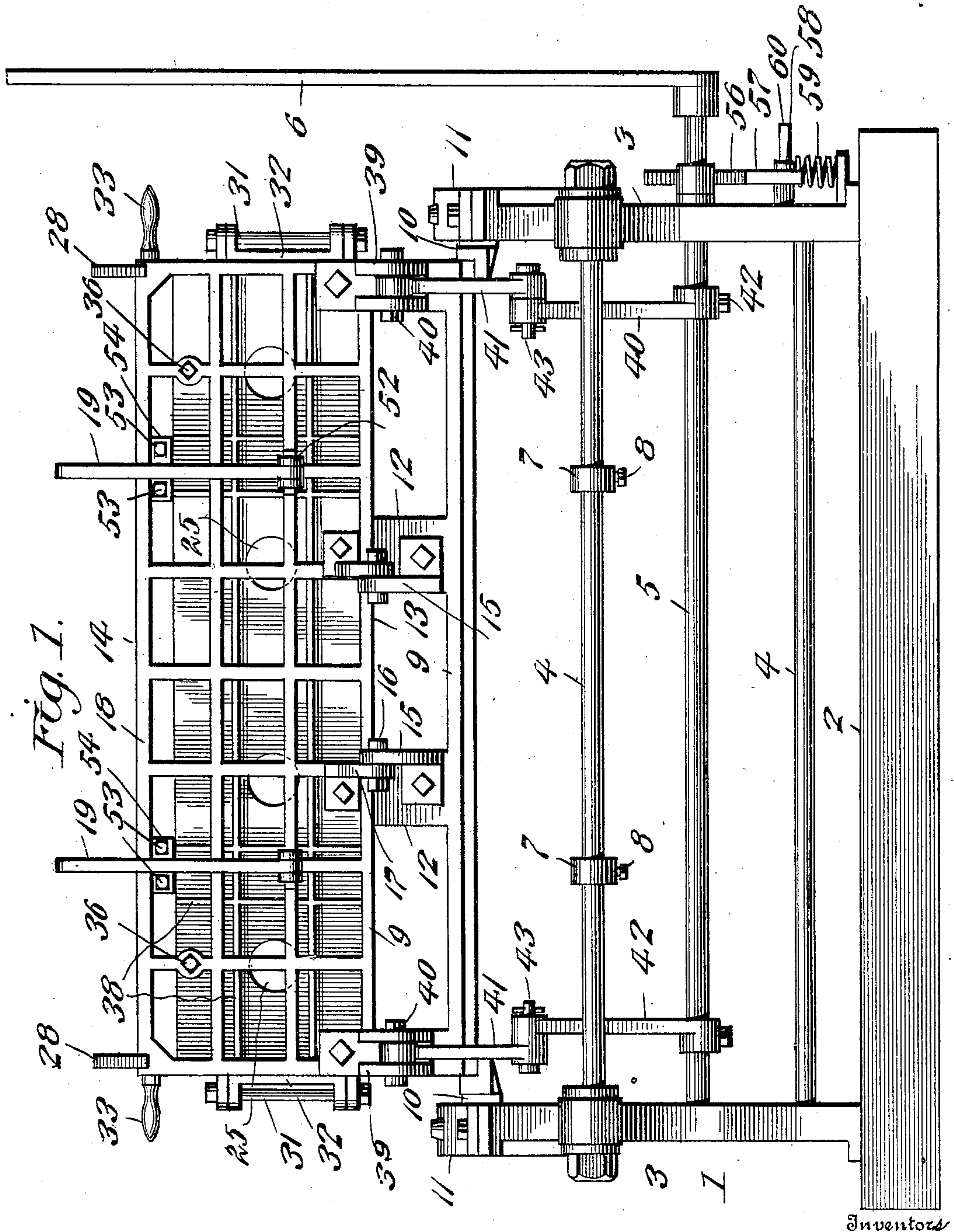


No. 835,405.

PATENTED NOV. 6, 1906.

M. L. & J. DAHN.
BUILDING BLOCK MACHINE.
APPLICATION FILED JAN. 17, 1906.

7 SHEETS—SHEET 1.



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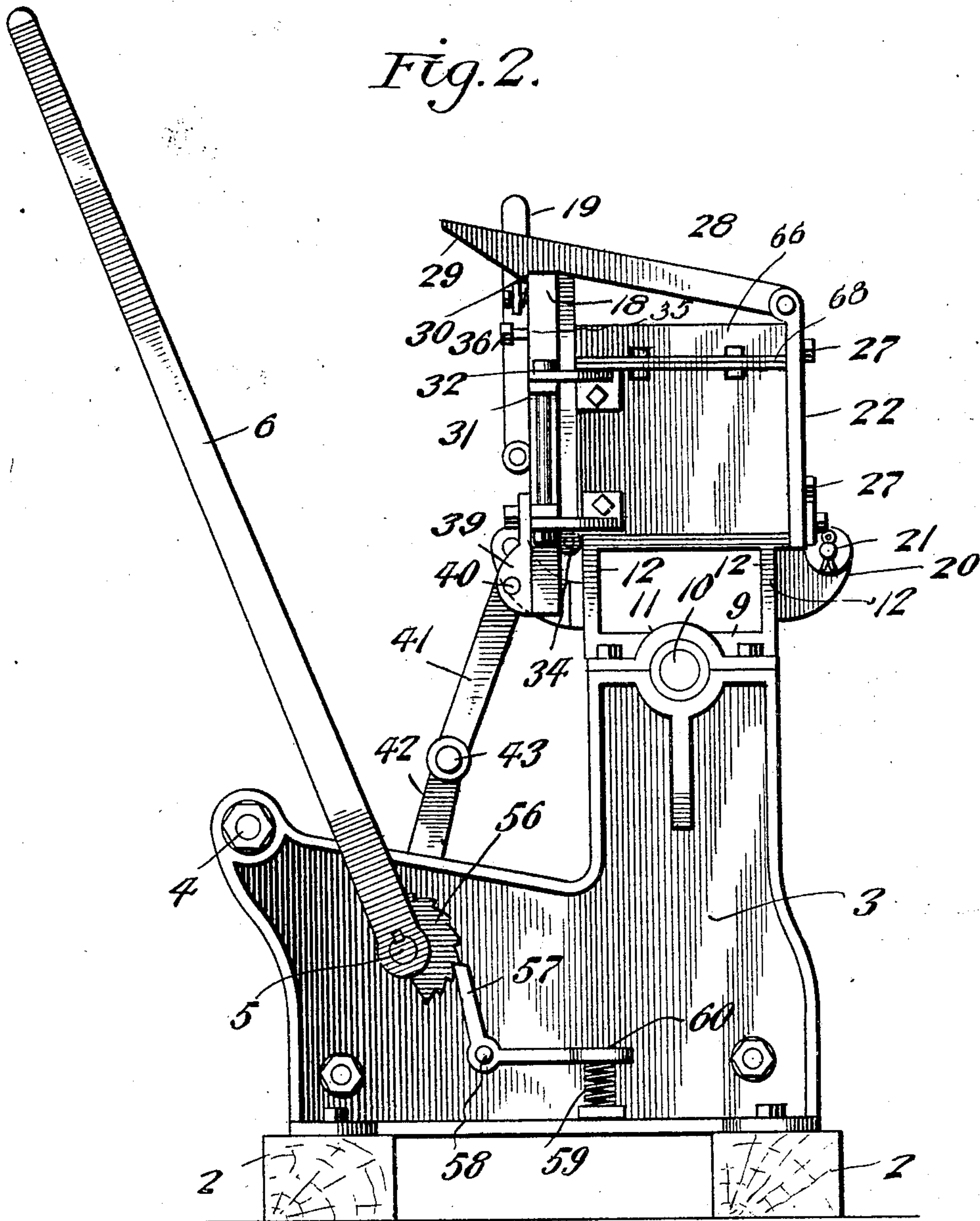
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Fig. 2.



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Fig. 3.

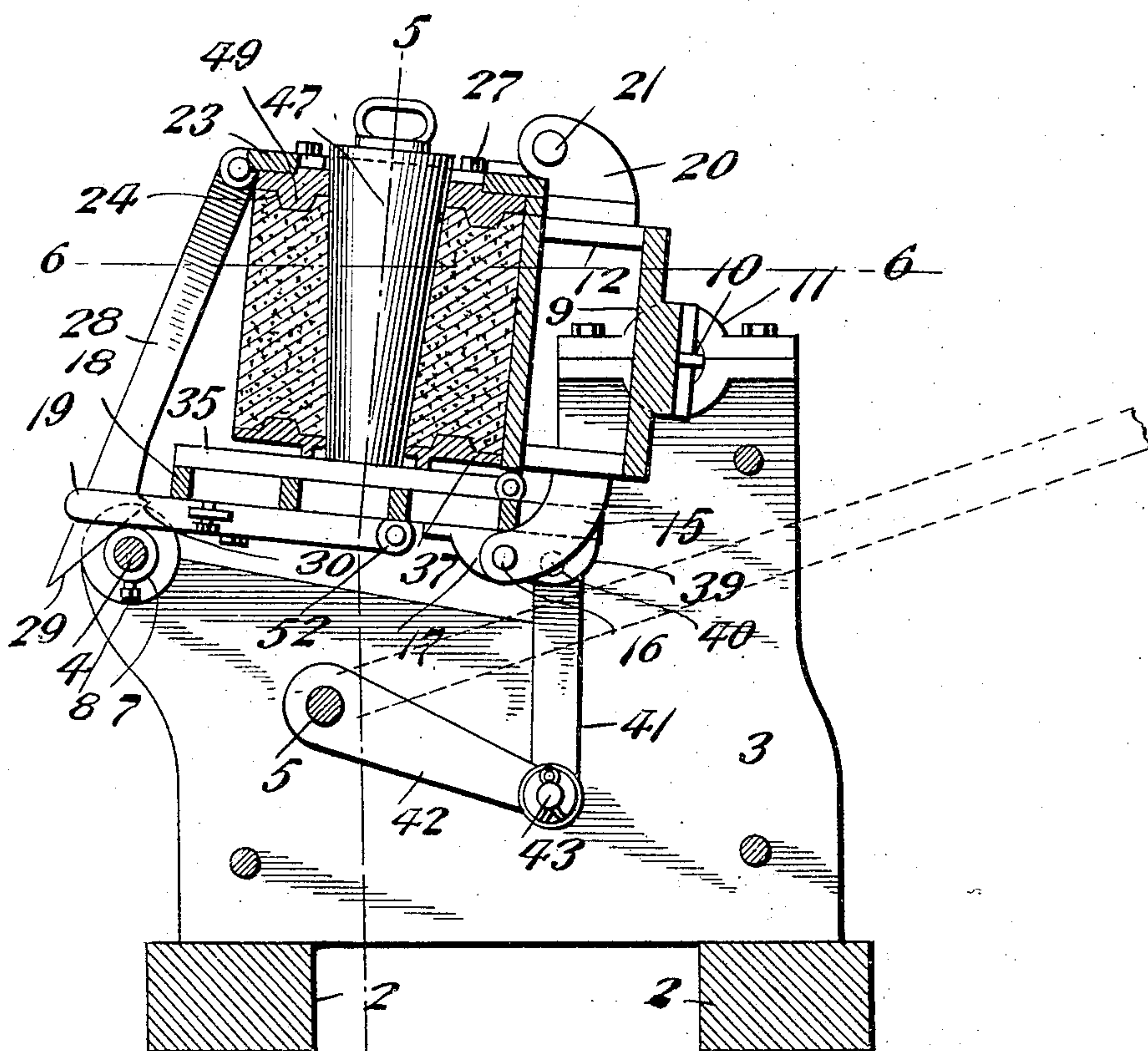
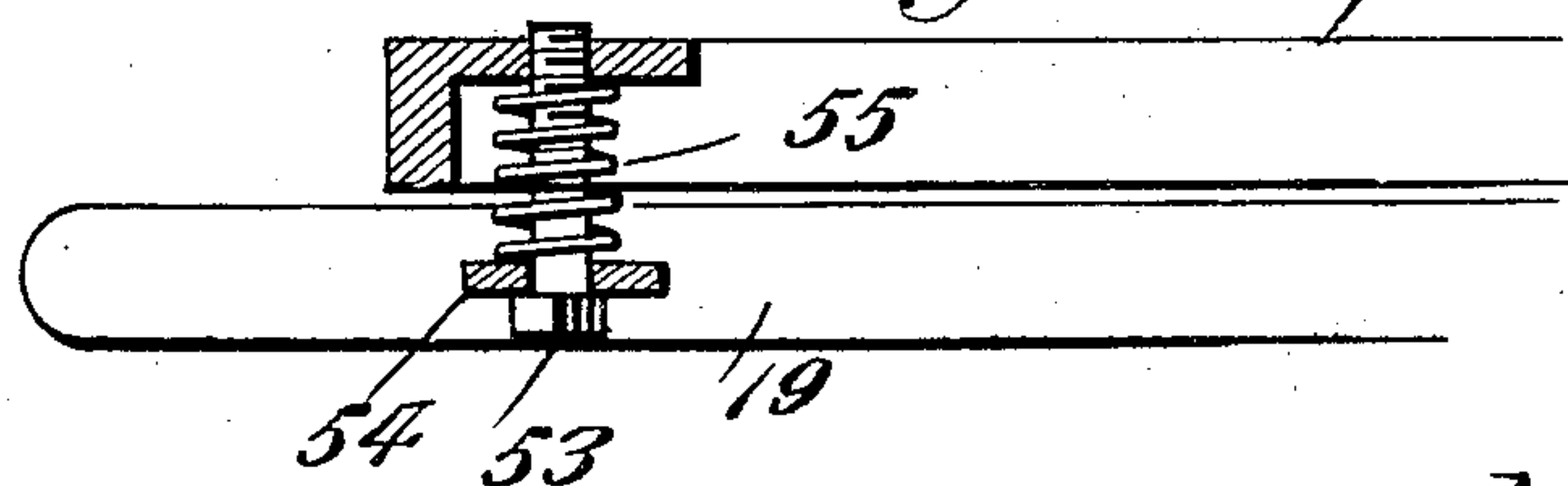


Fig. 13.



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7 SHEETS—SHEET 4.

Fig. 4.

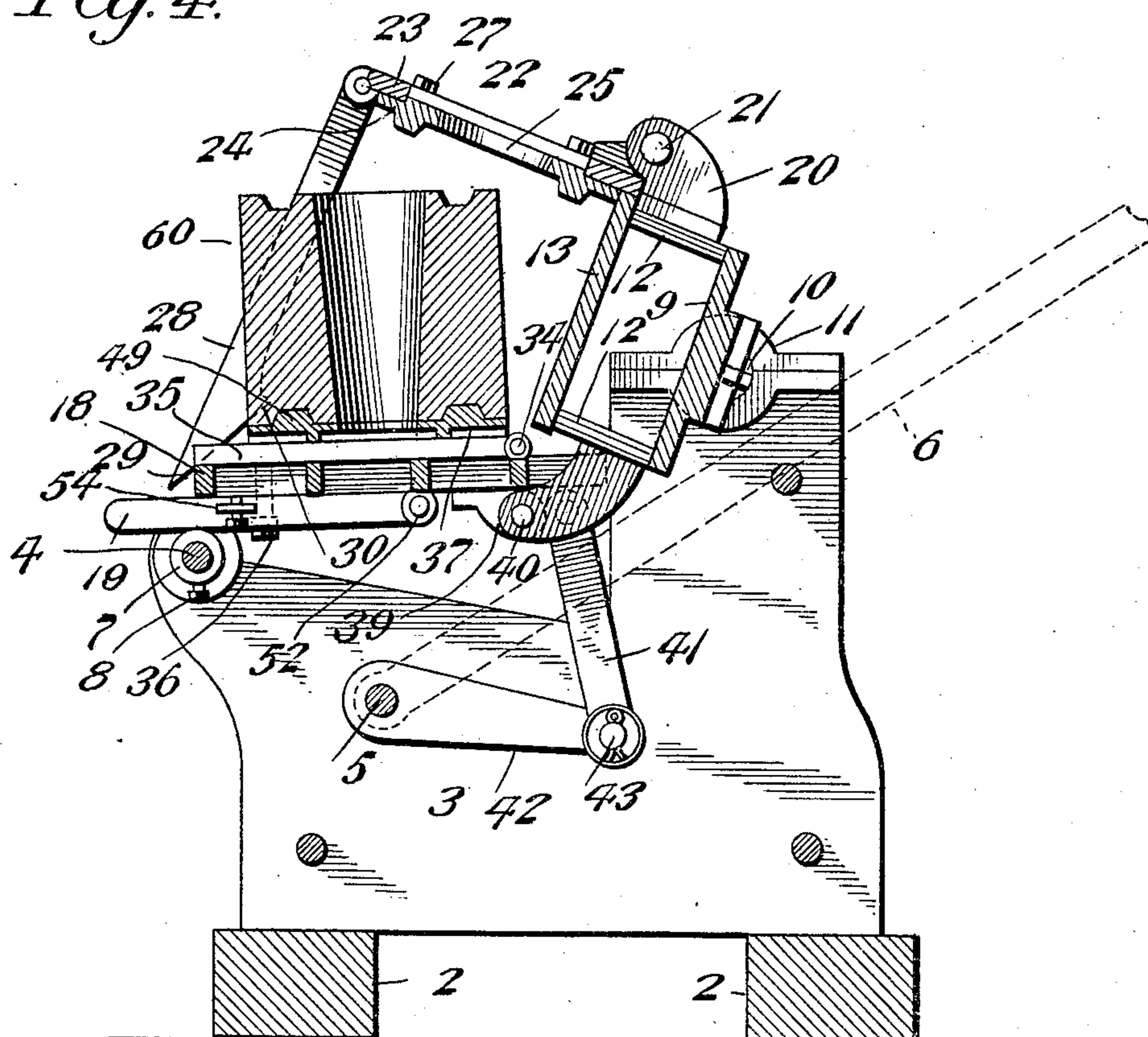
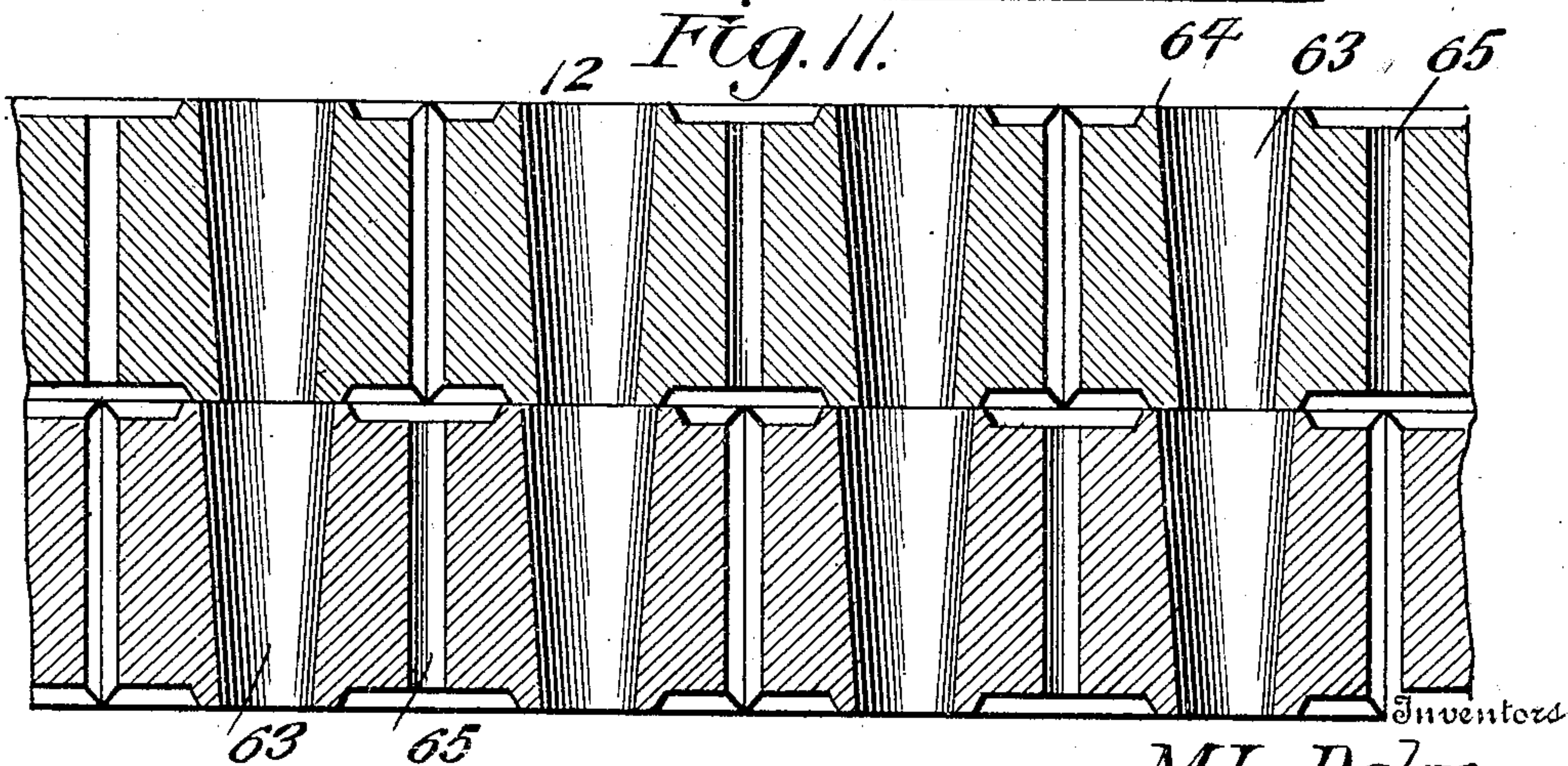


Fig. 11.



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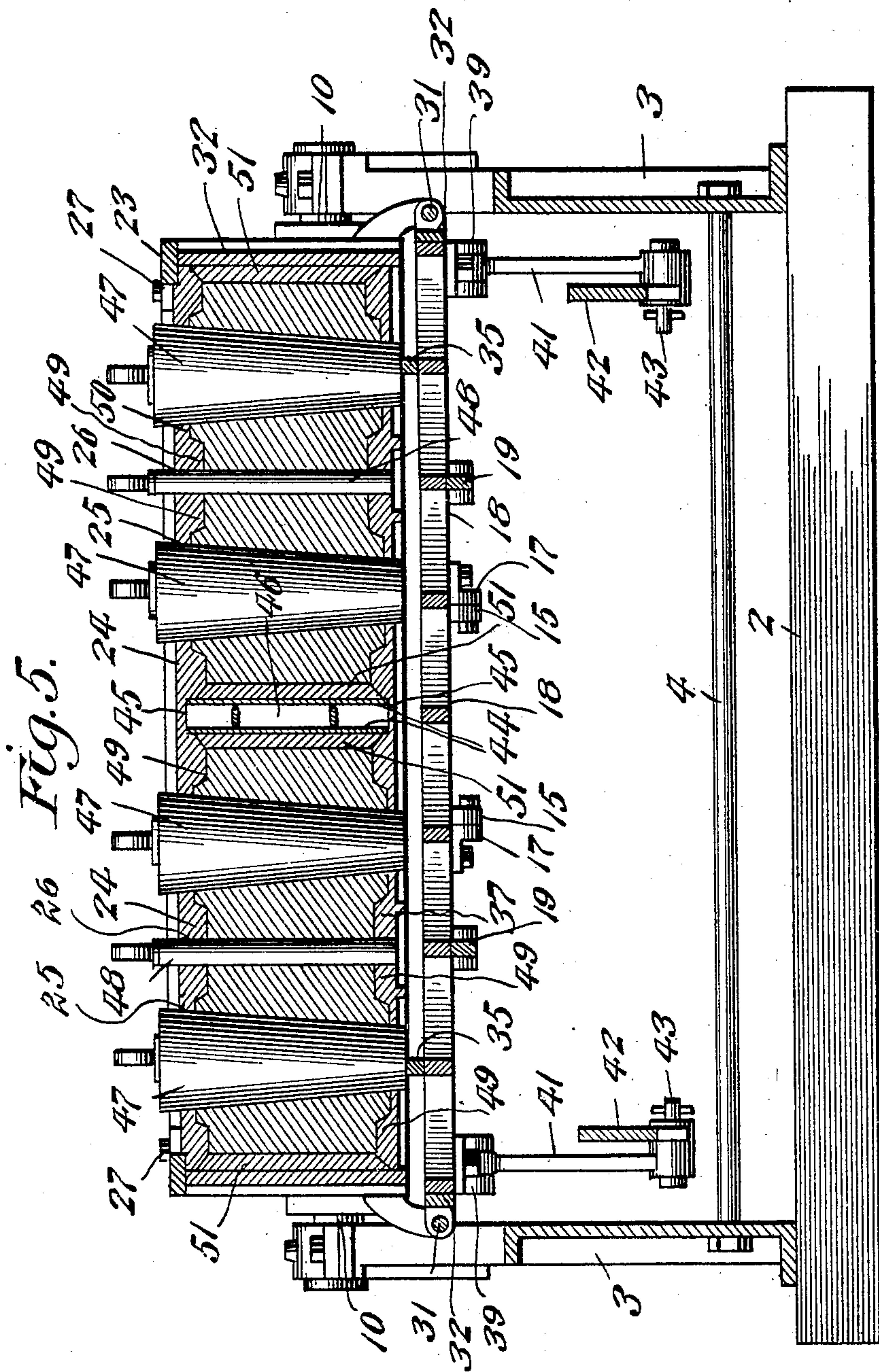
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7 SHEETS—SHEET 6.

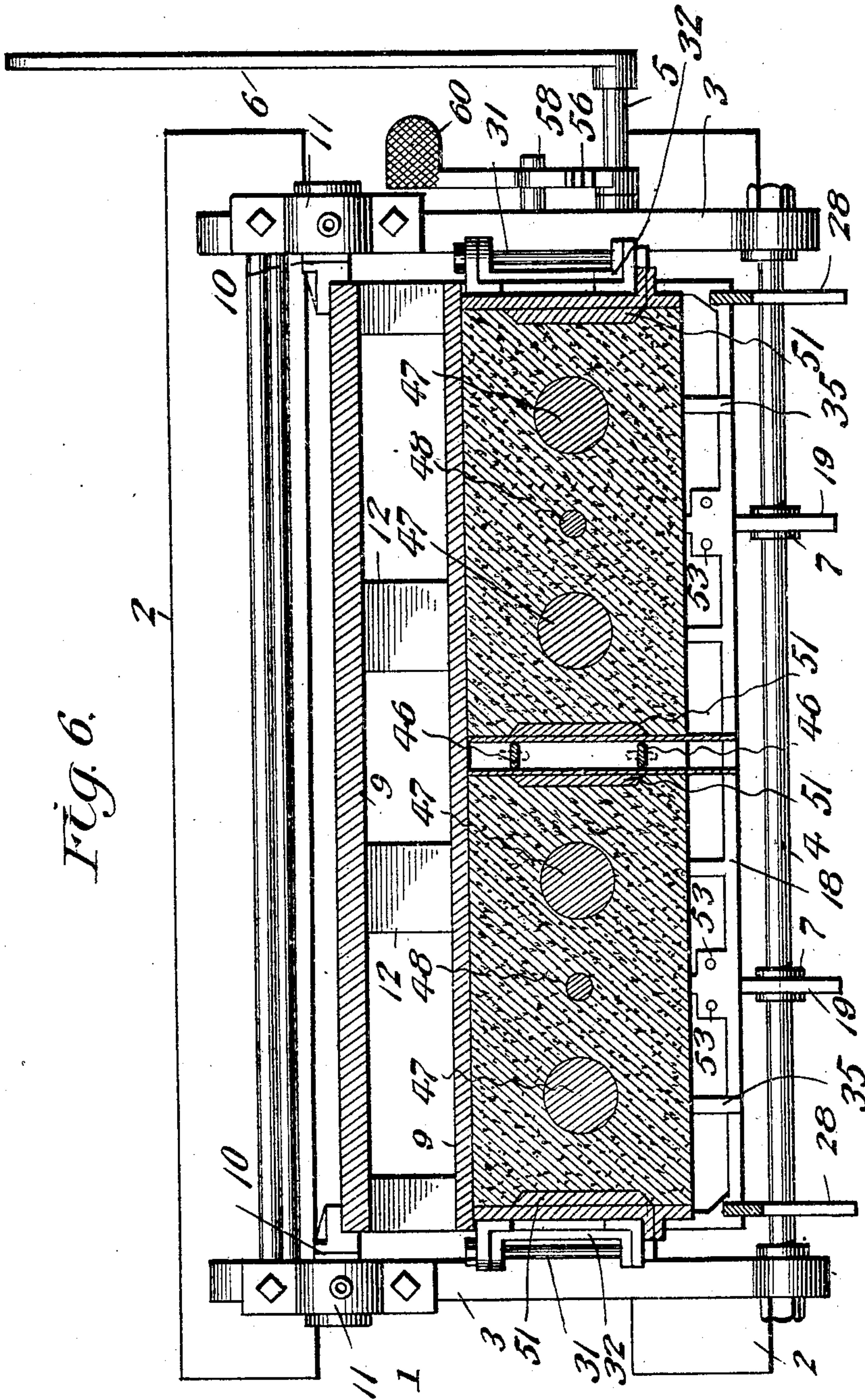


Fig. 6.

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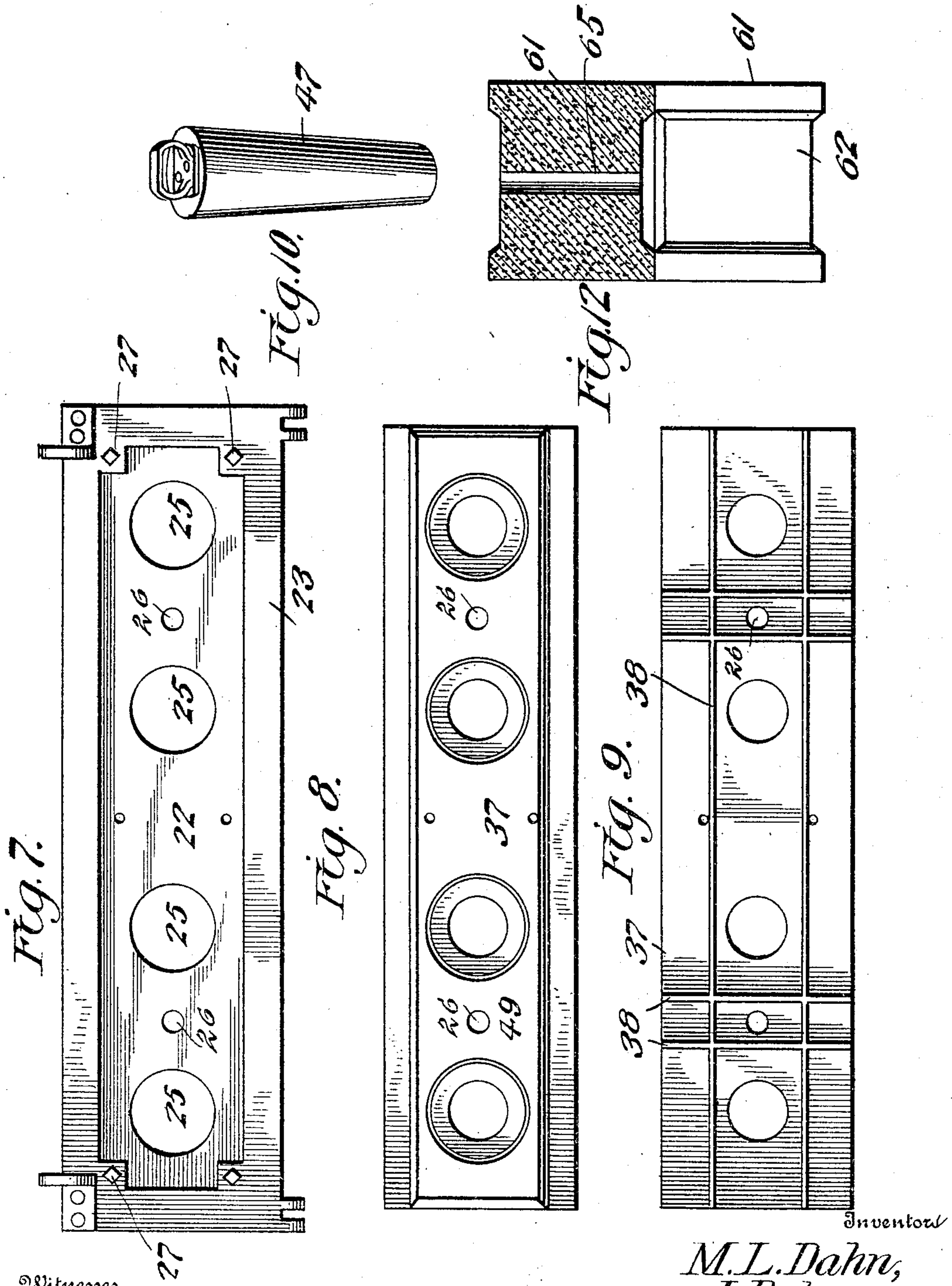
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7 SHEETS—SHEET 7.



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UNITED STATES PATENT OFFICE.

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OF ONE-THIRD TO ARTHUR H. HEATZMAN, OF BALTIMORE, MARY-
LAND.

BUILDING-BLOCK MACHINE.

No. 835,405.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed January 17, 1906. Serial No. 296,539.

To all whom it may concern:

Be it known that we, MARK L. DAHN and JOHN DAHN, citizens of the United States, residing at Baltimore, in the State of Maryland, 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 blocks for use in building construction, and has for its objects to produce a comparatively simple inexpensive device of this character in which one or more blocks may be cast at a single operation, one where-
in the walls of the flask or mold will be automatically moved for releasing the block or blocks to permit their convenient removal, and this without cracking or otherwise injuring the blocks, and one in which the locking members employed for connecting the walls of the mold in casting position will be automatically operated to release the walls when the block is to be removed.

A further object of the invention is to provide an improved form of core for use with the mold in the production of blocks which when assembled will present continuous air-passages and cement-receiving grooves or channels, into which latter the cement or other binding medium may be readily introduced.

Further objects of the invention are to produce a device of this type in which the dowel-plates will be securely locked in place and may be readily released for removal when circumstances require, one wherein the palette may be conveniently adjusted as desired for forming the angle-face of sill-blocks, and one in which the facing-plate of the mold may be changed at will for correspondingly changing the face of the block produced.

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 and showing the parts in normal casting position. Fig. 2 is an end elevation of the same. Fig. 3 is a vertical transverse section showing the mold in lowered position. Fig. 4 is a similar view showing the parts of the mold separated to permit re-

moval of the block. Fig. 5 is a vertical longitudinal section taken on the line 5 5 of Fig. 3. Fig. 6 is a horizontal longitudinal section taken on the line 6 6 of Fig. 3. Fig. 7 is a bottom plan view of the facing-plate or wall. Fig. 8 is an inner face view of the palette. Fig. 9 is an outer face view of the same. Fig. 10 is a perspective view of one of the cores. Fig. 11 is a vertical longitudinal section showing a plurality of blocks assembled as they appear in a wall. Fig. 12 is a vertical transverse section taken on the line 12 12 of Fig. 11. Fig. 13 is a detail view of one of the tracks.

Referring to the drawings, 1 designates the frame of the machine, comprising base-pieces or timbers 2 and end members or plates 3, connected by longitudinal bolts or rods 4, there being extended longitudinally through the frame a shaft 5, journaled for rotation in the end members 3 and having fixed to one of its ends, preferably at the right-hand end of the machine, an operating-lever 6, while journaled upon the upper rod 4 at the front of the frame and at appropriately-spaced intervals is a pair of rotary bearing members or collars 7, held against movement longitudinally of the rod by set-screws 8, adapted to engage suitable grooves in the rod.

Rotatively mounted in the frame 1 is a base member or plate 9, having end trunnions 10, journaled in bearings 11 at the upper rear corners of the members 2 and provided with normally vertical webs 12, to which is fixed the normally lower section or wall 13 of the flask or mold 14, there being formed upon the front webs 12 outwardly and upwardly curved hinged members or ears 15, pivoted by bolts or pintles 16 to companion hinge members or ears 17, attached to the normally front wall 18 of the mold, to which is also attached transversely-extending tracks 19, which when the mold is in discharging position rest upon the collars 7.

Carried by the rear webs 12 of the base-piece 9 are ears 20, to which is pivoted by pin-
tle or bolts 21 the normally rear wall 22 of the mold, said wall comprising an open rectangular frame 23 and a dowel-plate 24, provided with core-openings 25 and 26 and removably secured in the frame 23 by retaining-screws 27, there being pivoted to the forward edge and at the ends of the wall 22 locking members or arms 28, provided adjacent their free

ends, which are beveled or inclined, as at 29, with engaging portions or fingers 30, designed to engage the outer edge of wall 18 for locking the mold in closed position, while hinged, as at 31, to the ends of the wall 18 are end walls 32, which when the mold is in closed position seat between and are clamped by the ends of walls 18 and 22.

The normally front wall 18, which is provided at its ends with longitudinally-extending handles 33, has terminally pivoted to its inner face, as at 34, transversely-extending supporting members or rails 35, adjustably sustained at their free ends by adjusting-screws 36, there being applied to the inner face of said wall to rest upon the rails 35 a follow-plate or palette 37, provided with core-receiving openings 25 26, corresponding to those in the wall 22 and having upon its outer face longitudinally and transversely extending strengthening-ribs 38, while provided on the outer face of wall 18 adjacent its normally lower edge are ears 39, to which are pivoted, respectively, by means of pintles 40, the upper ends of two sets or pairs of toggle-levers 41, fixed at their lower ends upon the shaft 5 by means of set-screws 42 and having their meeting ends pivotally connected by pintles or bolts 43. It is to be noted in this connection that the relative positions of the pivots 10 and 40 are such that the walls 13 and 18 will during opening movement of the mold, as hereinafter explained, move in relatively different arcs for a purpose which will appear. The mold 14 is subdivided into a pair of compartments by means of a pair of relatively spaced dowel-plates or partitions 44, arranged at the longitudinal center of the mold and to slide in grooves 45 in the plates 24 and 37, there being terminally journaled in the plate 24 a pair of vertically-spaced locking members or bars 46 of substantially rectangular form in cross-section and adapted for locking the plates 44 in place when turned to the full-line position illustrated in Fig. 6, it being apparent that when the locking members are turned to the dotted-line position illustrated in said figure the plates will be released for removal from the mold, through each compartment of which there is extended a pair of main cores 47, terminally seated in the openings 25, and a small auxiliary core 48 entered through the openings 26, while formed on the inner faces of plates 24 37 are dowel enlargements 49, in turn provided in their faces around the core-openings 25 with annular recesses or depressions 50, while provided on the plates 44 and end walls 32 are dowel projections 51.

The tracks 19 are pivoted at their inner ends, as at 52, to the wall 18 and connected adjacent their outer ends with the latter by means of fastening members or screws 53, slidably arranged in perforated ears 54 on the tracks, there being arranged upon the

screws between said ears and the wall 18 cushioning-springs 55, designed to sustain the shock incident to contact of the tracks 19 with the rollers when the mold is turned to the position illustrated in Figs. 3 and 4, the springs serving in this connection to relieve the mold and the blocks contained therein of objectionable jars.

Fixed to the right-hand end of shaft 5 is a toothed ratchet 56, adapted for engagement by a locking-pawl 57, pivoted, as at 58, to the adjacent end wall 3 of the frame and normally pressed to locking position by means of a spring 59, arranged to bear beneath a foot-lever 60, fixed upon and forming an integral part of the pawl, it being apparent that when the lever 60 is depressed against the action of spring 59 the pawl will be moved out of engagement with the ratchet 56 to permit free rotation of the shaft 5.

In practice the mold 14 normally stands in the position illustrated in Figs. 1 and 2, with its open side uppermost and the lever 6 thrown forwardly, under which conditions and in the casting operation the mold is partially filled with plastic material, after which the cores 47 and 48 are introduced through the perforated openings, after which the filling of the mold is completed and the material tamped or packed in the usual manner, the locking members 28 having been previously engaged with the upper edge of pawl 18 for securing the parts of the mold together and the dowel-plates 44 positioned in the grooves 45 and secured by the locking members 46. After the material has partially set or hardened the lever 6 is swung rearwardly for rotating the shaft 5 and serving, through the medium of the toggle-levers 41, to swing the entire mold on its pivot 10 to the position illustrated in Fig. 3, with the tracks 19 resting on the rollers 7, it being noted that at the completion of the movement of the mold to this position the inclined face 29 of the locking members rides upon the upper connecting-rod 4, thus throwing the free ends of the locking members outward for disengaging the fingers 30 from the edge of wall 18, thereby unlocking the parts of the mold. The cores having been removed, the lever 6 is given a slight upward movement from the position illustrated in Fig. 3 to that shown in Fig. 4, whereby the head-plate 9, carrying the walls 13 and 22, will be turned upwardly and rearwardly on the pivot 10 and the wall 18 be at the same time moved upwardly and forwardly through the medium of the toggle-levers 41, this movement of the palette carrying the wall 13 being facilitated by the tracks 19 traveling on the rollers 7. It may be mentioned in this connection that owing to this reverse movement of the mold-walls 13 and 22 said walls will in moving away from the adjacent faces of the block or casting have a diagonal or shearing movement as distinguished from

instances in which the mold-walls move directly and transversely away from the block, it being apparent that by the diagonal or shearing movement of the walls injury to the faces of the block, such as the formation of cracks or seams, is obviated. After the mold has been opened to the extent explained the wall 22 may turn fully backward upon its pivot 21 by means of the handles 33 to permit of the follow-board or palette 37, containing the blocks, being elevated from the mold and conveyed to the drying-room. Furthermore, it will be observed that by manipulating the screws 36 the rails 35 may be properly adjusted for holding the palette 37 at an angle relative to the wall 18 to thus form angular-face blocks for use as sills or the like, and, further, that when desired the plate 24 may be removed for interchange-ment with corresponding plates having different faces in order to produce blocks of different facial types.

On reference to Figs. 11 and 12 it will be seen that each of the blocks 61, as produced by the above-described mold has formed in its normally upper and lower side faces and end faces a continuous depression 62, produced by the dowel projections 49 and 51, while surrounding the ends of the air-passages 63, produced by the cores 47, are annular projecting ribs 64, formed by the depressions 50, there being also formed in each of the blocks at its longitudinal center and centrally between the passages 63 a transverse cement-receiving opening 65, adapted when the blocks are assembled in a wall, as illustrated in Fig. 11, to register with the meeting ends of pairs of blocks arranged in the underlying-wall course and to have direct communication with the spaces between said blocks formed by the end portions of the depressions 62. The blocks having been assembled in the wall as seen in Fig. 11, semi-liquid cement is poured into the openings 65 and spaces between the meeting ends of the blocks and serves to fill the spaces between the adjacent faces of the blocks for binding the same together, it being apparent that the liquid cement will be prevented from entering and filling the air-passages 63 by the annular ribs 64.

The side and end walls of the mold are provided with extension pieces or sections 66, detachably secured in place by means of fastening members or bolts entered through aligning perforated ears 68, these extensions serving to increase the depth of the mold when desired for correspondingly increasing the width of the blocks cast in the mold, as will be readily understood.

Having thus described our invention, what we claim is—

1. In a building-block-molding machine, a frame, a mold journaled to rotate eccentric-ally therein, said mold having its walls pivot-

ally connected for relative movement and being adapted to swing from vertical casting position to horizontal discharging position, and means for turning the mold from the former to the latter position, the pivotal axis of the walls being eccentric to that of the mold whereby the latter will, when turned on its axis, cause the walls to move diagonally away from each other.

2. In a building-block-molding machine, a frame, a mold journaled for eccentric rotation therein and adapted to swing from a vertical casting position to a horizontal discharging position, said mold comprising a pair of walls pivotally connected and adapted for relative movement, means for locking the walls in normal casting position, said means being operable for automatically releasing the walls when the mold is in discharging position, and means for turning the mold from the former to the latter position, the axis of rotation of the mold being eccentric to the pivotal axis of the walls whereby the latter will, when the mold is rotated, move diagonally away from each other to discharge the block.

3. In a building-block-molding machine, a frame a mold journaled for rotation therein and adapted to turn from vertical casting position to horizontal discharging position, and means including an operating-shaft and a set of toggle-levers for moving the mold to and from said positions.

4. In a building-block-molding machine, a frame, an operating-shaft rotatively sustained therein, a mold journaled for rotation in the frame and adapted to swing in a vertical plane, a set of toggle-levers fixedly engaged with the shaft and operatively connected with the mold and an operating-lever fixed upon and for rotating the shaft to swing the mold.

5. In a building-block-molding machine, a frame, a mold journaled for rotation therein and comprising relatively movable walls, locking members pivotally connected with one of the walls and adapted for engagement with another wall, said members having inclined faces, means for rotating the mold from casting to discharging position, and a part included in the frame adapted to act upon the inclined faces for moving the locking members to releasing position.

6. In a building-block-molding machine, a frame, a mold journaled for rotation in the frame and comprising relatively movable walls, pivotal connections between said walls, a rod included in the frame, bearing-rollers journaled on the rod, tracks carried by one of the walls and adapted to rest upon said rollers when the mold is in discharging position mechanism for rotating the mold from casting to discharging position, locking members for maintaining the walls in casting position, said members being operable by

contact with the rod to release the wall when the mold is in discharging position.

7. In a building-block-molding machine, a mold comprising a plurality of relatively movable walls sustaining rails movably connected with one of said walls, a palette supported by said rails, and means for adjusting the rails to vary the inclination of the palette relative to the opposite wall of the mold.

8. In a building-block-molding machine, a mold comprising a plurality of relatively movable walls, sustaining rails pivotally connected at one end of one of said walls, a palette supported by said rails and adjusting members having bearing in the wall and adapted to act upon the rails for varying the inclination of the palette relative to the adjacent wall.

9. In a building-block-molding machine, a mold, a pair of relatively spaced partitions arranged within and between the ends of said mold, and a locking-bar journaled in one wall of the mold and adapted when rotated to act upon both of the plates for locking them in place.

10. In a building-block-molding machine, a mold provided between its ends with a partition comprising a pair of relatively spaced plates, said mold being provided with bearings for said plates, and a rotary locking-bar connected with the mold and arranged between the plates, said bar being operable for spreading the plates relatively to clamp them in the mold.

11. In a building-block-molding machine, a mold provided with grooves, a pair of relatively spaced partition-plates arranged in said grooves, and a pair of spaced locking-bars rotatively connected with one of the walls and arranged between said plates, said bars being operable for clamping the plates in place.

12. In a building-block machine, a mold, a palette adapted for use therein and provided with a core-opening, said palette having a depression formed in its normally inner face to wholly surround the opening and being provided on its outer face with strengthening-reinforcements.

13. In a building-block machine, a mold, a palette adapted for use therein and provided with a core-opening, said palette having

formed on its normally inner face a depression wholly surrounding the opening and being provided on its outer face with longitudinal and transverse strengthening-ribs.

14. In a building-block machine, a mold having one of its walls provided with a dowel-plate adapted to form a depression in the adjacent face of the block, said wall having a core-opening and a depression in the face of the wall wholly surrounding the core-opening and designed to form a corresponding projection on the face of the block to wholly surround the end of the core-opening therein.

15. In a building-block machine, a mold comprising side and end walls provided with dowel-plates adapted to form a continuous depression around the block, and a core for producing an opening through the block, said core-opening having its ends centered in the depression at opposite faces of the block and the plates having depressions to produce projecting ribs on the faces of the blocks wholly around the ends of the core-opening.

16. In a building-block machine, a mold comprising side and end walls, one of said walls being provided with a dowel-plate to produce a depression in the adjacent face of the block, and a core for forming an opening through the latter, said opening having one of its ends centered in the depression and the plate having a depression therein to form a projection on the face of the block wholly surrounding the said end of the core-opening.

17. In a building-block machine, a mold, relatively spaced partitions arranged therein, bearings for said partitions, and means for locking the partitions in place against said bearings.

18. In a building-block machine, a mold comprising side and end walls, extension-pieces adapted for attachment to said walls for varying the depth of the mold, and means for detachably securing said pieces in place.

In testimony whereof we affix our signatures in presence of two witnesses.

MARK L. DAHN.
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Witnesses:

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