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MACHINE FOR THE CONTINUOUS MANUFACTURE OF CASTING MOLDS

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Fig. 1B

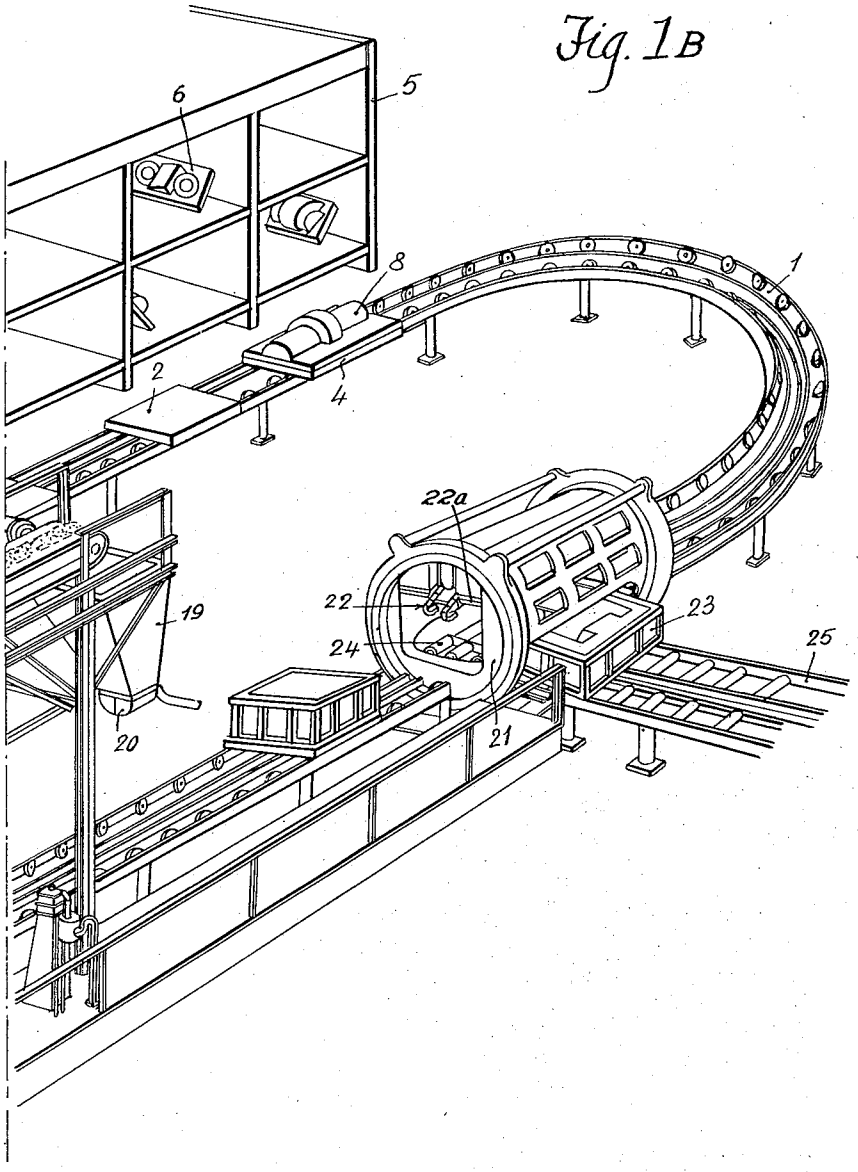

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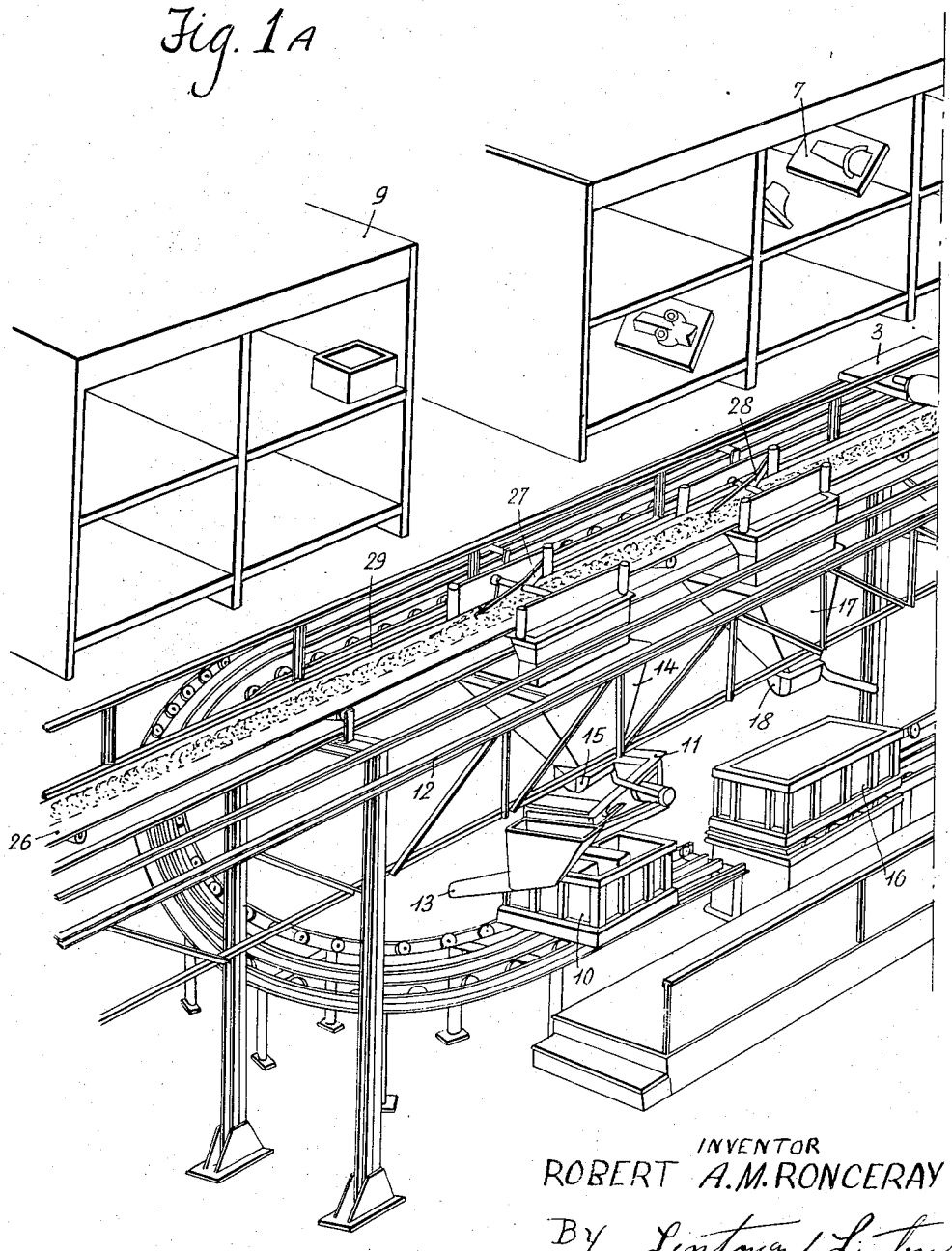
Fig. 1A



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MACHINE FOR THE CONTINUOUS MANUFACTURE OF CASTING MOLDS

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4 Claims. (Cl. 22—20)

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My invention has for its object an arrangement for the continuous execution of a foundry mold with considerable economy in time and man power.

My invention has for its object to carry out the different operations required in a closed circuit so as to obtain a mass production even in the case of molds that are different from one another, the different devices associated with the continuously operating machine and cycle executing each a predetermined operation for the successive molds.

According to my invention, the mold-supporting members progress in a closed circuit along a rolling track in accordance with a predetermined timing.

My invention has for its object an improved turn-over member for the removal of the finished mold.

The single figure of the accompanying drawing that is divided into two sheets consisting of Figs. 1A and 1B thereof is a perspective view of a preferred embodiment of the invention.

As illustrated, the machine includes primarily a closed circuit constituted by a roller track 1 on which travel continuously the bottom plates 2—3—4 . . . Beginning from the right-hand end of the roller track, the bottom plates pass first in front of the store 5 in which various pattern plates such as 6—7 are stored in accordance with a predetermined classification; the desired pattern plate 8 is selected and laid in front of the store on the bottom plate lying in front of it and is secured thereto through any suitable known means.

Continuing their travel, the bottom plates carrying each a pattern plate pass in front of the store 9 containing the flasks of which one is then secured to the plattern plate. The selected flask 10 arrives then underneath the shaking sifter 11 suspended to a bridge member 12 and provided with an exhaust at 13. The shaking sifter is supplied with molding sand from a funnel 14 also suspended from the bridge 12 and provided at its lower end with a spout 15 so as to fill the flask underlying it. The plates and flask are then brought to the rapping device 16 operated through shaking and capped by a sand-feeding funnel 17 provided also with an opening or spout 18 for completing the filling of the mold with sand. It should be remarked that this rapping device is independent of the rolling track and may be replaced by a ramming device of any other suitable type.

The plates and flasks continuing their travel

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beyond the rapping device pass underneath a third sand-feeding funnel 19 opening at 20 so as to improve the filling of the flask after the pressing stage at 16 and before the levelling provided by any suitable means. This being done, the mold is finished and should be removed. To this purpose, the roller track is interrupted so as to form a gap for the insertion of the mold-releasing rollover 21. The latter is adapted to rock round its axis that is parallel to the direction of travel of the roller-track. The rollover includes two diametrically opposed series of roller track elements: one of which is located between securing means, shown as hooks 22, and adapted to register with the general roller track 1; a second series is composed of rollers 24 the axis of which are parallel to the axis of rotation of the rollover.

This rollover is operated as follows: It is rotated through 180° from the discharge position shown, so that the first series of roller track elements are now registering with the elements of the general roller track 1. The hooks 22 and their supporting structure 22a which carries said first series of roller track elements are in their lowest position. Then the flask 23 is introduced in the rollover; the supporting structure is lowered by a known means such as a piston until the upper surface of the flask, covered by a plate, is applied against roller track 24. Then the bottom plate and the model plate are clamped by the hooks 22 and the rollover is rotated through 180°.

The flask containing the mold rests on the track 24 and the supporting structure is raised thus separating the model plate and the mold. The latter is shifted toward the foundry onto the roller track 25 perpendicular to the first track 1 and the rollers of which are parallel to rollers 24.

This being done, the rollover is again submitted to a rotation through 180° so as to return the bottom plates and pattern plate thereon into alignment with the roller track 1 over which they are transferred back to a location in front of the store 5, where the pattern plate may be returned into the store for replacement by another one unless the same pattern plate is used again for the constitution of a further identical mold.

The sand required for molding is fed into the distributors 14—17 and 18 through a conveyor 26 carried at the upper end of the bridge 12 and cooperating with two scraper members 27 and 28 angularly adjustable with reference to

the conveyor and adapted to deflect part of the sand into each of the funnels 14 and 17 with which they register, while the funnel 19 is fed directly through the end of the conveyor 26. It is of advantage to provide along this conveyor 26 a gangway for the operators.

It is thus apparent that the different operations follow one another in time for a given bottom plate and are simultaneously executed for the different bottom plates lying at a time on the roller track. Thus, if ten successive operations are required for making a mold, while one unit of time is necessary for each operation, ten units of time are required for the execution of the complete cycle corresponding to the execution of one mold, but in the machine considered, the ten operations may be carried out simultaneously for ten successive pattern plates, so that in said ten units of time ten complete molds are made on ten identical or different pattern plates, a single device being required for each operation, so that maximum efficiency is obtained.

The embodiment disclosed is of course given by way of mere exemplification and without any limitation beyond those appearing in the claims, any detail modification being brought, if required, without modifying the scope of the invention as defined in said accompanying claims.

What I claim is:

1. A machine for the continuous production of casting molds comprising in combination an endless roller track, at least one bottom plate adapted to move along said roller track, a pattern plate store and a flask store located in the immediate vicinity of said roller track, a filling station for filling the flask with sand at a point of the rolling track beyond said stores, sand funnels located above the filling station, a belt conveyor adapted to feed sand to said funnels, located above the roller track and to which the funnels are suspended, means carried by the belt conveyor above each funnel for feeding a fraction of the sand from the conveyor into the corresponding funnel, a rollover device beyond the last funnel comprising an annular member fitted in the roller track with its axis parallel to the longitudinal axis of the track at that point, means for securing to said annular member the bottom plates and associated pattern plates when engaging said annular member, two series of rollers carried by the annular member in two parallel planes parallel to the axis of rotation of said annular member, the axes of rotation of said series of rollers being respectively perpendicular and parallel to said axis of rotation in said planes and a second roller track located adjacent the rollover device at right angles to the first track and adapted to form a continuation of the track formed by the second series of rollers when the plane thereof is rocked through a corresponding angle, to receive the sand-filled flask from said second series of rollers.

2. In a machine for the production of sand molds, the combination of an endless roller track provided with two gaps, at least one carriage adapted to move over said roller track and adapted to carry a selected pattern plate and flask, means for filling the flask with sand, at least at one point of its travel over the track, a rollover device inserted in a gap provided in said track beyond the last sand-filling means with its axis of rotation parallel to the line of progression provided on the track in register with the corresponding gap, said rollover including two guideways of which one is adapted to register with the roller track, the rotation of the rollover round its axis being adapted to shift the sand-filled flask from one guideway to the other and a second stationary track perpendicular to the first track and forming a continuation of the second guideway for a predetermined angular position of the rollover for the removal of the sand-filled flask.

3. In a machine for the production of sand molds, the combination of an endless roller track provided with two gaps, at least one carriage adapted to move over said roller track and adapted to carry a selected pattern plate and flask, means for filling the flask with sand, at least at one point of its travel over the track, a rollover device inserted in a gap provided in said track beyond the sand-filling means with its axis of rotation parallel to the line of progression provided on the track in register with the corresponding gap, said rollover including two guideways of which one is adapted to register with the roller track, the rotation of the rollover round its axis being adapted to shift the sand-filled flask from one guideway to the other and a second stationary track perpendicular to the first track and forming a continuation of the second guideway for a predetermined angular position of the rollover for the removal of the sand-filled flask.

4. In a machine for the production of sand molds, the combination of an endless roller track provided with two gaps, at least one carriage adapted to move over said roller track and adapted to carry a selected pattern plate and flask, means for filling the flask with sand, at least at one point of its travel over the track, a rollover device inserted in a gap provided in said track beyond the last sand-filling means with its axis of rotation parallel to the line of progression provided on the track in register with the corresponding gap, said rollover including two guideways of which one is adapted to register with the roller track, and an annular member forming a latticed cylinder with a lateral aperture registering with the second series of rollers for allowing the removal of the sand-filled flask for a predetermined angular position of the rollover, the rotation of the rollover round its axis being adapted to shift the sand-filled flask from one guideway to the other, and a second stationary track perpendicular to the first track and forming a continuation of the second guideway for a predetermined angular position of the rollover for the removal of the sand-filled flask.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
938,904	Sherman	Nov. 2, 1909
1,127,113	Thiemann	Feb. 2, 1915
1,911,542	Wurster	May 30, 1933
2,160,581	Behnke	May 30, 1939