

No. 831,077.

PATENTED SEPT. 18, 1906.

O. JOHNSON.
CEMENT BLOCK MACHINE.
APPLICATION FILED DEC. 2, 1905.

2 SHEETS—SHEET 1.

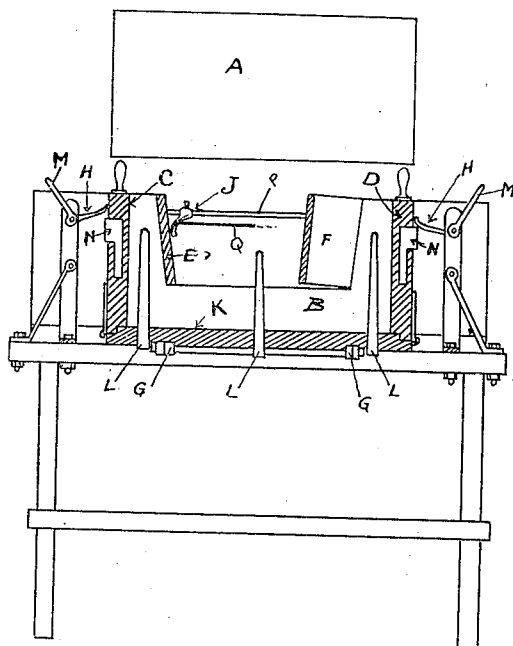


FIG. 1.

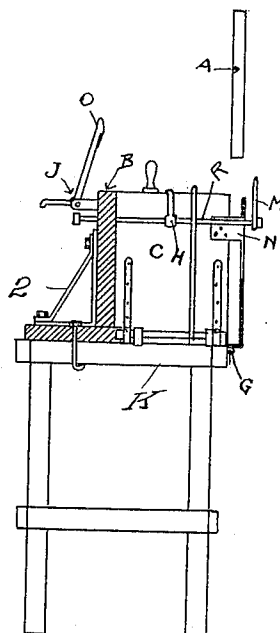


FIG. 2.

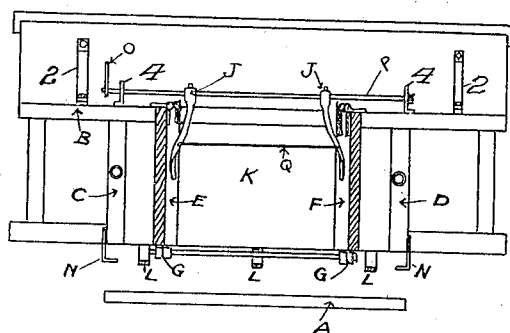


FIG. 3.

Witnesses:
L. F. Richardson
Byron M. Com.

Olof Johnson Inventor
By his Attorneys R. A. R. R. R.

No. 831,077.

PATENTED SEPT. 18, 1906.

O. JOHNSON.
CEMENT BLOCK MACHINE.
APPLICATION FILED DEC. 2, 1905.

2 SHEETS—SHEET 2.

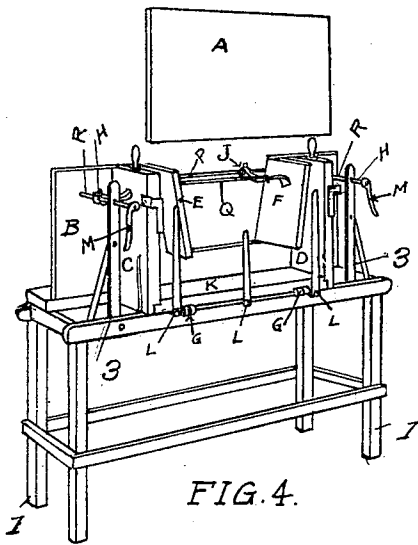


FIG. 6.

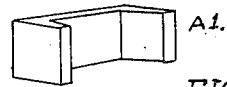
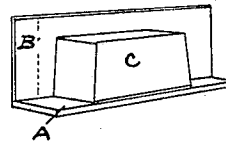


FIG. 7.



FIG. 8.

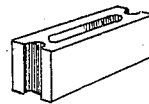
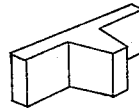


FIG. 9.

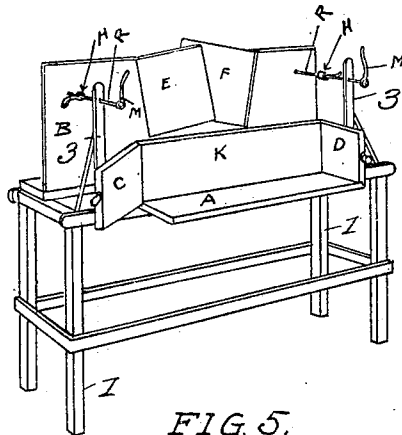


FIG. 5.

WITNESSES:

D. B. Richardson
Byron M. Coon

Olof Johnson INVENTOR.

BY R. A. M. [Signature]
ATTORNEYS.

UNITED STATES PATENT OFFICE.

OLOF JOHNSON, OF ESTHERVILLE, IOWA.

CEMENT-BLOCK MACHINE.

No. 831,077.

Specification of Letters Patent.

Patented Sept. 18, 1906.

Application filed December 2, 1905. Serial No. 289,975.

To all whom it may concern:

Be it known that I, OLOF JOHNSON, a citizen of the United States, residing at Estherville, in the county of Emmet and State of Iowa, have invented certain new and useful Improvements in Cement-Block Machines, of which the following is a specification.

This invention has for its object to supply a machine for molding building-blocks, tiles, and like articles used in building operations and constructed of cement or other plastic or self-hardening material.

One of the principal objects in view is to devise a machine of the character aforesaid which may be readily adapted for the molding of blocks of different sizes and shapes and which will admit of the material being tamped into the mold and the block being easily removed after being shaped without receiving any shock or jar which would tend to effect disintegration of the particles while the block is yet in a green state.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which—

Figure 1 is a front view of a machine embodying the invention, parts being broken away and parts being in section and the pallet elevated, so as to more clearly disclose the relative arrangement and construction of the component parts. Fig. 2 is an end view of the machine, a portion of the mold being in section and the pallet elevated. Fig. 3 is a top plan view of the machine, the end gates and pallet-rests being in horizontal section and the pallet being removed and set upward from the mold. Fig. 4 is a perspective view of the machine having the pallet elevated. Fig. 5 is a detail perspective view of the machine, the several parts of the mold being separated and the bottom turned so as to bring the pallet in horizontal position after supporting the block after being molded. Fig. 6 is a detail perspective view of a construction admitting of molding a block with the face uppermost. Figs. 7, 8, and 9 show

some of the different forms of blocks adapted to be molded by the machine.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The stand or supporting structure for the mold may be of any design and, as illustrated, comprises four legs 1, connected at their upper ends by longitudinal and cross bars and near the other ends by similarly-disposed bars. The mold proper is supported upon the stand or framework and in conjunction therewith constitutes the machine for forming the building-blocks, tiles, or the like adapted to be constructed of concrete or any of the materials commonly employed in the manufacture of artificial building or structural elements.

The mold comprises a bottom K, end gates C and D, a side B, and a pallet A. The side B is laterally adjustable to admit of varying the size of the block to be molded and is braced by means of stays 2 of bracket formation. The bottom K is hinged or otherwise connected to the stand to admit of its turning from a horizontal into a vertical position, as indicated in Fig. 5, thereby providing for discharging the block upon the pallet A, upon which it may be removed from the machine to the drying-room or other place for hardening or setting. The end gates C and D are hinged or otherwise attached to the bottom K to admit of their swinging outward or away from the stock, whereby the latter may be released when it is required to remove the block from the mold after being fashioned. Suitable means are employed for holding the end gates C and D closed, and in the preferred construction curved arms H are mounted upon transverse rock-shafts R, supported in the side B, and in uprights 3, projected upward from the stand. The arms H are curved to provide, in effect, cams, which force the end gates C and D inward by a wedge action. Curved operating-handles M are applied to the outer ends of the rock-shafts R and are intended to come in contact with the mold and prevent its turning upon the stand so long as the end gates C and D are pressed inward and held by the arms H.

Pallet-guides N are secured to the edge portion of the end gates C and D opposite to the side B and have vertical portions spaced from the adjacent vertical edges of said end

gates a distance corresponding to the thickness of the pallet A, so as to hold the latter in place and close against the edges of the end gates. The pallet-guides N are preferably formed of strips of metal, having ears projected therefrom to rest against the end gates, to which they are attached by suitable fastening means. Pallet-rests L are attached to the bottom K and consist of arms, which supplement the action of the pallet-guides in holding the pallet in place and which support said pallet when occupying a horizontal position, as shown in Fig. 5, and the pallet A consists of a board, which forms a vertical side of the mold and is held in place by the guides N and rests L. When the mold is turned to bring the bottom into vertical position, as indicated in Fig. 5, and the end gates are swung outward, the pallet is sustained in horizontal position by means of the rests L, it being understood that the pallet-guides are withdrawn from engagement with the end portions of the pallet, since they move outward with the end gates.

In order to form the end portions of the block shown in Fig. 7 of the drawings, gates E and F are provided and are hinged at their outer edges to the side B, so as to swing inward across the space of the mold and touch the pallets at their free edges. The gates E and F incline toward each other at their lower ends, thereby enabling the end portions of the block to be thicker at their juncture with the body portion thereof, as clearly indicated in Fig. 7. The gates when swung inward are held in position by means of arms J, attached to a rock-shaft P, which is provided with an operating-handle O, said rock-shaft being mounted in bearings 4, attached to the side B. The arms J are adjustable on the rock-shaft, and their outer ends are curved to act upon the gates E and F by a wedge action similar to that of the arms H. A brace Q connects the free ends of the arms J and mutually supports the same against inward movement of the gates E and F when under strain incident to tamping the material in the formation of the block or other structural element. The arrangement shown in Figs. 1 to 5, inclusive, admits of molding the block face downward. Should it be desired to mold the block face up, the arrangement illustrated in Fig. 6 is employed. The side B is inverted and a core c employed and arranged to rest upon the bottom of the mold, the block when formed having its end portions extending downward along the ends of the core c instead of upward along the end gates E and F, as hereinbefore described.

When the machine is arranged for molding a block, the mold occupies a position directly upon the stand, so as to be sustained directly thereby, and the inclosing walls A, B, C, and D are in position and inclose the space constituting the mold and into which the

material is to be tamped. After the block has been molded the end gates E and F are released by giving the rock-shafts R a one-quarter turn, and the mold is turned so as to bring the bottom K in upright position and pallet A in horizontal position, so as to support the block and enable its transportation to the place prepared for its setting or hardening.

Having thus described the invention, what is claimed as new is—

1. In a machine for molding building-blocks or the like, the combination of a stand or supporting structure, a mold mounted thereon and comprising a fixed side, a bottom, end gates connected with said bottom, a pallet adapted to form a side of the mold, means for attaching the pallet to the bottom and end gates, and means carried by the stand or supporting structure to hold the end gates in operative positions and adapted to be thrown out of coöperation with the end gates when the movable mold parts have been tilted.

2. In a machine for molding building-blocks or the like, the combination of a stand, a mold mounted thereon and comprising a fixed side, movably-mounted bottom and end gates adapted to be tilted toward one side of the stand, means for holding the end gates in operative positions and embodying rock-shafts connected with the fixed side of the mold, end-gate-engaging members carried by said rock-shafts, means for operating the rock-shafts, and a pallet for the mold movable with the bottom and end gates when the latter are tilted, the end gates being thrown out of coöperation with the rock-shafts and engaging members carried thereby when the movable mold parts have been tilted as specified.

3. In a machine for molding building-blocks or the like, the combination in a tilting mold of end gates, a removable pallet, and rests movable with the mold parts when tilted for supporting the pallet after the tilting operation and disconnection of the end gates from said pallet.

4. In a machine for molding building-blocks or the like, the combination of a bottom, end gates, and a pallet constituting parts of the mold, pallet-guides attached to said end gates and pallet-rests attached to the said bottom for supporting the pallet when the end gates are swung outward and the pallet-guides are withdrawn from engagement with the pallet.

5. In a machine of the character set forth, the combination of a bottom, end gates having pivotal connection with said bottom, a pallet forming a side of the mold which comprises the bottom and end gates, pallet-guides attached to said end gates and movable therewith, and pallet-rests attached to the said bottom and adapted to act jointly

with the pallet-guides to brace the pallet and to support the latter when the pallet-guides are withdrawn from engagement with the pallet by outward movement of said end gates.

5 6. In a machine of the character set forth, the combination of a supporting-framework, a mold mounted upon said framework and adapted to tilt thereon and comprising movable end gates, rock-shafts, arms extended from the rock-shafts and adapted to hold the end gates in closed position, and operating-handles applied to said rock-shafts and adapted to prevent tilting of the mold upon the framework when said arms are in engagement with the end gates.

10 7. In a machine of the character set forth, the combination of a mold comprising a side, gates hinged to said side and adapted to

swing inward and across the mold, a rock-shaft, and arms extended from said rock-shafts to come in contact with said gates and hold them in working position. 20

8. In a machine of the character set forth, the combination of a laterally-adjustable side, a swinging bottom, end gates hinged to said bottom, a removable pallet, pallet-guides attached to said end gates, pallet-rests attached to said bottom, and means for holding the said end gates in closed or normal position. 25 30

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

OLOF JOHNSON. [L. s.]

Witnesses:

BERTHA JOHNSON,
GEO. E. STOVER.