May 6, 1952 A. H. STOCKMAR 2,596,052

APPARATUS AND METHOD FOR MOLDING CONCRETE BLOCKS

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FIG. 1

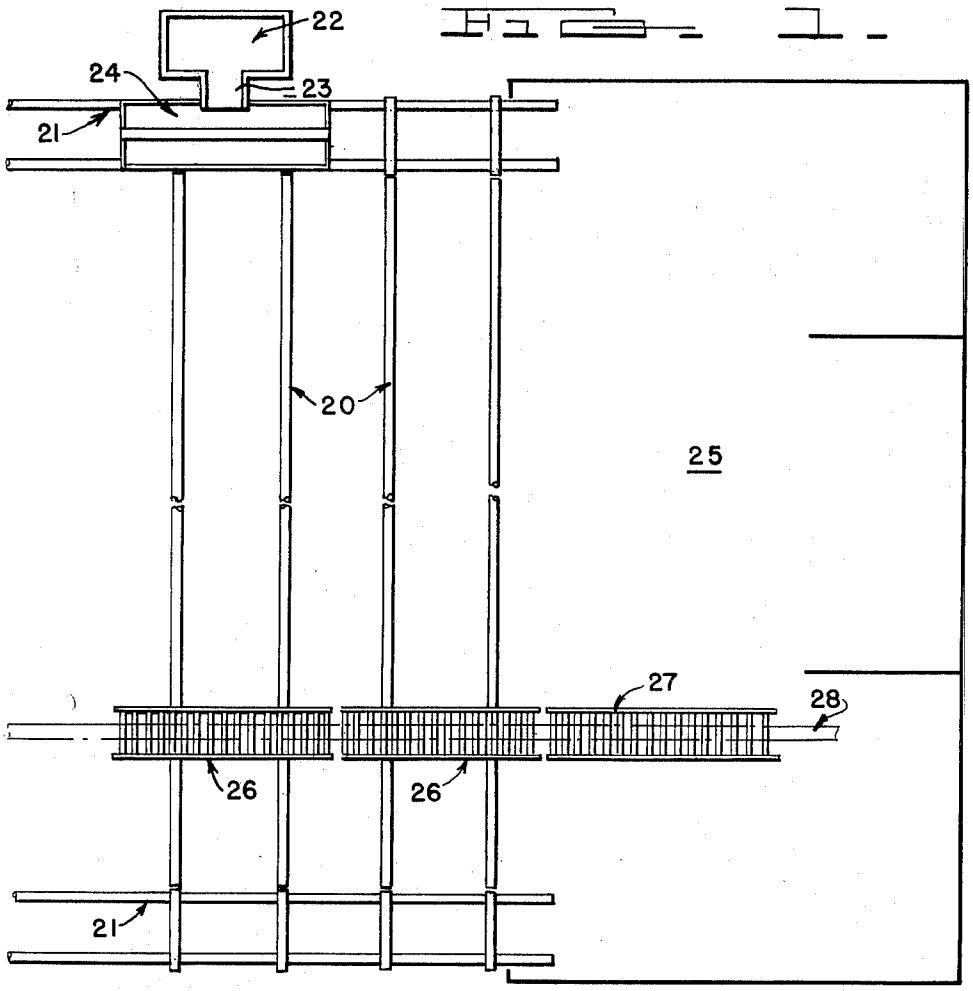
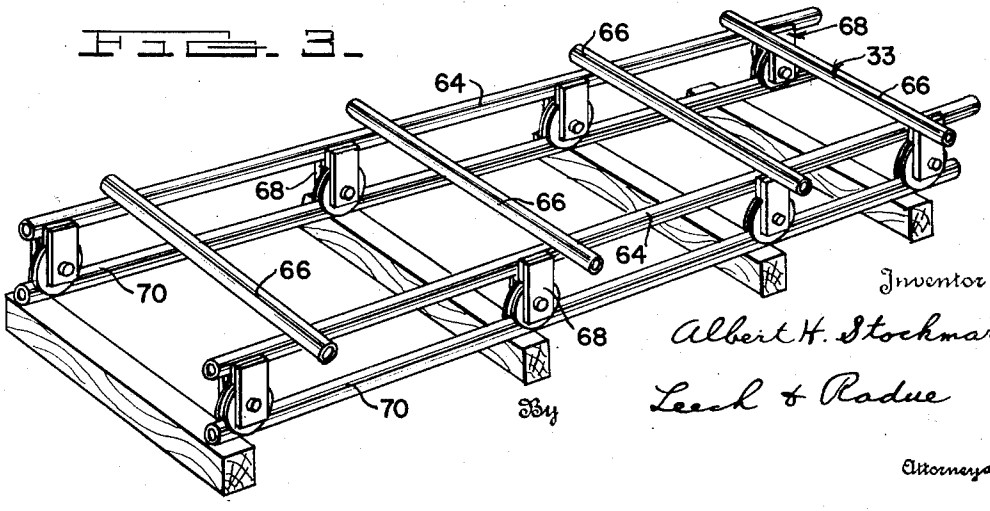


FIG. 3



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FIG. 2.

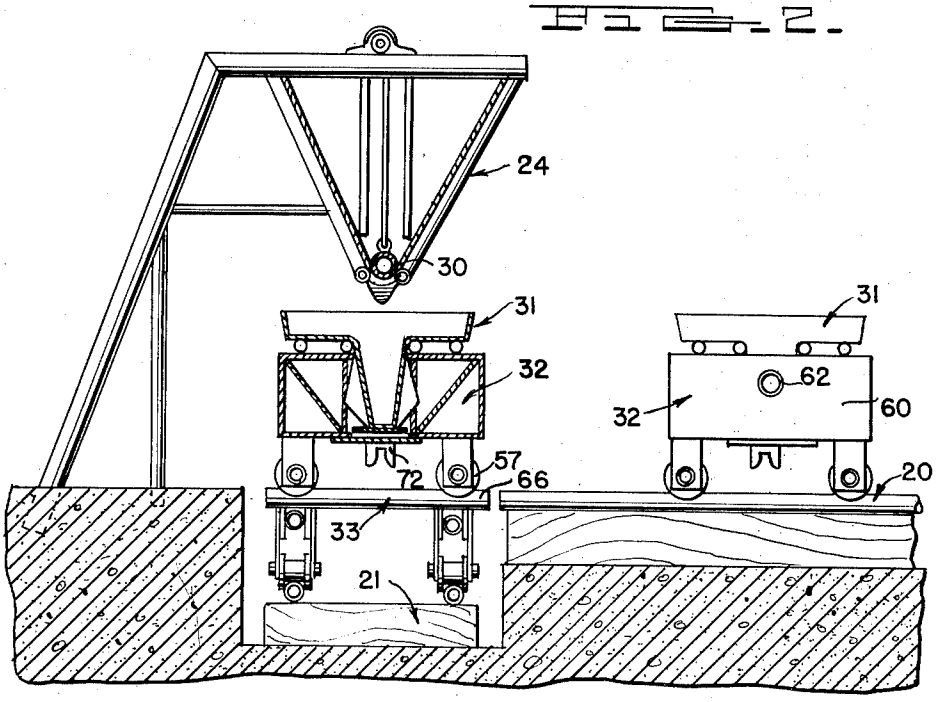


FIG. 4.

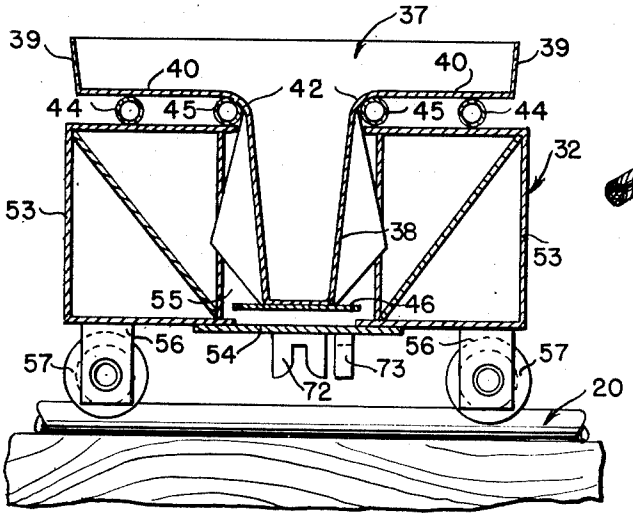
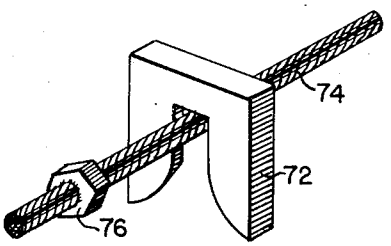


FIG. 5.



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FIG. 6.

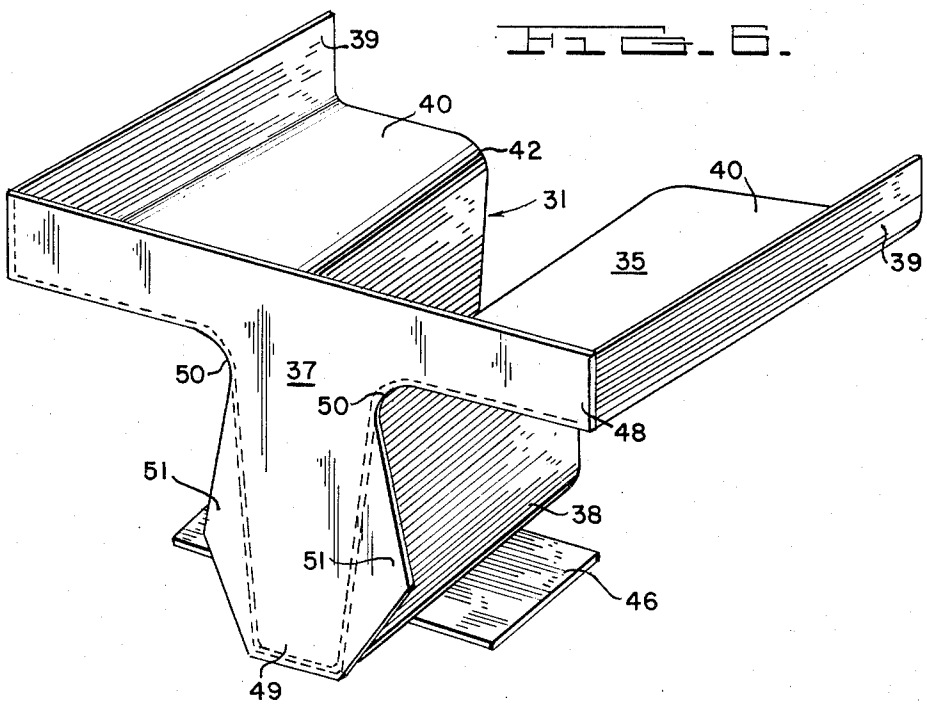
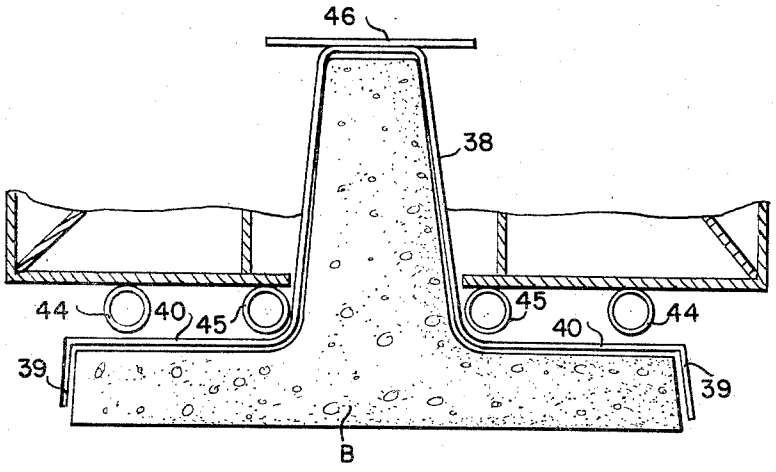


FIG. 7.



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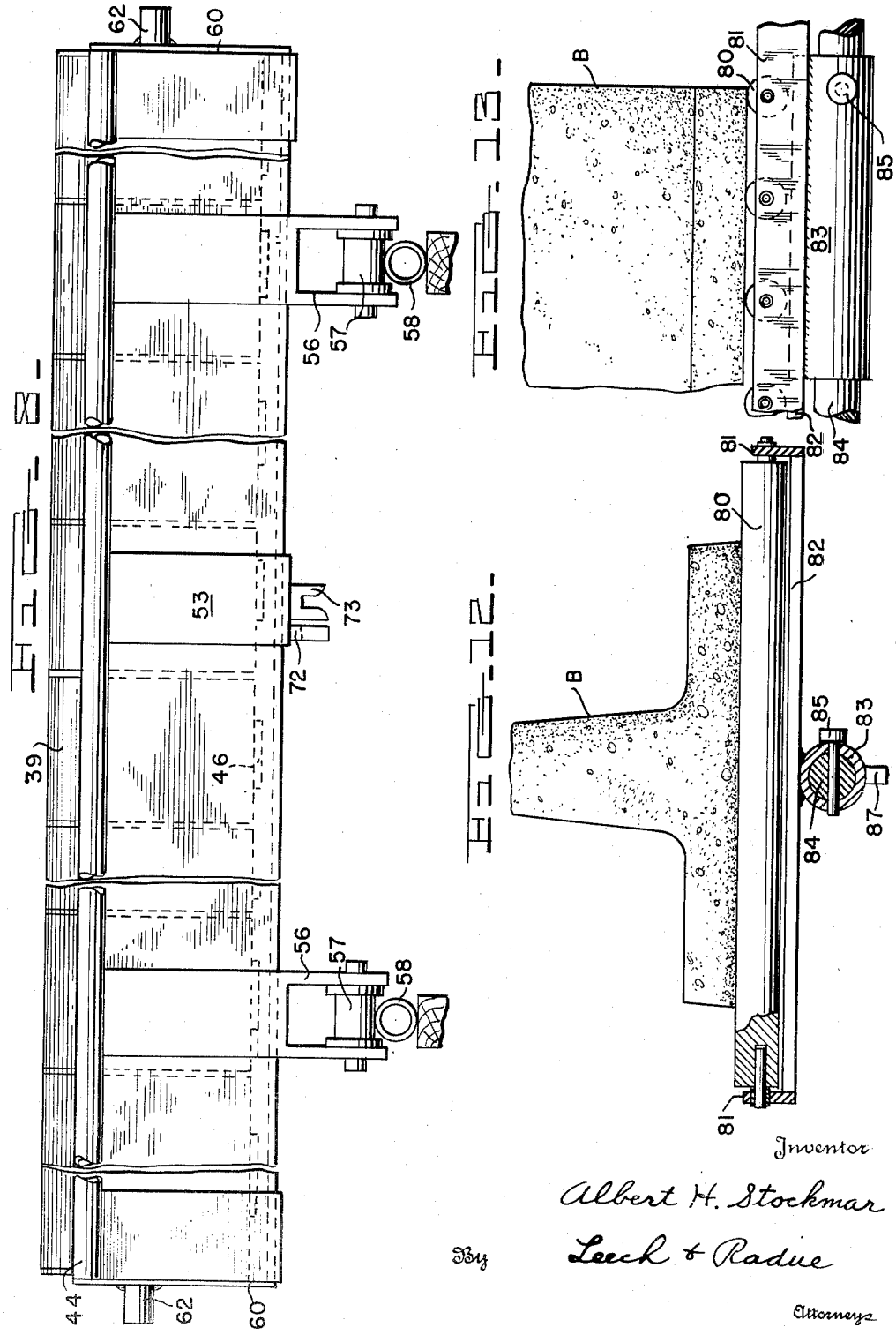
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APPARATUS AND METHOD FOR MOLDING CONCRETE BLOCKS

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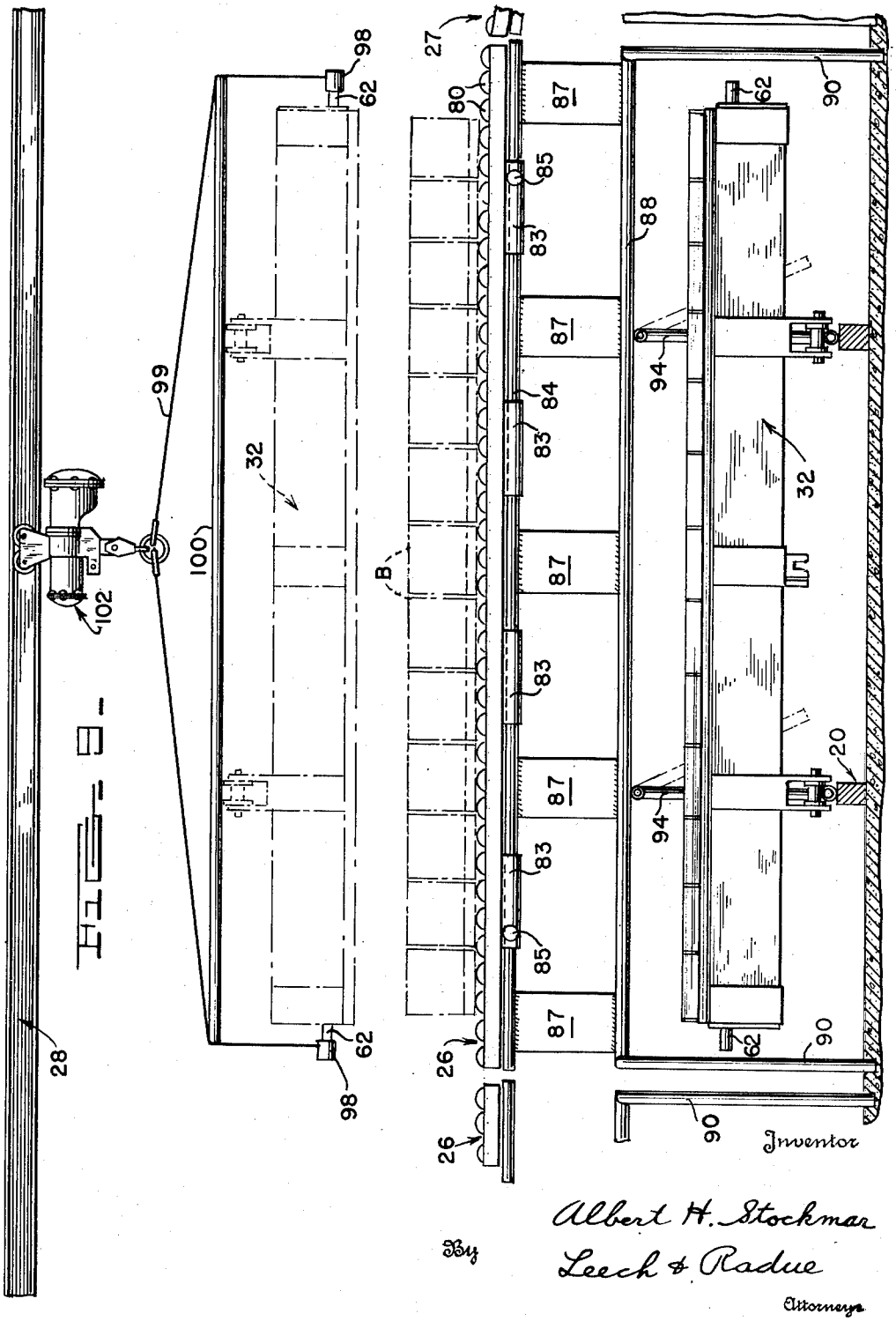


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APPARATUS AND METHOD FOR MOLDING CONCRETE BLOCKS

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APPARATUS AND METHOD FOR MOLDING CONCRETE BLOCKS

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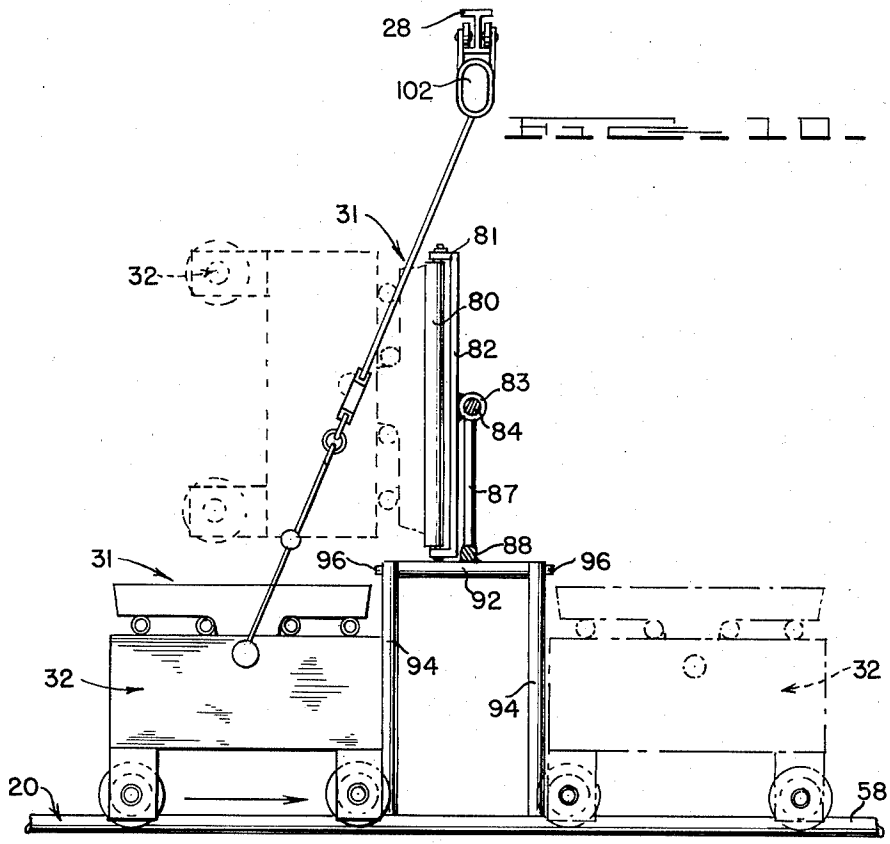


FIG. 10.

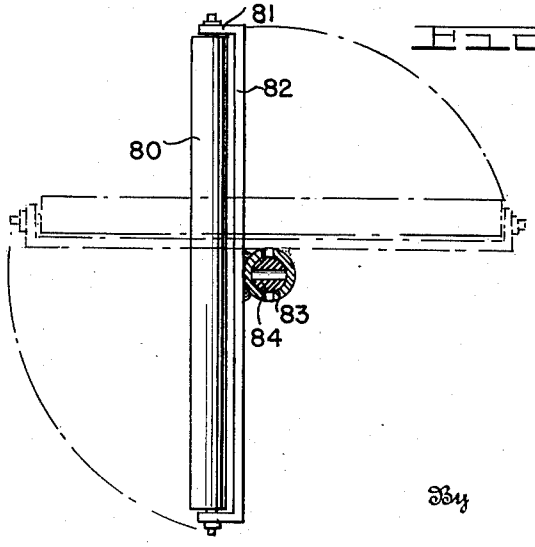


FIG. 11.

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Patented May 6, 1952

2,596,052

UNITED STATES PATENT OFFICE

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APPARATUS AND METHOD FOR MOLDING CONCRETE BLOCKS

Albert H. Stockmar, Villa Rica, Ga.

Application May 27, 1947, Serial No. 750,757

13 Claims. (Cl. 25—2)

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This invention relates to the art of concrete manufacture and particularly to the commercial production of concrete building blocks or tiles.

It is the general object of this invention to provide improved methods and apparatus for the manufacture of wet-poured concrete masonry units. The method and the product thereof are markedly different from the old and familiar ones for producing dry-tamped concrete units. The dry-tamped concrete building block is quick drying, highly porous and of relatively low strength. In producing wet-poured units, there is no tamping, the pouring into molds being comparable with a casting operation, and the somewhat slower setting is offset by much greater ultimate strength, imperviousness to moisture and greater fidelity of line.

It is a specific object of this invention to provide a method by which a plurality of units may be poured simultaneously, transported to a dumping device, and removed simultaneously from their molds at an early stage in the setting without damage and with a minimum tie-up of plant equipment. A related object resides in the provision of simple apparatus for carrying out the molding and dumping efficiently.

An additional object of this invention is to provide an improved mold construction which will, upon relative movement of its parts, positively release the set concrete unit and thus facilitate removal and minimize damage.

These and other features of novelty contributing to simplicity of operation, economy of equipment, and production of uniformly high quality concrete masonry units will be more apparent from the following detailed description of preferred embodiments of the invention taken in connection with the accompanying drawings in which:

Fig. 1 is a diagrammatic plan view of a concrete block plant for practicing this invention;

Fig. 2 is an end view, partly in vertical section, showing details of a concrete pouring hopper, a mold conveyor, conveyor track, and a conveyor shuttle carriage;

Fig. 3 is a perspective view of the shuttle carriage and its track;

Fig. 4 is an enlarged cross-sectional view of a mold conveyor;

Fig. 5 is a perspective view showing the details of cable means for moving the conveyors;

Fig. 6 is an enlarged perspective view of a single mold unit;

Fig. 7 is a transverse sectional view of a mold and a portion of the mold conveyor illustrating the operation of the mold in discharging a concrete block;

Fig. 8 is a side elevation of a conveyor and the set of molds which it carries;

Fig. 9 is an enlarged side elevation of a mold discharging or dumping station and of a conveyor in operative relations to the station;

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Fig. 10 is an end elevation illustrating steps in the discharge of the conveyor carried molds at the dumping station;

Fig. 11 is an end elevation partly in section of a roller conveyor for receiving concrete blocks at the dumping station;

Fig. 12 is an end elevation partly in section showing a discharged block unit in place on the roller conveyor; and

Fig. 13 is a partial side elevation of the roller conveyor and concrete block of Fig. 12.

The procedure of the method and the function of the apparatus comprising this invention can be generally understood from a consideration of Fig. 1 which shows half of a typical plant layout for production of wet-poured concrete block units. Parallel sets of longitudinal trackways **20, 20** are traversed at opposite ends by cross-trackways **21, 21**. At one end, a concrete mixer **22, 22** is arranged adjacent trackway **21** to discharge free flowing concrete through a chute **23** into a concrete charging hopper **24** centrally disposed above the cross-trackway. Initially set concrete blocks are transferred from the trackways **21, 21** to a covered curing and storage area **25** by means of aligned unloading and transfer conveyors **26, 26** and an inclined conveyor **27**, the last-mentioned conveyor being disposed within the area **25**. A conveyor hoist having a monorail **28** extends across the trackways **20, 20** and is supported above the aligned transfer and inclined conveyors **26, 27**.

Fig. 2 shows the manner of charging by means of the elongated hopper **24**. Elevation of a hopper valve **30** feeds the fluid concrete simultaneously to an underlying longitudinal series of molds **31** supported by a carriage conveyor **32** resting on a shuttle carriage **33**. The novel features of the filling or charging hopper are disclosed and claimed in application Serial No. 708,108, filed November 6, 1946, now Patent No. 2,577,927 in the name of Albert H. Stockmar.

Each illustrative mold **31** comprises a sheet metal mold member **35** formed to define an extended T-shape section as indicated in Figs. 2 and 6. The member **35** is preferably made of 14 gauge steel plate possessing considerable strength and resilience. It will be observed that the ends of the mold members **35** are closed by divider plates **37** common to the adjacent ends of adjoining molds. Each mold **31** is shaped to provide a tapered leg portion **38** and diverging edge strips **39, 39** connected to the tapered leg by flat wing sections **40, 40** horizontally disposed and supported by the conveyor **32** as shown in Fig. 4. A fillet **42** is formed between each wing section **40** and the tapered leg portion **38**. The aligned molds **31** are supported beneath the two sections

40, 40 by an outer pair of longitudinal supporting members 44, 44 constituting a part of the conveyor 32 and by an inner longitudinal pair of supporting members 45, 45, the latter having a portion for complementally engaging the fillets 42, 42 which are preferably of circular curvature. Each mold 31 has an extending stop member in the form of a transverse strip 46 secured, as by welding, to the end of its leg portion 38, and arranged to abut the upper part of the conveyor 32 to prevent removal of the mold members 35.

The divider plates 37, 37 are shaped to cover completely the ends of the mold members 35 and with a head portion 48 having a top edge flush with the edges of the strips 39, 39, and a leg portion 49 sheared in line with the bottom of the mold leg 38. The divider plates 37 are formed with curved recesses 50, 50 having the same circular curvature as the outside of the fillets 42, 42 for complemental engagement with the inner supporting members 45, 45. Removal of the divider plates 37 from the molds 31 is practically prevented by flared portions 51, 51, which also provide extended abutments for the corresponding end portions of the mold members 35. In assembling a set of molds, the divider plates are inserted by turning them so that the flared portions 51, 51 will enter the space defined by the supporting members 45, 45.

The resilient, sheet metal mold members 35 are shaped in a way which permits them to perform an important function in the discharge of molded concrete units. Each of the members 35 is preshaped to an unstressed condition shown in Fig. 7, where the diverging edge strips 39, 39 are spaced from the adjacent sides of a concrete block B. The action of the leg portion 38 may be compared to a pair of spring tweezers. When the leg portion 38 is inserted between the longitudinal supporting members 45, 45 until the latter engage the fillets 42, 42, the edges 39, 39 will be in closed engagement with the block B, but a slight withdrawal of the leg portion 38 permits the mold member 35 to expand as indicated, thereby releasing the block and permitting its discharge from the mold. The diverging arrangement of the edge strips 39, 39 in addition to giving the block B a desired edge batter also facilitate its removal from the mold. It will be apparent from a consideration of Fig. 7 that only a small amount of relative movement between the supporting members 45, 45 and the tapered leg portion 38 is necessary to provide the desired releasing action.

The principle of releasing molded concrete units which has been described is not limited in application to the particular form of T-shaped mold which has been shown, as there are numerous other possible forms employing an expandible section and means for obtaining a progressive release. Molds 31 are intended for production of an improved T-shape, concrete block unit fully disclosed in application Serial No. 688,487, filed August 5, 1946, now abandoned in the name of Albert H. Stockmar.

The construction of the conveyors 32 for retaining and supporting the molds 31, 31 is shown in Figs. 2, 4 and 8. The pairs of longitudinal members 44, 44 and 45, 45, preferably lengths of pipe of suitable diameter, are integrally joined to and maintained in relative position by a plurality of spaced box frames 53, 53, which may conveniently be fabricated from plate metal welded together and reinforced in the manner shown in Fig. 4. It will be observed that the two halves of each frame 53 are joined at the bottom by a connecting plate 54 and thus provide a trough 55 for receiving the tapered portions 38 of the several molds. The box frames 53 will be so spaced relatively to the molds as not to interfere with the divider plates 37. Beneath the box frames 53 immediately adjacent the respective endmost box frames, a clevis-shaped, non-turnable mounting 56 is secured adjacent the front and rear of the conveyor for receiving flanged rollers 57. The rollers 57 are spaced to engage a pair of tubular tracks 58, 58 of the trackways 20 so that each conveyor 32 may be pushed or otherwise advanced from the end adjacent the charging hopper 24 to the end nearer the unloading and transfer conveyors 26 and 27.

The endmost box frames 53, 53 are provided with end plates 60, 60, respectively (Fig. 8), to which are welded lifting and turning sockets 62, 62 for purposes which will be more fully explained. The sockets 62, 62 are in axial alignment, the axis thereof passing approximately through the corresponding center of gravity of the conveyor 32.

The shuttle conveyor 33 shown in Fig. 3 is constructed somewhat similarly to the mold conveyors. A pair of parallel longitudinal frame members 64, 64 are maintained in spaced relation by a series of transverse members 66, 66 which may be welded or otherwise rigidly secured in place. On the underside of the frame members 64 a number of non-turnable roller assemblies 68 are secured, preferably by welding, for movement of the shuttle conveyor 33 back and forth on rounded track sections 70, 70. The roller assemblies 68 are generally similar to the ones provided for the mold conveyors 32 and need not be described in further detail. It will be noted that the outer pair of transverse frame members 66, 66 are shaped and spaced to form a continuation of the trackways 20, as indicated in Fig. 2, so that the rollers 57 will engage as a conveyor 32 is moved onto the shuttle conveyor 33 for positioning beneath the charging hopper 24. In the same manner, the conveyors 32 will be returned to one of the trackways 20 after the molds have been filled with concrete.

Although the mold conveyors 32 are relatively light in weight and easy to move on the tracks because of the rollers 57, mechanical means may be provided for advancing them longitudinally of the trackways 20 and transversely thereof when supported on the shuttle conveyor 33. Referring to Fig. 5, there is shown a cable hitch 72 of notched shape which will be welded to the underside of the bottom connecting plate 54 of the central box frame 53. The hitch 72 will be arranged with the plane of its notch transverse to the length of the conveyor 32 as shown in Fig. 2. A similar cable hitch 73 of notched shape will also be secured to the same connecting plate 54 as by welding, but the hitch 73 which is shown in Fig. 8 will have the plane of its notch parallel to the length of the conveyor 32 and to one side of the hitch 72. These hitches 72 and 73 permit the conveyors 32 to be pulled transversely and longitudinally, respectively, by means such as a continuous cable 74 provided at spaced intervals with hitch engaging projections 76.

A spaced pair of cables may be used for the longitudinal pull along the trackway 20 to prevent one end of the conveyor 32 advancing ahead of the other. One cable will suffice for the transverse pull on the shuttle conveyor 33. Suitable control means will, of course, be necessary for

starting and stopping cable movement and drive of the conveyors. The conveyors may be disconnected from the cable drives by depressing the cable out of the notch of the hitch, or by raising the conveyor to clear the cables.

Figs. 9, 10, 11, 12 and 13 show the details of the block unloading and transferring conveyors 26, 26 extending over the respective trackways 20, 20. Each conveyor 26 comprises a plurality of steel rollers 80 rotatably mounted in side plates 81, 81, which plates are in turn maintained in rigid spaced relation by a plurality of transverse spacer plates 82 integrally secured to and between bottom edges as by welding. The axes of the rollers 80 will be so disposed as to permit the rollers to extend above the upper edges of the side plates 81 and uniformly spaced lengthwise of the conveyor a distance which will insure adequate support for the shorter dimension of a block B at all times so that its leading edge will pass without interference over the tops of the rollers as shown best in Fig. 13.

A hinge sleeve 83 is rigidly secured, as by welding, centrally to the bottom of each spacer plate 82 to extend lengthwise of the conveyor, the aligned set of sleeves receiving a pivot rod 84 of such a length as to more than span a mold conveyor 31 on a trackway 20. A headed lock pin 85 extends horizontally through each endmost hinge sleeve 83 and the encircled portion of the pivot rod 84 to maintain the conveyor rollers 80 in the horizontal position shown in Figs. 9, 12 and 13. A plurality of vertical webs 87, 87 are welded to the pivot rod 84 intermediate the hinge sleeves 83 and to an underlying and substantially coextensive longitudinal member 88 supported at its opposite ends by triangular end supports 90, 90 which may be suitably embedded in concrete in a manner not shown. It will be seen from Fig. 9 that the framework defined by the longitudinal member 88 and its end supports 90, 90 provides sufficient headroom and end spacing to permit passage of the mold conveyors 31 on the trackway 20.

Overlying each track 58 of the trackway 20 the longitudinal frame member 88 has a transverse pivot member 92 integrally secured by its midportion to the underside of said member 88 to extend parallel to the direction of movement of the mold conveyors on the trackway 20. A retractible stanchion 94 is pivotally mounted at its upper end to one end of the pivot member 92 and is of such a length as to extend to a point closely adjacent the corresponding track 58 when in the vertical position. The pivotal axis of the opposed stanchions 94, 94 is extended at each end to provide a stub extension or tilting pivot point 96 for purposes to be explained.

When the stanchions 94, 94 are retracted to a horizontal position, the mold conveyors 32 may pass under the roller conveyor 26, but when the stanchions are extended to their vertical positions, they will provide spaced stops for the adjacent lateral face of an approaching mold conveyor. Considering the mold conveyor 32 on the left side of Fig. 10 which was advancing in the direction indicated by the arrow until stopped by stanchions 94, it will be seen that its lifting and turning sockets 62, 62 have been engaged by the conveyor hoist 28 in a manner shown more clearly by Fig. 9. The hoist 28 includes a pair of pivotal lifting pins 98, 98 connected at the ends of a bridle rig 99 and maintained apart by a rigid spacer bar 100. When the pins 98, 98 are inserted in the sockets 62, 62, the mold conveyor 32 can be lifted vertically by a motor operated hoist 102 carried for rolling movement on the monorail track 28 extending parallel to and centrally above the loading conveyors 26, 26, and supported at its opposite ends by anchored framework (not shown) arranged to clear the trackways.

Initial operation of the motor hoist 102 will draw the engaged conveyor 32 along the trackway 20 to abutting relation with the stanchions 94, providing the conveyor is not already in that position, and continued operation will raise the conveyor above the track a short distance so that the top edges of the box frames 53 supporting the mold engaging members 44 and 45 will pivot about the tilting points 96, 96 by reason of the angular application of the lifting force. Continuance of this off-center pull by the hoist 28 will bring the aligned adjacent edges of the molds 31 into engagement with the lower ends of the vertically disposed conveyor rollers 80, and, as the movement progresses, the entire width of upper surface of the blocks B in the molds will come into engagement with the rollers 80, as indicated by the dotted line position of the mold 31 in Fig. 10. As the center of gravity of the mold conveyor 32 represented by the pivot sockets 62 is still to one side of the vertical center line of the hoist 28, further lifting operation of the hoist will rotate the mold conveyor 32 and the engaged transfer conveyor rollers 80 through an angle of 90° to a horizontal position in which the rollers 80 may be secured by inserting the locking pins 85 through the openings in the end hinge sleeves 83 and the pivot rod 84.

Further lifting force as applied by the hoist 28 will tend to lift the framework of the conveyor 32 vertically upward relative to the molds 31 and the concrete blocks B contained therein until the sides of the sheet metal mold members 35 are released by the inner longitudinal supporting members 45, 45 and spring away from the blocks B as shown most clearly in Fig. 7. This action will completely free the initially set blocks B from their individual molds leaving them resting on the horizontal conveyor rollers 80 without mold pounding, dropping, or appreciable jarring. As previously noted, the stop members 46 on the bottoms of the mold members 35 and the extended wing portions 51, 51 on the divider plates 37 will prevent the molds 31 from separating completely from the framework of the conveyor 32.

The mold conveyor 32 is then righted by an operator and lowered to the same trackway 20 on either side of the unloading and transfer conveyor 26, or it may be carried to the adjacent trackway by suitable operation of the means controlling movement of the motor hoist 102 along the monorail track 28. The concrete blocks B which have been deposited in inverted position on the transfer conveyor 26 may be moved by hand along that conveyor and onto the closely adjacent inclined conveyor 27, which is provided with a similar set of closely spaced steel rollers 80 and extends to the curing and storage area 26.

The operations involved in producing wet-poured concrete building blocks by use of the apparatus and method of this invention will now be summarized.

After a relatively fluid concrete mix has been placed in the hopper 24 a set of oiled or otherwise treated molds 31 will be filled by a single

operation of the hopper control valve 30, the hopper preferably containing the correct amount of mix for this purpose. The centering of the molds of conveyor 32 under the hopper 24 on the shuttle conveyor 33 results in a complete, self-leveling filling of the molds, with little or no overflow. Upon completion of filling, the conveyor 32 is transferred by the shuttle conveyor 33 to the trackway 20 to the right of Fig. 1 and moved on that trackway toward the transfer conveyor 26.

Passage of the filled conveyor 32 along the trackway 20 is fairly slow and intermittent, with sufficient inherent joggling to densify the concrete. Opportunity is also afforded for the application of a surface finish to the exposed faces of the blocks B, B. Initial set and sufficient drying will have taken place by the time the mold conveyor 32 reaches the dumping and transfer conveyor 26 to permit careful removal of the blocks B, B, from their molds 31, 31. The conveyor 26 will then be disposed with its rollers 80 in the vertical position shown in Fig. 10 and the hoist pins 98, 98 inserted in the lifting and turning sockets 62, 62. Appropriate operation of the hoist motor 102 will slide the conveyor 32 upwardly along the spaced pair of vertical stanchions 94, 94 into pivotal engagement with points 96, 96, and progressively therearound until the lower edges of the molds 31, 31 contact the lower ends of vertical rollers 80. Continued operation of the hoist will rotate the molds 31 and conveyor 26 together about the pivot rod 84 until a horizontal position of the rollers 80 is reached, at which time the locking pins 85 may be inserted to hold the conveyor immovable.

The weight of the blocks B, B and the molds 31, 31 is now supported by the conveyor 26 so that a straight upward lifting of the mold conveyor 32 will produce relative movement resulting in a springing open of the tapered leg portions 38, 38 and separation of the molds 31, 31 from the blocks B, B as shown in Fig. 7. When the stop members 46 are engaged by the conveyor frame in its upward movement the molds 31, 31 will be lifted clear of the block B, B.

After righting, the thus emptied conveyor 32 may be returned to the same trackway or transferred along the monorail track 28 to the adjacent trackway. Alternatively, another shuttle trackway 21 may be used in the manner described in connection with mold filling, the empty conveyor 32 being returned on the trackway 20 that is aligned with the hopper 24.

The inverted blocks B, B on the transfer conveyor 26 will be moved therealong onto the inclined roller conveyor 27, which forms a continuation thereof leading to the final setting and storage area 25. Delivery to trucks or other vehicles may be made directly from the area 25.

While preferred embodiments of apparatus and method have been disclosed in detail for purposes of illustration, it is to be understood that numerous variations may be made therein without departing from the principles of this invention and the scope of the appended claims.

Having thus described my invention, what I claim as novel and desire to secure by Letters Patent of the United States is:

1. The method of producing wet-poured concrete masonry units including the steps of providing a resilient sheet metal mold having an expanded shape when unstressed, applying a force contracting the mold from said expanded shape to the size and shape of the desired masonry unit and positioning the contracted mold in upright position with its opening facing upwardly and lying in a horizontal plane, filling the contracted mold with a wet concrete mix, maintaining the mold in upright position in the contracted condition in which poured until the concrete has taken an initial set, tilting the mold so that an edge thereof initially engages a supporting surface extending in a vertical plane, continuing the tilting progressively until the exposed face of the concrete unit is brought into engagement with the supporting surface, turning the supporting surface into a horizontal position with the molds uppermost while the face of the concrete unit is in full engagement therewith, removing the contracting force and thereby releasing the mold to permit expansion thereof away from the sides of the concrete unit, and completely separating the mold and concrete unit by relative vertical movement.

2. The method of producing wet-poured concrete masonry units including the steps of providing a plurality of resilient sheet metal molds having an expanded shape when unstressed, applying a force contracting the molds to the size and shape of the desired masonry units and positioning the contracted molds in upright position with their respective openings facing upwardly in a common plane, filling the contracted molds with a wet concrete mix, maintaining the molds in the contracted condition in which poured in upright position until the concrete has taken an initial set, tilting the molds so that an edge of each initially engages a supporting surface extending in a vertical plane, continuing the tilting progressively until the exposed faces of the concrete units are brought into engagement with the supporting surface, turning the supporting surface into a horizontal position with the molds uppermost while the faces of the concrete units are in full engagement therewith, removing the contracting force and thereby releasing the molds to permit expansion thereof away from the sides of the concrete units, and completely separating the molds and concrete units by relative vertical movement.

3. The method of producing wet-poured concrete masonry units including the steps of providing a plurality of resilient sheet metal molds each formed with a tapered U-shaped portion increasing in width from the mold bottom and having an expanded shape when unstressed, applying force contracting the molds to the size and shape of the desired masonry units by progressive engagement with opposite sides of the U-shaped portions, filling the contracted molds with a wet concrete mix while the molds are in upright position with their respective openings facing upwardly in a common horizontal plane, maintaining the molds in the contracted condition and in the position in which they were filled until the concrete has taken an initial set, tilting the molds so that an edge of each initially engages a supporting surface extending in a vertical plane, continuing the tilting progressively until the exposed faces of the concrete units are brought into engagement with the supporting surface, turning the supporting surface into a horizontal position with the molds uppermost while the faces of the concrete units are in full engagement therewith, simultaneously releasing the contracting force from the U-shaped portions of the molds to permit expansion away from the sides of the concrete units, and completely separating the molds

and concrete units by relative vertical movement.

4. A mold conveyor comprising an elongated frame providing a rectangular opening extending on its upper side; a set of open-ended resilient sheet metal mold members arranged side by side in longitudinal alignment, each of said mold members having laterally extending sections separated by a leg portion extending into the frame opening and having the opposite outer sides of its upper part engaged by the parts of the frame defining said opening; means secured to the bottom of each mold member for preventing its separation from the frame; and a divider plate of an area and shape to cover an open end of a mold supported slidably on the frame and positioned between adjacent ends of each pair of molds and over the respective free ends of the endmost molds of the set, said frame being provided with abutment means at the opposite ends of the set of mold members to maintain said mold members and said plates in contiguous relation.

5. A wheeled mold conveyor comprising an elongated frame providing a rectangular opening extending on its upper side; a set of open-ended resilient sheet metal mold members arranged side by side in longitudinal alignment, each of said mold members having laterally extending sections separated by a downwardly tapering leg portion extending into the frame opening and having the opposite outer sides of its wider part engaged by the parts of the frame defining said opening; a strip secured to the bottom of each mold member and constructed and arranged to prevent its separation from the frame; and a divider plate of an area and shape to cover an open end of a mold positioned between adjacent ends of each pair of molds and over the respective free ends of the endmost molds of the set, said divider plates being provided with extensions for preventing withdrawal through the frame opening unless turned in a direction parallel thereto, and said frame being provided with abutment means at the opposite ends of the set of mold members to maintain said mold members and said plates in contiguous relation.

6. A wheeled mold conveyor comprising an elongated frame providing a rectangular opening extending on its upper side; a set of open-ended resilient sheet metal mold members arranged side by side in longitudinal alignment, each of said mold members having laterally extending sections separated by a downwardly tapering leg portion extending into the frame opening and having the opposite outer sides of its wider part engaged by the parts of the frame defining said opening, and said sheet metal mold members being preformed to open slightly as the tapering leg portions are withdrawn from the frame opening; means secured to the bottom of each mold member for preventing its separation from the frame; and a divider plate of an area and shape to cover an open end of a mold positioned between adjacent ends of each pair of molds and over the respective free ends of the endmost molds of the set, said divider plates being provided with extensions for preventing withdrawal through the frame opening unless turned in a direction parallel thereto, said frame being provided with abutment means at the opposite ends of the set of mold members to maintain said mold members and said plates in contiguous relation; and a pair of pivot connections secured to the respective ends of the elongated frame in positions defining a lifting and turning axis passing symmetrically through the center of gravity of the conveyor with the set of molds in assembled relation.

7. A wheeled mold conveyor comprising an elongated frame providing a rectangular opening extending on its upper side; a set of open-ended resilient sheet metal mold members arranged side by side in longitudinal alignment, each of said mold members having laterally extending sections separated by a downwardly tapering leg portion extending into the frame opening and having the opposite outer sides of its wider part engaged by the parts of the frame defining said opening, and said sheet metal mold members being preformed to open slightly as the tapering leg portions are withdrawn from the frame opening; means secured to the bottom of each mold member for preventing its separation from the frame; a divider plate of an area and shape to cover an open end of a mold positioned between adjacent ends of each pair of molds and over the respective free ends of the endmost molds of the set, said divider plates being provided with extensions for preventing withdrawal through the frame opening unless turned in a direction parallel thereto, said frame being provided with abutment means at the opposite ends of the set of mold members to maintain said mold members and said plates in contiguous relation.

8. A self-releasing mold construction for wet-poured concrete blocks, comprising an inner pair of parallel supporting members; a resilient sheet metal member forming an upright trough with open ends and having an intermediate U-shaped portion, a flat wing portion extending outwardly from each end of the U-shaped portion and an edge strip portion extending upwardly from the outer end of each wing portion, the U-shaped portion of said sheet metal member being shaped for full insertion into the opening defined by the inner pair of supporting members only when its upper ends are contracted slightly; means arranged outwardly of the inner supporting members to support the undersides of said wing portions when the said upper ends are contracted between the inner supporting members; and means for closing the open ends of the trough when the sheet metal member is contracted by the inner supporting members.

9. A self-releasing mold construction for wet-poured concrete blocks, comprising an inner pair of parallel supporting members; a resilient sheet metal member forming an upright trough with open ends and having an intermediate U-shaped portion, a flat wing portion extending outwardly from each end of the U-shaped portion and an edge strip portion extending upwardly from the outer end of each wing portion, the U-shaped portion of said sheet metal member being shaped for full insertion into the opening defined by the inner pair of supporting members only when its upper ends are contracted slightly; means arranged outwardly of the inner supporting members to support the undersides of said wing portions when the said upper ends are contracted between the inner supporting members; means on the bottom of the U-shaped portion formed and arranged to prevent separation of the sheet metal member from the inner supporting members; and means for closing the open ends of the trough when the sheet metal member is contracted by the inner supporting members.

10. Apparatus for making wet-poured concrete blocks comprising in combination, an elongated conveyor carriage, a set of molds extending lengthwise of the conveyor carriage and arranged

to be filled from the top thereof, a conveyor having a straight flight of approximately the length of the conveyor carriage, a frame for supporting said conveyor flight horizontally in a position above the conveyor carriage, pivotal connections between the conveyor and said frame constructed and arranged for rotation of the conveyor flight about a central longitudinal axis between vertical and horizontal positions, means associated with said pivotal connections for locking said conveyor with its flight in a horizontal plane, and means secured to said frame constructed and arranged to provide pivot points engageable by upper side edge portions of the conveyor carriage when elevated from therebeneath, the common adjacent edge of the set of molds being spaced inwardly of the conveyor carriage to clear the pivot points and to engage the lower portion of the conveyor flight positioned in a vertical plane when the carriage is moved upwardly into contact with the pivot points and pivotally therearound.

11. Apparatus for making wet-poured concrete blocks comprising in combination, an elongated conveyor carriage, a set of molds extending lengthwise of the conveyor carriage and arranged to be filled from the top thereof, a roller conveyor having a straight flight of approximately the length of the conveyor carriage, a frame for supporting said roller conveyor flight horizontally in a position above the conveyor carriage, pivotal connections between the roller conveyor and said frame constructed and arranged for rotation of the roller conveyor about a central longitudinal axis disposed on its underside, means associated with said pivotal connections for locking said roller conveyor with its flight in a horizontal plane, means secured to said frame constructed and arranged to provide spaced pivot points engageable by upper side edge portions of the conveyor carriage when elevated from therebeneath, the common adjacent edge of the set of molds being spaced inwardly of the conveyor carriage to clear the pivot points and to engage the lower portion of the conveyor flight positioned in a vertical plane when the carriage is moved upwardly into contact with the pivot points and pivotally therearound, and stanchion means depending from said frame for stopping the conveyor carriage with its upper side edge portions in vertical alignment with said pivot points and guiding the vertical movement of said carriage into engagement with said pivot points.

12. Apparatus for making wet-poured concrete blocks comprising in combination, an elongated conveyor carriage, a set of molds extending lengthwise of the conveyor carriage and arranged to be filled from the top thereof, a pair of pivot connections secured to the respective ends of the conveyor carriage in alignment with a central longitudinal axis, a roller conveyor having a straight flight of approximately the length of the conveyor carriage, a frame for supporting said roller conveyor flight horizontally in a position above the conveyor carriage, pivotal connections between the roller conveyor and said frame constructed and arranged for rotation of the roller conveyor about a central longitudinal axis disposed on its underside, means associated with said pivotal connections for locking said roller conveyor with its flight in a horizontal plane, means secured to said frame constructed and arranged to provide spaced pivot points engageable by upper side edge portions of the conveyor carriage when elevated from therebeneath, the common adjacent edge of the set of molds being spaced inwardly of the conveyor carriage to clear the pivot points and to engage the lower portion of the conveyor flight positioned in a vertical plane when the carriage is moved upwardly into contact with the pivot points and pivotally therearound, stanchion means depending from said frame for stopping the conveyor carriage with its upper side edge portions in vertical alignment with said pivot points and guiding the vertical movement of said carriage into engagement with said pivot points, and hoist means arranged over the conveyor for raising the conveyor carriage evenly by its pivot connections.

13. Apparatus for making wet-poured concrete blocks comprising in combination, an elongated conveyor carriage, a set of molds extending lengthwise of the conveyor carriage and arranged to be filled from the top thereof, a trackway on which the conveyor carriage is movable sidewise, a pair of pivot connections secured to the respective ends of the conveyor carriage in alignment with a central longitudinal axis, a roller conveyor having a straight flight of approximately the length of the conveyor carriage extending transversely across the trackway, a frame for supporting said conveyor flight horizontally in a position above the conveyor carriage, pivotal connections between the roller conveyor and said frame constructed and arranged for rotation of the conveyor flight about a central longitudinal axis disposed on its underside, means associated with said pivotal connections for locking said roller conveyor with its flight in a horizontal plane, and means secured to said frame constructed and arranged to provide spaced pairs of pivot points on opposite sides of the frame engageable by upper side edge portions of the conveyor carriage when elevated from the trackway therebeneath, the common adjacent edge of the set of molds being spaced inwardly of the conveyor carriage to clear the pivot points and to engage the lower portion of the conveyor flight in a vertical plane when the carriage is moved upwardly into contact with the pivot points and pivotally therearound, stanchion means depending from said frame for stopping the conveyor carriage with its upper side edge portions in vertical alignment with said pivot points and guiding the vertical movement of said carriage into engagement with said pivot points, said stanchion means being pivotally mounted for retractible movement to clear the trackway for passage of the conveyor carriage beneath the supporting frame, and hoist means constructed and arranged over the trackway and the conveyor for raising the conveyor carriage evenly by its pivot connections and accommodating rotation of the conveyor carriage between mold upright and mold inverted positions.

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