

No. 836,608.

PATENTED NOV. 20, 1906.

C. F. SANFORD.
BUILDING BLOCK MACHINE.
APPLICATION FILED JUNE 13, 1906.

3 SHEETS—SHEET 1.

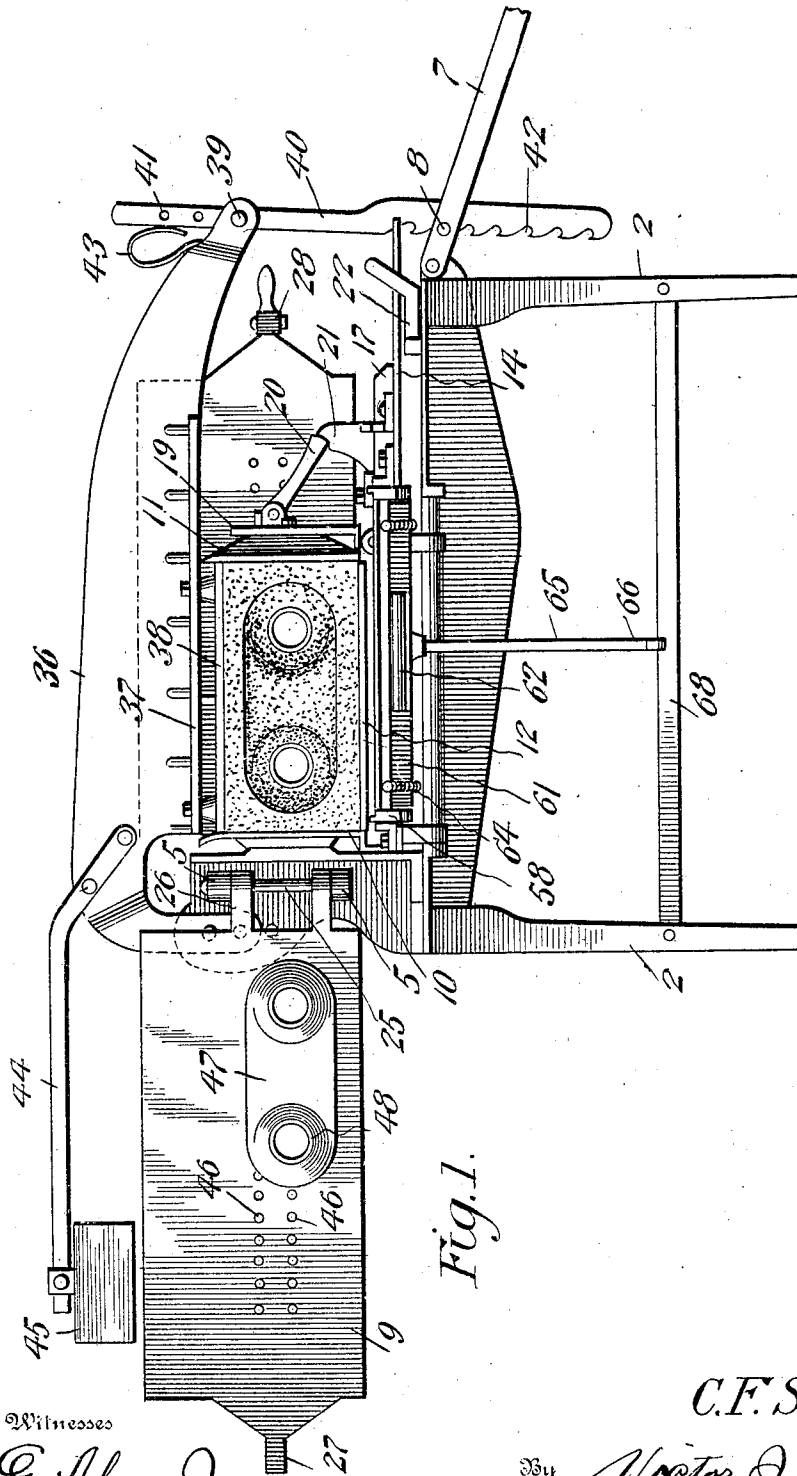


Fig. 1.

Witnesses

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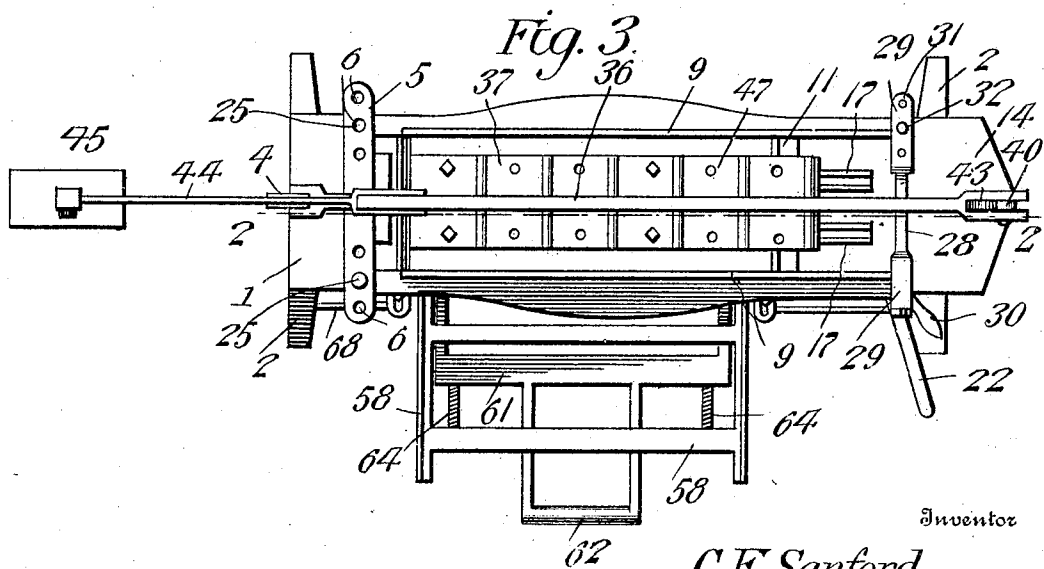
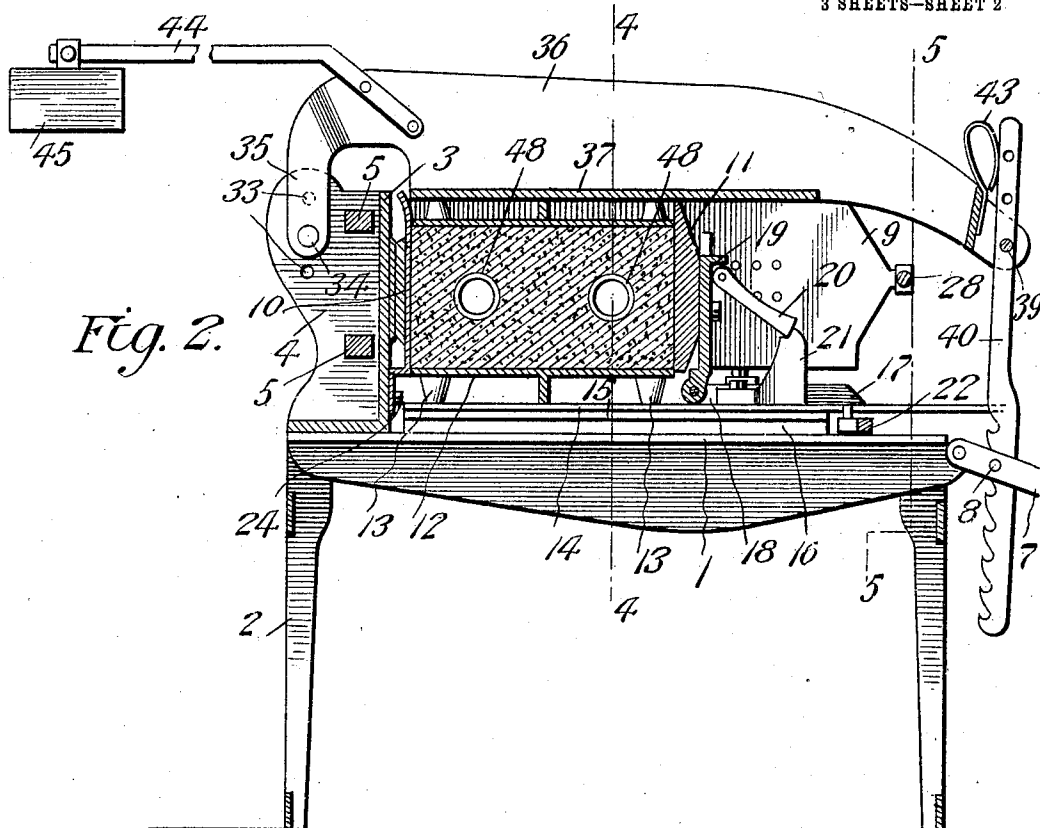
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3 SHEETS—SHEET 2



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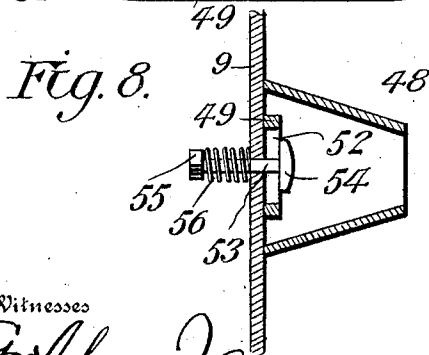
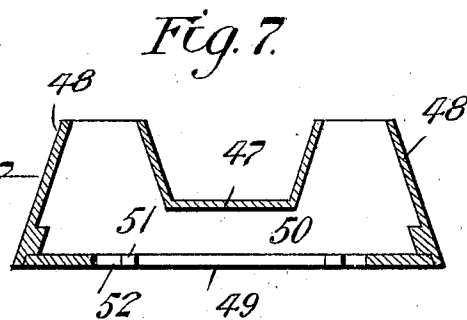
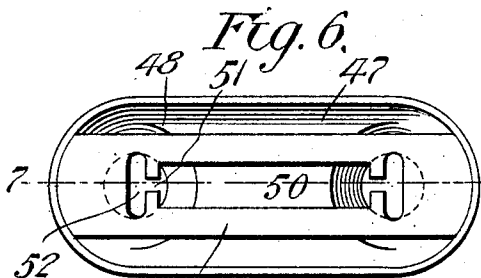
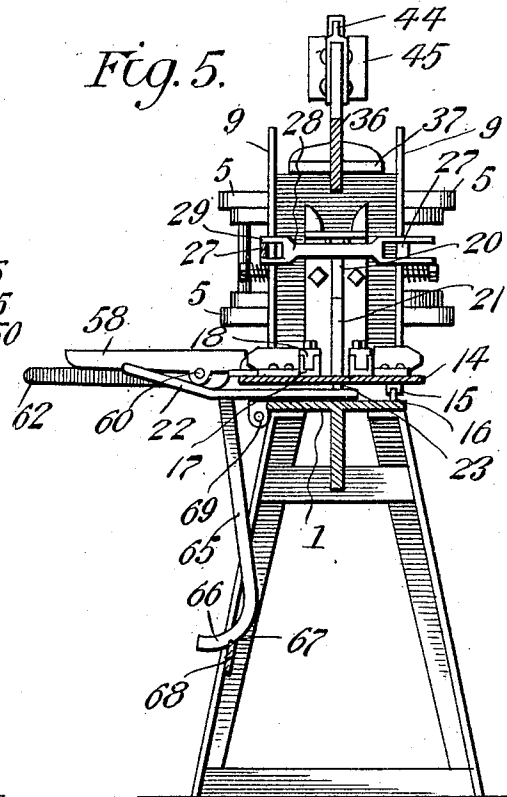
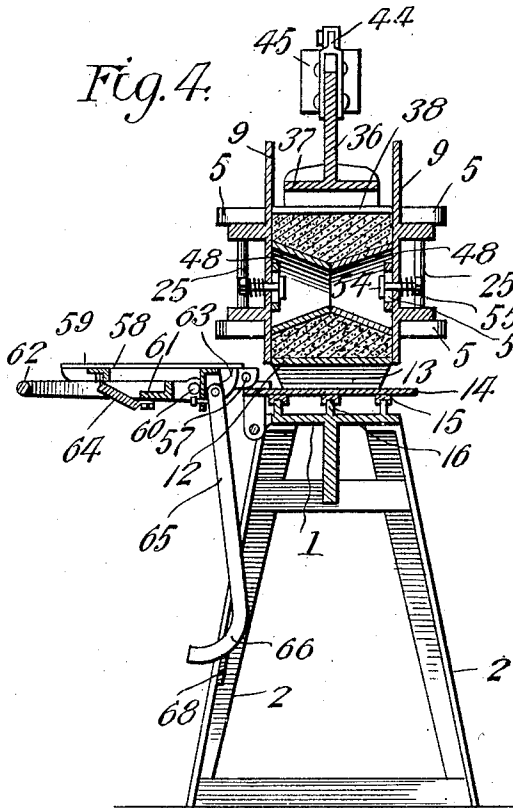
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UNITED STATES PATENT OFFICE.

CLIFFORD F. SANFORD, OF BOWLING GREEN, OHIO.

BUILDING-BLOCK MACHINE.

No. 836,608.

Specification of Letters Patent.

Patented Nov. 20, 1906.

Application filed June 13, 1906. Serial No. 321,466.

To all whom it may concern:

Be it known that I, CLIFFORD F. SANFORD, a citizen of the United States, residing at Bowling Green, in the county of Wood and State of Ohio, have invented new and useful Improvements in Building-Block Machines, of which the following is a specification.

This invention relates to building-block machines of the type employed for molding cement or other artificial-stone blocks to be utilized in various classes of building construction.

The machine forming the subject-matter of this invention embodies in its organization a mold-box in which the material is cast, a core adapted to be positioned in the mold for forming air-spaces in the finished article, and a movable supporting frame or table onto which the block is discharged from the mold, the latter being composed of relatively movable walls adapted to be thrown to inactive position for releasing the completed block and permitting its ready discharge onto the table.

The invention has for its objects to produce a comparatively simple inexpensive device of this character in which the walls may be readily moved to active or inactive position, one wherein the material may be properly and conveniently compressed within the mold-box in the formation of the block, and one in which the core may be properly centered for blocks of varying sizes and is susceptible of movement relative to the mold-walls for permitting proper compression of the material.

A further object of the invention is to provide a device of this character in which the parts of the mold will be securely locked in casting position, one wherein the table may be readily moved to position for receiving the finished block, and one in which the mold-bed may be conveniently tilted for discharging the block onto the table.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a front elevation of a machine embodying the invention, showing the front side wall of the mold turned to open position and a completed block within the mold-box. Fig. 2 is a vertical section longitudinally through the mold, taken on the line 2 2 of Fig. 3. Fig. 3 is a top plan view of the machine. Fig. 4 is

a vertical transverse section taken on the line 4 4 of Fig. 2. Fig. 5 is an end view, partly in section, the section being taken on the line 5 5 of Fig. 2. Fig. 6 is a view in elevation of one of the cores. Fig. 7 is a longitudinal section centrally through the core on the line 7 7 of Fig. 6. Fig. 8 is a detail sectional view on an enlarged scale, showing the manner of connecting the core with the mold-wall.

Referring to the drawings, it will be seen that the frame of the machine comprises a horizontal bed or table 1, sustained by supporting-legs 2 and having at its rear end a vertically-uprising bearing-plate or standard 3, provided with a central right-angularly-disposed web 4, carrying vertically-spaced transversely-projecting bearing pieces or arms 5, having spaced perforations 6, there being pivoted to the forward end of the frame an operating-lever 7, having its inner end bifurcated and carrying a transverse engaging member or pin 8.

Sustained upon the table 1 is a mold-box comprising side walls 9, end walls 10 11, and a bottom wall 12, the latter being provided with transversely-disposed depending lugs or projections 13, which rest upon and sustain the wall in spaced relation to a longitudinally-movable platen 14, in turn provided on its lower face with channel-iron guides 15, adapted for engagement with tracks or ways 16, provided on the table 1, and for guiding the platen in its movements, while fixed on the upper face of the platen 14, adjacent to its forward end, is a pair of channel-iron guides 17, in which are fitted bearing-blocks 18, to which the end wall 11 is pivotally connected by means of a hinge member 19. Pivoted to the member 19 is a locking member or bar 20, adapted for engagement with a block or keeper 21, fixed on the platen 14 to hold the wall 11 in casting position, while pivoted to the table 1 is a shifting-lever 22, having pivotal engagement, as at 23, with the platen 14 and for moving the latter longitudinally of the table, it being noted that the bottom wall 12 is susceptible of movement with the platen.

The end wall 10 of the mold is detachably secured by bolts or other fastening members 24 with the frame member 3, to which the walls 9 are pivoted for horizontal swinging movement each by means of a vertical pintle or bolt 25, entered through suitable ones of the openings 6 and engaged with perforated ears

or lugs 26, formed on the rear end of the wall, which is provided at its forward end with a forwardly-projecting portion or lug 27, there being pivoted to one of the said lugs a locking-bar 28, adapted for engagement with the lug 27 on the other walls for fixing the wall in active or casting position, as seen more clearly in Fig. 5, there being provided on the bar 28, which has bifurcated or slotted ends 29 to receive the lugs 27, a projecting handle 30, by which the bar may be moved, while entered through suitable openings 31 in one of the bifurcated ends 29 is a coupling-pin 32, adapted for engagement with the adjacent lug 27.

Provided in the web 4 of frame member 3 is a plurality of vertically-spaced openings 33, through one of which is entered a horizontal pivoting member or bolt 34, engaged with the depending forked bearing portion 35 of a pressure member or lever 36, adapted to swing in a vertical plane and having a horizontal portion or wedge 37, to which is bolted a follower member or plunger 38, designed to enter the mold-box for compressing the material therein, there being pivoted to the forward end of member 36, by means of a pintle 39, a connecting element or link 40, having at its upper end a plurality of spaced openings 41, any one of which may receive the pin 39, and at its lower end a series of teeth 42, adapted for engagement with the pin 8 to connect the pressure member with the operating-lever 7, while attached to the member 36 is a spring 43, arranged to act on the upper end of link 40 for holding the teeth 42 thereof in engagement with the pin. Fixed to the rear end of member 36 is a rearwardly-projecting arm 44, carrying a weight 45, designed for counterbalancing the pressure-lever and facilitating the upward swinging movement of the forward end of the latter.

Carried by each of the walls 9, which has plurality of vertically-spaced longitudinal rows of bearing-openings 46, is a core member or section 47, provided with a pair of relatively spaced hollow trunco-conical portions or cores 48, adapted when the parts are in active position to project half-way through the mold and to contact at their outer ends with the adjacent ends of the cores 48, carried by the other wall, as seen in Fig. 4, there being formed in the core member 47 a longitudinal plate or web 49, having a longitudinal elongated opening or slot 50, adapted for communication through restricted openings 51 with normally vertical transverse guide openings or slots 52, adapted to receive the shank portions 53 of connecting elements or bolts entered through appropriate ones of the openings 46 and provided at their inner ends with heads 54, which bear on the inner face of the web 49, and at their outer ends with heads in the form of removable nuts 55, between which and the wall 9 there are disposed

pressure-springs 56, coiled upon the respective bolts 53, it being noted that under this construction the core members, which cooperate to form a complete core, are yieldably sustained on the respective walls 9 and are adapted for a slight amount of vertical movement or play relative to the latter for a purpose which will presently appear.

Pivoted, as at 57, to the forward edge of the bed 1 and to swing in a vertical plane is a normally horizontal supporting frame or table 58, adapted to sustain a follow-board or pallet 59, on which the completed blocks rest when discharged from the mold, there being pivoted at 60, beneath the frame 58, a U-shaped frame member 61, provided with a forwardly-projecting handle 62 and with rearwardly-projecting upturned engaging portions or fingers 63, adapted to frictionally engage the pallet 59 for shifting the same on the frame 58, as and for the purpose hereinafter explained, there being connected between the frames 58 and 61 a pair of expandible springs 64, which maintain the latter frame in normal position, while pivoted to the frame 58 is a vertically-depending supporting arm or standard 65, having at its lower end an outwardly-curved engaging portion 66, notched, as at 67, for engagement with a cross-piece 68, connected in the main frame of the machine and designed for supporting the arm 65 to maintain the table 58 in normal horizontal position.

In practice the side and end walls of the mold are arranged and locked in casting position, with the bottom wall 12 disposed upon the platen 14 and the compressing member 36 thrown upwardly to inactive position. The mold is then filled with cement or other plastic material of which the block is to be formed and the compressing member swung down over the mold, with the follower 38 arranged over the material, the link 40 being engaged with the lever 7 in the manner heretofore explained for operatively connecting the latter with the compressing-lever. Pressure is then applied to the material for compressing the same within the mold by moving the outer end of lever 7 downwardly, thus to operate the member 36 for compressing the material, as will be understood, it being noted that during this action of the parts the core members 47 may, owing to their movable engagement with the walls 9 through the medium of the bolts 53 and slots 52, move downward with the material in the mold, thereby insuring proper and uniform compressing of the material and preservation of the proper centered position of the cores relative to the completed block. After the block has been pressed into shape the lower end of link 40 is disengaged from the pin 8, thus releasing the compressing-lever 36, which will swing upward to normal position, the side walls 9 being thereafter released and

thrown outward to the position seen in Fig. 1 for withdrawing the cores from the mold, after which the locking member 20 is thrown out of engagement with keeper 21 to permit of the wall 11 being moved forwardly out of contact with the adjacent end of the block. The lever 22 is next manipulated for imparting a forward longitudinal movement to the platen 14 and to the wall 12 carried thereby, thus moving the block bodily away from the end wall 10. After the block has been entirely freed, as just explained, the handpiece 62 is grasped and the supporting-frame 58, having the pallet 59 thereon, thrown upward to vertical position against the adjacent side face of the block, whereupon the outer end of lever 22 is swung downward, thus to rock the lever on its pivot 69 for tilting the platen 14 forwardly, thus to throw the block onto the platen, whereupon the supporting-frame is again turned to horizontal position, in which it will be sustained through engagement of the arm 65 with the frame member 68. The frame member 61 may then be rocked on its fulcrum 60 for causing the engaging portions 63 to move the pallet 59 outward on the frame 58, by which the block will be temporarily supported while partially drying.

It will be observed that under my improved construction the size of the mold-box may be conveniently varied for casting blocks of varying sizes by moving the bearing members 18 longitudinally of the guides 17, thus to adjust the end wall relatively to change the length of the blocks and by positioning the pintles 25 in different ones of the holes 6 for adjusting the side walls 9 relatively to vary the width of the block, it being understood that when the size of the mold is changed there will be employed in connection therewith a bottom wall 12 and a follower-plate 38 of requisite dimensions, and, furthermore, that by moving the pin 34 to different ones of the holes 33 the compressing member 36 may be arranged for blocks of different thicknesses. When the parts of the mold are changed for changing the size of the block to be cast, the members or bolts 43 will be moved to one or the other of the rows of holes 36 and to appropriate holes in either of said rows for properly centering the core in the mold.

Having thus described my invention, what I claim is—

1. In a building-block machine, a mold, a core movably sustained therein, and a member operable for compressing the material in the mold, the core being adapted to follow the line of movement of the member while operating to compress the material.

2. In a building-block machine, a mold, a movable member operable for compressing the material in the mold and a core extended into the mold perpendicularly to the line of movement of the member and adapted to follow the latter in its movement while compressing the material.

3. In a building-block machine, a mold, a vertically-movable member operable for compressing the material in the mold, and a horizontal core extended into the mold and sustained for vertical movement with the compressing member.

4. In a building-block machine, a mold, core members connected respectively with opposite walls of the mold and conjointly forming a core within the latter, said core being sustained for movement in the direction of the line of compression of the material, and means for compressing the material.

5. In a building-block machine, a mold comprising side and end walls, a pair of said walls being sustained for movement toward and from each other, core members carried by said walls for projection into the mold, said members being sustained for movement relative to the walls and in the direction of the line of compression of the material, and means for compressing the material in the mold.

6. In a building-block machine, a mold comprising side and end walls and a bottom wall, said side walls and one of the end walls being movable for releasing the molded block, a horizontally-movable platen arranged to sustain the bottom wall, said platen being pivoted for vertical tilting movement and means for moving the platen horizontally to carry the bottom wall and block to discharging position and thereafter tilting the platen vertically to discharge the block.

7. In a building-block machine, a frame, a platen arranged for horizontal movement thereon, said platen being also adapted for tilting movement, a mold comprising side and end walls and a bottom wall, the latter being sustained for movement with the platen, and the side walls and one of the end walls being movable to release the molded block, means for moving the platen horizontally and thereafter tilting the same vertically, and a supporting-frame pivoted to swing in a vertical plane to position for receiving the block when the platen is tilted.

In testimony whereof I affix my signature in presence of two witnesses.

CLIFFORD F. SANFORD.

Witnesses:

MILTON O. BRANDEBERRY,
WILLIAM W. LA VERGNE.