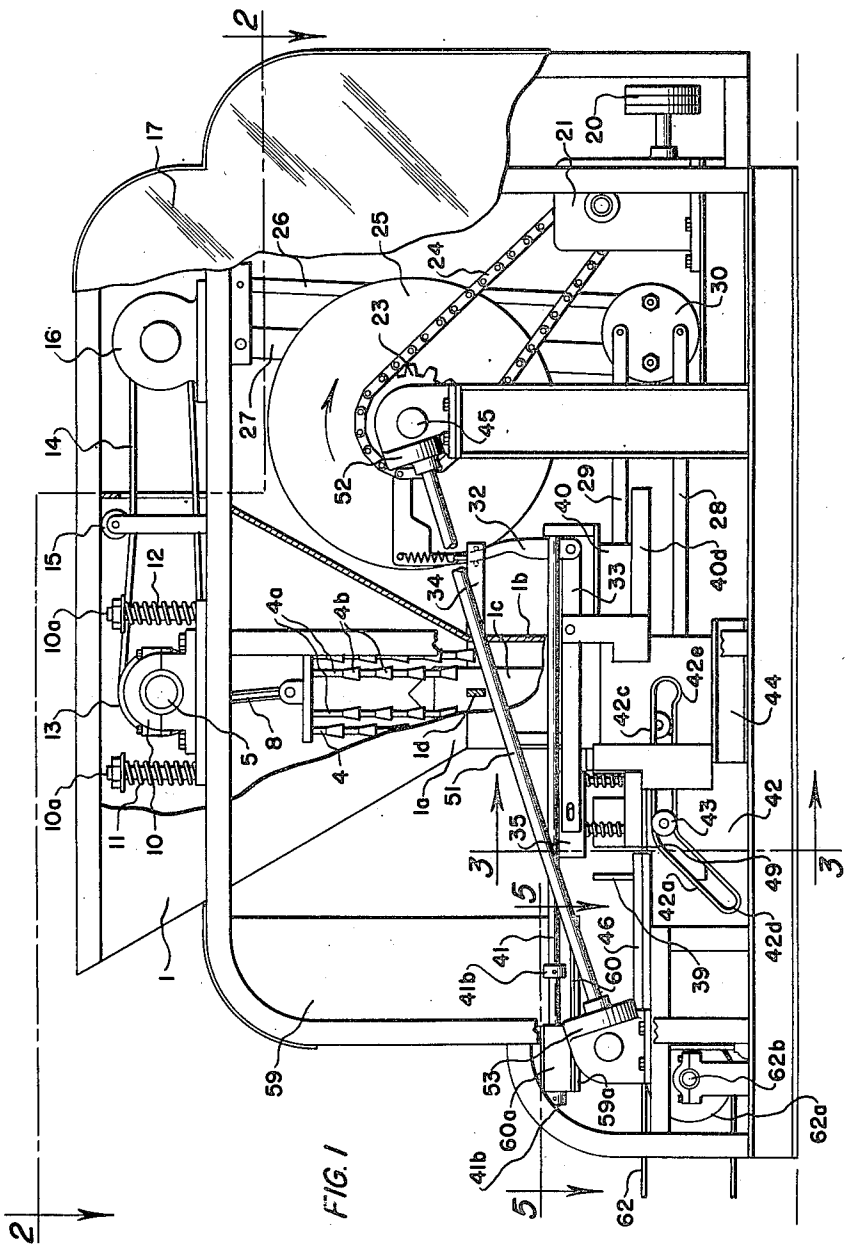
Feb. 20, 1951 M. J. DEMO 2,542,485

MEANS FOR FORMING CONCRETE BLOCKS

Filed April 14, 1947 4 Sheets-Sheet 1



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MEANS FOR FORMING CONCRETE BLOCKS

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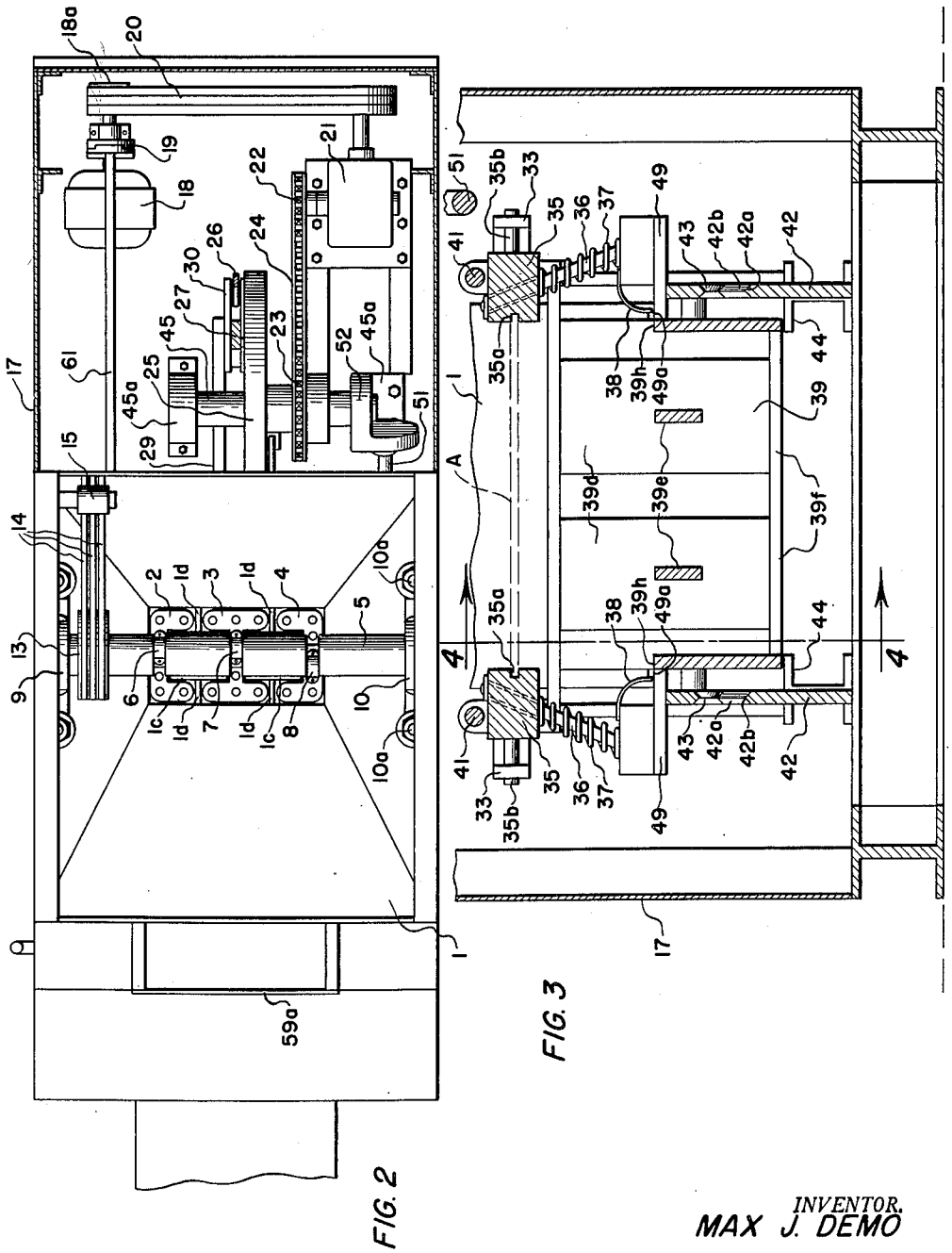


FIG. 3

FIG. 2

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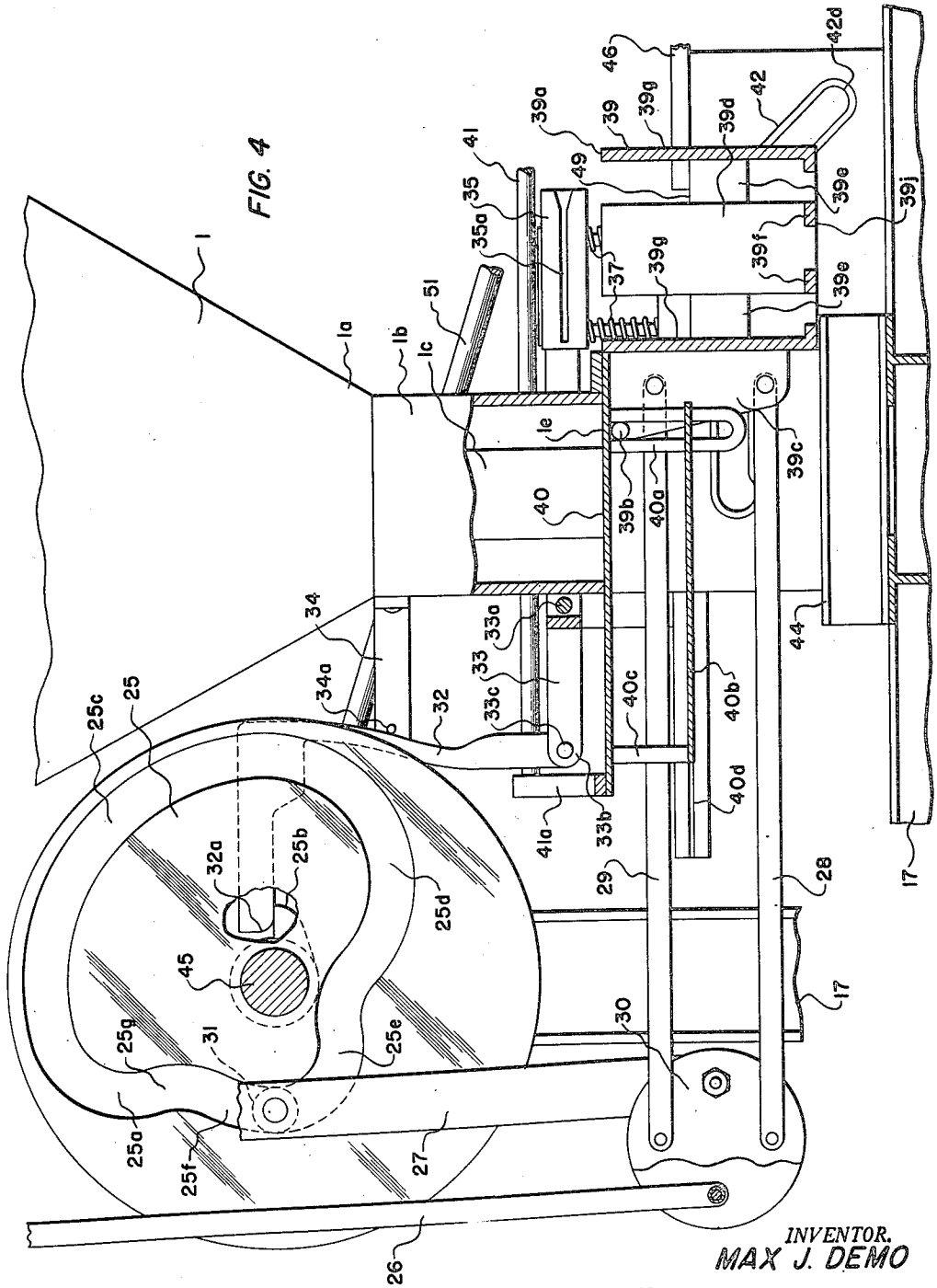
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MEANS FOR FORMING CONCRETE BLOCKS

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FIG. 4



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MEANS FOR FORMING CONCRETE BLOCKS

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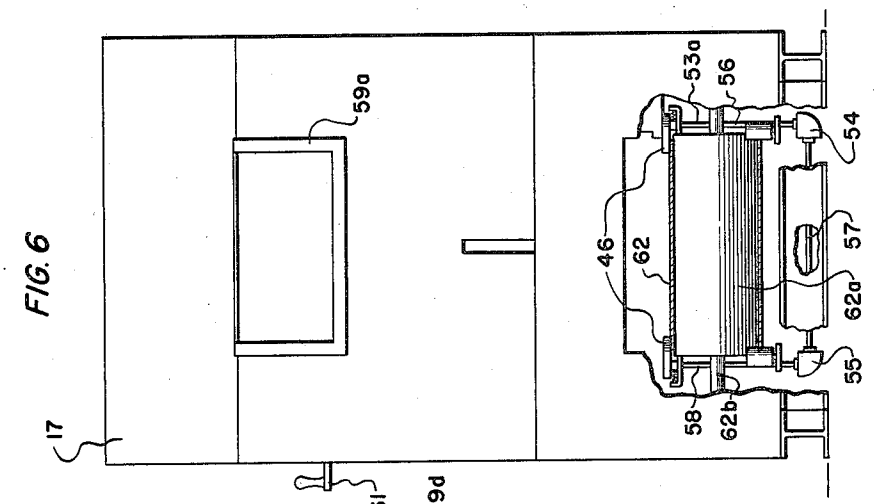


FIG. 6

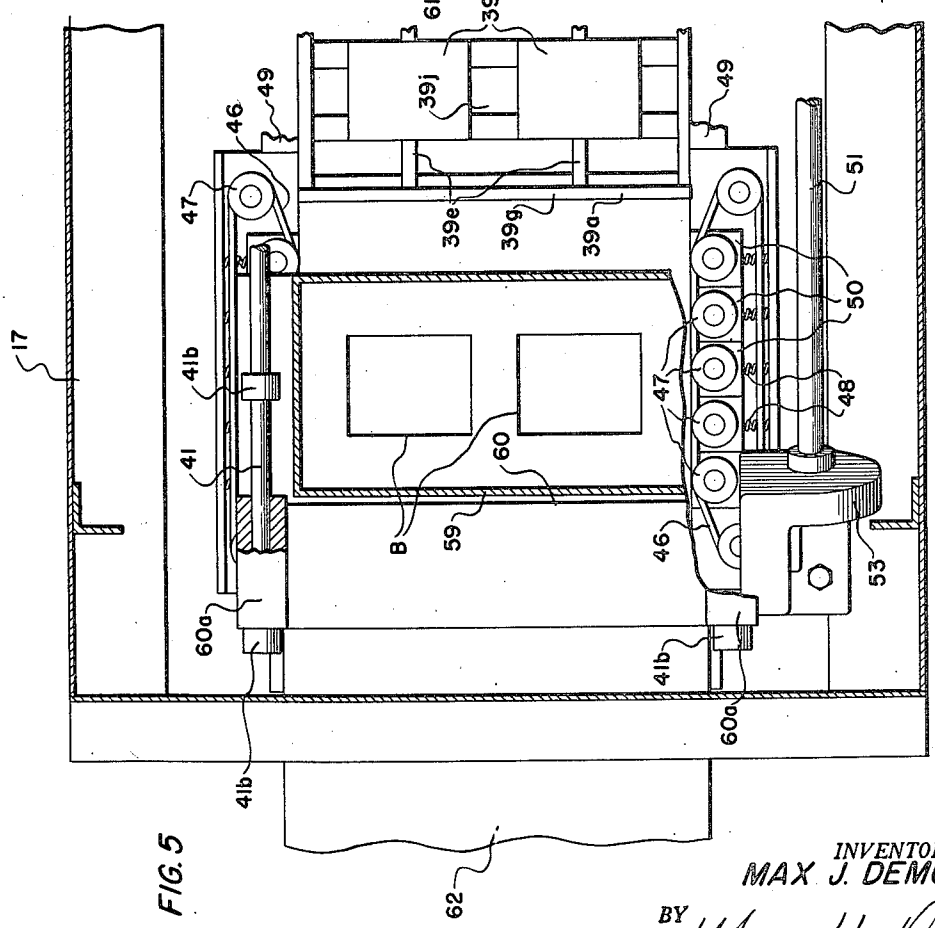


FIG. 5

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Patented Feb. 20, 1951 2,542,485

UNITED STATES PATENT OFFICE

2,542,485

MEANS FOR FORMING CONCRETE BLOCKS

Max J. Demo, El Cajon, Calif.

Application April 14, 1947, Serial No. 741,202

7 Claims. (Cl. 25—41)

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My invention relates to a means for forming concrete blocks and the objects of my invention are:

First, to provide a means of this class which is very fast in the mass production of concrete blocks;

Second, to provide a means of this class which permits concrete to be continually agitated and tamped while the mold of said means continually shears off the concrete tamped thereabove;

Third, to provide a means of this class in which a hopper thereof is provided with coring members which permits concrete passing thereabout to be pre-formed before it is positioned in the transfer mould therebelow;

Fourth, to provide a means of this class in which the concrete is tamped over a screed during which time the transfer mold is delivering a formed block thereby greatly reducing the time required in agitating and tamping the concrete into the transfer mold;

Fifth, to provide a means of this class in which the concrete blocks are delivered from the mold on a constant level and pass outwardly of the means forming them on a constantly moving conveyor preventing agitation of the block and promoting smooth handling thereof during its delivery from the machine in which it is formed;

Sixth, to provide a machine for forming concrete blocks in which the mold thereof is reciprocally movable on a horizontal plane and vertically movable on an inclined plane whereby blocks formed in said mold are sheared from the hopper communicating therewith and the mold travels away from the hopper and downwardly below the level of the block therein which is transferred to horizontal tracks laterally of the mold providing great speed in removal of the blocks from the mold;

Seventh, to provide very simple and fast pallet feeding and transferring means for the mold of my concrete block forming machine;

Eighth, to provide a tamper means for concrete block forming machines having vertically reciprocal tamper rods in connection with a spring loaded crank shaft whereby continuous compression on the concrete tamped by said tamper rods is maintained;

Ninth, to provide a machine of this class for forming concrete blocks which is very simple and economical in construction in proportion to its production, efficient, durable and which will not readily deteriorate or get out of order.

With these and other objects in view, as will appear hereinafter, my invention consists of certain novel features of construction, combination and arrangement of parts and portions, as will be hereinafter described in detail and particularly set forth in the appended claims, reference

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being had to the accompanying drawings and to the characters of reference thereon forming a part of this application in which:

Fig. 1 is a side elevational view of my concrete block forming machine used in conjunction with my method, showing portions thereof broken away and in section to amplify the illustration; Fig. 2 is a plan sectional view taken from the line 2—2 of Fig. 1; Fig. 3 is a fragmentary sectional view taken from the line 3—3 of Fig. 1, showing the structure therein on enlarged scale; Fig. 4 is a fragmentary sectional view taken from the line 4—4 of Fig. 3; Fig. 5 is an enlarged fragmentary plan sectional view taken from the line 5—5 of Fig. 1 and Fig. 6 is an end view of my machine for forming concrete blocks showing portions broken away to amplify the illustration.

Similar characters of reference refer to similar parts and portions throughout the several views of the drawings.

The hopper 1, tampers 2, 3 and 4, tamper crank 5, connecting rods 6, 7 and 8, crank bearings 9 and 10, bearing springs 11 and 12, pulley 13, belt 14, idler 15, motor 16, frame 17, motor 18, clutch 19, belts 20, gear box 21, sprockets 22 and 23, chain 24, cam 25, parallel arms 26, 27, 28 and 29, arm joint 30, cam follower 31, pallet trip link 32, pallet trip lever 33, bracket 34, pallet channels 35, channel guide posts 36, springs 37, pallet guide springs 38, mold 39, screed 40, pallet moving rods 41, mold tracks 42, rollers 43, rails 44, cam shaft 45, pallet removing belts 46, rollers 47, springs 48, tracks 49, blocks 50, drive shaft 51, gear boxes 52, 53, 54 and 55, shafts 56, 57 and 58, pallet hopper 59, pallet extractor 60 and the clutch control rod 61 constitute the principal parts and portions of my machine for forming concrete blocks used in conjunction with my method.

The hopper 1 is a downwardly converging hopper arranged to receive a relatively dry mix of concrete and positioned in connection with the lower end 1*a* of this hopper is a vertically straight walled section 1*b* having cores 1*c* fixed therein by means of supporting strips 1*d*, as shown in Fig. 2 of the drawings. These cores 1*c* extend into flush position with the lower edge 1*e* of the hopper 1 at the upper surface of the screed 40. The tamper crank 5 journaled in the bearings 9 and 10 is positioned in the upper portion of the hopper 1 and is provided with eccentric bearing portions on which the connecting rods 6, 7 and 8 are secured. These connecting rods 6, 7 and 8 are connected to the tampers 2, 3 and 4, respectively. Each of these tampers 2, 3 and 4 is provided with a plurality of tamper rods, as shown in Fig. 1 of the drawings, in which the tamper 4 is illustrated. Thus, the tamper 4 is provided with tamper rods 4*a* having frusto conical portions 4*b* which when vertically moved compress concrete downwardly into the lower por-

tion of the straight sided portion 1*b* of the hopper 1. It will be noted that the bearings 9 and 10 are vertically reciprocally mounted on bolts 10*a*, as shown in Fig. 1 of the drawings, on which the bearing springs 11 and 12 are positioned. These bearing springs 11 and 12 are compression springs arranged to pre-load the bearings 9 and 10 so that compression is maintained at all times in connection with the tampers 2, 3 and 4 which compress concrete thereunder during vertical reciprocal agitation in connection with the connecting rods 6, 7 and 8 operated by the crank 5. The crank 5 is provided with a pulley 13 on one end engaged by the belt 14 maintained tight by the idler 15 and this belt 14 is driven by the motor 16, all as shown best in Fig. 1 of the drawings. The motor 18, as shown in Fig. 2 of the drawings, is provided with an extending shaft having a pulley 18*a* thereon over which the belts 20 are engaged for driving the gear box 21 having a sprocket 22 in connection therewith engaged by the chain 24 passing over the sprocket 23 on the cam shaft 45 to which the cam 25 is fixed. This cam 25 is supported by bearings 45*a* at opposite ends of the cam shaft 45 which bearings 45*a* are supported in connection with the frame 17. The parallel arms 26 and 27 are pivotally connected at their upper ends to the frame 17 and pivotally connected at their lower ends to the arm joint 30 and are arranged in parallel relationship to each other. These parallel arms 26 and 27 are of the same length and connected to the parallel arm 27 in the cam follower 31 which is engaged with the inside track 25*a* of the cam 25, all as shown best in Fig. 4 of the drawings. The parallel arms 28 and 29 are connected to the arm joint 30 in pivoted relation therewith substantially 90 degrees from the pivotal connection of the parallel arms 26 and 27 therewith. The opposite ends of the parallel arms 28 and 29 are secured in connection with the mold 39 and these parallel arms 28 and 29 are of the same length. The mold 39 is arranged to index beneath the vertically straight walled portion 1*b* of the hopper 1 and the screed 40 is secured in flush relationship with the upper edge 39*a* of the mold 39 so that the flow of concrete from the hopper 1 is shut off when the mold 39 is out of index with the hopper 1. It will be here noted that this screed 40 is provided with a vertically disposed track portion 40*a* extending therebelow in which the trunnion 39*b* connected to the mold 39 is vertically movable. This trunnion 39*b* is secured to a projecting bracket 39*c* fixed to the mold 39 to which the extending ends of the parallel arms 28 and 29 are pivotally connected. It will be here noted that the upper end of the track 40*a* is fixed in connection with the lower side of the screed 40 and that the plate 40*b*, at its forward end, is fixed to the track 40*a* and is fixed to the lower side of the screed 40 at its rear end by means of the spacers 40*c*. It will be here noted that opposite edges of the plate 40*b* at its rearward portion is supported in tracks 40*d* secured to the mold tracks 42, all as shown best in Figs. 1 and 4 of the drawings. This plate 40*b* supports the track 40*a* and the screed 40 in a position at right angles to each other and helps maintain the screed 40 in flush position with the lower end of the hopper 1. The mold 39 is provided with core portions 39*d* supported by braces 39*e* at their sides and cross strips 39*f* at their bottom portions, all as shown best in Fig. 4 of the drawings. The side portions 39*g* of the mold 39 are arranged to be positioned in flush relationship with the lower edge 1*e* of the hopper 1 and the end portions 39*h* of the mold 39 are considerably lower, as shown in Fig. 3 of the drawings, and arranged to support opposite ends of pallets delivered from the pallet hopper 59. Opposite ends of the mold 39 are supported by trunnion rollers 43 engaging slotted ways portions 42*a* in the tracks 42. These tracks 42, as shown in Fig. 3 of the drawings, are provided with inverted V-shaped track portions 42*d* arranged to shed any foreign matter therefrom so that the conforming rollers 43 will operate smoothly thereon. Thus the slotted track portions 42*a* are defined by V-shaped portions 42*b*, all as shown best in Fig. 3 of the drawings. As shown best in Fig. 1 of the drawings, these track portions 42*a* are each provided with a horizontal portion 42*c* and a downwardly disposed angular portion 42*d*. At the end of the horizontally disposed track portion 42*c* is provided a recess portion 42*e* arranged to permit slight downward movement of the trunnion rollers 43 when the mold 39 indexes with the vertical portion 1*b* of the hopper 1 permitting the lower edge 39*j* of the mold 39 to rest on the rails 44. Connected with the screed 40 at its rear end, is a cross member 41*a* connecting the pallet moving rods 41 to said screed 40 so that the pallet moving rods 41 operate in unison with the screed 40 and reciprocally actuate the pallet extractor 60. This pallet extractor 60 is slidably mounted over the bottom 59*a* of the pallet hopper 59 and this pallet extractor 60 is substantially equal to the thickness of the pallets stacked in superimposed relationship to each other in the pallet hopper 59. It will be noted that opposite ends of the extractor 60 are provided with bearings 60*a* through which the pallet moving rods 41 are reciprocally slidable. Secured on the pallet moving rods 41 are collars 41*b* spaced apart a greater distance than the length of bearings 60*a* of the pallet extractor 60, all as shown best in Figs. 1 and 5 of the drawings. In alignment with the pallet extractor 60 are the pallet channels 35. These pallet channels 35, as shown in Fig. 3 of the drawings, are each provided with U-shaped channel portions 35*a* arranged to receive opposite edges of the pallet A, as indicated by dash lines in Fig. 3 of the drawings, from the pallet hopper 59 when the pallet extractor 60 is forced toward the mold 39 by the pallet moving rods 41. These pallet channels 35 are reciprocally mounted on the channel guide posts 36 which are disposed in angular relationship to the vertical whereby downward movement of the pallet channels 35 thereon causes the same to move away from each other releasing the pallet A from the channel portions 35*a* and permitting the same to fall. The springs 37 tend to hold the pallet channels 35 upwardly into the position as shown in Fig. 3 of the drawings, wherein the pallet A is supported at a level slightly above the upper edge 39*a* of the mold 39 when in the position as shown in Fig. 4 of the drawings. As shown in Fig. 3 of the drawings, it will be seen that the channel guide posts 36 extend downwardly and outwardly from their upper ends and pivotally connected to the pallet channels 35 is the pallet trip lever 33. This pallet trip lever 33 is a bifurcated lever and is pivotally mounted on a rod 33*a* adjacent the hopper 1 and at its bifurcated end portion, it is pivotally mounted on the trunnions 35*b* of the pallet channels 35. The rearwardly extending end 33*b* of the pallet trip lever 33 is pivot-

ally connected with the lower end of the pallet trip link 32. This pallet trip link 32 is guided by a pin 34a on the bracket 34 maintaining the end portion 32a of said trip links 32 in interfering position with the cam projection 25b on the opposite side of the cam 25 from the track 25a therein, as shown best in Fig. 4 of the drawings. The tracks 49, as shown in Figs. 3, 4 and 5 of the drawings, are arranged to receive the pallet bearing a formed brick thereon when the mold 39 passes to its foremost position wherein the trunnion rollers 43 are in the lowermost portion of the track 42a. Communicating directly with the tracks 49 and on a level therewith are the belts 46 arranged in opposed relationship to each other. These belts 46 pass over the rollers 47 journaled in connection with the blocks 50 loaded by the compression springs 48 which tend to force the belts 46 toward each other. It will be here noted that these belts 46 are arranged to operate in slightly closer spaced relation than the length of the pallets on which the concrete bricks are formed. As shown in Fig. 3 of the drawings, the upper edge portions 49a of the tracks 49 are outwardly of the end portions 39h of the mold 39 so that the pallets when dropped extend from one of the spring guides 38 to the other. Therefore these pallets are slightly longer than the bricks supported thereon and are engaged outwardly of opposite ends of the brick by the belts 46 on the rollers 47 which maintain the belts 46 in compressed engaged relation with opposite ends of the pallets under load caused by the compression springs 48. The drive shaft 51 is rotated in connection with the gear box 52 on the end of the cam shaft 45 and extends to the gear box 53 having a vertical power take-off shaft 53a arranged to drive one of the rollers 47. As shown in Fig. 6 of the drawings, this take-off shaft 53a is vertically disposed and connected to a gear box 54 having an extending shaft 57 in connection therewith operating in connection with the gear box 55 which actuates the vertically disposed shaft 58 in connection with one of the rollers 47 at the opposite end of the pallets being removed from my concrete block forming machine so that the belts 46 are operated in unison for conveying the pallets engaging the same onto the endless conveyor 62 which is a conventional belt-like conveyor independently operated by a motor not shown. This conveyor is provided with a roller 62a operated on a shaft 62b, the axis of which is below the outermost of the rollers 47. It will be noted that the upper surface of the conveyor 62 is positioned on a common horizontal plane with the upper sides of the tracks 49 at the lower edges of the belt 46 so that the pallets carrying formed concrete blocks do not become agitated as they are transferred from the belt 46 to the conveyor 62. The pallet hopper 59 is provided with an opening 59a at its upper end in which pallets may be stacked.

The operation of the means in conjunction with my method for forming concrete blocks is substantially as follows:

A relatively dry mix of concrete is poured in the hopper 1 and the motor 16 is continually operated causing the belt 14 passing over the pulley 13 to continually rotate the crank 5 actuating the connecting rods 6, 7 and 8 causing vertical reciprocal operation of the tampers 2, 3 and 4. The frusto-conical tamper portions 4b on the tamper rods 4a cause the concrete to be packed tightly around the core forms 1c in the vertically

disposed straight walled portion 1b of the hopper 1 directly above the mold 39. When the mold 39 is in position, the core portions 39d therein coincide with the core portions 1c in the hopper 1 whereby the concrete already packed and formed slides downwardly into the mold 39 on a pallet positioned on a level with the upper edges of the end portions 39h of the mold 39 and overlapping the same. As shown in Fig. 3 of the drawings, the mold 39 is provided with two of the core portions 39d and the hopper, as shown in Fig. 2 of the drawings, is provided with two of the core portions 1c. Thus continuous operation of the tamper rods 4a pack the concrete above the screed 40 when in the position as shown in Fig. 4 of the drawings. When the mold 39 having a pallet positioned therein is beneath the hopper 1 and indexed therewith, the mold fills up with concrete during the dwell of said mold 39 under the hopper 1 caused by the cam 25. As shown in Fig. 5 of the drawings, the pallets are each provided with a pair of openings B arranged to surround the core portions 39d in the mold 39 when said pallets are resting on the upper edges of the end portions 39h of said mold 39 and across the supports 39e which support the middle portions of the pallet in the mold 39. The block forming cycle begins when the concrete passes from the hopper 1 into the mold 39 and this portion of the cycle is controlled by the concentric dwell portion 25c of the internal track 25a of the cam 25. The cam follower 31 engaging said internal track 25a is approached by the abrupt inwardly directed portion 25d of the track 25a and the mold 39 is then forced outwardly toward its position as shown in Fig. 4 of the drawings and then the trunnion rollers 43 pass downwardly to the end portion 42d of the tracks 42 whereupon the pallet in the mold is relieved from the mold and rests on the tracks 49 at the portions 49a thereof. When the mold 39 passes to the extreme position toward the belts 46, the forward edge of the pallet at its opposite ends is engaged by the belts 46 and the pallet bearing the concrete brick thereon is then conveyed to the conveyor 62 which carries the brick away from the machine. It will be noted that when the mold delivers the concrete block to the track 49, the upper edge of the mold 39 passes below the tracks 49 so that the pallet is clearly relieved from the mold 39. The springs 48 cause compression of the rollers 47 toward each other at opposite sides of the machine forcing the belts 46 into frictionally engaged relation with opposite edges of the pallet bearing the concrete block so that positive friction thereon provides positive movement of the concrete block out of the machine after it is relieved from the mold 39. The outgoing portion 25e of the cam 25 actuates the cam follower 31 sufficiently to cause retraction of the mold 39 from its outermost position to the position as shown in Fig. 4 of the drawings whereupon the cam follower 31 is approached by the concentric dwell portion 25f of the track 25a permitting the mold to stand in a certain position below the pallet channels 35 for an instant at which time the cam portion 25b of the cam 25 actuates the pallet trip link 32 pivoting the pin 33c upwardly in connection with the pallet trip lever 33 which forces the pallet channels 35 downwardly against compression of the springs 37 causing the pallet channels 35 to separate and drop a pallet into the mold 39 which is guided by the springs 38. The mold 39 is then retracted

into indexed position with the hopper 1 by means of the outgoing portion 25g of the cam track 25a where it reaches the dwell portion 25c of the cam track 25a while another batch of concrete is agitated and forced into the mold 39. It will be here noted that when the mold 39 moves outwardly toward the pallet hopper 59, that the screed 40 closes off the lower portion of the hopper 1 at its lower edge 1e preventing the loss of concrete therefrom. When the mold 39 passes toward the hopper 1, the pallet moving rods 41 force the pallet extractor 60 toward the pallet channels 35 causing said pallet extractor 60 to move one pallet from the bottom of the pile into the channel portions 35a of the pallet channels 35, as shown by dash lines A in Fig. 3 of the drawings. Movement of the pallet extractor 60 is caused by the collars 41b on the pallet moving shaft 41 which are spaced farther apart than the links of the bearings 60a through which they are reciprocally movable. These bearings 60a in connection with the pallet extractor 60, in relation with the collars 41b provide for the differential in movement of the pallet extractor 60 relatively to the movement of the mold 39. Thus, each time the mold 39 moves outwardly toward the end portions 42d of the tracks 42, the pallet moving rods 41 move a considerable distance before returning the pallet extractor 60 to its proper position beneath the pallet hopper 59. During each cycle of operation, a pallet is held between the pallet channels 35 until the mold 39 returns to the position as shown in Fig. 4 of the drawings, whereupon the pallet is dropped into the mold 39 and the mold 39 then returns to index position with the hopper 1. In this manner a pallet is in position before the mold emerges from its indexed position with the hopper 1 in the delivery of a formed block. The parallel arms 26, 27, 28 and 29 maintain the mold 39 in rectilinear and vertical upright position during its horizontal and downward movement as it delivers a block from the position beneath the hopper 1. The track 40a helps maintain vertical alignment of the mold 39 in its downward travel in the angular portions of the tracks 42. It will be noted that each time the mold returns to its position beneath the hopper 1 and is indexed thereunder, that the trunnion rollers 43 pass into the recess portions 42e in the tracks 42 permitting the mold to rest at its lower edge 39j on the rails 44 lending proper support to the mold 39 during the dwell period controlled by the dwell portion 25c of the cam 25 during transfer of the concrete from the hopper 1 to the mold 39.

My method, in connection with the means hereinbefore described, is substantially as follows:

The concrete in the hopper 1 is continually tamped and is pre-formed therein so that it falls into the mold 39 in solid condition whereupon lateral movement of the mold 39 shears off the formed block intermediate the hopper and said mold which greatly speeds up the vibrating and transferring the blocks, thus eliminating the necessity of stopping the vibrator each time the transfer mold is moved. Concisely, my method of forming concrete blocks is as follows:

A relatively dry mixture of concrete is continually tamped and agitated into a solid column, a mold is indexed with said column, said column of concrete is then forced into said mold and then said mold is moved laterally shearing off the column of concrete and the block is then removed from the mold. It will be here noted that this method also includes the continual compression of the concrete in the hopper 1 accomplished by the compression springs 11 and 12 in connection with the bearings 9 and 10.

Though I have shown and described a particular construction, combination and arrangement of parts and portions, and a certain method, I do not wish to be limited to this particular construction, combination and arrangement, but desire to include in the scope of my invention the construction, combination and arrangement substantially as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a means for forming concrete blocks the combination of a hopper having a straight walled outlet portion and provided with core portions positioned therein, a continuously operated agitator in said hopper arranged to force concrete toward the outlet thereof and around said core portions, a mold arranged to index with the outlet of said hopper laterally moveable relatively to the axis of said hopper provided with core means therein coinciding with the core portions in said hopper, a screed in connection with said mold arranged to close off the outlet of said hopper when said mold is moved laterally, and trunnions in connection with said mold, tracks for said trunnions having horizontal portions and downwardly disposed angular portions whereby said mold moves laterally of the axis of said hopper and then downwardly.

2. In a means for forming concrete blocks the combination of a hopper having a straight walled outlet portion and provided with core portions positioned therein, a continuously operated agitator in said hopper arranged to force concrete toward the outlet thereof and around said core portions, a mold arranged to index with the outlet of said hopper laterally moveable relatively to the axis of said hopper provided with core means therein coinciding with the core portions in said hopper, a screed in connection with said mold arranged to close off the outlet of said hopper when said mold is moved laterally, trunnions in connection with said mold, tracks for said trunnions having horizontal portions and downwardly disposed angular portions whereby said mold moves laterally of the axis of said hopper and then downwardly, and track means positioned on a horizontal plane at a position coinciding with the upper edge of said mold when in its lower most position.

3. In a means for forming concrete blocks the combination of a hopper having a straight walled outlet portion and provided with core portions positioned therein, a continuously operated agitator in said hopper arranged to force concrete toward the outlet thereof and around said core portions, a mold arranged to index with the outlet of said hopper laterally moveable relatively to the axis of said hopper provided with core means therein coinciding with the core portions in said hopper, a screed in connection with said mold arranged to close off the outlet of said hopper when said mold is moved laterally, trunnions in connection with said mold, tracks for said trunnions having horizontal portions and downwardly disposed angular portions whereby said mold moves laterally of the axis of said hopper and then downwardly, track means positioned in a horizontal plane at a position coinciding with the upper edge of said mold when in its lower most

position, and a pallet for said mold having openings therein surrounding said core portions and extending outwardly into engaging position with said tracks at opposite ends of said mold whereby said pallet engages said tracks when said mold moves downwardly.

4. In a means for forming concrete blocks the combination of a hopper having a straight walled outlet portion and provided with core portions positioned therein, a continuously operated agitator in said hopper arranged to force concrete toward the outlet thereof and around said core portions, a mold arranged to index with the outlet of said hopper laterally moveable relatively to the axis of said hopper provided with core means therein coinciding with the core portions of said hopper, a screed in connection with said mold arranged to close off the outlet of said hopper when said mold is moved laterally, a cam, a frame, parallel arms pivoted to said frame, a joint at the opposite end of said parallel arms, second parallel arms in connection with said joint, the opposite ends of which are pivotally connected to said mold, a cam follower in connection with one of said first mentioned parallel arms engageable with said cam for forcing said mold laterally of the axis of said hopper, said cam provided with a concentric dwell portion whereby said mold is maintained in index position with said hopper for a short period of time, pallet channels positioned above the path of said mold arranged to support a pallet in connection therewith and a pallet trip lever in connection with said pallet channels operatively associated with said cam for dropping a pallet into said mold, said cam provided with a dwell portion arranged to support said mold under said pallet channels while a pallet is being dropped into said mold.

5. In a means for forming concrete blocks the combination of a hopper having a straight walled outlet portion and provided with core portions positioned therein, a continuously operated agitator in said hopper arranged to force concrete toward the outlet thereof and around said core portions, a mold arranged to index with the outlet of said hopper laterally moveable relatively to the axis of said hopper provided with core means therein coinciding with the core portions of said hopper, a screed in connection with said mold arranged to close off the outlet of said hopper when said mold is moved laterally, a cam, a frame, parallel arms pivoted to said frame, a joint at the opposite end of said parallel arms, second parallel arms in connection with said joint, the opposite ends of which are pivotally connected to said mold, a cam follower in connection with one of said first mentioned parallel arms engageable with said cam for forcing said mold laterally of the axis of said hopper, said cam provided with a concentric dwell portion whereby said mold is maintained in index position with said hopper for a short period of time, pallet channels positioned above the path of said mold arranged to support a pallet in connection therewith, a pallet trip lever in connection with said pallet channels operatively associated with said cam for dropping a pallet into said mold, said cam provided with a dwell portion arranged to support said mold under said pallet channels while a pallet is being dropped into said mold, and a pallet extractor operated in connection with said cam and said mold for forcing a pallet into said pallet channels when said mold passes into index position with said hopper.

6. In a means for forming concrete blocks the combination of a hopper having a straight walled outlet portion and provided with core portions positioned therein, a continuously operated agitator in said hopper arranged to force concrete toward the outlet thereof and around said core portions, a mold arranged to index with the outlet of said hopper laterally moveable relatively to the axis of said hopper provided with core means therein coinciding with the core portions of said hopper, a screed in connection with said mold arranged to close off the outlet of said hopper when said mold is moved laterally, a cam, a frame, parallel arms pivoted to said frame, a joint at the opposite end of said parallel arms, second parallel arms in connection with said joint, the opposite ends of which are pivotally connected to said mold, a cam follower in connection with one of said first mentioned parallel arms engageable with said cam for forcing said mold laterally of the axis of said hopper, said cam provided with a concentric dwell portion whereby said mold is maintained in index position with said hopper for a short period of time, pallet channels positioned above the path of said mold arranged to support a pallet in connection therewith, a pallet trip lever in connection with said pallet channels operatively associated with said cam for dropping a pallet into said mold, said cam provided with a dwell portion arranged to support said mold under said pallet channels while a pallet is being dropped into said mold, and a pallet extractor operated in connection with said cam and said mold for forcing a pallet into said pallet channels when said mold passes into index position with said hopper, and said pallet channels positioned at opposite ends of said mold when thereunder and operated downwardly and outwardly away from opposite edges of a pallet in connection therewith when said pallet trip lever is actuated by said cam.

7. In a means for forming concrete blocks the combination of a hopper, an agitator in said hopper, a mold laterally moveable relatively to the axis of said hopper and arranged to index therewith, track means at opposite ends of said mold, trunnions in connection with said mold arranged to operate in said track means, rails below said track means, said track means provided with a recess portion at the axis of said hopper whereby said trunnion rollers permit said mold to descend into engaged relation with said rails, whereby said mold is supported on said rails when indexed with said hopper.

MAX J. DEMO.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
411,645	Dieckmann	Sept. 24, 1889
829,012	Jaques	Aug. 21, 1906
935,678	McNamara	Oct. 5, 1909
1,498,373	Harvey	June 17, 1924
1,573,346	Kissam	Feb. 16, 1926
1,929,301	Batcheller	Oct. 3, 1933