

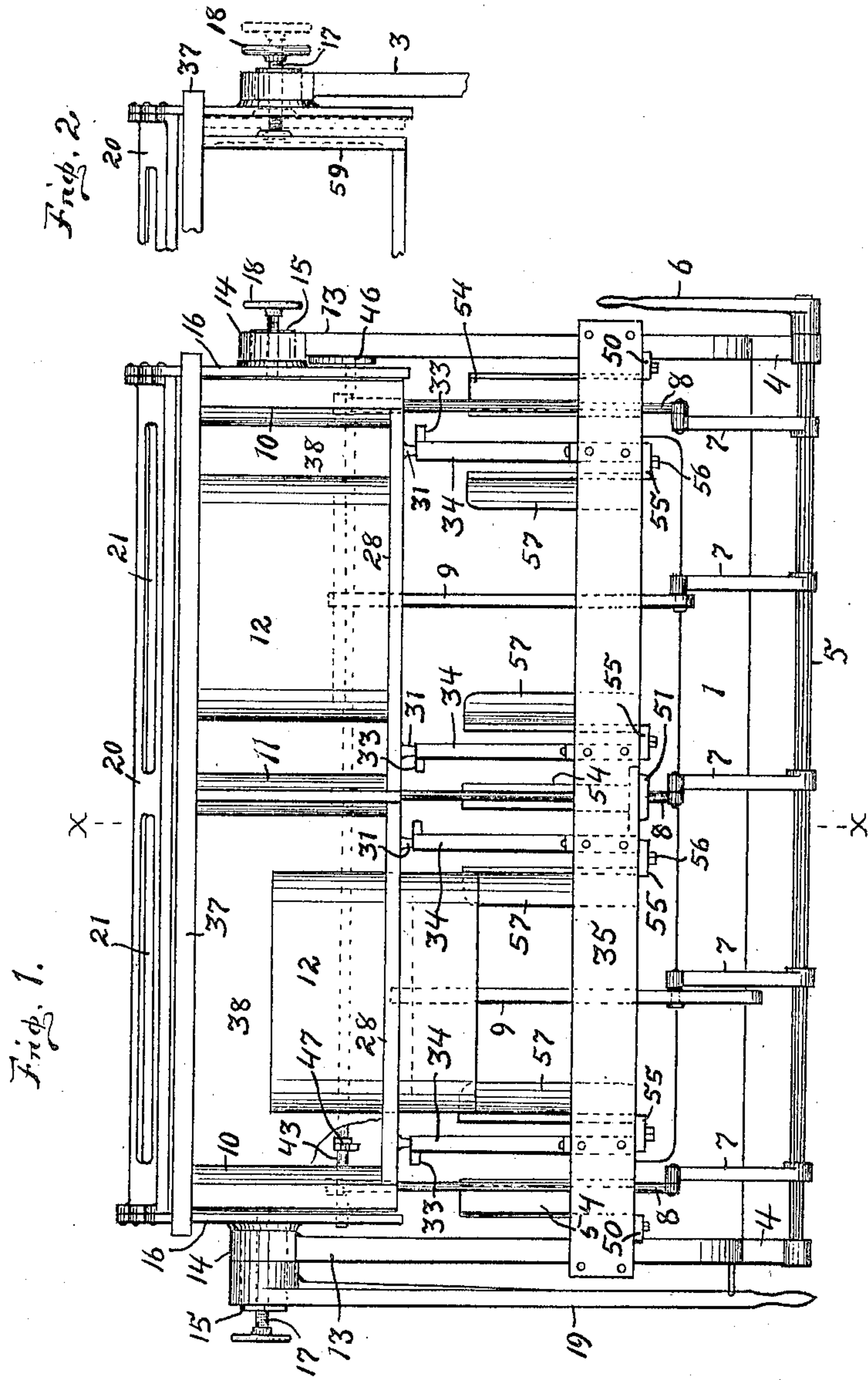
No. 813,112.

PATENTED FEB. 20, 1906.

B. POULSON.
CEMENT BLOCK MAKING MACHINE.

APPLICATION FILED OCT. 2, 1905.

3 SHEETS—SHEET 1.



WITNESSES:

H. G. Burns
H. J. Lamphe

Britton Poulson INVENTOR

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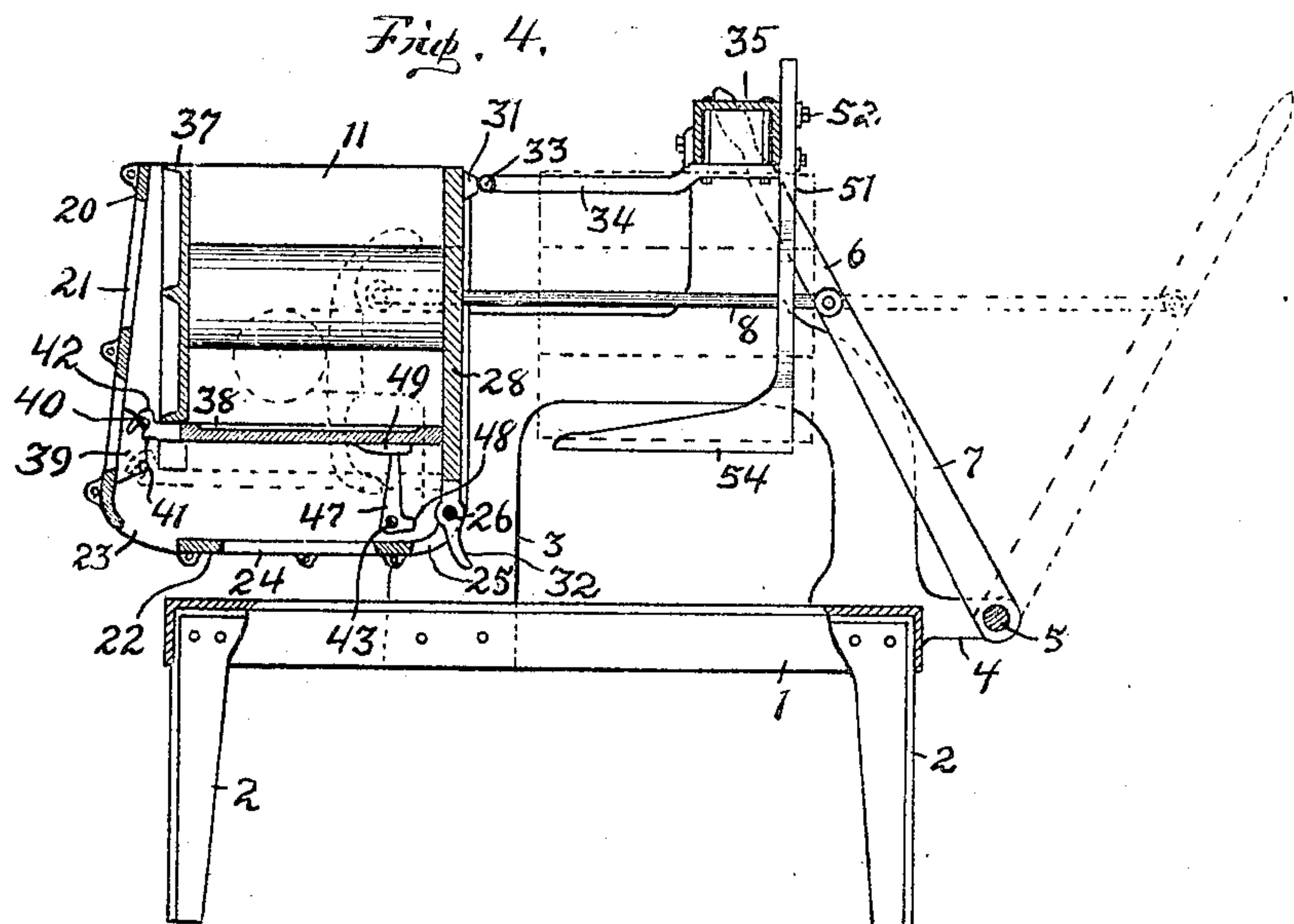
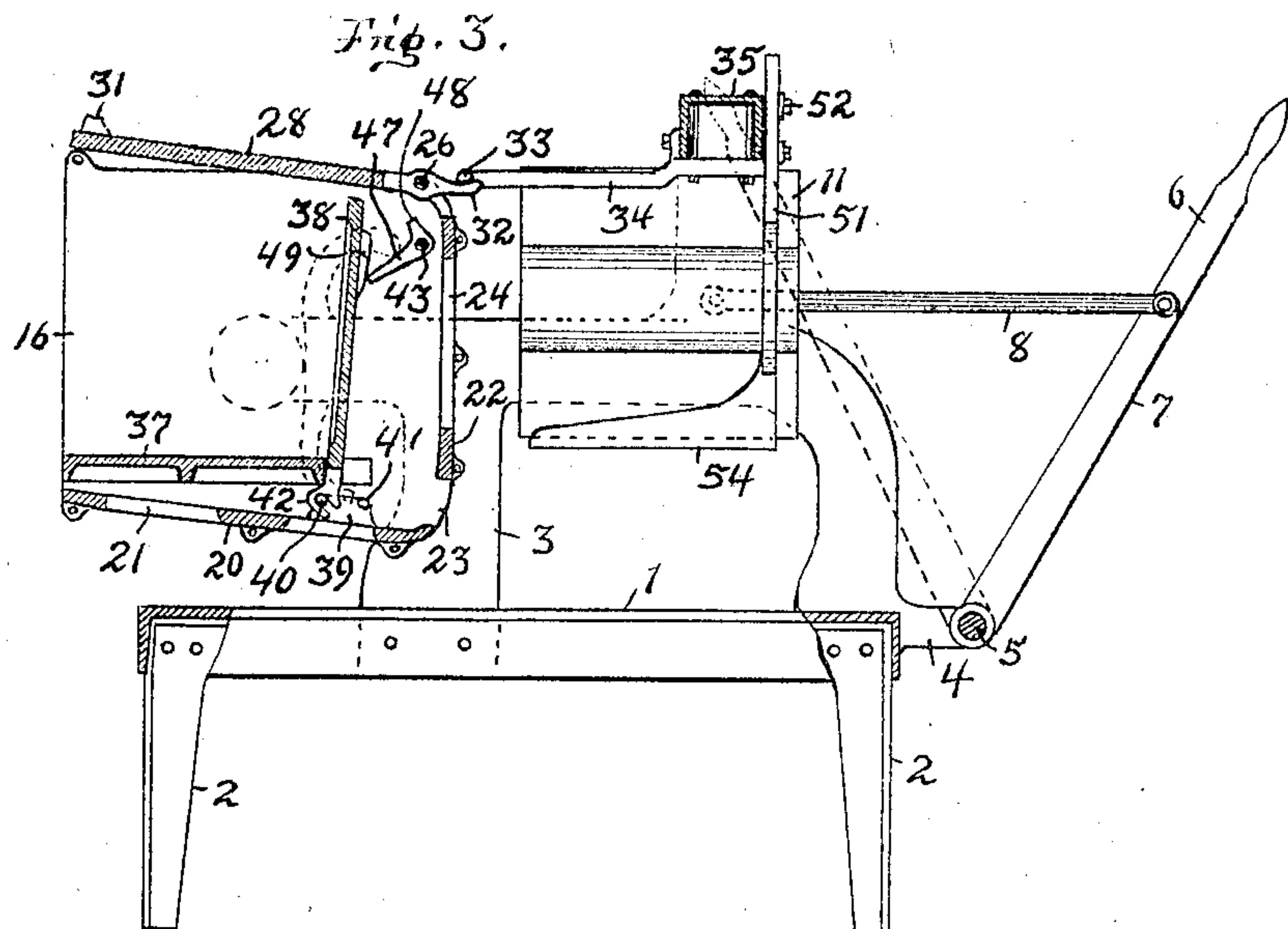
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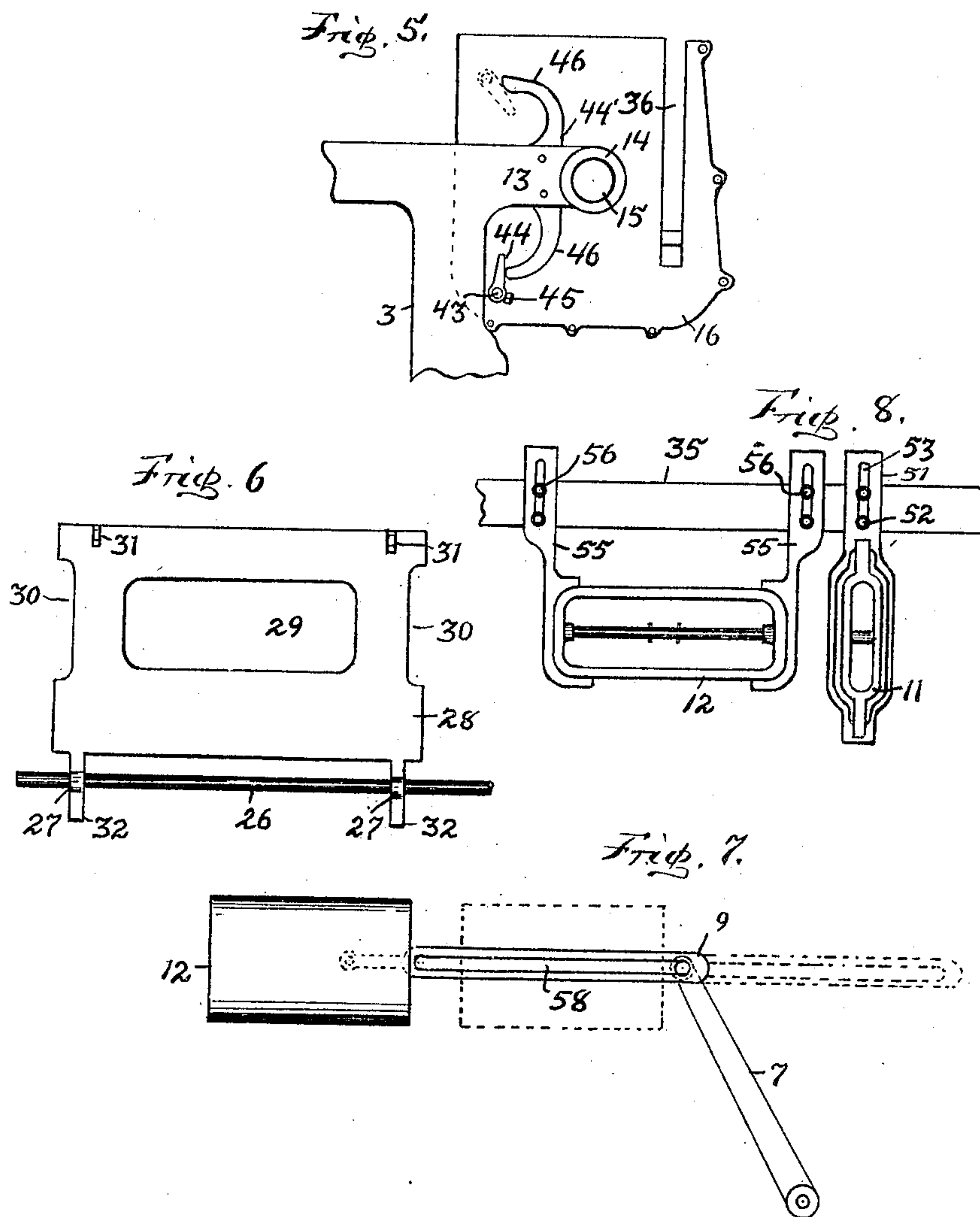
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

BRITTON POULSON, OF FORT WAYNE, INDIANA, ASSIGNOR OF ONE-HALF
TO FREDERICK ZIEMENDORFF, OF FORT WAYNE, INDIANA.

CEMENT-BLOCK-MAKING MACHINE.

No. 813,112.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed October 2, 1905. Serial No. 280,875.

To all whom it may concern:

Be it known that I, BRITTON POULSON, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Cement-Block-Making Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in cement-block-making machines.

The object of my present invention is to provide a comparatively cheap, simple, and efficient machine for making hollow cement building-blocks positive and reliable in action and having novel and improved means for releasing the completed block from the mold and novel means for adapting the mold to various sizes of blocks.

My invention consists of a base or pedestal on which is fixed an upright frame carrying the pivoted mold, the horizontally-movable cores, and the operating mechanism therefor.

The principal novel features of my present invention reside in the means for automatically releasing the formed block from the mold and the means for adjusting the mold to different sizes of blocks.

Similar reference-numerals indicate like parts throughout the several views of the drawings, in which—

Figure 1 is a plan view of my invention, showing the operative parts in their relative positions. Fig. 2 is a detail plan of a modified end of the mold-box to enable the operator to substitute an end mold-plate for the sliding form plate by means of a lateral adjustment. Fig. 3 is a cross-section of Fig. 1, taken on the line *x x*, showing the mold swung over into position for removing the block and showing the division-plate withdrawn from the mold. Fig. 4 is a view similar to that shown in Fig. 3, but showing the parts in position for molding the block and also showing in dotted outline the central division-plate withdrawn from the mold. Fig. 5 is a detail end view of the mold-box, showing the means for releasing the pattern-plate. Fig. 6 is a detail of the back of the mold, showing the opening for the horizon-

tally-movable core and showing the pivotal mounting for this plate. Fig. 7 is a detail side view of the core and the operating lever-arms therefor and also showing in dotted outline the rearward adjustment of the core. Fig. 8 is a detail rear view of the division-block and core-hangers, showing the means for raising and lowering the same.

On a suitable base 1, preferably of rectangular contour and having a plurality of supporting-legs 2, is rigidly fixed an upright supporting-frame 3, whose forward end is provided with the rearwardly-projecting bearings 4, in which are rotatably mounted the horizontal shaft 5, on one projecting end of which is fixed an upright hand-lever 6. On this shaft 5 are rigidly fixed in spaced relation the lower ends of the lever-arm 7, whose upper ends are pivotally connected to outer adjacent ends of a series of connecting-rods 8 and 9, the former being pivotally connected to the respective end plates 10 and division-plate 11 and the latter to the respective cores 12. Each end of the upright frame 3 has a rearwardly-projecting portion 13, whose free ends form a journal-bearing 14 for the respective studs 15 in approximately central arrangement on the outer face of the end 16 of the mold-box. By this means the mold-box is supported and has a limited rotary movement. In suitable concentric screw-threaded openings in the studs 15 are mounted the screws 17, having upon their outer end a hand-wheel 18 and having their outer end adapted to bear against the adjacent end of the mold to hold it firmly in position when in use. One of these studs 15 has upon its outer end a rigid rearwardly-projecting operating hand-lever 19, by means of which the mold-box is rotated upon its bearings to permit the ready removal of the molded block in the manner hereinafter described.

The mold-box, as shown, has duplicate compartments for the purpose of molding two blocks at the same time and consists of a forward plate 20, whose opposite ends are firmly bolted to the forward and adjacent ends of the respective end plates 16. The plate 20 is preferably provided with lateral slots 21 to diminish its weight. The bottom 22 of the mold-box is rigidly fixed at its ends to the plates 16 and is provided with a plurality of longitudinal openings 23, 24, and 25

to permit all waste material having a tendency to lodge in the mold-box to pass freely out of the same. In the end plates 16 of the mold-box are fixed the ends of the rod or shaft 26, which passes loosely through lateral openings in the pendent lugs 27 of the plates 28, which form the back of the mold-box. The plates 28 are identical in construction and have a lateral opening 29 for the admission of the cores 12. These plates also have a recess 30 at each end thereof to permit the passage of the movable end plates of the mold and they have upon their upper edge and outer face a pair of lugs 31 for the purpose hereinafter described. These lugs 27 have a pendent projection 32, adapted to engage the corresponding lugs 33 on the rear ends of the horizontal brackets 34, whose rear ends are bolted to the front face of the channel-iron beam 35, which in turn is firmly bolted to the standard 3 in any proper manner.

The end plates 16 of the mold-box have near their outer edge a vertical slot 36, adapted to snugly receive the removable pallet 37. The bottom of the mold consists of a pattern-plate 38, which fashions the front face of the block and which is mounted as follows: The plate 20 of the mold-box has upon its inner face and near its lower edge brackets 39, in which are fixed two pins 40 and 41, Fig. 4. The plate 38 has its front edge provided near its opposite ends with hooks 42, adapted to form a pivotal and holding engagement with either of these pins, as desired, for the purpose about to be described.

A horizontal shaft 43 passes lengthwise through the mold-box and has its ends rotatably mounted in the end plates 16. One projecting end of this shaft 43 has a finger 44 fixed thereon by means of a set-screw 45, Fig. 5. On the inner face of one of the forwardly-projecting portions of the frame 3 adjacent to and in coöperative relation with the finger 44 is fixed a bracket 44', having the rearwardly-projecting lugs 46 in approximately vertical alinement and adapted to rotate the shaft 43 by engaging the finger 44 when the mold is rotated on its bearings for the removal of the completed block. On this shaft 43 are rigidly fixed a plurality of fingers 47, preferably four in number, two for each plate 38. These fingers 47 have a short right-angular lug 48. On the bottom of the plate 38 are arranged beveled lugs 49, against which the fingers 47 rest, Fig. 4, and thereby support the plate in position for use.

The means for supporting the movable end plates 10 and the division-plate 11 when they are drawn from their normal position consists of three hangers 50 and 51, respectively, all of which have a limited vertical adjustment on a pair of bolts 52, Fig. 8, fixed in the rear face of the beam 35 and arranged in vertical slots 53 in the upper end thereof. Each of these hangers has a forward extension 54

of proper dimension to receive and support the plates 10 and 11, as shown in Fig. 1.

A pair of vertically-slotted hangers 55 are similarly suspended from the bolts 56, which are fixed in the rear face of the beam 35. The hangers also have a forward extension 57 and are adapted to support the cores 12 when they are withdrawn from the mold-box. By thus mounting the end plates 10, the division-plate 11, and the cores 12 in vertically-adjustable hangers my invention is adapted for the manufacture of blocks having different thickness.

The operation of my invention thus described is, briefly stated, as follows: Assuming the movable plates 10 and the division-plate 11 of the mold and the cores 12 all to be in position within the mold and the hangers 50, 51, and 55 and the bottom plate 38 to be adjusted at their upper limit, as shown, the operator first seizes the hand-lever 6, rotates the shaft 5 rearwardly, thereby withdrawing the cores 12 and the plates 10 and 11 from the mold, after which he returns the lever 6 to its former position, thereby returning the plates 10 and 11 to their normal position in the mold. This last movement of the lever 6 does not return the cores to the mold, because the pivot of the lever-arm 7 slides freely in the longitudinal slot 58 of the connecting-rod 9, Fig. 7, and will rest in the forward instead of the rear end of such slot. The operator now tightens up the end plates 10 by means of the hand-wheel 18 and then fills the mold up even with the lower edge of the openings 29 in the mold-plate 28 and properly tamps the same. He then returns the cores to their position within the mold by hand, seizing hold of the rear end of the core for that purpose. When the block is finished, he withdraws the plates 10 and 11 and the cores 12 from the mold by means of the lever 6, as before, and then gives the mold a quarter-turn forward on its axis by means of the hand-lever 19, Fig. 1, thereby adjusting the mold into the position shown in Fig. 3, in which position the rear plate 28 and the pattern-plate 38 are automatically tilted away from the block to permit its convenient removal, as follows: When the mold is given the quarter-turn forward, the pendent portion 32 of the lugs 27 come into engagement with the corresponding lugs 33 on the bracket 34, Fig. 3, thereby slightly elevating the forward end of the plates 28, and at the same time the finger 44 is moved into the position shown in dotted outline in Fig. 5 by its engagement with the upper lug 46, thereby so rotating the shaft 43 as to disengage the fingers 47 from the lug 49, as shown in Fig. 3, and permits the adjacent end of the pattern-plate 38 to swing back away from the block by gravity. The operator now removes the completed blocks, together with the pallet, from the mold, which he can readily do by

seizing hold of the projecting ends of the pallet, Fig. 1. He then returns the mold to its normal position by means of the lever 19, by which operation the plates 28 and 38 are automatically returned to their normal position, the former by the engagement of the lugs 31 with the adjacent ends of the respective brackets 34 and the latter by the engagement of the fingers 44 with the lug 46'. He then repeats the operation as before.

When it is desired to make a block having a greater thickness—for example, ten inches thick instead of eight inches—the operator lowers the pattern-plate 38 to that extent by first loosening the set-screw 45 in the finger 44 to enable such finger to turn freely thereon, then rotates the shaft 43 forward until the lug 48 of the finger 47 assumes a vertical instead of a horizontal position, after which he replaces the set-screw 45 and rigidly fixes the finger 44 in position as before. He then hooks the forward end of the pattern-plate over the lower pin 41 and permits it to rest directly upon the lug 48 in engagement with the lug 49 thereon. He then lowers the hangers 51, 54, and 55 a like distance or preferably until upper bolt 56 rests in the upper end of the respective containing vertical slots, Fig. 8.

When it is desired to form a pattern-face upon one end of the block, as for use in building corners, the operator simply replaces the usual end plates 10 by proper pattern-plates 58; which will not be connected with the arms 8, as they cannot be drawn from the mold, as above described. Instead of withdrawing them from the mold at each operation they can be loosened and laterally adjusted by means of the hand-wheels 18, Fig.

2. In this case the corresponding connecting-rods 8 and lever-arms 7 are disconnected.

When the end and division plates have been returned to the mold ready for the formation of the block, as described, the operator by tightening up the end plates by means of the hand-wheels 18 insures a firm and close union of the parts of the mold, and thereby gives the finished block clear sharp edges.

Having thus described my invention and the manner of employing the same, what I desire to secure by Letters Patent is—

1. In a cement-block machine, an upright supporting-frame; a block-mold pivotally mounted on the frame, adapted for a quarter-turn thereon, and having its rear face pivotally mounted and provided with proper

core-openings; horizontally-movable cores mounted on the said frame in coöperative relation with the mold; means for withdrawing the end and division plates of the mold simultaneously with the cores by one operation; means for giving the mold a quarter-turn to discharge the block; and means for automatically releasing the pattern and rear plates at each forward turn of the mold.

2. In a cement-block machine an upright supporting-frame; a mold-box pivotally mounted on the said frame adapted for a quarter-turn thereon, having its rear plate pivoted at its lower edge and provided with lateral core-openings, and having its ends vertically slotted to loosely receive the removable pallet; a pivoted vertical adjustable pattern-plate arranged in said mold-box at right angles to the pallet; horizontally-movable end and division plates for the core-box; means for simultaneously withdrawing the end and division plates and the cores from the mold, and for returning the said last-named plates to the mold without moving the withdrawn cores; means for giving the mold a quarter-turn to discharge the block; and means for automatically releasing the pattern and rear plates at each forward turn of the mold.

3. In a cement-block machine a pivotally-mounted mold-box adapted for a quarter-turn having its ends vertically slotted to loosely receive the pallet, and having its rear plate pivotally mounted at its lower edge, and provided with lateral core-openings; a pattern-plate pivotally mounted in the mold-box and adapted for a vertical adjustment therein; means for automatically actuating the said plates upon their pivotal bearings when the mold-box is rotated either forward or backward.

4. In a cement-block machine, a horizontally-movable core having a longitudinally-slotted and rearwardly-projecting connecting-rod and a coöperating pivoted arm whose inner end has a slidable pivoted connection with the slot in said rod, for the purpose specified.

Signed by me at Fort Wayne, Allen county, State of Indiana, this 28th day of September, A. D. 1905.

BRITTON POULSON.

Witnesses:

WALTER G. BURNS,
AUGUSTA VIBERG.