

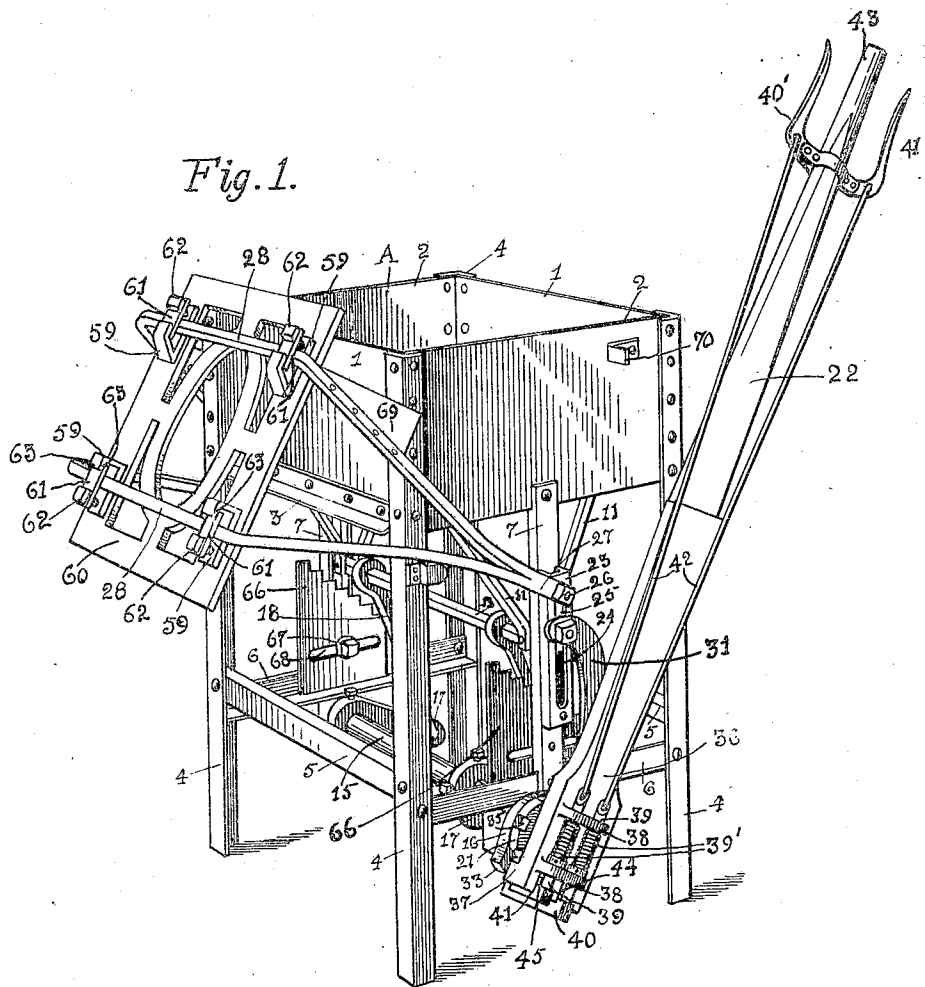
No. 812,615.

PATENTED FEB. 13, 1906.

R. E. TEETS.
CEMENT BLOCK MOLDING MACHINE.

APPLICATION FILED MAY 15, 1905.

3 SHEETS—SHEET 1.



WITNESSES:

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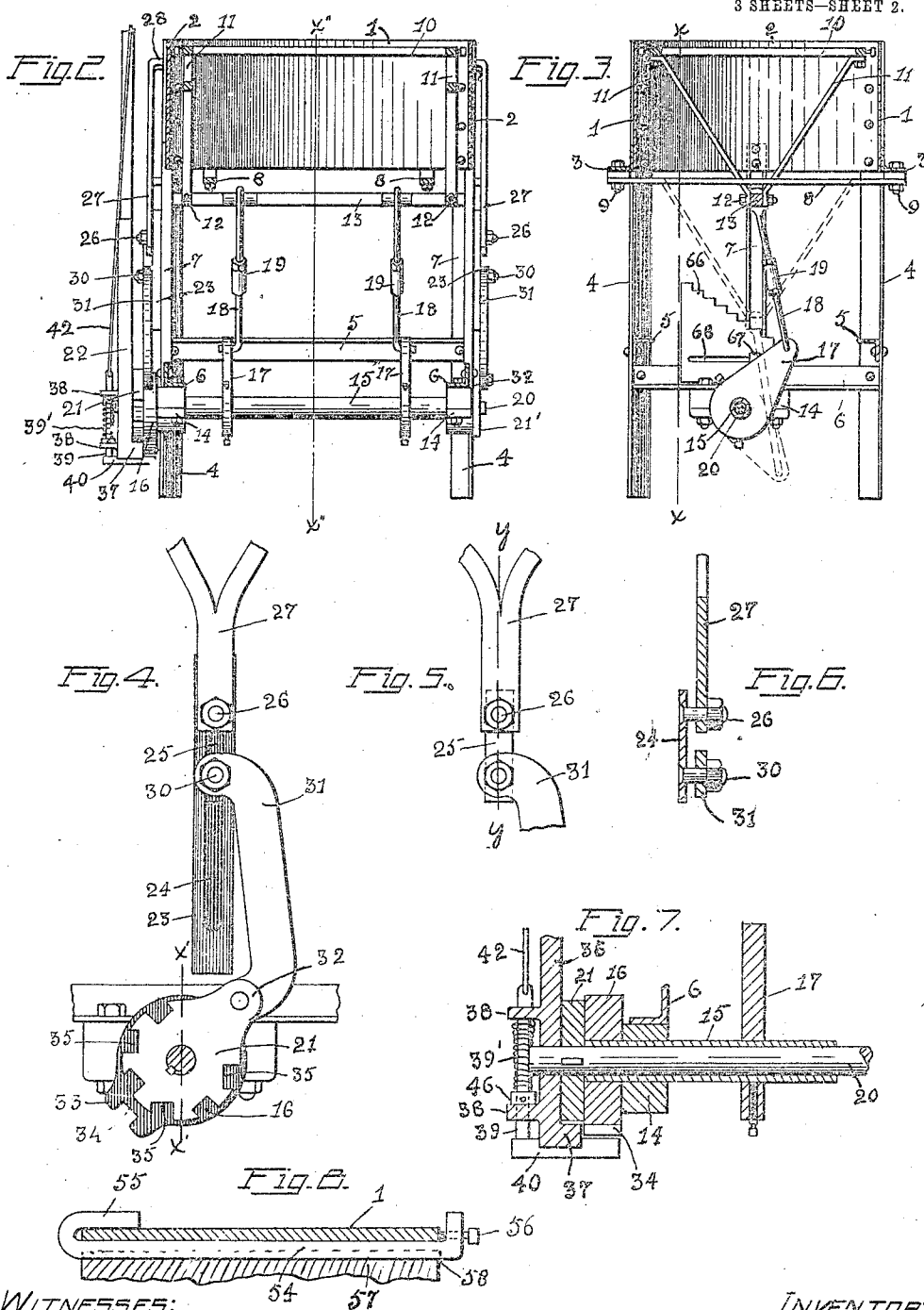
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3 SHEETS—SHEET 2.



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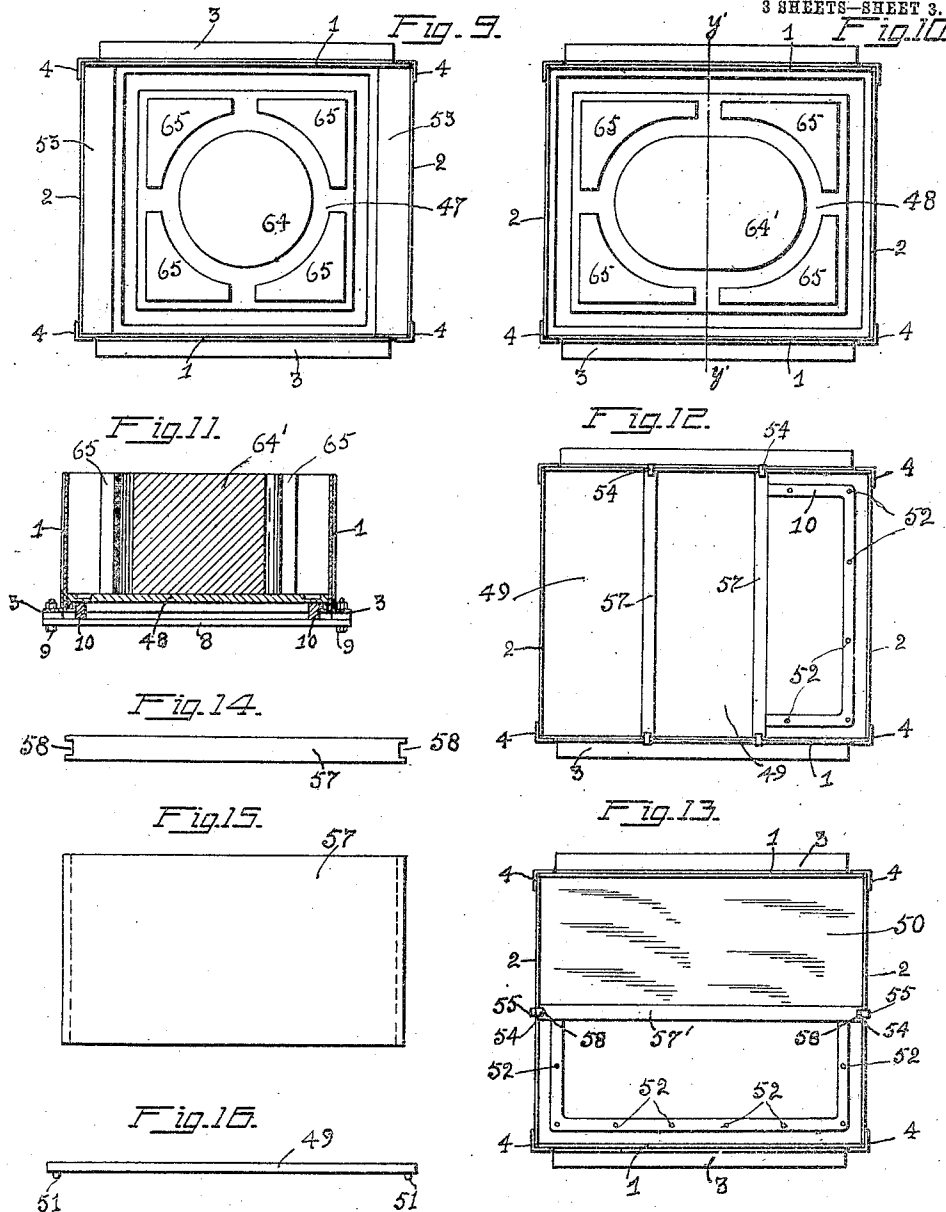
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

RITCHIE E. TEETS, OF TOLEDO, OHIO.

CEMENT-BLOCK-MOLDING MACHINE.

No. 812,615.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed May 15, 1905. Serial No. 260,385.

To all whom it may concern:

Be it known that I, RITCHIE E. TEETS, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Cement-Block-Molding Machines, of which the following is a specification.

My invention relates to a cement-block-molding machine, and has for its object to provide a simple, convenient, and efficient machine of the kind whereby various forms of building-blocks of various lengths and thickness formed of cement can be readily molded in the same mold-box. I accomplish this object by constructing a molding-machine, as hereinafter described, and illustrated in the drawings, in which—

Figure 1 is a perspective view of my invention with the tamping-plate removed from the mold-box and the operating-lever in position to partly raise the bottom plate. Fig. 2 is a longitudinal vertical section of my machine in line X X of Fig. 3. Fig. 3 is a cross-section of the same on line X' X' of Fig. 2. Fig. 4 is a detail view, in side elevation, of portions of the connections of the tamping-plate frame with its operating-shaft. Fig. 5 is a similar detail view of portions of the same. Fig. 6 is a section on line Y Y of Fig. 5. Fig. 7 is a detail view, partly in vertical section, of portions of the operating-shafts and of the lever and clutch mechanism mounted thereon on line X' X' of Fig. 4. Fig. 8 is a detail view showing method of attaching a partition-guide to the mold-box with a broken-away end portion of a partition mounted on the guide. Fig. 9 is a top plan view of the mold-box provided with a mold for forming square chimney-blocks having a central cylindrical flue and surrounding air-ventilator ducts. Fig. 10 is a similar view showing the mold-box provided with a mold for an oblong chimney-block having an elliptical flue. Fig. 11 is a vertical section of the same on line Y' Y'. Fig. 12 is a top plan view of the mold-box provided with detachable cross-partitions and bottom-plates mounted on the bottom-frame. Fig. 13 is a similar view showing the mold-box provided with a lengthwise-detachable partition and a bottom plate for one of the divisions mounted on the bottom frame. Fig. 14 is a top view of a partition. Fig. 15 is a side elevation of the same, and Fig. 16 is a side elevation of a bottom plate.

In the drawings, A is a rectangular mold-

box having the side plates 1 and end plates 2 and the side angle-bars 3. The mold-box is mounted on the legs 4, which are formed of angle-bars and are suitably secured to the corners of the box. The legs 4 are cross-connected and braced by side angle-bars 5 and the end angle-bars 6, suitably secured to the legs parallel with the sides and ends of the mold-box, the side bars 5 being relatively higher than the end bars 6. Central between the legs 4 the ends 2 of the box and the end brace-bars 6 are connected by channel guide-bars 7 with the channel-grooves facing inward. The side angle-bars 3 are secured to the side plates 1 of the box flush with their lower outer edges and with one web of each angle-bar extending outwardly, and these horizontal webs of the side angle-bars 3 are cross-connected by the bottom bars 8, seamed thereto by the bolts 9. Upon the bottom bars 8 is supported the movable bottom frame 10, the side and end members of which are respectively parallel with the sides and end of the box and at equal distances therefrom. To the four corners of the bottom frame 10 are secured the angled upper end portions of the supporting-arms 11, which converge in end pairs at equal angles and have angled lower end portions secured by common bolts 12 to a squared lifting-bar 13, the ends of which extend into the grooves of the channel guide-bars 7 and are movable upward and downward therein.

To the under side of the end angle-bars 6, slightly out of the longitudinal centers of their lengths, there are secured the shaft-bearings 14, in which are journaled the hollow shaft 15, one end portion of which extends beyond the outer face of its bearing, upon which end portion is mounted the clutch rock-plate 16, and between the bearings at points near the bearings are mounted on the shaft the rock-arms 17, the free ends of which are pivotally connected by the connecting-rods 18 to the lifting-bar 13, whereby when the shaft 15 is rocked back and forth in its bearings by the clutch-plate 16 the rock-arms 17 move the bottom frame 10 upward and downward through the mold-box. The connecting-rods 18 are each formed of two sections, which are coupled together by the coupling-sleeve 19, right and left threaded to engage complementary threaded portions of the sections, whereby the lengths of the connecting-rods may be adjusted to increase or decrease the upward movement of the bottom

frame from the bottom supporting-bars 8. Extending through the bore of the shaft 15 is a rock-shaft 20, having end portions extending beyond the ends of the shaft 15, and upon
5 opposite end extensions are mounted the rock-plates 21 and 21', which are fixed to the shaft, and next to the rock-plate 21 on the same extension is journaled an operating-lever 22.

To the outer faces of the channel guide-bars 7 are suitably secured the channel guide-bars 23, with the channels inward, and their outer faces are provided with the stopped-off slots 24, extending along the channels, and within the channels are provided the slide-bars 25, to the upper ends of which are pivotally secured by the stud-bolts 26, extending through the slots 24, the lower end portions of the bifurcated arms 27 of a tamping-plate frame, which is preferably formed of a
15 single flat bar divided longitudinally between end portions, with the divided central portion spread apart and bent to form the Y-shaped arms 27, integral with the parallel cross-bars 28 and at right angles thereto. To the lower
20 end portions of the slide-bars 25 are pivotally secured by the stud-bolts 30 the upper end portion of link-bars 31, the lower end portion of which are pivotally connected to arm extensions 32 of the rock-plates 21 and 21',
30 whereby the tamping-frame bars 28 may be raised a distance above the mold-box and the tamping-frame swung on its arms to and from one side thereof, as shown in Fig. 1, from and to a position over the mold-box by turning the shaft 20 in one direction and may
35 be drawn downward when in the latter position by turning the shaft in the opposite direction.

The rock-plate 16, which is for the most
40 part concentric to the shaft 15, upon which it is fixedly mounted, is provided with a short crank-arm extension 33, having a squared notch 34, and the plate is so mounted on the shaft relative to the rock-arms 17 that the
45 notched arm extension 33 projects from the shaft at about ninety degrees from the rock-arms 17, which arms are of such length that less than a half-revolution of the shaft 15 will project the bottom frame through the top of
50 the mold-box.

The rock-plates 21, which, excepting as to the arm 32, is also concentric to the rock-shaft 20, is provided in the concentric portion with clutch-notches 35 at intervals around its
55 periphery, and the slots 24 of guide-bars 23 are of such length that a movement of the arm 32 through more than ninety degrees is required to move the stud-bolts 26 between the upper and lower limits of the slots in raising or lowering the tamping-frame.
60

The operating-lever 22 is provided with a broadened and flattened end portion 36, by which it is journaled on the shaft 20 and which is adapted to shoulder against the
65 rock-plate 21 and is provided with a lip 37,

which projects inwardly and circumferentially shoulders the rock-plate 21, and on its outer face the end portion 36 is provided with the parallel cross-lugs 38, having transverse
70 alined orifices, in which are movably mounted the stems 39 of clutch-hooks 40 and 41. The stems of the clutch-hooks are respectively connected by connecting rods 42 with the bell-crank handle-levers 40' and 41', suitably
75 pivoted on opposite sides of the handle portion 43 of the operating-lever in position to be jointly grasped with the handle 43.

The clutch-hook 40 is adapted to engage the notch 34 of the rock-plate 16 and the
80 clutch-hook 41 the notches 35 of the rock-plate 21 and to move to such engagement in notches 44 and 45, respectively, in the end portion 36 of the operating-lever. The hooks are held normally out of engagement with the notches of the rock-plates with which
85 they are respectively adapted to engage by the helical springs 39', mounted on the stems 39 between the lug 38, by means of collars 46, fixed on the stems between the lower ends of the springs and the lower lug 38, and the
90 hooks are respectively brought into engagement with the notches of the rock-plates by drawing the hand-lever connected thereto toward the handle of the operating-lever when the hook of the hand-lever is in alignment with the notch. When the hook 40 is
95 so engaged with rock-plate of the shaft 16, the bottom frame of the mold-box may be raised or lowered, according to the distance and direction of the movement of the operating-lever, and when the hook 41 is so engaged
100 with the rock-plate 21 the tamping-frame may be raised or lowered, according to the distance and direction of the movement of the same lever.
105

Upon the bottom frame 10 may be mounted either the single square chimney-block mold 47 (shown in Fig. 9) or the oblong chimney-block mold 48 (shown in Figs. 10 and 11) or
110 three of the bottom plates 49, as shown in Fig. 12, or two of the bottom plates 50, as shown in Fig. 13, according as the blocks to be molded are to be square or oblong hollow chimney-blocks or solid wall-blocks of the cross or lengthwise dimensions of the mold-box, each having dowel-pins 51 adapted to fit
115 into holes 52, located in the bottom frame, to properly adjust the molds or bottom plates to the mold-box.

When a square chimney-block is to be
120 molded, wood end blocks are used to fill up the spaces 53 between the mold 47 and the ends of the mold-box. When three solid wall-blocks of a length of the width of the mold-box are to be molded to partition
125 guides 54, having blocks 55 adapted to engage the tops of the sides or ends of the mold-box and set-screws 56 to secure them to their bottoms are placed in opposite pairs at equal
130 intervals on each side of the mold-box and

partitions 57, having end grooves 58 to receive the guides and movable up and down on the guides are inserted in the box, as shown in Fig. 12, and when two solid wall-blocks of a length equal to the length of the mold-box are to be molded one pair of partition-guides 54 are placed central of the ends, and a partition 57' is placed on the guides, as shown in Fig. 13.

To the tamping-frame bars 28 are detachably secured by bracket-clamps 59 a tamping plate or plates complementary to the mold or mold-plates mounted on the bottom frame, as shown in Fig. 1, for attachment of the chimney-block tamping-plate 60. The bracket-clamps 59 are suitably secured to these tamping-plates and are provided with the clamping-latches 61, which are pivotally secured to one end of each bracket by a screw-bolt 62, and the free end of the latch is adapted to swing over a bar 28 and under a lip 63 of the bracket, in which position it may be clamped on the bar 28 by the screw-bolt 62 and may be readily released therefrom for detachment of the plate by a reverse operation.

The chimney-block molds 47 and 48 are respectively provided with the central flue-cones 64 and 64' and with the air-duct cores 65, by which the blocks molded therein are provided with central smoke-flue and surrounding air-duct sections. The bottom plates 49 and 50 may be provided on their upper faces with depressions adapted to simulate a "rock-face" finish to the outer faces of the blocks molded thereby.

To adapt the machine to produce blocks of a desired thickness less than the depth of the mold-box, I have provided the plates 66, the upper edges of which are stepped at uniform intervals, preferably of one-inch height, and which are mounted on and movable along the end angle-bars 6 beneath the lift-bar 13. The plates 66 are adjustably secured in vertical position by stud screw-bolts 67, secured to the channel guide-bars 7 and projecting inward through slots 68 in the stepped plates, the slots extending parallel with the bars 6. These plates form stop-supports for the lift-bar and limit its downward movement, thereby arresting the bottom frame at any desired step interval above its normal position at the bottom of the mold-box to which the stop-plates are adjusted.

The bottom and tamping frames having been respectively provided with complementary bottom and top plates and the mold-box with suitable partitions therefor (if required) and the plate 66, being adjusted for the desired thickness, the mold-box, from which the tamping-frame has been removed, as shown in Fig. 1, is filled with a properly-moistened mixture of sand and cement and struck off level with the top edge of the box. The operating-lever is then engaged with the

rock-plate of the shaft 20 in the manner described and the tamping-frame is raised thereby a sufficient distance for the tamping-plates to be swung over the top of the mold-box until the triangular stop-guides 69, secured to the forward branch of the bifurcated arms of the tamping-frame, engage suitable bracket-stops 70, secured to the ends of the mold-box, the latter being placed so as to bring the tamping-plates in position to enter the mold-box. The operating-lever is then moved in the opposite direction until the tamping-frame is drawn downward and compressed on the contents of the mold-box with the desired amount of pressure. The tamping-frame is then again raised and swung to one side of the mold-box, after which the operating-lever is disengaged from the rock-plate 21 and engaged with the rock-plate 16 of the shaft 15 and moved to raise the bottom frame through the mold-box until the bottom plates are above the level of the top of the mold-box, in which position the molded block may be lifted therefrom by the bottom plate on which it rests and carried thereon to a place of storage, where it remains on the plate until it is sufficiently hardened to be handled, the machine being supplied with a number of bottom plates to permit of its continuous operation for the period required for such hardening. When the machine is used for molding solid blocks, the partitions are carried up with the blocks through the mold-box by the bottom frame, where they are readily removed from between the discharged blocks and replaced in the guides for the next operation of molding. When the machine is used for molding chimney-blocks, the molded blocks are in like manner lifted from the machine and carried away on the bottom plate to a place of deposit and there inverted on a suitable support for the block, after which the mold-plate may be lifted therefrom, thereby withdrawing the cores from the block, whereby only a few duplicate molds are required for the continuous operation of molding such blocks.

It will thus be seen that I have produced a molding-machine that is convenient and efficient and readily adapted for molding cement blocks of various forms and sizes in the same mold-box, thereby making it unnecessary to provide mold-boxes 17 of different sizes suitable for each form and dimension of block used in the construction of the walls of a building.

What I claim to be new is—

1. In a cement-block-molding machine, the combination with the mold-box A, of the bottom frame 10, a bottom mold plate or plates mounted on the bottom frame, the tubular rock-shaft 15 having the rock-plate 16 and the rock-arms 17, means connected to the rock-arms 17 and to the bottom frame adapted to move the bottom frame upward

and downward through the box, as the shaft is
rocked, the rock-shaft 20 within the tubular
shaft having end portions extending beyond
the ends of the tubular shaft provided with the
5 rock-plates 21 and 21', the tamping-frame 28,
adapted to be moved vertically and to swing
laterally from and to a position over the
mold-box, slide-bars pivotally connected to
the tamping-frame, and movable in vertical
10 guides, link-bars connecting the slide-bars to
the rock-plates of the shaft 20, a clutch-lever
loosely mounted on the shaft 20 beside the
rock-plates 21 and 16, means to engage the
lever with the rock-plate of either shaft, a
15 tamping-plate, and means to secure the
tamping-plate to the tamping-frame in posi-
tion to enter the top of the mold-box, sub-
stantially as set forth.

2. In a cement-block-molding machine,
20 the combination with a mold-box A, of a bot-

tom frame 10, mounted on a lifting-bar, and
movable upward and downward through the
box by the lifting-bar, means comprising a
rock-shaft, rock-arms on the shaft, and con-
necting-rods connecting the rock-arms with 25
the lifting-bar, to raise and lower the lifting-
bar, and stepped stop-plates, beneath the
lifting-bar, and adjustable to limit the down-
ward movement of the bottom frame to dif-
ferent distances above the bottom edges of 30
the mold-box, substantially as set forth.

In testimony whereof I have signed my
name to this specification, in the presence of
two subscribing witnesses, this 28th day of
March, 1905.

RITCHIE E. TEETS.

Witnesses:

V. W. MOREHOUSE,
A. L. HOFMAN.