

No. 892,583.

PATENTED JULY 7, 1908.

W. S. COLVIN.
CEMENT BLOCK MACHINE.
APPLICATION FILED APR. 24, 1907.

2 SHEETS—SHEET 1.

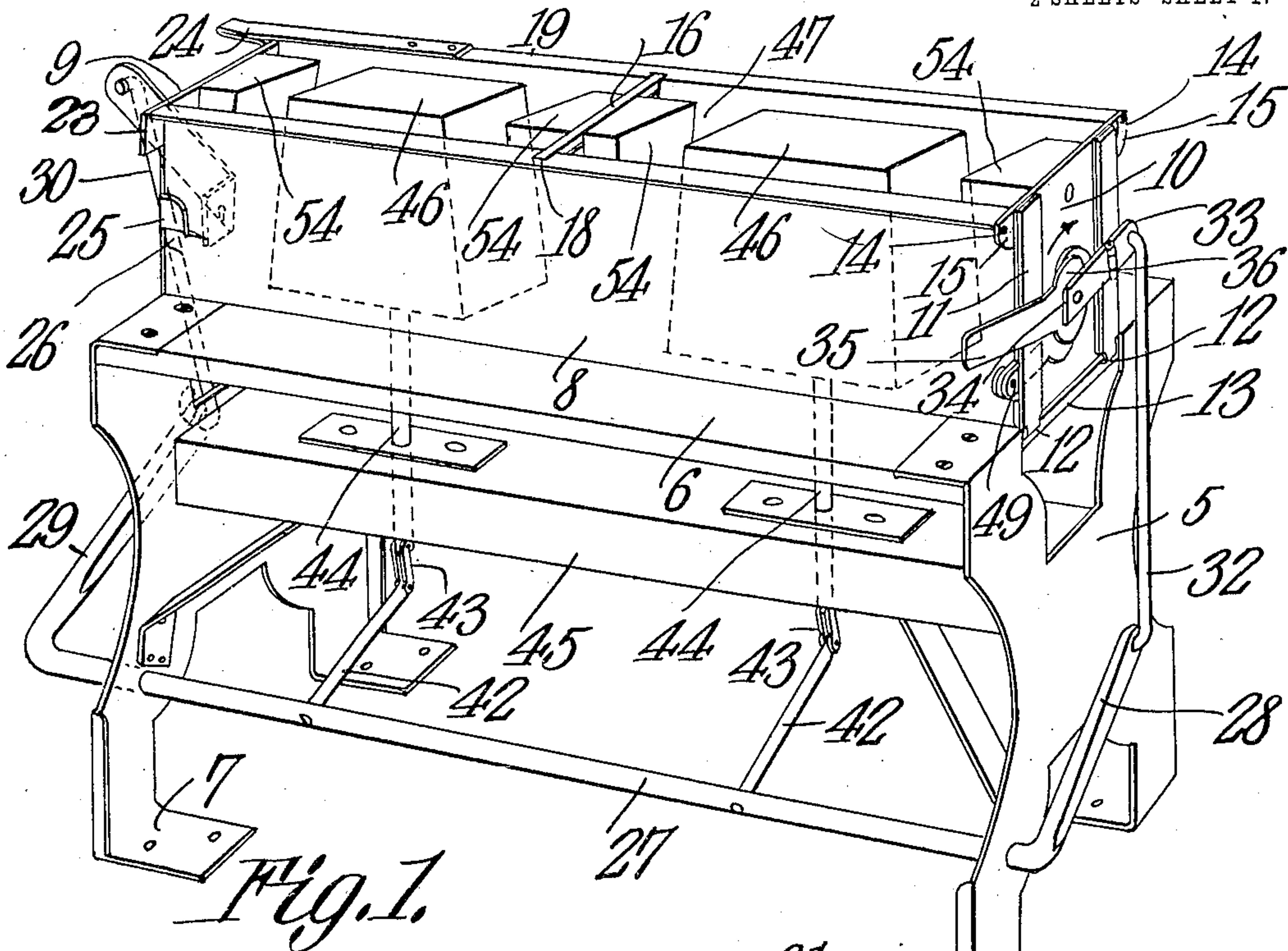


Fig. 1.

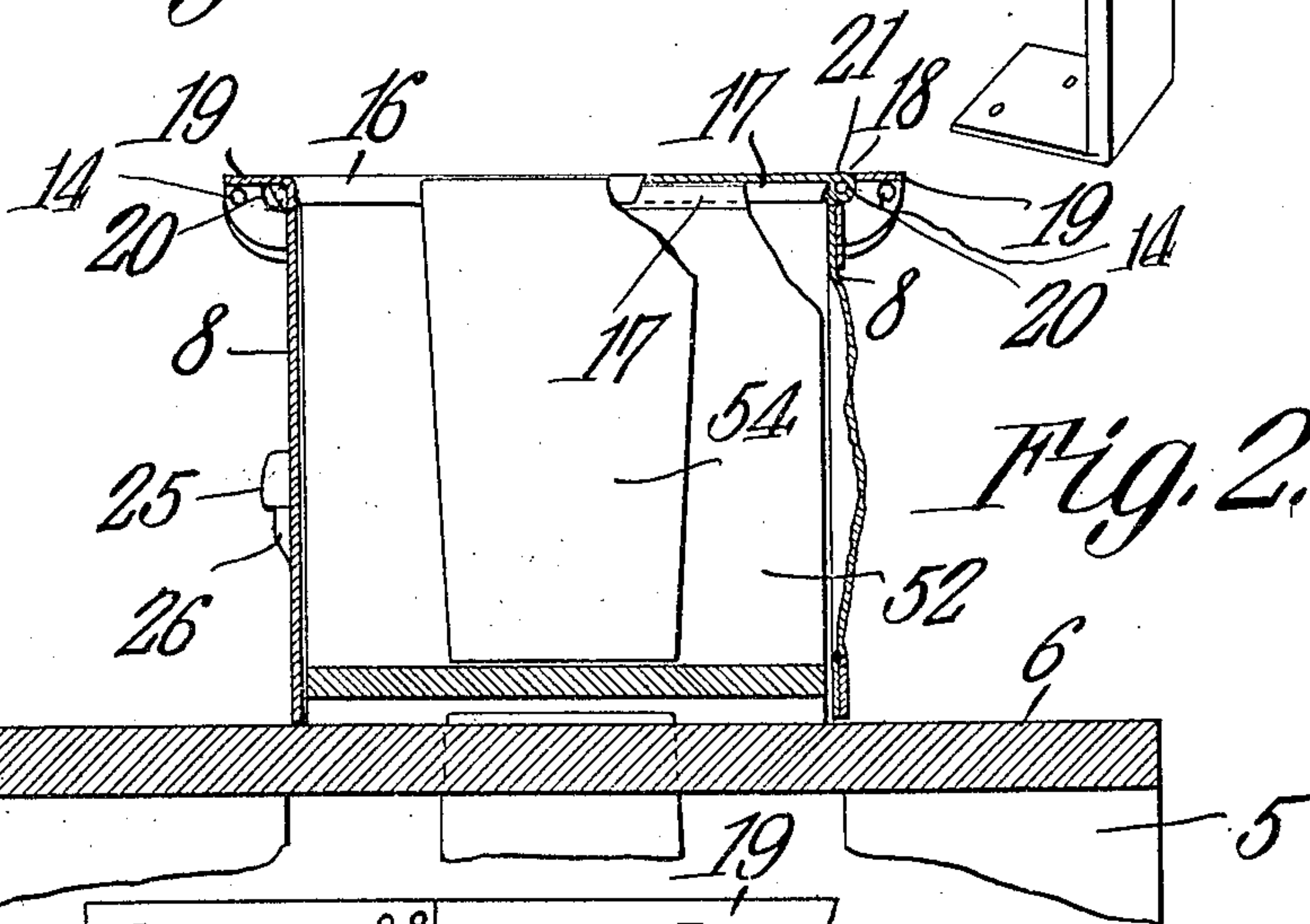
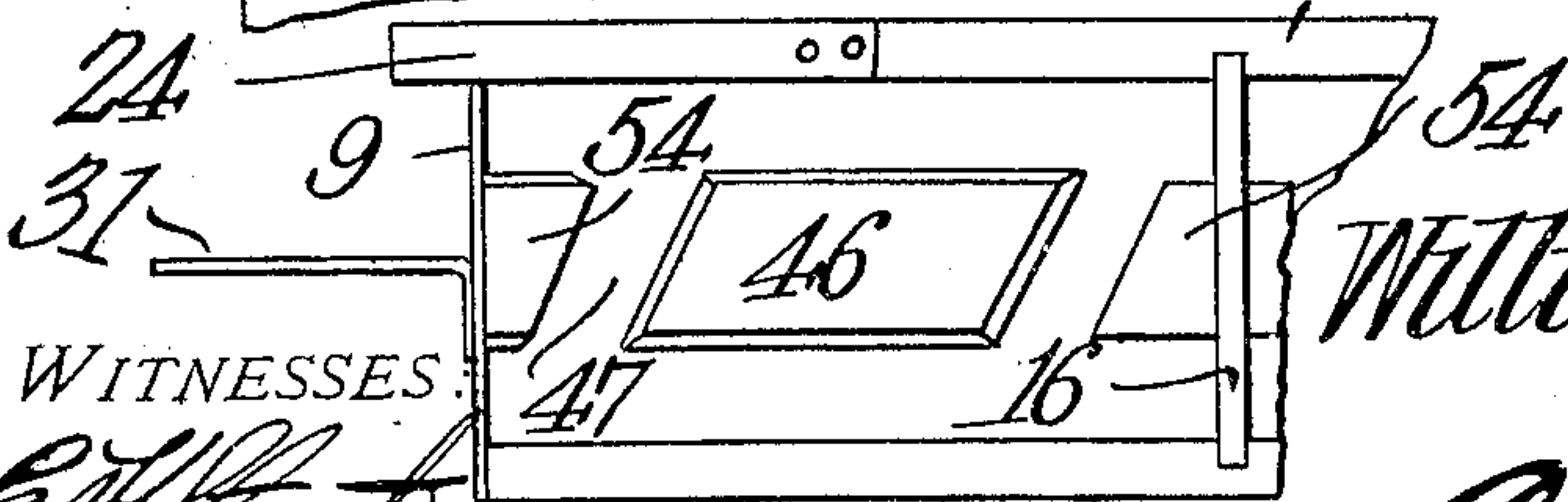


Fig. 2.



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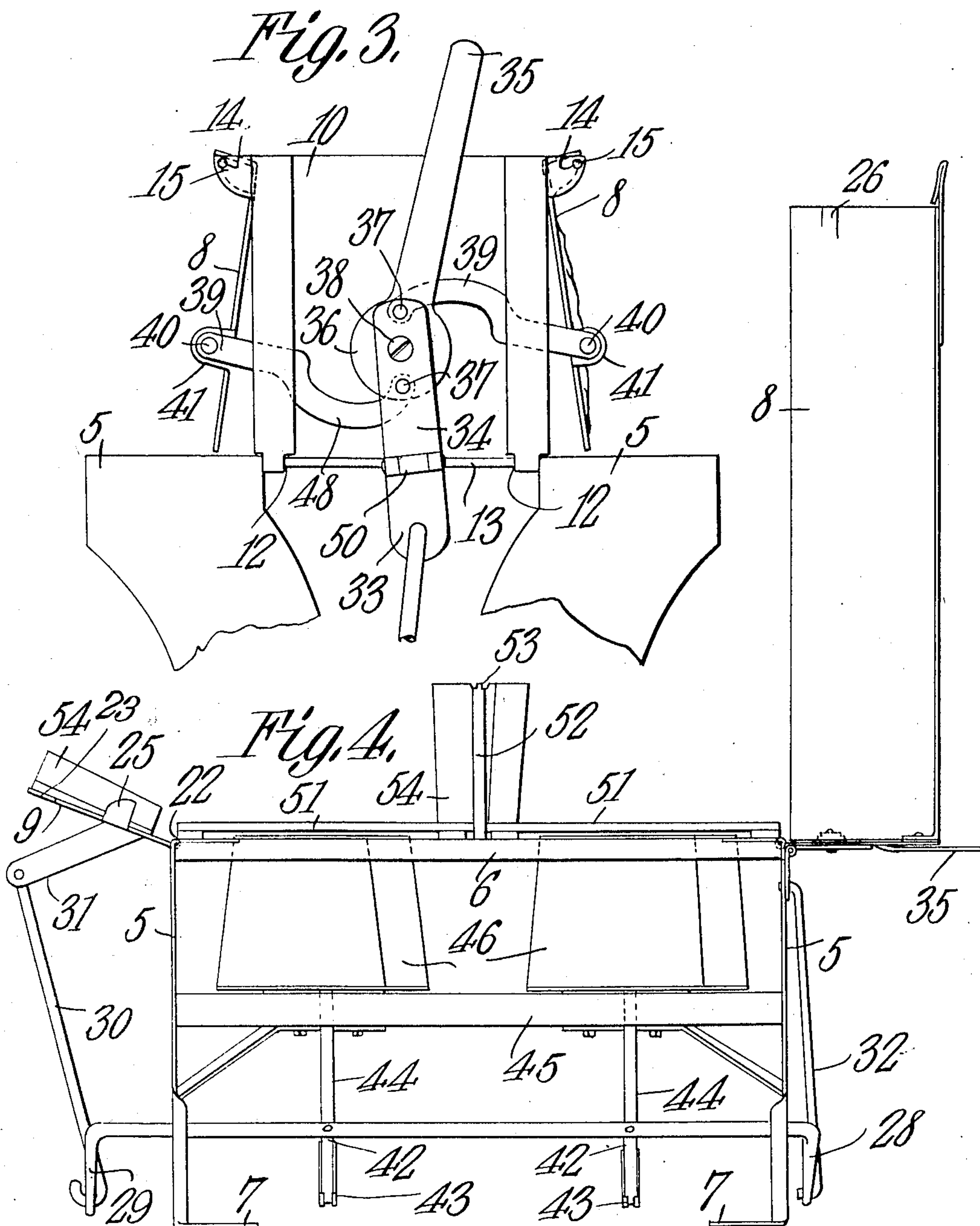
Fig. 5.

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WITNESSES.

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UNITED STATES PATENT OFFICE.

WILLIAM S. COLVIN, OF HAMILTON, KANSAS.

CEMENT-BLOCK MACHINE.

No. 892,583.

Specification of Letters Patent.

Patented July 7, 1908.

Application filed April 24, 1907. Serial No. 370,061.

To all whom it may concern:

Be it known that I, WILLIAM S. COLVIN, a citizen of the United States, residing at Hamilton, in the county of Greenwood and State of Kansas, have invented a new and useful Cement-Block Machine, of which the following is a specification.

This invention relates to machines for making building blocks or bricks from cement, concrete and other material and has for its object to provide a strong, durable and thoroughly efficient machine of this character by means of which artificial stone building blocks may be conveniently and expeditiously manufactured.

A further object of the invention is to provide means whereby a plurality of blocks may be formed at each operation of the machine, said blocks being provided with vertically disposed air flues or chambers.

A further object is to provide a mold having pivoted side walls the lower longitudinal edges of which are movable laterally to inoperative position thereby to prevent the cement from adhering to the mold when the block is removed.

A further object is to provide a plurality of vertically sliding core members movable to operative position within the mold and further to provide a single operating lever for actuating the core members and the several walls of the mold.

A further object is to provide a machine in which the initial movement of the operating lever will effect the withdrawal of the core members from the mold and simultaneously release one of the end walls of the latter, a further movement of said lever effecting the expansion of the side walls of said mold so as to prevent chipping or otherwise mutilating the molded product.

A further object is to provide a machine in which the mold is pivotally mounted for tilting movement on the supporting frame so that the same may be tilted rearwardly thereby to permit the removal of the molded product.

A further object is to provide means for locking the several walls of the mold in closed or assembled position.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a perspective view of a concrete block molding machine constructed in accordance with my invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is an end view of the machine showing the side walls thereof moved laterally to open position. Fig. 4 is a side elevation showing the mold tilted laterally on the supporting frame to permit the removal of the molded product. Fig. 5 is a top plan view of a portion of the mold.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved machine includes a supporting frame consisting of the end frame sections or standards 5 having their upper ends secured to the bed plate 6 and their lower ends bent laterally to form supporting feet 7 designed for attachment to a floor, platform or other suitable support.

Pivotally mounted for tilting movement on the bed 6 of the machine is a substantially rectangular mold including the side walls 8 and the end walls 9 and 10.

The end wall 10 is reinforced by vertically disposed bars 11 the lower ends of which are bent to form terminal eyes 12 for engagement with a rod or pin 13 secured to the adjacent end of the bed plate 6, said eyes and pin constituting a pivotal connection between the end wall and bed plate so that the mold may be swung upwardly to vertical position when it is desired to remove the molded bricks or blocks from the machine, as best shown in Fig. 4 of the drawings.

The upper longitudinal edges of the side walls 8 are pivotally united at 14 to lugs or extensions 15 formed on the end wall 10 while the intermediate portions of the side walls are connected by a transverse brace or rod 16 the lower face of which is grooved or recessed at 17 for the purpose hereinafter referred to.

The opposite ends of the connecting bar 16 extend through suitable openings 18 in the laterally extending flanges 19 of the side walls 8 and are provided with terminal eyes 20 for engagement with pins or rods 21 carried by the side walls and preferably arranged beneath the lateral flanges 19, as shown.

By having the side walls 8 pivotally connected at their upper ends to the end walls 10 and the intermediate connecting bar 16 the

lower longitudinal edges of said walls are free to expand and contract thereby to prevent the cement from adhering to the sides of the mold when the block is removed.

5 The end wall 9 of the mold is pivotally connected at 22 to the adjacent end of the bed plate 6 and is provided with laterally extending ears 23 one of which is adapted to engage a spring locking member or catch 24
10 secured to the longitudinal reinforcing flange 19 of one of the side walls of the mold thereby to lock the several walls of the mold in assembled or closed position.

In order to assist in retaining the walls of
15 the mold in closed position the end wall 9 is provided with inwardly extending spring fingers 25 which engage suitable lugs or projections 26 secured to the adjacent side walls 8.

20 Journaled in the end frame sections or standards 5 is a longitudinally disposed operating shaft 27 the opposite ends of which are bent to form terminal crank arms 28 and 29 one of which is connected through the medium of a link or rod 30 with a bracket 31
25 carried by the movable end wall 9 of the mold.

The opposite crank arm 28 is connected by a rod 32 with the pivoted end 33 of an actuating arm or member 34. The actuating member 34 is secured to and mounted for rotation with an operating lever 35, which latter is pivotally mounted on the end wall 10 of the mold and is provided with a circular disk
35 or enlargement 36.

Pivotally connected at 37 to the rear face of the enlargement or disk 36 and preferably disposed on opposite sides of the pivotal axis 38 of said disk are the inner ends of expanding arms or links 39, the opposite ends of which are pivoted at 40 to suitable lugs or projections 41 secured to and extending laterally from the adjacent side walls of the mold.

45 Secured to the intermediate portion of the operating shaft 27 are laterally extending rods 42 having their inner ends pivotally connected through the medium of links 43 with vertically disposed rods 44 which latter
50 are slidably mounted for vertical movement in openings or recesses formed in a transverse brace or bar 45 connecting the end sections or standards 5 of the supporting frame, as shown.

55 Fastened to the free ends of the rods 44 are rectangular core members 46 which pass through correspondingly shaped openings or recesses formed in the bed plate 6 and are movable to operative position within the
60 molding compartment 47 thereby to form the blocks or bricks with vertically disposed flues or air chambers.

Any number of core members may be employed and in the present instance two of
65 said core members are operatively connect-

ed with the operating shaft so as to form a pair of blocks at each operation of the machine.

It will thus be seen that when the locking member 24 is released and the operating lever 35 moved in the direction of the arrow indicated in Fig. 1 of the drawings the actuating arm 34 will be forced downwardly and through the medium of the rods 30 and 32
70 rotate the operating shaft to withdraw the core members 46 and move the end wall 9 of the mold to lowered position so as to prevent chipping the corners of the block, a further movement of the lever causing the links 39
75 to be forced outwardly and thus expand the lower longitudinal edges of the side walls so that the mold may be tilted bodily to the position shown in Fig. 4 of the drawings and in which position the molded product is free
80 to be removed from the bed plate.

85 Attention is here called to the fact that when the operating lever 35 is in the position shown in Fig. 1 of the drawings the pivot points 37 will be disposed in horizontal alignment with the pivot point 38 of the operating lever so as to lock said lever against accidental rotation. It will also be observed that the inner ends of the arms or links 39 are curved laterally at 48 to permit the same to bear against the pivot point 38 while the
90 outer ends of the links pass through recesses or openings 49 formed in the vertically disposed reinforcing bar 11 of the end walls 10. By having the actuating arm 34 provided with the pivoted section 33 when the operating lever 35 is moved to the position shown
100 in Fig. 3 of the drawings, that is to say to effect the expansion of the side walls of the mold, the hinge or pivoted point 50 of the actuating arm will be disposed in alignment
105 with the hinge or rod 13 of the mold so that the latter may be swung upwardly and rearwardly to vertical position in the manner before stated. Arranged within the molding compartment 47 and resting on the bed
110 plate 6 are pallets 51 having openings formed therein for the reception of the core members 46, and interposed between the adjacent ends of the pallets 51 is a removable transverse partition 52 having its upper edge provided with a rib or tongue 53 adapted to enter the groove 17 formed in the connecting strip 16 thereby to lock the division plate 52
115 against accidental displacement.

The end walls of the mold as well as the opposite sides of the division plate 52 are provided with stationary core members 54, said stationary core members together with the movable core members 46 being preferably inclined or beveled, as shown so as to
120 permit the ready withdrawal of said members from the block.

The metal forming one of the side walls 8 of the mold is preferably stamped, pressed or otherwise indented so as to form one side of
125 130

the block with an ornamental face in imitation of cut or chipped rock. If desired, however, both walls of the mold may be made smooth and unobstructed so as to form the opposite faces of the block with correspondingly smooth walls.

In operation the cement, concrete or other plastic material is shoveled or otherwise introduced in the molding compartment 47 and thoroughly tamped after which the locking member 24 is released and the operating lever 35 moved in the direction indicated by the arrow in Fig. 1 of the drawings which simultaneously depresses the movable core members 46 and moves the end wall 9 to lowered position and subsequently moves the side walls laterally to the position shown in Fig. 3 of the drawings. The mold is then tilted rearwardly on its pivotal axis 13 to the position shown in Fig. 4 and the division plate 52 detached from the bed plate after which the molded bricks or blocks are removed from the machine on the pallets 51 and carried to the drying racks until sufficiently hard for use.

In assembling the mold the division plate 52 is first placed in position after which the mold is swung downwardly on the bed of the machine and the operating lever moved in the reverse direction which first closes the side walls of the mold and subsequently elevates the cores 46 and end wall 9, said parts being locked in assembled position by means of the main and auxiliary locking members, in the manner before described.

From the foregoing description it is thought that the construction and operation of the machine will be readily understood by those skilled in the art and further description thereof is deemed unnecessary.

Having thus described the invention what is claimed is:

1. A block molding machine including a supporting frame, and a mold pivotally mounted for tilting movement on the frame and having side and end walls, the end walls being movable downwardly and the side walls upwardly.

2. A block molding machine including a supporting frame, and a mold pivotally mounted for tilting movement on the frame and having one of its end walls movable downwardly and its side walls movable upwardly.

3. A block molding machine including a supporting frame, a mold pivotally mounted for tilting movement on the frame and having side and end walls, and means operatively connected with said walls for moving the same successively to open position.

4. A block molding machine including a supporting frame, a mold pivotally mounted for tilting movement on the frame and provided with laterally movable side walls and

a downwardly movable end wall, core members movable to operative position within the mold, and means operatively connected with the core members and walls of the mold, respectively, for successively moving the same to operative position.

5. A block molding machine including a supporting frame, a mold mounted on the frame and having side walls the upper portions of which are pivoted and lower longitudinal edges thereof movable laterally to open position, core members operable within the mold, and means operatively connected with the side walls and core members for actuating the same.

6. A block molding machine including a supporting frame, a mold mounted on the frame and provided with a downwardly movable end wall and pivoted side walls the lower longitudinal edges of which are movable laterally to open position, and means operatively connected with the end and side walls of the mold for actuating the end wall and subsequently actuating the side walls.

7. A block molding machine including a supporting frame, a mold mounted on the supporting frame and having pivoted side walls the lower longitudinal edges of which are movable laterally to open position, an operating lever, links forming a pivotal connection between the side walls of the operating lever, a downwardly movable end wall, and means connecting the lever and end wall for successively moving the end wall and side walls to open position.

8. A block molding machine including a supporting frame, a mold mounted on the frame and having a downwardly swinging end wall and pivoted side walls the lower longitudinal edges of which are movable laterally to open position, an operating lever, links forming a pivotal connection between the operating lever and side walls of the mold, a shaft operatively connected with the end wall and operating lever, respectively, and core members connected with the shaft and movable to operative position within the mold.

9. A block molding machine including a supporting frame, a mold pivotally mounted for tilting movement on the supporting frame and having movable side walls the lower longitudinal edges of which are adjustable laterally to open position, a downwardly movable end wall, and means operatively connected with the end wall and side walls for successively actuating the same.

10. A block molding machine including a supporting frame, a mold mounted on the frame and having pivoted side walls the lower longitudinal edges of which are movable laterally to open position, a downwardly swinging end wall, a shaft, an operating lever connected with the side walls and rods and

forming a pivotal connection between the opposite ends of the shaft and the end wall and operating lever, respectively.

11. A block molding machine including a supporting frame, a mold carried by the frame and provided with side walls the lower longitudinal edges of which are movable laterally to open position, a downwardly swinging end wall, a shaft, core members operatively connected with the shaft and slidably mounted within the mold, an operating lever connected with the side walls of the mold, and means connecting the opposite ends of shaft with the end wall and operating lever, respectively.

12. A block molding machine including a supporting frame, a mold mounted on the supporting frame and having a downwardly swinging end wall and pivoted side walls the lower longitudinal edges of which are movable laterally to open position, means for moving the end wall to open position and subsequently actuating the side walls, and means for locking the several walls of the mold in assembled position.

13. A block molding machine including a supporting frame, a mold mounted on the frame and provided with a downwardly swinging end wall and pivoted side walls the lower longitudinal edges of which are movable laterally to open position, a shaft, core members operatively connected with the shaft and movable within the mold, and means for simultaneously withdrawing the core members from the mold and actuating the end wall, said means subsequently moving the side walls to open position.

14. A block molding machine including a supporting frame, a mold mounted on the frame and having a downwardly swinging end wall and pivoted side walls the lower longitudinal edges of which are movable laterally to open position, a shaft, core members operatively connected with the shaft and movable within the mold, an operating lever connected with the side walls, and means connecting the shaft with the operating lever, and the end wall respectively, for simultaneously moving the core members and end wall to inoperative position and subsequently actuating the side walls.

15. A block molding machine including a supporting frame, a mold mounted on the frame and provided with laterally movable side walls pivotally connected with one of the end walls, the opposite end wall of the mold being movable downwardly to open position, and means carried by one of the side walls and adapted to engage the free end of the adjacent end wall for locking the several walls of the mold in assembled position.

16. A block molding machine including a supporting frame, a mold mounted on the frame and having its opposite ends pivotally connected with the frame, side walls pivotally

connected with one of the end walls and having their lower longitudinal edges movable laterally to open position, and means for locking the several walls of the mold in closed position.

17. A block molding machine including a supporting frame, a mold mounted on the frame and having its opposite end walls pivotally connected with the frame, side walls pivotally connected with one of the end walls, a transverse bar connecting the intermediate portions of the side walls, and means for locking the several walls in assembled position.

18. A block molding machine including a supporting frame, a mold mounted on the frame and movable laterally to vertical position, core members operable within the mold, a shaft, an operating lever, and an arm secured to the operating lever and operatively connected to the shaft, said arm being provided with a hinged portion thereby to permit tilting movement of the mold.

19. A block molding machine including a supporting frame, a mold pivotally connected to the frame and movable laterally to elevated position, core members operating within the mold, a shaft operatively connected with the core members, an operating lever for actuating the shaft for raising and lowering the core members, an arm secured to the operating lever and operatively connected with the shaft, said actuating arm being provided with a pivoted portion adapted to register with the pivotal connection between the mold and the supporting frame when the core members are in lowered position.

20. A block molding machine including a supporting frame, a mold pivotally mounted on the frame and having a downwardly movable end wall and an upwardly movable side wall, core members operating within the mold, a shaft operatively connected with the core members, and an operating lever connected with the shaft and having a pivoted section adapted to register with the pivotal connection between the mold and supporting frame.

21. A block molding machine including a supporting frame having a bed plate, a mold pivotally connected with one end of the bed plate and having a downwardly swinging end wall, core members operating within the mold, a shaft for actuating the core members, an operating lever secured to one of the end walls of the mold and operatively connected with the shaft for simultaneously actuating the opposite end wall and core members, respectively, and an arm operatively connected with the lever and shaft and having a pivoted section the hinge of which is adapted to register with the pivotal connection between the mold and bed plate.

22. A block molding machine including a supporting frame having a bed plate, a mold having an end wall one end of which is pivot-

ally connected with one end of the bed plate, the opposite end wall of the mold being movable downwardly to open position, side walls pivotally connected with the upper ends of one of the end walls and having their lower longitudinal edges movable laterally to open position, core members arranged within the mold, an operating lever mounted for rotation on one of the end walls, links forming a pivotal connection between the operating lever and side walls, a shaft operatively connected with the core members, an arm secured to the lever, a rod forming a pivotal

connection between one end of the shaft and the downwardly movable end wall, and a rod 15 connecting the opposite end of the shaft with the arm, said arm being provided with a hinged portion.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 20 in the presence of two witnesses.

WILLIAM S. COLVIN.

Witnesses.

WILLIAM O. SMITH,
PHIL U. PIATT.