I. C. FREY.

BRICK MOLD HANDLING APPARATUS.

APPLICATION FILED JUNE 4, 1918.

1,306,477.

Patented June 10, 1919.

4 SHEETS—SHEET 1.

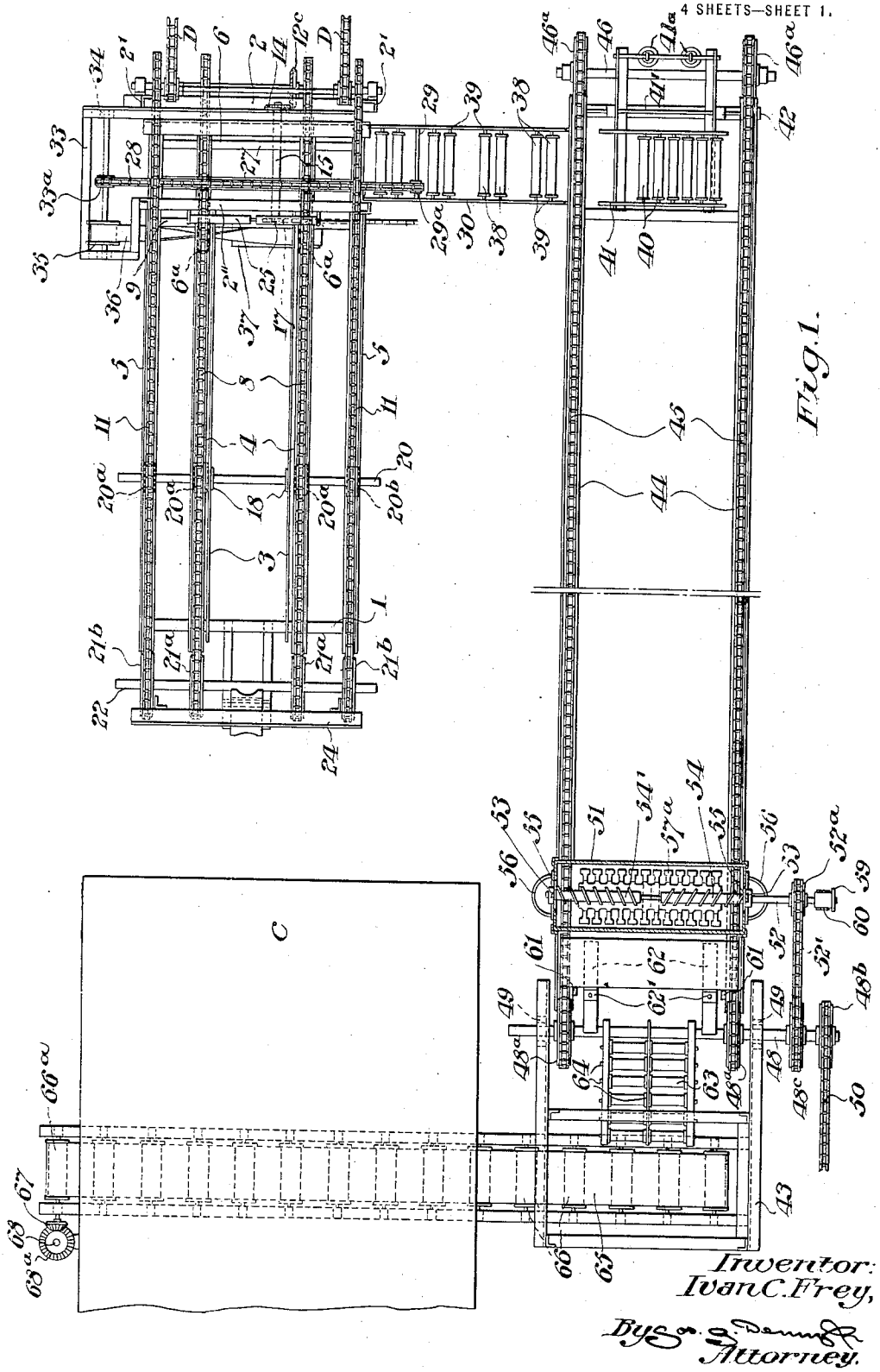


Fig. 1.

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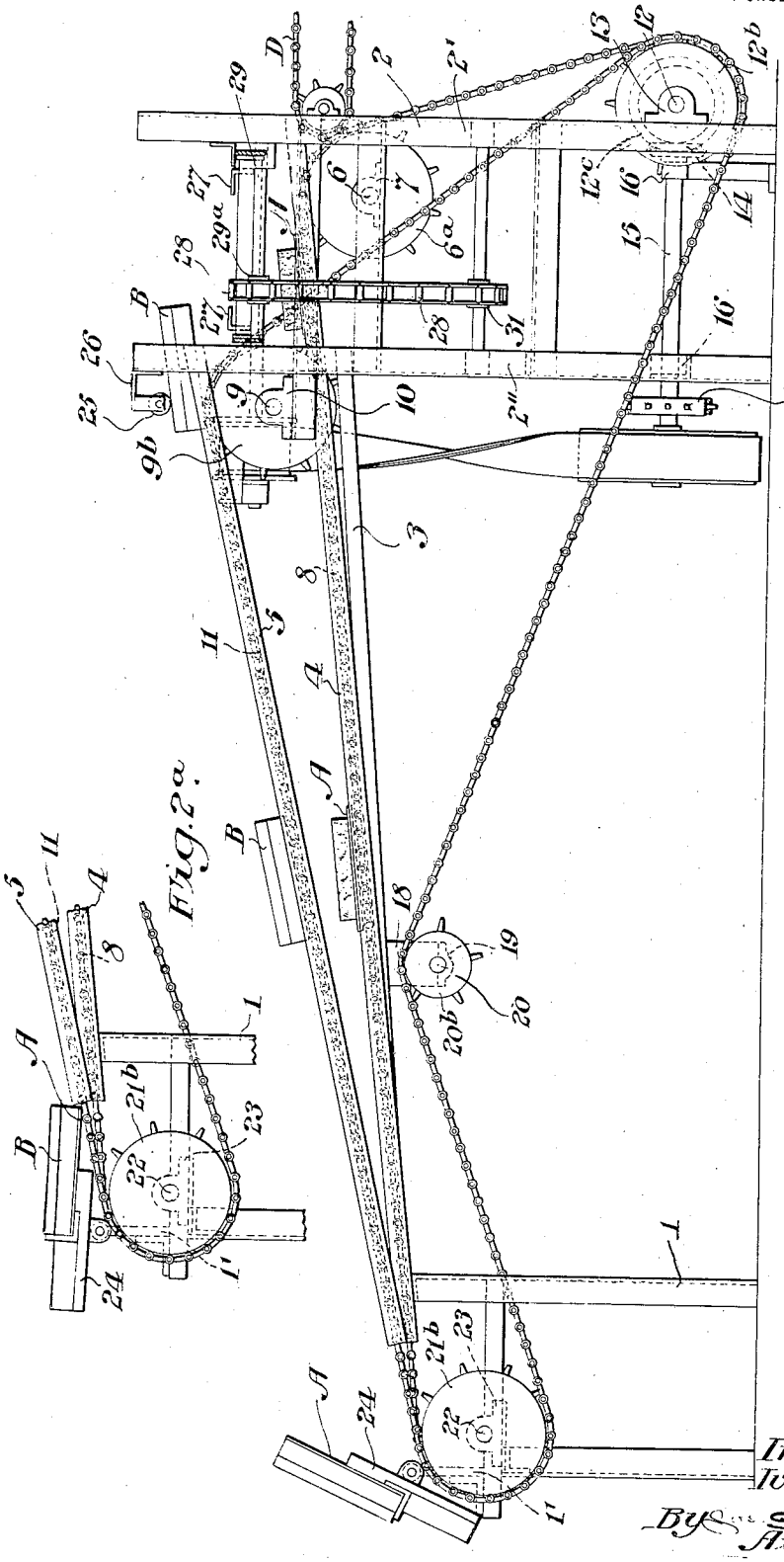


Fig. 2.

Fig. 2a.

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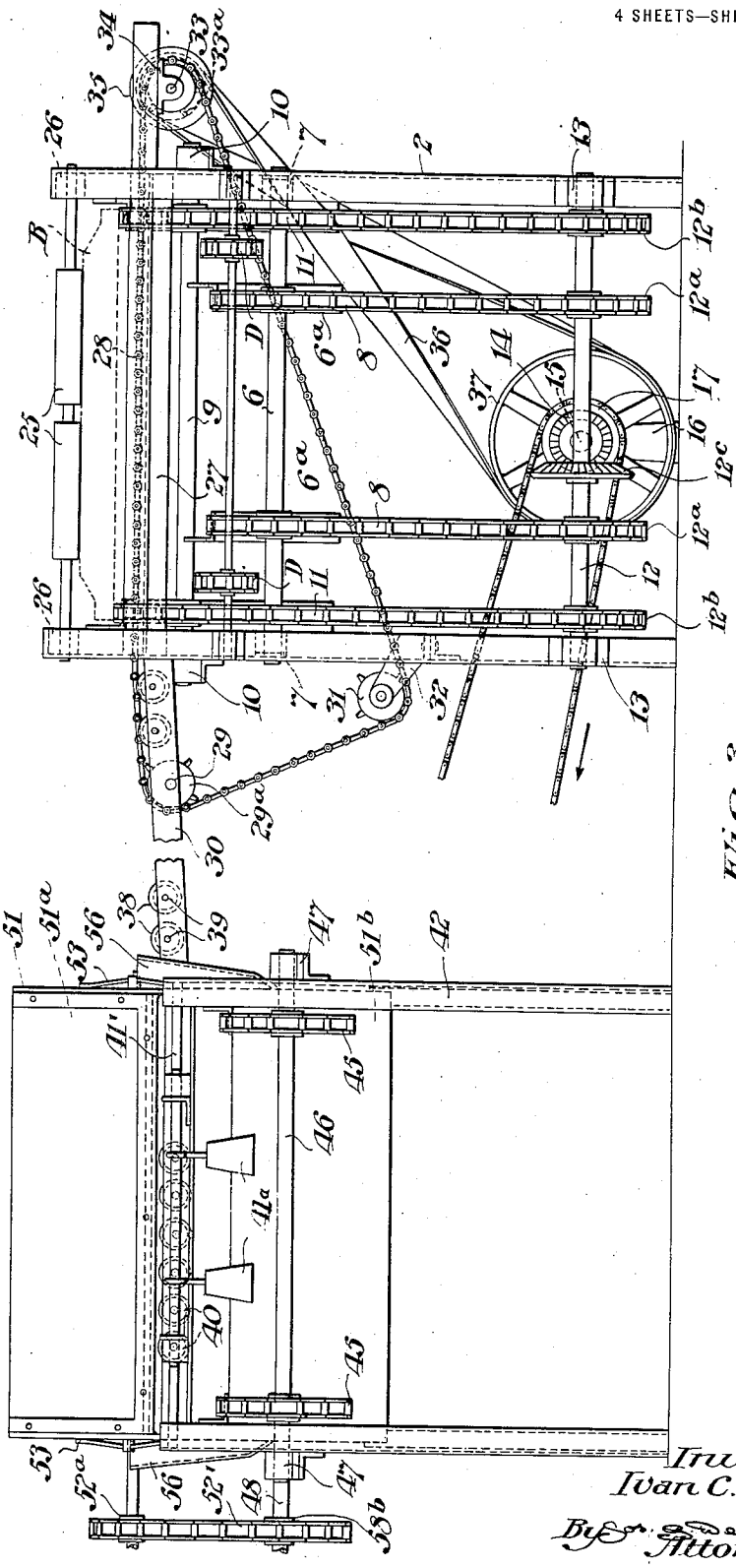


FIG. 3.

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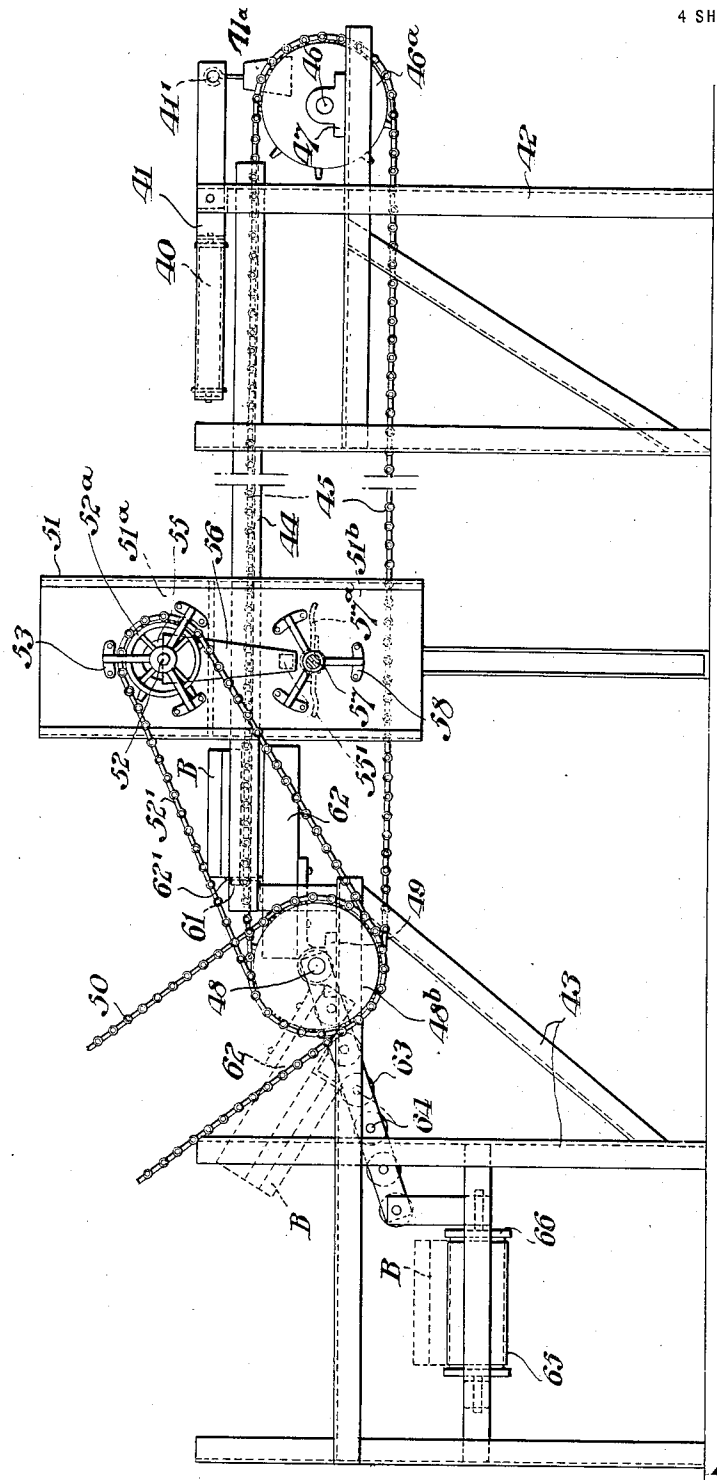


Fig. 4.

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UNITED STATES PATENT OFFICE.

IVAN C. FREY, OF YORK, PENNSYLVANIA.

BRICK-MOLD-HANDLING APPARATUS.

1,306,477. Specification of Letters Patent. Patented June 10, 1919.

Application filed June 4, 1918. Serial No. 238,140.

To all whom it may concern:

Be it known that I, IVAN C. FREY, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain Improvements in Brick-Mold-Handling Apparatus, of which the following is a specification.

My invention is an improved apparatus for handling brick molds, and in its preferred form it comprises synchronously operating divergently moving conveyers for separating a mold from its contents, means for moving the emptied mold to a sander by which it is coated with a regulated quantity of sand, turning the sanded mold to the upright or filling position, and automatically returning the mold to the filling chamber of a brick machine. It is designed primarily to eliminate much of the hand labor now necessary; to reduce the breakage commonly occurring in the removal of bricks from the molds; to avoid damage to the molds resulting from usual modes of sanding; and to provide a regular supply of evenly sanded molds.

The characteristic features and advantages of my invention will more fully appear from the following description and the accompanying drawings in illustration thereof.

In the drawings, Figure 1 is a part sectional plan view of apparatus embodying my invention; Fig. 2 is a side elevation of the mold emptying mechanism; Fig. 2^{A} is a fragmentary view illustrating the placing of a filled mold on the emptying mechanism; Fig. 3 is an end view of the apparatus; and Fig. 4 is a broken side elevation showing the mechanism for sanding the brick molds and turning them from inverted to filling position.

As illustrated in the drawings, my invention is embodied in a machine comprising a frame consisting of end housings 1 and 2 connected by side beams 3. A pair of inclined stringers or tracks 4 extends from the housing 1 to the uprights 2′ of the housing 2, and a second pair of stringers or tracks 5 extends from the housing 1 to the uprights 2″ of the housing 2; the pairs of tracks being diagonally disposed relatively to one another and preferably formed of angle irons.

A shaft 6, journaled in bearings 7 on the housing 2, has fixed thereon sprocket wheels 6^{a} which engage the sprocket chains 8 movable over the tracks 4; and a shaft 9, journaled in bearings 10 on the housing 2, has fixed thereon sprocket wheels 9^{b} which engage the sprocket chains 11 movable over the tracks 5.

A shaft 12, journaled in bearings 13 on the lower part of the housing 2, has fixed thereon sprocket wheels 12^{a} and 12^{b} which engage the respective sprocket chains 8 and 11. The shaft 12 also has fixed thereto a beveled gear 12^{c} meshing with a beveled pinion 14 on a shaft 15, the latter being journaled in bearings 16 of the housing and driven through the sprocket wheel 17 from a source of power, as, for example, the driving shaft of the brick making machine; whereby the sprocket wheels 12^{a} and 12^{b} are revolved and the chains 8 and 11 are drawn upwardly over the tracks 4 and 5.

Hangers 18, depending from the side beams 3, have bearings 19 in which is journaled a shaft 20 having fixed thereon the sprocket wheels 20^{a} and 20^{b} over which the respective sprocket chains 8 and 11 pass to the respective sprocket wheels 21^{a} and 21^{b} fixed on the shaft 22 journaled in bearings 23 on the housing 1.

A counterweighted dumping table 24 is journaled in bearing brackets 1′ on the housing 1 and is adapted to receive pallets A on which are deposited filled brick molds B transferred thereto, either manually or mechanically, from the conventional brick machine C.

The weight of a filled mold rocks the table 24 to the position indicated in Figs. 2^{A}, and permits the pallet beneath the mold to be engaged by the chains 8 and the wider mold to be engaged by the chains 11 and moved forward simultaneously with the pallet, the mold being elevated and lifted clear of the pallet and bricks by the diagonal arrangement of the rails and chains. The pallet and bricks are carried to the end of the conveyer chains 8, whence they are transferred to the offbearer D.

The molds, on reaching the upper part of the chain conveyer 11, pass under rollers 25 journaled in brackets 26 on the housing 2 above the tracks 5, whereby each mold is held in substantially horizontal position until it has cleared the apex of the sprocket wheels 9^{b}, when it drops down to the cross tracks 27 of the housing 2.

The mold is moved over the tracks 27 in the direction of its length by its engagement

with a sprocket chain 28; the chain being engaged by the sprocket wheel 29ª fixed on the shaft 29 (journaled between beams 30,) by the sprocket wheel 31 (journaled on a bracket 32 on the housing 2), and by the sprocket wheel 33ª fixed on the shaft 33 (journaled in bearings 34 on the housing 2). The shaft 33 has fixed thereon a pulley 35 connected by a twisted belt 36 with a pulley 37 on the shaft 15 to move forward the sprocket chain 28.

The chain 28 delivers the mold to inclined rollers 38 (journaled in bearings 39) down which it runs to rollers 40 journaled in a table 41, the latter being pivotally connected with the housing 42 and counterbalanced by weights 41ª.

The housing 42 and a housing 43 provide supports for a pair of stringers or tracks 44 over which pass a pair of sprocket chains 45. These chains are engaged by sprocket wheels 46ª (fixed on a shaft 46 journaled in bearings 47 on the housing 42) and by the sprocket wheels 48ª (fixed on a shaft 48 journaled in bearings 49 on the housing 43). The shaft 48 has fixed thereon a sprocket wheel 48ᵇ connected through the chain 50 with a source of power, as the driving shaft of the brick machine, whereby a brick mold deposited on the chains 45 by the tilting of the table 41 is carried to a sander 51.

The sander comprises an upper compartment 51ª and a lower compartment 51ᵇ. A shaft 52, journaled in spiders 53 on the walls of the compartment 51ª, has fixed thereon the sprocket wheel 52ª, driven by a chain 52 from a sprocket wheel 48ᵉ on the shaft 48, and the oppositely inclined screws 54 and 54′, the revolution of which feeds a regulated amount of sand through the apertures 55 in the walls of the compartment.

The sand thus fed is conveyed by funnels 56 to the compartment 51ᵇ where it is discharged on top of the blades 57ª fixed on the shaft 57, the latter being journaled in spiders 58 and revolved (by the pulley 59 connected by a belt 60 with the driving shaft of the brick machine) to throw the sand upwardly into the inverted mold as it is carried thereover by the chains 45.

Stops 61 on the tracks 44 engage the mold upon its emergence from the sander and prevent its further movement by the chains 45. Inverting arms 62, fixed on and revolved by the shaft 48, engage the bottom of the mold and brackets 62′ on the arms engage the front of the mold, which by the revolution of the arms is lifted clear of the chains and stops, turned about the axis of the shaft 48 and deposited in upright or filling position on inclined rollers 63 journaled in the bearings 64. A belt 65, supported by rollers 66, extends from the rollers 63 through the receiving chamber of the brick machine C and is moved, to carry into such chamber a mold deposited on the belt from the rollers 63, by means of a pinion 67 fixed on the inner roller 66ª and engaged by the pinion 68ª on the shaft 68, the latter being driven from a suitable source of power, as the driving shaft of the brick machine.

In operation, a pallet A is placed on the dumping table 24 and a filled mold from the brick machine placed thereon with its face against the pallet. The weight of the filled mold tilts the table so that the pallet is engaged by the conveyer chains 8 and the wider mold is engaged by the conveyer chains 11. The conveyer chains are simultaneously moved forward in divergent planes, as described, and the mold B lifted from the pallet and bricks without injury thereto. The emptied mold is discharged in horizontal position onto the tracks 27 over which it is moved by the conveyer chains 28 to the rolls 38 and 40. The weight of the mold depresses the table 41 to permit the engagement of the mold by the conveyer chains 45, by which it is carried through the sander 51 and evenly sanded with a regulated amount of sand. Immediately on leaving the sander, the mold is turned to the upright or filling position by means of the inverting arms 62, and thence carried over the rolls 63 and belt 65 to the receiving chamber of the conventional brick machine C in which it is again filled and the described operations repeated.

Having described my invention, I claim:

1. In apparatus of the character described, the combination of synchronously operating divergently moving conveyers for separating a mold from its contents, means for carrying a mold emptied by said conveyer to a sander, sanding mechanism having means for coating said mold with a regulated quantity of sand, and mechanism for turning said mold from inverted to filling position after leaving said sanding mechanism.

2. In apparatus of the character described, the combination of conveyer mechanism adapted for receiving a filled mold from a brick machine and comprising a pallet carrier and a mold carrier movable in divergent planes to separate the mold from its contents, mechanism for sanding said mold, means for carrying the mold from said mold carrier to said sanding mechanism, and an inverter to which said mold is delivered from said sanding mechanism and comprising rotary arms engaging the bottom of said mold.

3. In apparatus of the character described, the combination of a conveyer comprising a pallet carrier and a mold carrier movable in divergent planes to separate a mold from its contents, a tilting table to which said mold is delivered from said conveyer, a second conveyer to which said table

delivers said mold and means for turning said mold to upright position.

4. In apparatus of the character described, the combination of conveying means adapted for carrying an inverted mold, a sander having means for throwing sand into said inverted mold, a device for turning said mold from its inverted to its upright position, and means for carrying said upright mold to a machine.

5. In apparatus of the character described, the combination of a conveyer comprising a pallet carrier and a mold carrier movable in divergent planes, a bearing disposed above said mold carrier and adapted to engage a mold carried thereby to maintain it in a substantially horizontal plane as it leaves the conveyer, and a conveyer to which said mold is delivered from said mold carrier and bearing.

6. In apparatus of the character described, the combination of means for separating a brick mold from its contents, a conveyer to which an inverted mold is delivered from said means, a sander through which said mold is carried by said conveyer means for projecting sand into said mold, and means comprising a rotary device for turning said sanded mold to filling position.

7. In apparatus of the character described, the combination of means for separating a mold from its contents, a conveyer to which an inverted mold is delivered from said means, a sander through which said mold is carried by said conveyer, revoluble blades in said sander for throwing sand into said inverted mold, and means for feeding regulated amounts of sand to said blades.

8. In apparatus of the character described, the combination of means for separating a mold from its contents, a conveyer to which an inverted mold is delivered from said means, sanding mechanism over which said mold is carried by said conveyer, means for projecting sand into said mold and revoluble mechanism engaging said mold on leaving said sander and turning it to filling position.

9. In apparatus of the character described, the combination of means for separating a mold from its contents, a conveyer comprising a pair of belts to which an inverted mold is delivered from said means, and an inverter comprising a rotary device for engaging a mold on said belts and turning it from inverted to filling position.

In testimony whereof I have hereunto set my name this 31st day of May, 1918.

IVAN C. FREY.