnioned members and means for limiting the gravity actuated movement of their rotation.

15. In a casting machine, the combination of a rotatable structure, a plurality of molds, mold supporting members eccentrically trunnioned in said structure so that said members will have a gravity actuation when turned over the center of gravity, means for limiting said gravity actuation and tripping means for causing the movement of said trunnioned members over their center of gravity.

16. In a casting machine, the combination of a rotatable structure, a plurality of molds, mold supporting members eccentrically trunnioned in said structure so that said members will have a gravity actuation when turned over the center of gravity, means for limiting said gravity actuation in two directions and tripping means for causing the pivotal movement of said trunnioned members over their center of gravity in two directions.

17. In a casting machine, the combination of a rotatable structure, a plurality of molds, mold supporting members eccentrically trunnioned on the rotatable structure so as to have a gravity movement into the inverted position and also back to the normal position when tripped to rotate over the center of gravity, means for limiting said gravity movement in either direction and means for tripping the trunnioned members to cause the preliminary pivotal movement.

18. In a casting machine, the combination of a rotatable structure, a plurality of molds, provided with engaging projections, and clamping means for the independent engagement and disengagement of each mold comprising projections for coöperating with the projections on the molds, said clamping means having a movable element for adjustment with respect to varying sizes of molds.

19. In a casting machine, the combination of a rotatable structure mold supporting members having trunnioned relationship therewith, a plurality of molds, having a plurality of longitudinally extending slots, a plurality of pairs of lugs or clamping projections for engaging and disengaging the molds, one of each pair being movable in said slots and having locking means for securing the same in any desired position of adjustment.

20. The combination of a central revolving piece of relatively small diameter, radially extending arms supported solely thereby, cross bars connecting adjacent arms at or near both their ends, molds and means for supporting the molds engaging the same throughout their entire length to prevent their bending, having trunnioned relationship with the cross bars.

21. The combination of a central revolving piece of relatively small diameter, radially extending arms supported thereby, cross bars connecting adjacent arms at or near both their ends, mold supporting plates trunnioned on the cross bars, and molds disengageably connected with the mold supporting plates.

22. The combination of a central revolving piece of relatively small diameter, radially extending arms supported thereby, cross bars connecting adjacent arms at or near both their ends, mold supporting plates trunnioned on the cross bars, molds disengageably connected with the mold supporting plates, and adjustable means for disengageably securing the molds.

23. The combination of a central revolving piece of relatively small diameter, radially extending arms supported entirely thereby, cross bars connecting adjacent arms at or near both their ends, a plurality of molds, and means for securing trunnioned relationship between the molds and the cross bars comprising supporting members engaging with the molds throughout their entire length to prevent the bending thereof.

ARTHUR L. WALKER.

Witnesses:
T. M. STATELE,
L. A. WALKER.