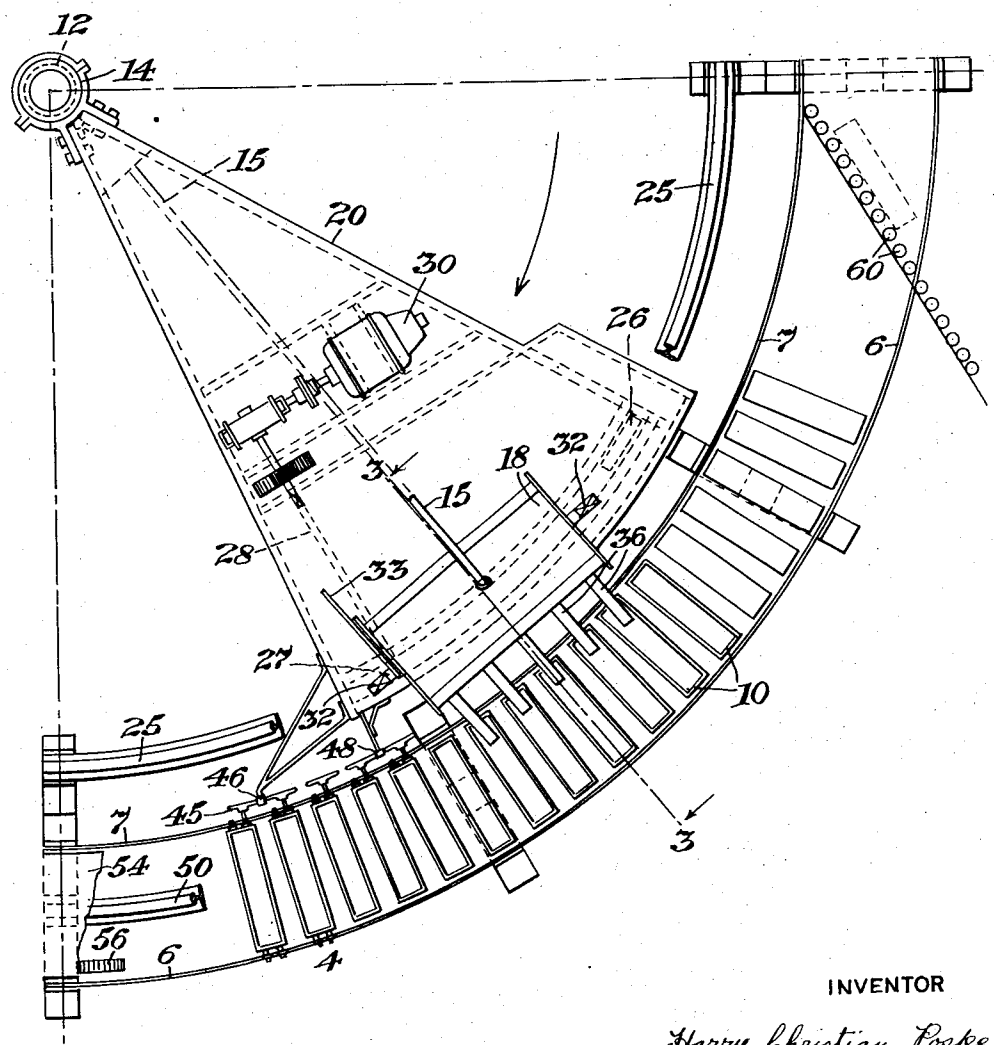
April 24, 1928. 1,666,910

H. C. POSKE

METAL CASTING MACHINE

Filed Oct. 29, 1925 4 Sheets-Sheet 1

Fig. 1



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METAL CASTING MACHINE

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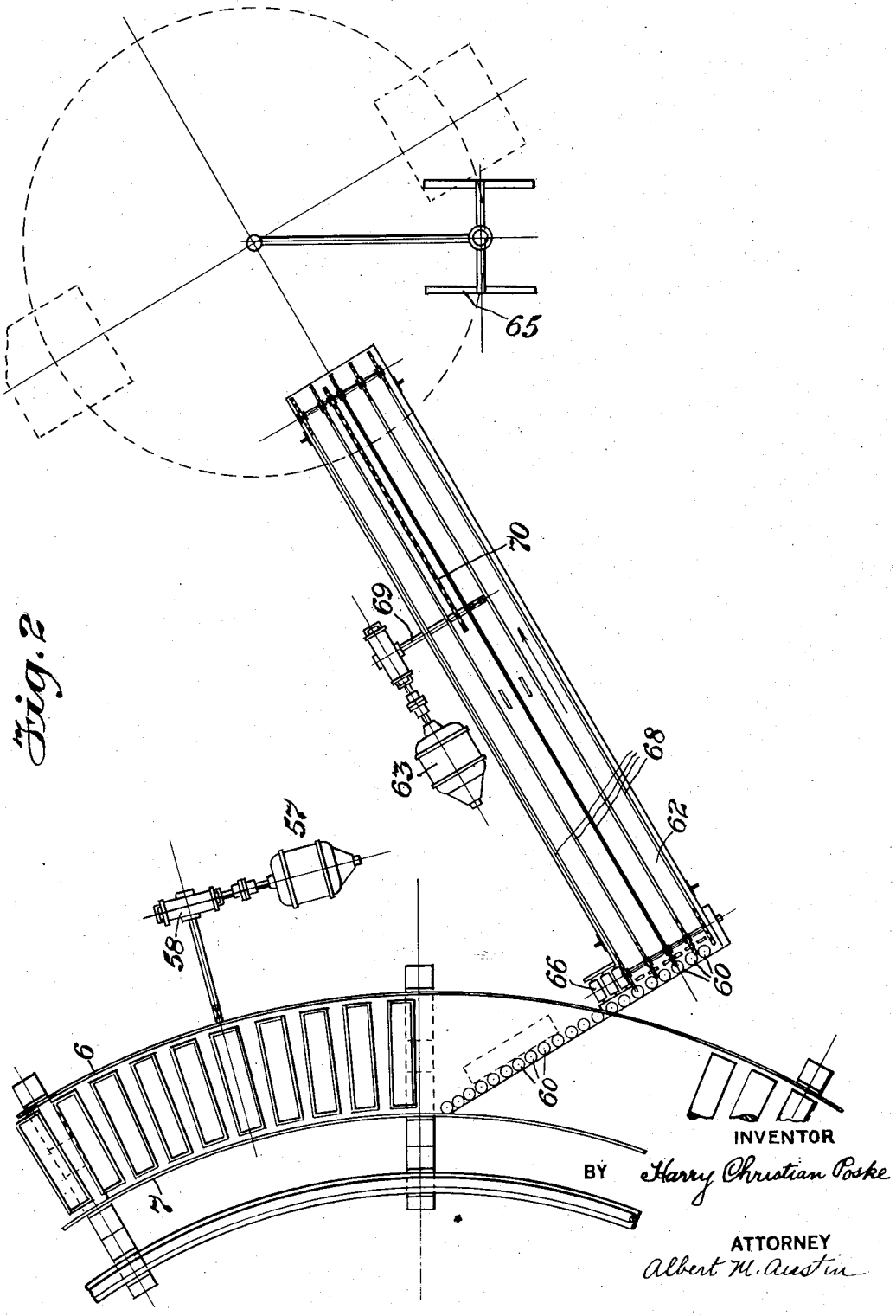


Fig. 2

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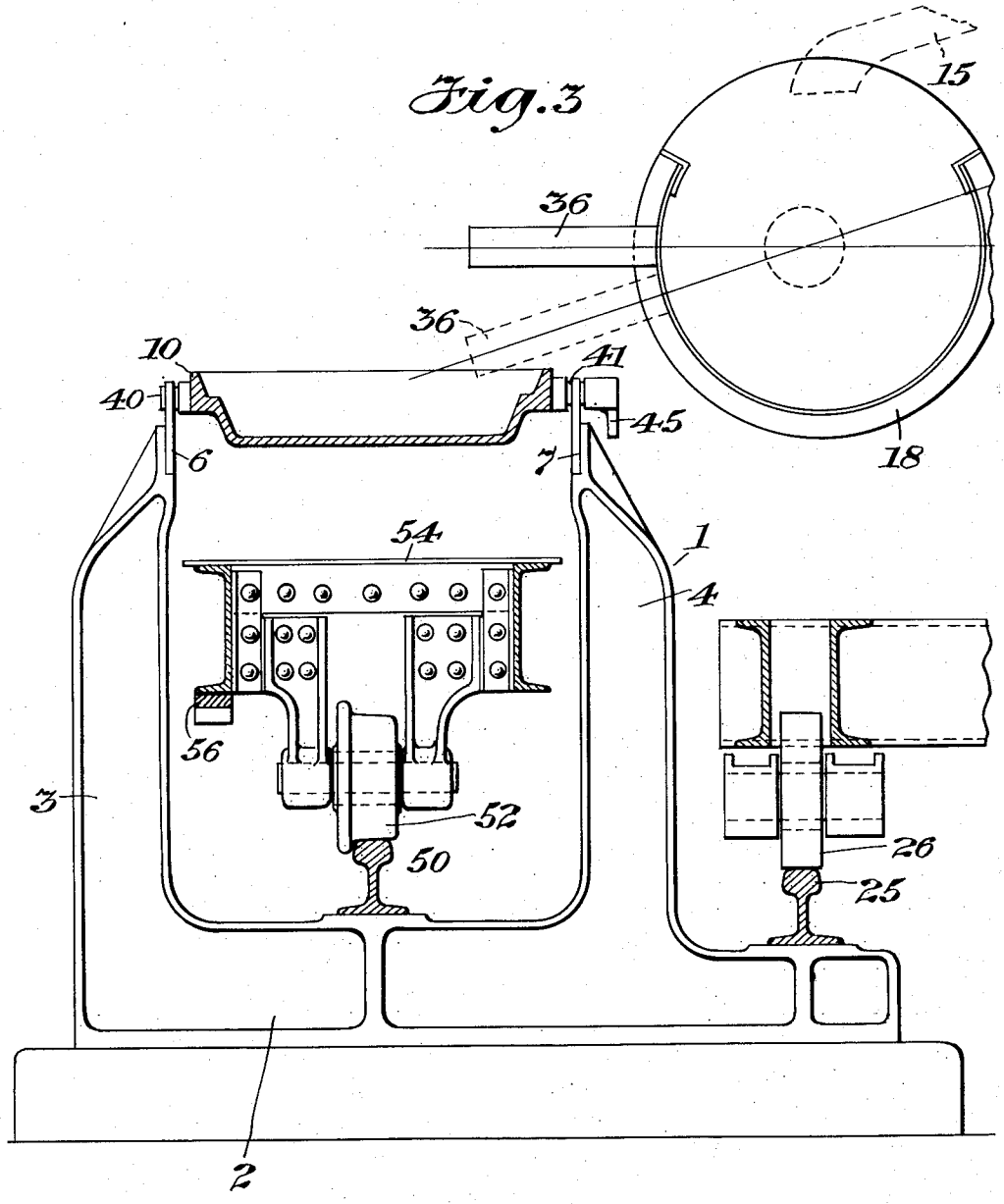
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METAL CASTING MACHINE

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Fig. 3



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METAL CASTING MACHINE

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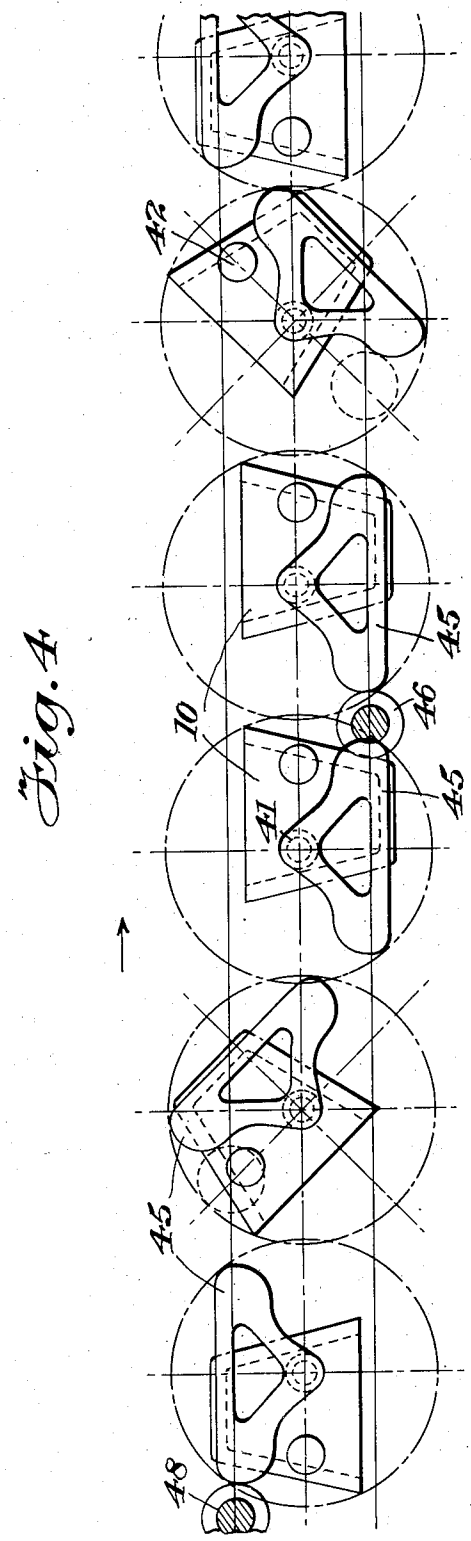


Fig. 4

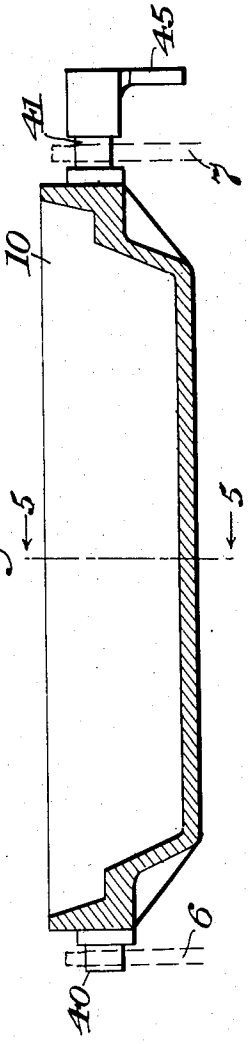


Fig. 6

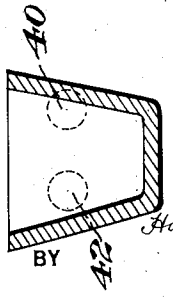


Fig. 5

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Patented Apr. 24, 1928. 1,666,910

UNITED STATES PATENT OFFICE.

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METAL-CASTING MACHINE.

Application filed October 29, 1925. Serial No. 65,529.

This invention relates to a machine for casting metal into pigs, bars or other shapes and for dumping the castings from the mold to a conveyor or system of conveyors which carries the castings to a stacking machine or to any other receiving means. The invention relates further to a casting machine having a set of stationary molds arranged in a series and mounted for movement from a normal casting position into a dumping position and having means movable relatively to said series of molds for carrying molten metal thereto for casting and for receiving castings from the molds and for carrying said castings away therefrom.

Various other objects and advantages of the invention will be obvious from the following particular description of one form of mechanism embodying the invention or from an inspection of the accompanying drawings which illustrate certain new and novel features of construction and combinations of parts hereinafter set forth and claimed.

In the drawings accompanying and forming part of this specification, a practical commercial embodiment of the invention is disclosed, but as such illustration is primarily for purposes of disclosure, it will be understood that the structure may be modified in various respects without departure from the broad spirit and scope of the invention as hereinafter defined and claimed.

Fig. 1 is a plan view in part cut-away showing a series of tiltable molds arranged along an arc of a circle, means for feeding molten metal to said molds which means is movable along the series of molds, and means comprising a circular conveyor and an unloading apparatus for receiving castings dumped from said molds and for carrying them away;

Fig. 2 is a plan view of part of the circular conveyor of Fig. 1 showing additional parts of the unloading and receiving apparatus and means for driving the circular conveyor and for driving a receiving apparatus.

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 1;

Fig. 4 is a diagrammatic showing of a series of molds illustrating the tipping mechanism;

Fig. 5 is a transverse sectional view of one of the molds showing by dotted lines the position of supporting and tilting bosses and journals thereon; and

Fig. 6 is a longitudinal sectional view of the mold of Fig. 5.

In the drawings the circular channel shaped member 1 comprising the base member 2 and the upright members 3 and 4 supports the bearing rings 6 and 7 which carry between them a series of horizontally disposed molds 10 which extend about the circle formed by said supporting member 1, a gap being left through a short arc where apparatus hereinafter fully described occupies space required for unloading. At the center of the circle of the support member 1 is mounted a vertical pipe 12 for carrying molten lead which pipe connects through the universal joint 14 to the feed pipe 15 which empties into the casting bowl 18, said casting bowl being mounted near the outer edge of the platform 20.

Said platform 20 may be in the form of a sector of a circle which is supported at its inner end about said universal joint 14 and at its outer end on the track 25 which is mounted on an inward extension of said base 2 and over which track roll the wheels 26, 27 mounted to said platform 20. Rotation of said platform 20 about its center and over track 25 is secured by means of the motor 30 which is mounted to table 20 and which is geared through shaft 28 to said wheel 27.

Said casting bowl 18 is supported on platform 20 by means of the bearings 32, 32, whereby the bowl 18 may be tipped as by means of handle 33 for pouring molten lead, or other metal, from bowl 18 into several of the molds 10 through the pouring spouts 36, 36 provided on the front side of bowl 18 and spaced apart thereon at such distances that metal may be poured to several of said molds simultaneously.

Each of said molds 10 is pivoted at each of its ends to said bearing rings or members 6 and 7 by means of the journals 40 and 41 respectively to permit the molds to be turned from a normal casting position into an inverted dumping position, a stop member 42 being provided at each end for engagement with said bearing rings 6 and 7 to hold the molds horizontal either in the normal position or in the inverted position. The journal

41 carries at its outer end the tilting shoe 45 for engagement with the tilting members 46 and 48 mounted to and movable with said platform 20 (see Figs. 1 and 4). In the normal casting position said tilting shoe 45 hangs downwardly from journal 41 and in the inverted position the shoe 45 extends upwardly above journal 41. With the molds 10 in the normal casting position and upon rotation of platform 20 and members 46 and 48 in a clockwise direction said member 46 is engageable to contact with shoes 45, 45 to tilt the molds from the normal position into the inverted position and upon further advancement of the platform 20 and members 46 and 48, the member 48 will contact with the shoes 45, 45 which have been inverted by member 46 to return the molds successively into the normal position all as indicated by the diagram shown in Fig. 4 and as hereinafter more fully described. Members 46 and 48 are mounted at a distance apart equal to a small multiple of the distance between consecutive molds and with member 46 before member 48 in the direction of their movement and both before the pouring bowl 18 whereby metal poured into a mold may be permitted to solidify before it is dumped from the mold by the tilting of the mold into the inverted position by contact of said member 46 with said shoe 45.

On the base member 2 underneath the series of molds 10 and between the supporting members 3 and 4 there is mounted the circular track 50 over which rides the wheels 52 mounted to and underneath the circular table 54. The table 54 is completely circular and provided with a plurality of the wheels 52, 52 and is thereby self supporting. To the outer edge of table 54 and underneath it is mounted the circular driving rack 56 which serves through the motor 57 and the transmission apparatus 58 to drive said table 54 over said track 50. The table 54 is of such a width and of such a distance below the molds 10, 10 as to suitably accommodate and receive castings when they are dumped from said molds 10, 10. The table or conveyor 54 may be driven at a rate of speed different from that of the casting arrangement 18—36 to suit the method and manner of removing the castings therefrom. From the above description it can be seen that a casting after being poured is permitted to set during the time required to make nearly a complete revolution of the casting arrangement over the molds.

Over said table 54 and extending diagonally thereacross is supported a series of vertical idler rollers 60 which are suitably mounted for rotation on their vertical axis. These rollers 60 extend into such proximity to said table 54 as to contact with castings lying thereon and are adapted to wipe said castings outwardly from the table as they are carried by the table against the rollers, the diagonal mounting of said rollers across table 54 being outwardly with respect to the rotation of said table 54. These rollers 60 are mounted below the blank space in the series of molds 10, 10 as above noted. Extending from the outer end of said series of rollers 60 is the conveyor belt 62 which is driven by the motor 63 and which is designed to receive castings as they are discharged from table 54 and to carry them to the stacking machine 65 which is indicated diagrammatically and which is mounted at the discharge end of said conveyor 62. In the line of movement of castings from table 50 and paralleling said rollers 60 there extends a row of horizontal idler rollers 66 from the outer edge of table 54 to the receiving end of said conveyor 62. These rollers 66 are preferably inclined from table 54 to conveyor 62 and terminate above the level of said conveyor 62 whereby castings pushed off table 54 by idler roller 60 slide over rollers 66 and drop therefrom onto said conveyor 62. As shown in Fig. 2 said conveyor 62 comprises a multiplicity of endless chains 68 driven by said motor 63 to the shaft 69 and the chain 70.

In the operation of the apparatus illustrated in the drawing molten metal is fed through said pipe 12 and through universal joint 14 to the pipe 15 and discharged into bowl 18. Bowl 18 may then be rotated with table 20 as by means of motor 30 to bring the pouring spouts 36, 36 over all the molds 10, 10 and the bowl tilted on its bearings 32, 32 as by means of a handle 33, 33 to pour the metal from bowl 18 into several of the molds 10, 10. The pouring arrangement is then rotated in a clockwise direction to bring said pouring spouts 36, 36 over the next corresponding set of molds and the pouring operation is repeated. As the pouring arrangement is rotated the member 46 successively engages the tilting shoes 45 and successively inverts the molds 10, 10 and the member 48 as it comes adjacent the inverted molds in turn contacts with said shoes 45 in the inverted position and returns the molds successively into the normal casting position. After about a complete revolution of the pouring apparatus and upon contact of said member 46 with the successive shoes 45, 45, castings poured into the molds 10, 10 are dumped from their respective molds onto said table 54. Each mold after having received the inverting impetus is carried to the complete inverted position through the weight of the mold and the casting therein and they are stopped abruptly by contact of respective members 42 against the rings 6 and 7 whereby the sudden impact of the mold part with said rings 6 and 7 causes the sudden and clear discharge of the casting. The member 48 which is spaced at a short

distance from member 46 reverts the molds successively to their normal positions a short time after they have been dumped.

The castings which have been dumped from the molds 10 and which have been received by the conveyor table 54 are carried by that table against said idler rollers 60 which wipe them from the table and discharge them over the horizontal idler roller 66 and onto the conveyor 62 which discharges them to a suitable position as for example into a position to be operated upon by the stacking machine 65 which is diagrammatically shown.

The metal may be fed continuously through pipes 14 and 15 to the bowl 18 or it may be fed thereto at intervals to keep a sufficient amount for pouring in said bowl 18. A skimmer may be positioned on said table 20 near bowl 18 for keeping the metal in proper condition for pouring. The table 20 also provides space for an operator for the motor 30 and the bowl 18. The conveyor table 54 may be rotated at the same rate of speed as the table 20 or it may be rotated at some other speed, and for example, it may be rotated at intervals to discharge the castings in sets of predetermined numbers according to the capacity and operation of the stacking machine 65.

It is to be understood that the cooling of the cast metal may be hastened by the employment of jets of air or by suitable water sprays, whose use is well known, so that the metal is sufficiently solidified in the mold before it is dumped.

While I have shown and described and have pointed out in the annexed claims certain novel features of the invention, it will be understood that various omissions, substitutions and changes in the forms and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention.

Having described my invention, I claim:

1. In a casting machine, in combination, a series of molds mounted for tilting to a position in which castings will fall out of them, a movable pouring spout adapted to be moved along the series of molds for pouring metal to be cast thereinto and means movable with said pouring spout adapted to tilt said molds successively into a normal position.

2. In a casting machine, in combination, a casting-mold mounted for movement into a casting dumping position, a pouring spout movable past said mold along a predetermined path, and means movable with said spout for moving said mold from the normal position into the casting dumping position, said means being positioned back of said spout in the line of movement thereof.

3. In a casting machine, in combination, a casting mold mounted for movement into a casting dumping position, a pouring spout movable to and from a pouring position relative to said mold, a lever movable with said spout and a cam surface attached to said mould and co-operating with said lever for moving the mold from a casting dumping position into a normal position as the said spout is moved toward the mold.

4. In a casting machine, in combination, a casting mold mounted for movement into a casting dumping position, a pouring spout movable to and from a pouring position relative to said mold, means movable with said spout for moving the mold from a casting dumping position into a normal position as the said spout is moved toward the mold and means for moving said mold from the normal position into the casting dumping position as the spout is moved away from the mold.

5. In a casting machine, in combination with a series of stationary casting molds mounted along the arc of a circle, each of said molds being mounted for moving from a normal casting position into a casting dumping position, a movable platform mounted under said molds for receiving castings dumped from the molds and means for moving the castings successively as they move with the platform past a given point, said means comprising a barrier mounted diagonally across the line of movement of the platform and adapted to wipe the castings off the platform.

6. In a casting machine, in combination with a series of stationary casting molds mounted along the arc of a circle, each of said molds being mounted for moving from a normal casting position into a casting dumping position, a movable platform mounted under said molds for receiving castings dumped from the molds and means for moving the castings successively as they move with the platform past a given point, said means comprising a set of vertical rollers mounted diagonally across the line of movement of the platform.

7. In a casting machine, in combination, a series of molds, each mounted for movement from a normal position into a casting dumping position, a pouring spout movable to and from each of the molds successively, means for moving the molds successively from the normal position into the dumping position and for returning them to the normal position, a platform movable beneath the series of molds, and means for removing castings from the platform.

8. In a casting machine, in combination, a series of molds, each mounted for movement from a normal position into a casting dumping position, a pouring spout movable to and from each of the molds successively, means for moving the molds successively from the normal position into the dumping position

and for returning them to the normal position, a platform movable beneath the series of molds, and means for removing castings from the platform, said means comprising a barrier mounted diagonally across the line of movement of the platform and adapted to wipe the castings off the platforms.

9. In a casting machine, in combination, a series of molds, each mounted for movement from a normal position into a casting dumping position, a pouring spout movable to and from each of the molds successively, means for moving the molds successively from the normal position into the dumping position and for returning them to the normal position, a platform movable beneath the series of molds, and means for removing castings from the platform, said means comprising a set of vertical rollers mounted diagonally across the line of movement of the platform.

10. In a casting machine, in combination, a series of molds along the arc of a circle, each mounted for movement from a normal position into a casting dumping position, a metal feeding pipe mounted at the center of the circle, a lead pipe extending radially from the feed pipe, a universal joint between the feed pipe and the lead pipe, a pouring spout on said lead pipe adapted to discharge metal into the molds successively, said spout and lead pipe being movable arcuately about said center, means mounted to said lead pipe adapted to move said molds successively from the normal position into casting dumping position and from the casting dumping position into the normal position, a circular platform mounted under the series of molds and adapted to receive castings dumped from the molds.

11. In a casting machine, in combination, a series of molds along the arc of a circle, each mounted for movement from a normal position into a casting dumping position, a metal feeding pipe mounted at the center of the circle, a lead pipe extending radially from the feed pipe, a universal joint between the feed pipe and the lead pipe, a pouring spout on said lead pipe adapted to discharge metal into the molds successively, said spout and lead pipe being movable arcuately about said center, means mounted to said lead pipe adapted to move said molds successively from the normal position into casting dumping position and from the casting dumping position into the normal position, a circular platform mounted under the series of molds and adapted to receive castings dumped from the molds and means for removing castings successively from the platform comprising a barrier extending diagonally across the path of movement of the castings with the platform.

12. In a casting machine, in combination, a series of molds along the arc of a circle, each mounted for movement from a normal position into a casting dumping position, a metal feeding pipe mounted at the center of the circle, a lead pipe extending radially from the feed pipe, a universal joint between the feed pipe and the lead pipe, a pouring spout on said lead pipe adapted to discharge metal into the molds successively, said spout and lead pipe being movable arcuately about said center, means mounted to said lead pipe adapted to move said molds successively from the normal position into casting dumping position and from the casting dumping position into the normal position, a circular platform mounted under the series of molds and adapted to receive castings dumped from the molds and means comprising a set of vertical rollers mounted diagonally across the line of movement of the castings with the platform and adapted to wipe the castings off the platform.

13. In a casting machine, in combination, a casting mold mounted for tilting from the casting position to the dumping position, automatic means for tilting the mold from the casting position into the dumping position and from the dumping position into the normal casting position, the mold being so mounted that when tilted the center of gravity of the mold with its contents freely passes the point of support, and means for stopping the tilting at an inverted position whereby the mold through force of gravity strikes said stopping means and stops suddenly to dump the casting.

In testimony whereof I have hereunto set my hand.

HARRY CHRISTIAN POSKE.