

No. 842,491.

PATENTED JAN. 29, 1907.

G. L. REED.
CEMENT BLOCK MACHINE.
APPLICATION FILED MAY 10, 1906.

3 SHEETS—SHEET 1.

Fig. 2

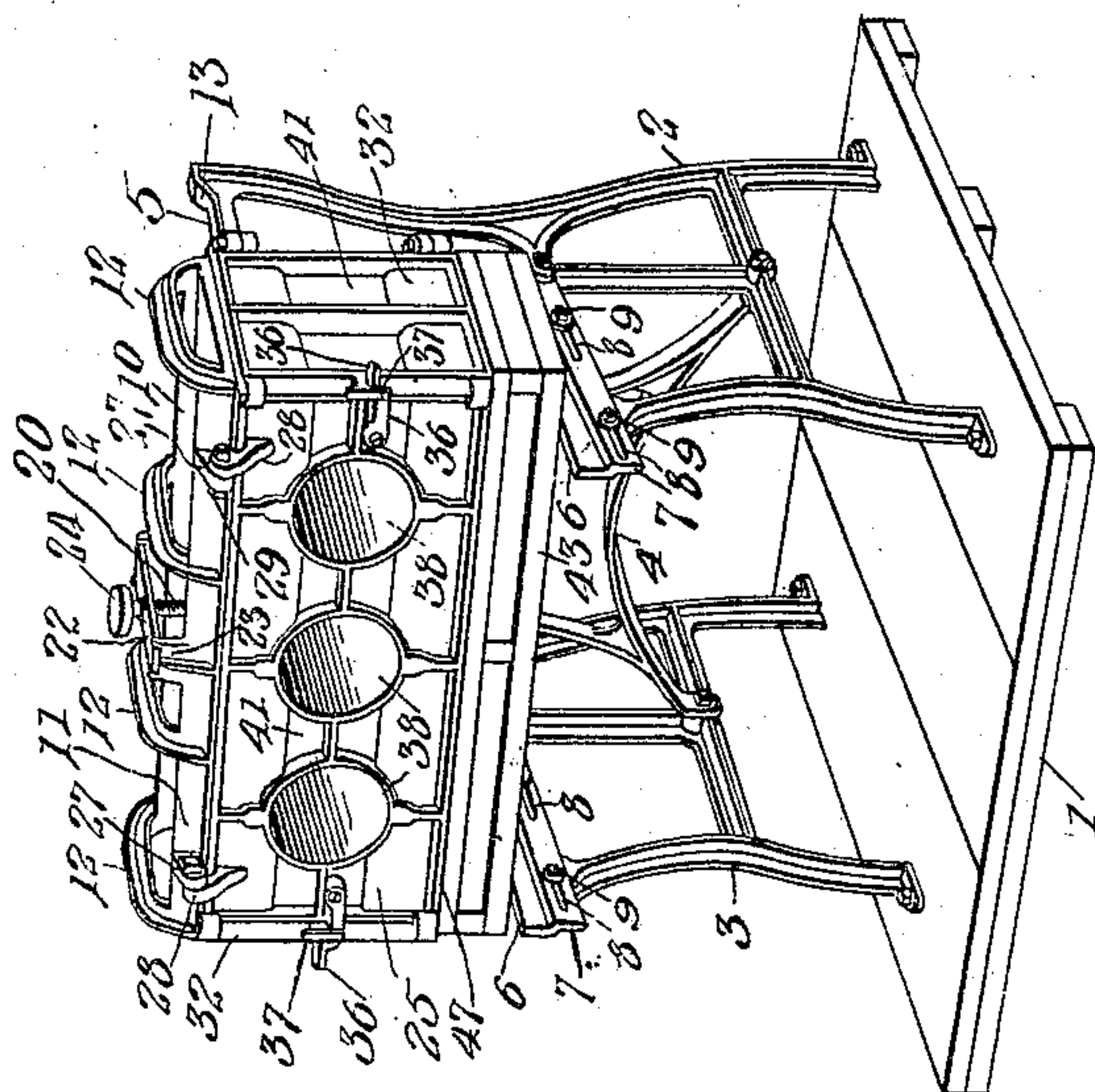
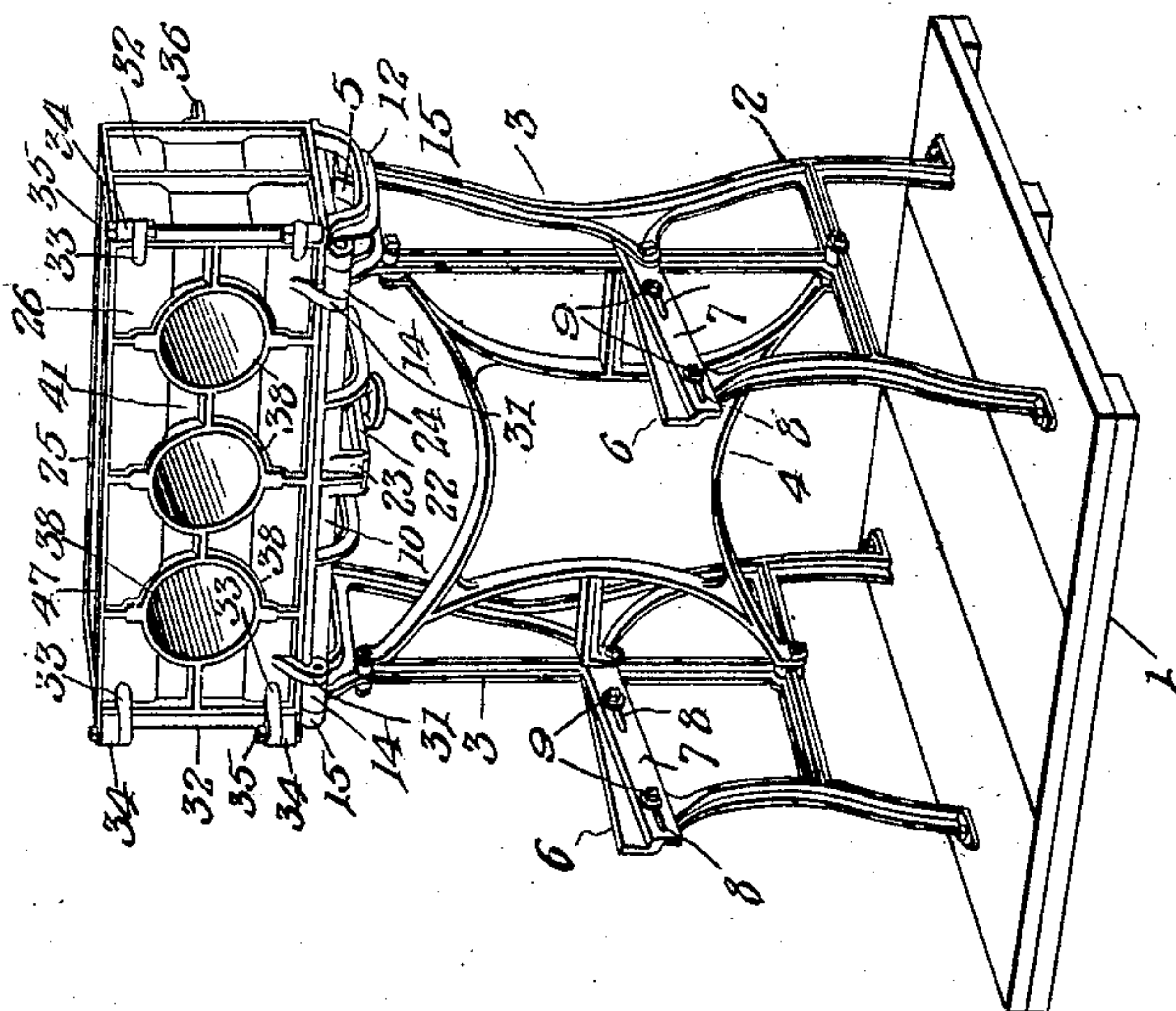


Fig. 1.



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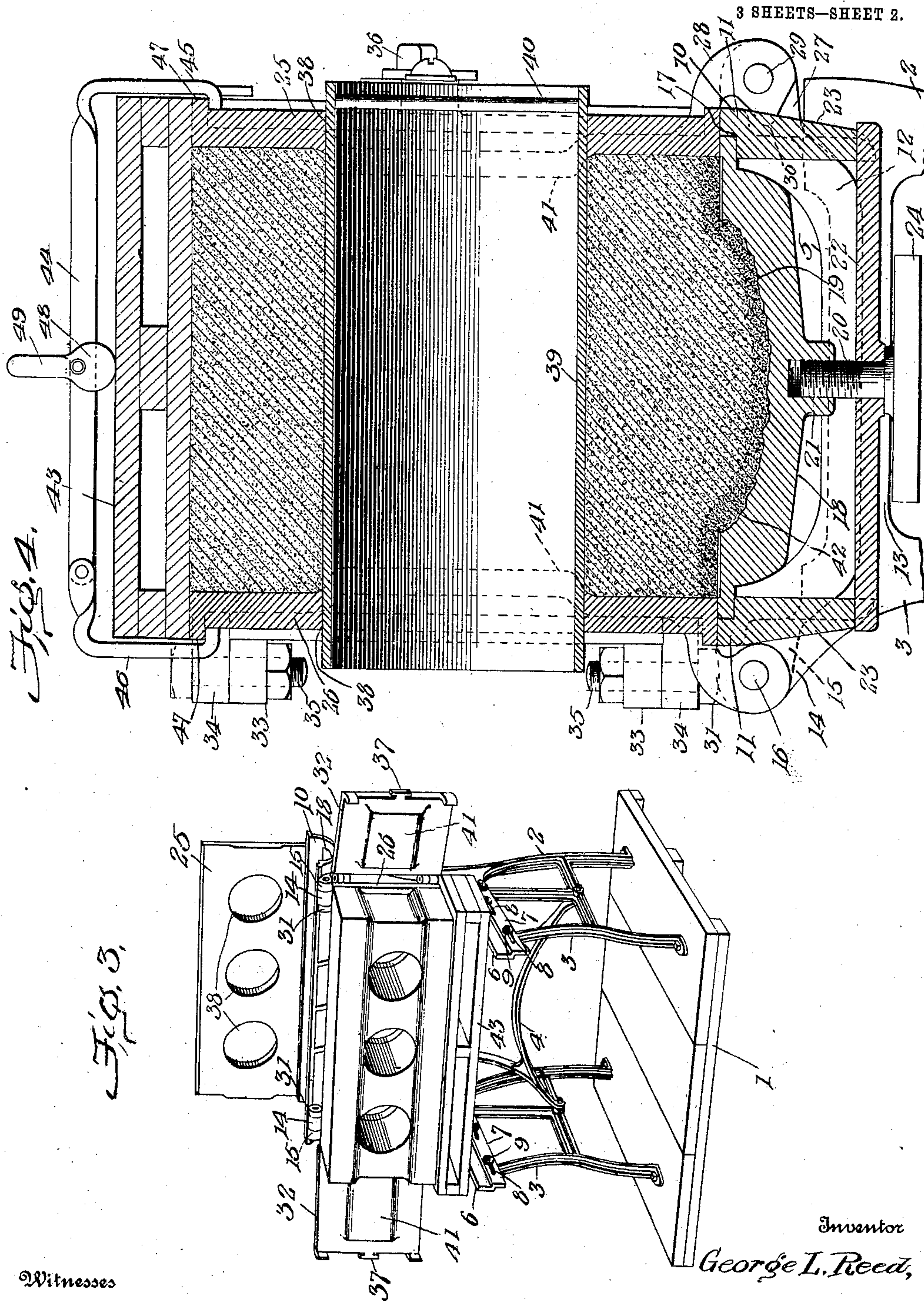
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3 SHEETS—SHEET 3.

Fig. 5.

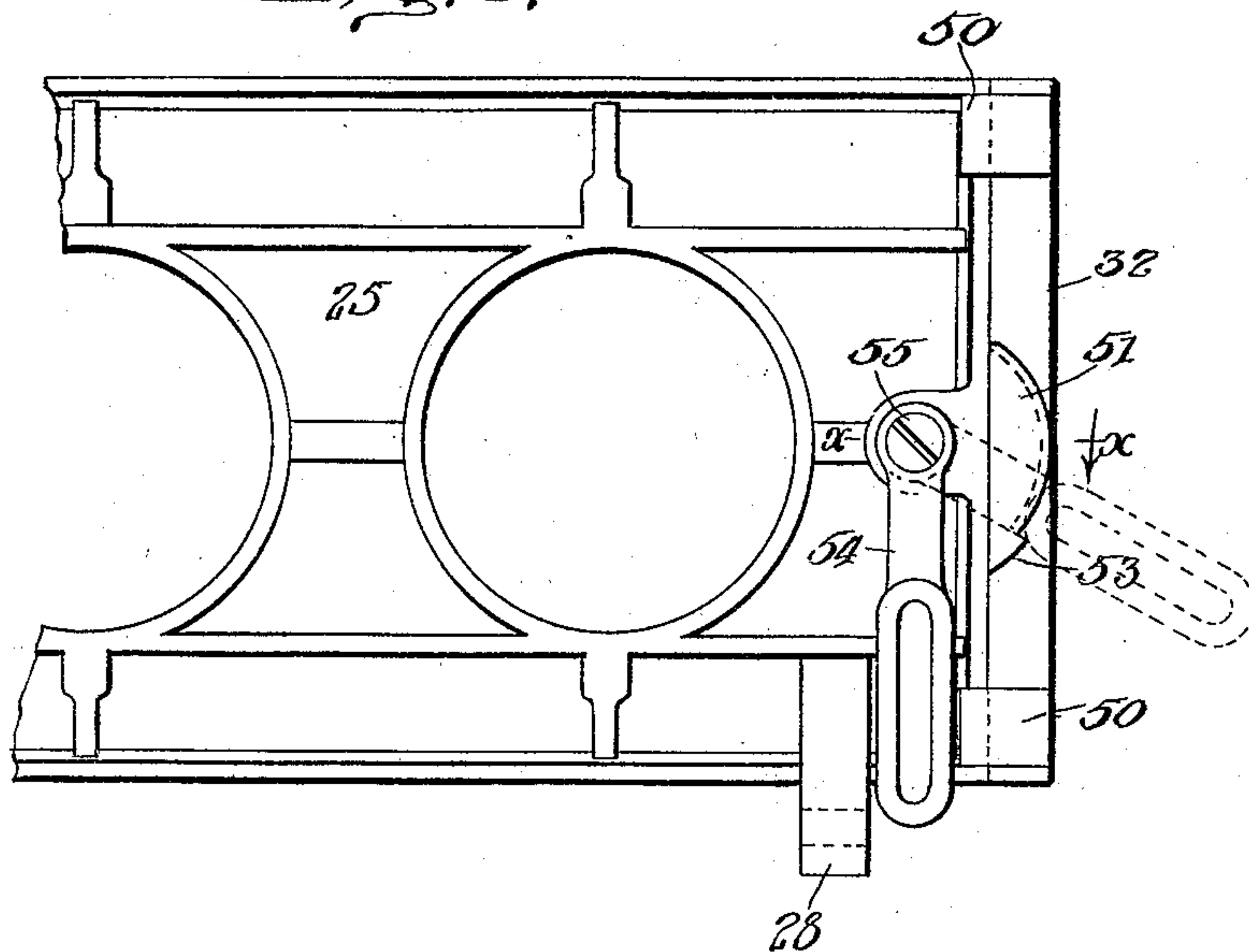


Fig. 6.

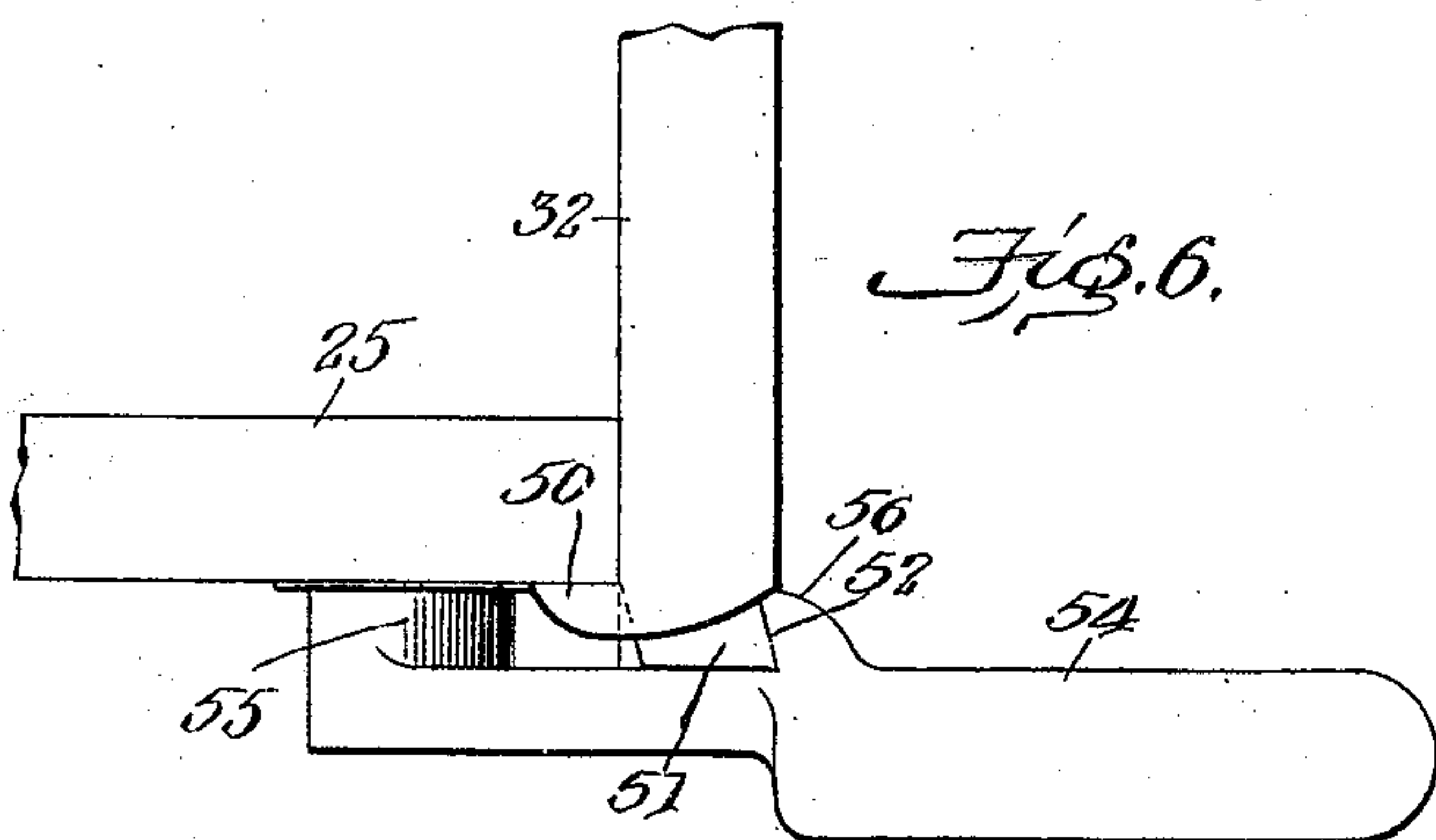
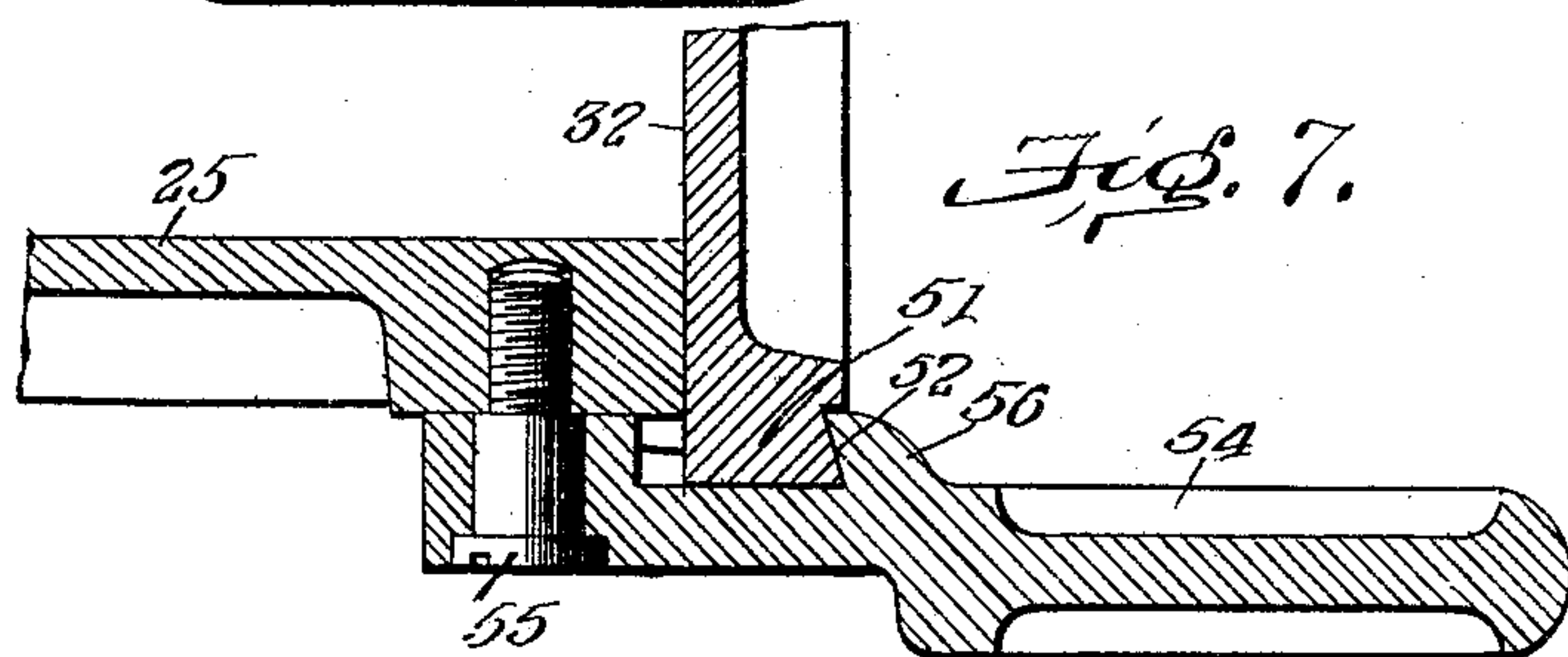


Fig. 7.



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GEORGE L. REED, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE REED MANUFACTURING COMPANY, OF SPRINGFIELD, OHIO, A CORPORATION OF OHIO.

CEMENT-BLOCK MACHINE.

No. 842,491.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed May 10, 1906. Serial No. 316,055.

To all whom it may concern:

Be it known that I, GEORGE L. REED, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Cement-Block Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to cement-block machines, or, in other words, to machines for molding building-blocks of cement, cementitious compounds, concrete, or the like.

The invention has for its object to provide a strong and durable apparatus of this character which shall be simple and efficient in operation, turning out work rapidly, and especially adapted for the production of blocks having an exposed face of special material or composition to obtain increased durability or specially ornamented or colored to give increased architectural effectiveness, special provision being made for the ready changing of the pattern or ornamentation.

To the foregoing ends my invention consists in certain novel features which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a perspective view illustrating a machine embodying my invention in one form, the mold being shown in the position which it occupies during the operation of filling and tamping the same. Fig. 2 is a similar view showing the mold in the position which it assumes after the operation of filling and tamping is completed and just prior to the stripping of the mold from the block. Fig. 3 is a similar view showing the mold stripped from the block and the block ready for removal along with the pallet which supports it. Fig. 4 is an enlarged detail sectional view taken in a central vertical plane from front to rear of the machine through the mold, pallet, and upper portion of the mold-support, showing the mold filled and closed ready to be inverted from the position shown in Fig. 1 to the position shown in Fig. 2. Fig. 5 is a detail rear elevation of one end of the mold, illustrating a modified form of fastening device or latch for connecting the parts. Fig. 6 is a plan view of the parts shown in Fig. 5 with the latch in horizontal position; and Fig. 7 is a detail sectional view taken on a line corre-

sponding with the line xx of Fig. 5 and looking in the direction of the arrows, the latch being shown in horizontal position.

In the said drawings the machine is shown as mounted upon a suitable platform 1, which serves to receive the mold-support, (indicated as a whole by the reference-numeral 2.) This support comprises lateral frame members 3 and a transverse connecting member or brace 4; but it may be of any suitable construction. Said mold-support is provided with two seats to receive and support the mold—an upper seat, (indicated by the reference-numeral 5)—the same being elevated and at the rear of the support, while the other, the lower seat (indicated by the reference-numeral 6)—is located at the front of the machine. The seat 6 is preferably adjustable in height, and to effect this adjustment the support 2 is provided with inclined portions, on which are mounted the seat-bars 7, having correspondingly-inclined slots 8 to receive the bolts 9, by which said seat-bars are connected to the body of the support.

It will be seen that adjustment of the seat-bars forward or back upon the support will correspondingly raise or lower said seat-bars, and thereby adjust the same in proper position to receive and support the mold when inverted in the manner hereinafter set forth.

The machine is designed to mold the block face downward, or, in other words, with that side thereof underneath which is intended to constitute the face which is exposed when the block is in position in the building.

10 indicates a face-plate frame, substantially rectangular in form and having its parallel front and rear rails 11 connected and strengthened by transverse ribs 12, arched, as shown, to accommodate the face-plate proper. The face-plate frame is hinged to the support 2 at the front of the upper rear seat 5. To this end each lateral frame member 3 is provided at the front end of its seat-bar 13 with a pivot-lug 14, and the face-plate frame 10 is provided with corresponding pivot-lugs 15 at its ends, pivots 16 passing through said lugs. The face-plate frame 10 has a marginal seat or recess 17 to receive the face-plate 18, which fits therein and forms the bottom of the mold during the operation of filling and tamping the same.

A number of interchangeable face-plates may be employed, each one having cut there-

in a suitable pattern to provide for the decoration of the face of the building-block, the present illustration showing said face-plate as having a cavity or recess 19 therein, 5 curved or cut in intaglio to produce the effect known as "rock face." Since a plurality of these plates may be employed, either plain or having any suitable design, the ornamentation of the face of the block may be varied 10 as desired. The face-plate is held in position in its seat by means of a screw 20, threaded into a recess 21, in what is normally the under side of the face-plate, said screw passing 15 loosely through a cross-bar 22, which is seated in recesses in the ends of projections 23, extending downward from the face-plate frame 10, at the center thereof. The screw 20 is provided with a hand-wheel 24, by means of which it may be readily rotated to 20 secure or release the face-plate relatively to its frame.

The mold further comprises side plates 25 and 26, of which the former may be considered as the back plate and the latter as the 25 front plate. The side or back plate 25 is hinged to the rear margin of the face-plate frame 10 by means of hinged lugs 27 on the frame, hinged lugs 28 on the back plate, and connecting pivot-bolts 29. From an inspection of Fig. 4 it will be seen that the pivot-lugs 28 are provided with projections or 30 noses 30 at their ends, which engage under a flange of the rail 11 of the face-plate frame 10 in such a way as to limit the range of pivotal 35 movement of the back plate relatively to the frame and maintain the same in substantially upright position when the mold is thrown open in the manner illustrated in Fig. 3. The front plate 26 is provided with 40 pivot-lugs 31, by means of which it is pivoted to the mold-support 2 by means of the same pivots 16 which connect the face-plate frame 10 thereto. End plates 32 are provided hinged to the front plate 26 at the ends 45 thereof by means of pivot-lugs 33 on the front plate, similar lugs 34 on the end plates, and pivot-bolts 35 passing through said lugs. In order to secure the side and end plates of the mold together in proper relation to each other 50 and to the face-plate and its frame, the back plate 25 is provided with pivoted latches 36, which engage with undercut projections or keepers 37 on the free margins of the end plates 32, the construction being such that 55 the several plates fit firmly against each other, so as to form a tight and rigid mold when the latches are properly engaged with the keepers.

Building-blocks of this type are usually 60 cored out or made hollow for the sake of lightness and economy, and provision is made in the present machine for supporting suitable cores. To this end the front and back plates 26 and 25 are provided with core- 65 receiving apertures 38, in which fit cores 39,

preferably cylindric in form, the construction which I prefer being that shown in which each core consists of a tube fitting the apertures 38 and of a length somewhat greater 70 than the width of the mold, beyond which it projects slightly. A cross-piece 40 at one end of each core forms a convenient hand-grasp, by which it may be handled in inserting it in place and removing it from the finished block. It is also deemed desirable to 75 further reduce the weight and amount of material in the block to form a groove or depression extending around the body of the block, these depressions or recesses being 80 formed in the ends of the block and in the faces which constitute the upper and lower faces when the block is in position in the wall. This feature is advantageous in permitting the blocks to be more readily handled by 85 reason of the handholds thus provided, while a continuous air-space is thus formed between the bonds which acts as a safeguard against dampness. To accomplish this result, the front and back plates 26 and 25 and the end plates 32 are deflected inward along 90 their central portions, as indicated at 41.

In the operation of molding cement blocks with the apparatus just described the mold is first set up in the position shown in Fig. 1 of the drawings, with the mold resting upright 95 upon the seat-bars 13 of the upper rear seat 5, the face-plate frame 10 resting thereon and carrying the particular face-plate whose pattern it is desired to produce, while the side and end plates are properly supported on the 100 face-plate frame and are held firmly in position at right angles to each other by the latches 36. The entire mold may of course be filled with a uniform composition; but an inexpensive block, waterproof as to its exposed 105 face, may be made by first filling the lower part of the mold with a suitable facing composition 42—say one part of cement to two parts of sand. The filling of this composition should cover the face-plate the depth of 110 about one-half inch at least. This facing may, if desired, be mixed with a suitable coloring material, so as to give to the exposed face of the block any desired color without 115 involving the expense of coloring the entire block. Where a special facing is thus employed, the body of the block may be made of any suitable cheaper material or compound, thus reducing the cost of the block as a whole. In any event the composition first 120 placed in position in the mold is tamped directly before the cores are inserted, so that a good and sharp impression of the pattern of the face-plate is obtained. When the filling reaches the lower edges of the core-apertures 125 38, these latter are inserted and the filling and tamping proceeds, the cores being so shaped that the force of the tamping blows is transmitted to the material below and at the sides of the cores with a maximum 130

of efficiency, and the completed block is much stronger by reason of this fact and by reason of the strength of the connecting portions thereof. When the mold has been filled and the tamping completed, the mold is closed by applying to the top thereof a pallet 43, which fits on the upper edges of the sides and ends and which may be secured in position by any suitable clamping means. I have shown for this purpose a clamp comprising a bar 44, provided at one end with a fixed hook 45 and at the other end with a pivoted hook 46, said hooks being adapted to engage flanges 47 on the upper margins of the plates 25 and 26. An eccentric 48 is pivoted to the bar 44 and provided with an operating handle or lever 49. This eccentric is arranged to bear on top of the pallet 43 and press the same firmly downward on the top of the mold, at the same time drawing the hooks 45 and 46 firmly into engagement under the flanges 47. After the mold is thus closed it is inverted by swinging it bodily around the pivots 16, so that it assumes the inverted position shown in Fig. 2 and rests upon the lower front seat 6, the pallet 43, which has now become the bottom of the mold, resting on the seat-bars 7 of said seat. Before the inversion of the mold the seat-bars 7 are drawn out to lower them and permit the corner of the mold to swing by without touching, after which said seat-bars are pushed in, and thereby moved upward to engage and support the pallet, the bolts 9 holding the bars tightly enough to keep them in adjusted position by their frictional engagement with the support. The mold having been thus inverted, the clamping devices which connect the pallet to the mold are disconnected and removed, the cores are withdrawn, and the latches 36 are released by swinging them upward out of engagement with the keepers 37. Thereupon the several parts of the mold are free and disconnected from each other in such a way that the back plate 25 and face-plate frame 10, with the face-plate 18, may be swung upward and backward to their original position, as shown in Fig. 3, with the face-plate frame and face-plate resting again on the upper rear seat 5. The end plates 32 are then also swung back, as shown in Fig. 3, and the block is left exposed, supported only by the pallet and ready for removal, which is effected by lifting the pallet and transporting the block along therewith to a place suitable for drying. The front plate 26 is then swung up into vertical position, carrying with it the end plates 32, and these latter are then brought into proper relation with the back plate 25 and again latched thereto, thereby completing the setting up of the mold once more ready to mold another block.

It will be seen that the structure is simple, strong, and durable, quickly and easily oper-

ated, and so organized that blocks of a superior quality can be turned out at a relatively small expense with great rapidity, while the pattern of the exposed face may be readily changed, as desired.

It will be understood, of course, that by the employment of the usual division-plates and pattern-bearing end plates blocks of different sizes and blocks having more than one ornamental face may be readily constructed with this apparatus.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art. For instance, I have illustrated in Figs. 5, 6, and 7 a form of latch particularly constructed with a view to firmly holding the walls of the mold in position and preventing the working loose of the latches under the strain and jar of tamping. In this construction the end plates 32 are provided with lugs 50, which overlap the margins of the back plate 25 to receive the strain of the tamping blows. On the front edge of each end plate 32 there is located a keeper 51, the same being a projection in the form of a segment the curved margin of which is beveled, as indicated at 52. The lower end of this segment is provided with a stop projection 53, while the curvature of the margin of the segment has the axis of the latch for a center, said curvature being of somewhat less radius at the upper end to facilitate engagement of the segment and latch. The latch (indicated as a whole by the reference-numeral 54) is pivoted at 55 to the adjacent end of the back plate 25, and said latch is provided with a projection 56 on its rear or inner face, beveled to fit the beveled edge 52 of the segmental keeper. When the end plate and front plate are brought together, as shown, the latch is swung around from the position shown in full lines in Fig. 5, moving in the direction of the arrow, to the position shown in dotted lines, in which latter position it firmly holds the two plates together, the beveling or inclination of the meeting surfaces of the lug and segment preventing movement of either of the plates around their pivotal axes. The diminished radius of the curvature of the upper end of the segmental keeper facilitates engagement of the latch therewith, while the stop-lug prevents the latch from moving beyond its locking position and holds the same against jarring downward.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A cement-block machine comprising a frame having supports arranged side by side, in combination with a mold pivoted to said frame so as to swing from one support to the other, said mold comprising a face-plate

frame pivoted to the frame of the machine at one edge, a face-plate supported by said face-plate frame, a back plate pivoted to the rear edge of said face-plate frame, a front plate pivotally connected with the front edge of said face-plate frame, end plates pivoted to the ends of one of said plates, and means for detachably connecting the same with the opposite plate, substantially as described.

10 2. A cement-block machine comprising a mold-support having an upper and a lower seat arranged side by side, in combination with a mold pivoted to said support so as to swing into inverted position from one seat to
15 the other, said mold comprising a bottom plate pivoted to the support at its front edge, a back plate pivoted to the rear edge of said bottom plate, a front plate pivotally connected with the front edge of the bottom
20 plate, end plates pivoted to the ends of the front plate, and latches for detachably connecting said end plates with the back plate, substantially as described.

3. A cement-block machine comprising a
25 mold-support having an upper and a lower seat arranged side by side, in combination with a mold, all the walls whereof are pivotally connected to swing apart to release the block, said mold being provided with fasten-
30 ing devices to hold said walls together in fixed operative relation on the upper seat during the filling and tamping, said mold being pivoted to the support so as to swing from its position on the upper seat into inverted posi-
35 tion on the lower seat after filling and tamping, substantially as described.

4. A cement-block machine comprising a mold-support having an upper and a lower
40 seat arranged side by side, in combination with a mold, all the walls whereof are pivotally connected to swing apart to release the block, said mold being provided with fasten-
45 ing devices to hold said walls together in fixed operative relation on the upper seat during the filling and tamping, said mold being pivoted to the support so as to swing from its position on the upper seat into in-
50 verted position on the lower seat after filling and tamping, and a pallet detachably connected to the mold to close the open side thereof before inversion, said pallet acting to support the block after the mold has been inverted and the block released therefrom, substantially as described.

55 5. In a cement-block machine, a mold, a face-plate frame comprising side members, cross-bars connecting the same, rabbets in the inner faces of said side members forming shoulders near the upper edge thereof, a face-
60 plate having a threaded recess in the outer face thereof supported on said shoulders, recessed lugs carried by said side members, an apertured bar engaging said recessed lugs, and a threaded bolt extending loosely through

said apertured bar and engaging said thread- 65 ed recess in the face-plate, substantially as described.

6. In a cement-block machine, a mold, a face-plate frame comprising side members having an outwardly-extending flange car- 70 ried by one of said members, pivot-lugs on said member, a side plate above said side member, pivoted lugs carried by said side plate and adapted to engage pivot-lugs car- 75 ried by said side member, a projection on the pivot-lug carried by said side plate adapted to engage the flange on said side member to limit the pivotal movement of said side plate, substantially as described.

7. In a cement-block machine, an inverti- 80 ble mold, the bottom whereof comprises a face-plate frame having a marginal seat, a removable face-plate fitting said seat, a cross-bar engaging the frame below said marginal seat, and a hand-screw bearing on 85 the cross-bar and having a threaded engagement with the face-plate, substantially as described.

8. In a cement-block machine, a mold-support having upper and lower seats com- 90 posed of parallel seat-bars, in combination with a mold having its bottom pivoted to said support and comprising a face-plate frame and removable face-plate, side plates pivotally connected with the face-plate 95 frame, end plates pivotally connected to one of the side plates, latches detachably connecting the end plates with the other side plate, and a pallet detachably connected to the top of the mold, substantially as de- 100 scribed.

9. A cement-block machine comprising a mold-support having an upper and a lower seat arranged side by side, and a mold pivot- 105 ed to swing from the former into inverted position on the latter seat, said lower seat comprising inclined support members, seat-bars having inclined slots therein, and pins ex- 110 tending through said slots and connecting said bars to said support members, substan- 115 tially as described.

10. In a cement-block machine, mold-plates hinged to swing on pivotal axes at right angles to each other, one of said plates being provided with a pivoted latch having a 115 projection provided with a beveled face, the other plate being provided with a segmental keeper, the curved margin of which is correspondingly beveled, substantially as de- 120 scribed.

11. In a cement-block machine, mold-plates hinged to swing on pivotal axes at right angles to each other, one of said plates being provided with a pivoted latch having a 125 projection provided with a beveled face, the other plate being provided with a segmental keeper, the curved margin of which is correspondingly beveled, said keeper being pro-

vided with a stop projection in the path of the projection on the latch, substantially as described.

12. In a cement-block machine, mold-plates hinged to swing on pivotal axes at right angles to each other, one of said plates being provided with a pivoted latch having a projection provided with a beveled face, the other plate being provided with a segmental keeper, the curved margin of which is corre-

spondingly beveled, the curvature of said keeper being of diminishing radius toward the end first engaged by the latch, substantially as described.

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

GEORGE L. REED.

Witnesses:

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