No. 795,939. PATENTED AUG. 1, 1905.

J. W. SHONE.

MACHINE FOR MANUFACTURING BUILDING BLOCKS.

APPLICATION FILED FEB. 4, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

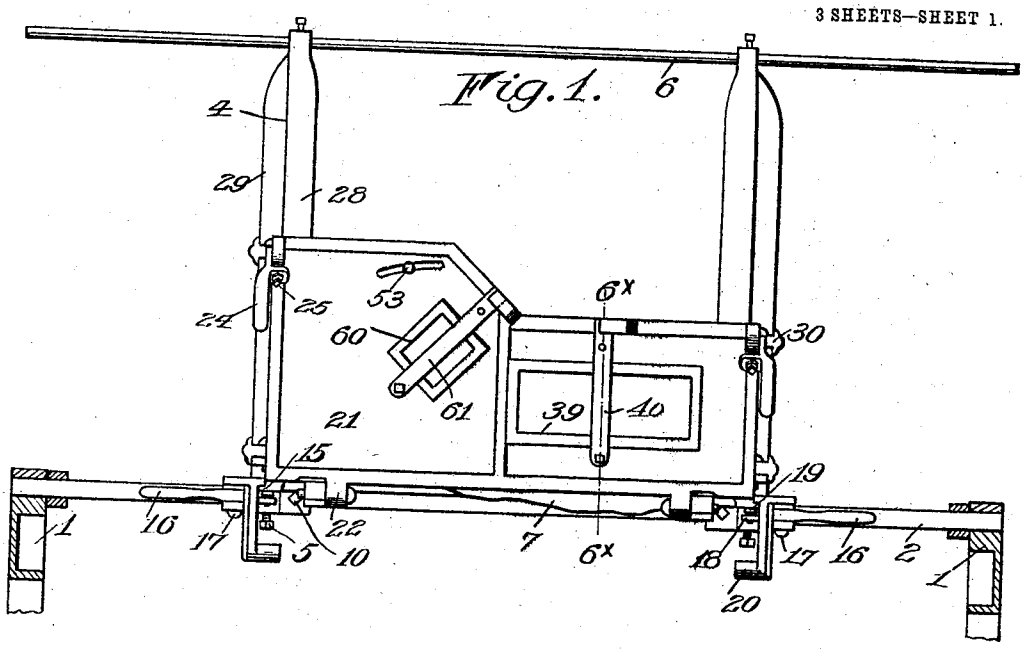


Fig. 4.

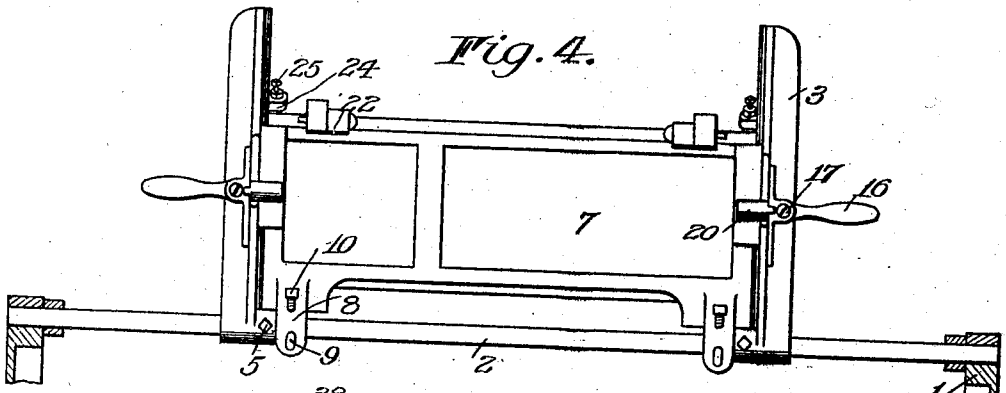
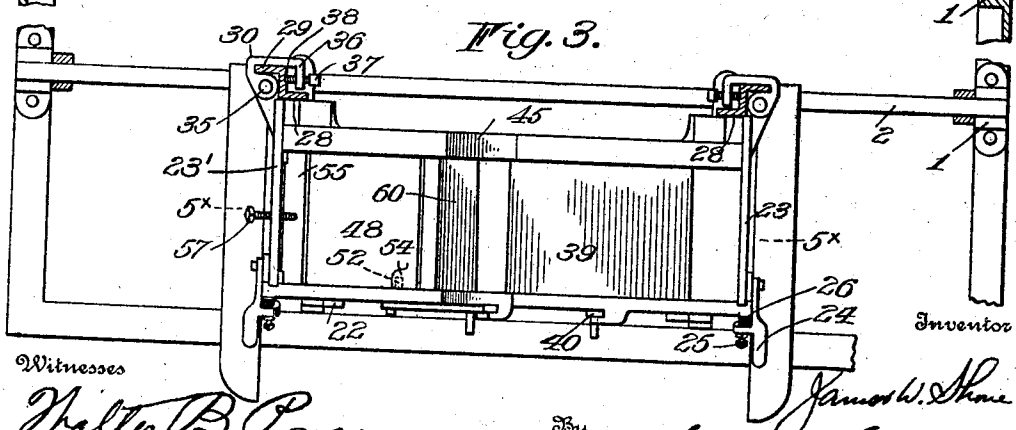


Fig. 3.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 5.

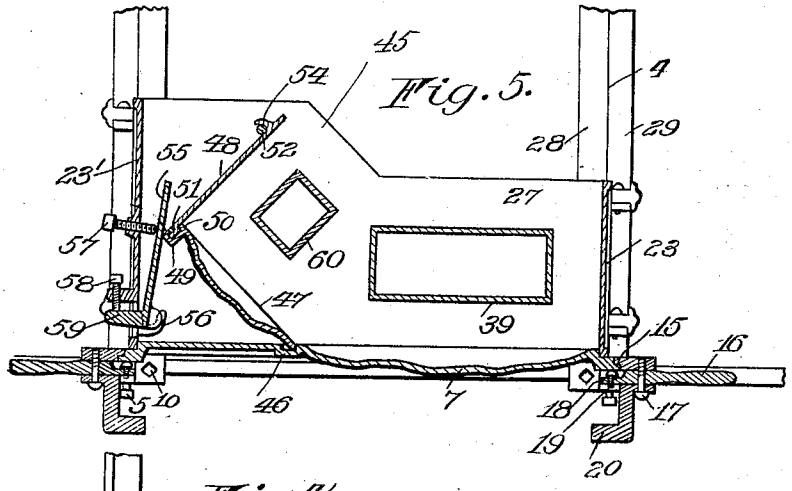


Fig. 7.

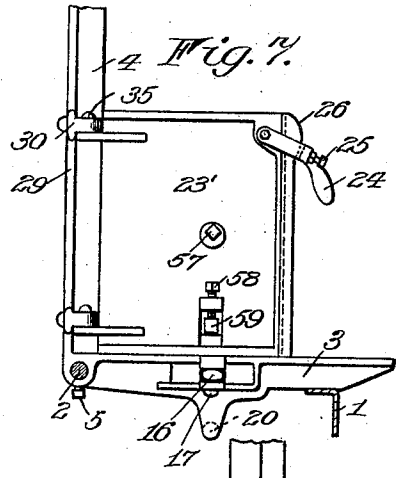


Fig. 6

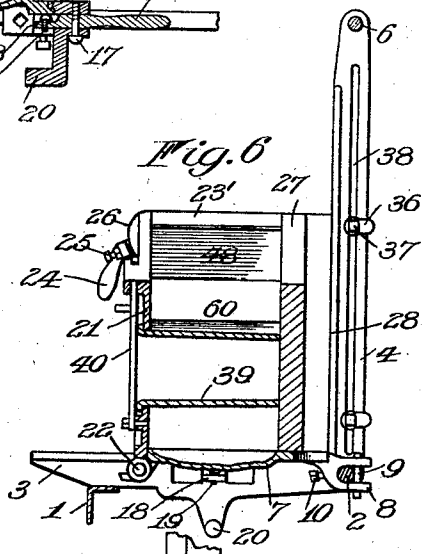
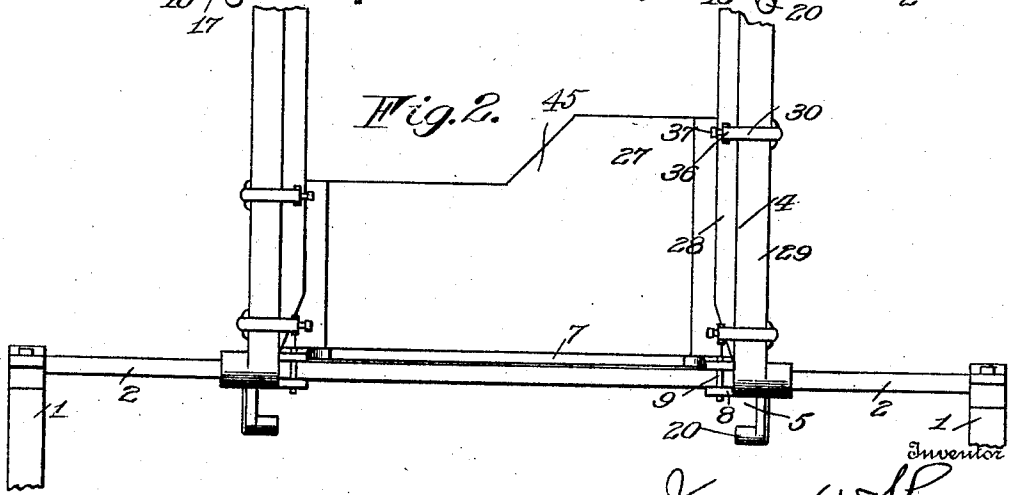


Fig. 2.



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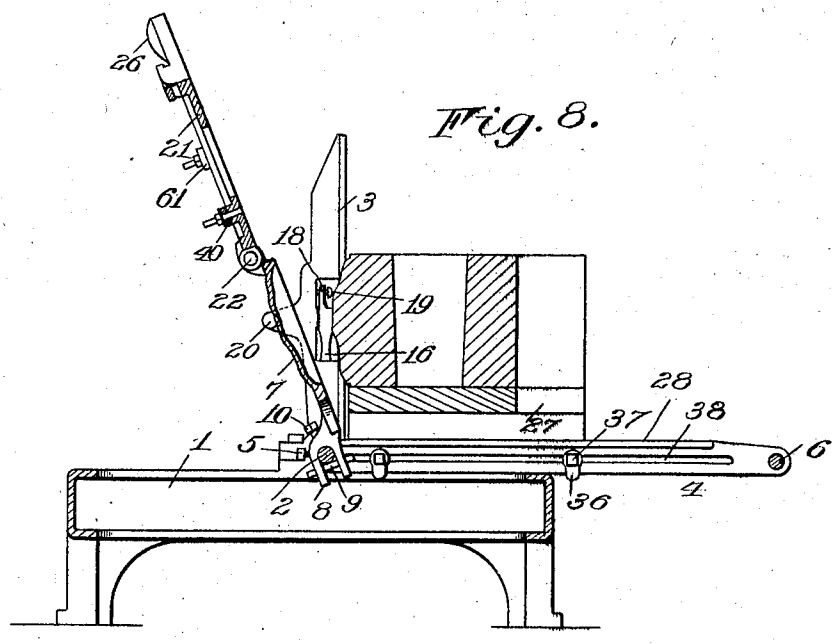
3 SHEETS—SHEET 3.

Fig. 8.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR MANUFACTURING BUILDING-BLOCKS.

No. 795,939. Specification of Letters Patent. Patented Aug. 1, 1905.

Application filed February 4, 1905. Serial No. 244,161.

To all whom it may concern:

Be it known that I, JAMES W. SHONE, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Machines for Manufacturing Building-Blocks; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention has for its object to provide a machine for manufacturing blocks or stones for building purposes having parts interchangeable with others for making blocks of different sizes and which is also capable of molding blocks or stones having two outer or wall faces arranged at an angle to each other and comprising suitably-arranged parts capable of being readily adjusted to vary the angular relation of said faces.

To these and other ends my invention consists of certain improvements and combinations of parts, all as will be hereinafter more fully explained, the novel features being pointed out in the claims at the end of this specification.

In the drawings, Figure 1 is a front elevation of a machine constructed in accordance with my invention. Fig. 2 is a rear view thereof. Fig. 3 is a top plan view. Fig. 4 is a bottom plan view. Fig. 5 is a longitudinal cross-sectional view taken on the line $5^{\times}$ $5^{\times}$ of Fig. 3. Fig. 6 is a cross-sectional view on the line $6^{\times}$ $6^{\times}$ of Fig. 1. Fig. 7 is an end view. Fig. 8 is a view of the mold-box in the open position.

Similar reference-numerals in the several figures indicate similar parts.

In the present illustrations I have shown a machine embodying my invention and comprising a main frame 1, having a longitudinally-extending shaft 2, on which is pivotally mounted a mold-box-supporting frame. As this is adjustable to accommodate mold-boxes of various sizes, it is composed of two side pieces, each comprising an arm 3, to which is attached the bottom of the mold-box, and a divergent arm 4, extending at a right angle thereto and supporting one side of the mold-box. The side pieces are secured to the shaft by set-screws 5, and at their upper ends they are connected by a handle-bar 6, by means of which the frame may be rotated from its normal position (shown in Fig. 1) to that shown in Fig. 8 to turn the molded block onto its side before it is removed from the machine.

The mold-box is composed of movable pieces or mold-boards, and the bottom 7 thereof is provided near its ends with rearwardly-extending jaws 8, embracing the shaft 2 and secured thereto by cotter-pins 9, any lost motion that may occur being taken up by set-screws 10, which are threaded in the jaws and may be adjusted against the side of the shaft to draw the pins into engagement therewith. The bottom is provided at its ends with flanges 15, which engage corresponding flanges formed on the proximate edges of the arms 3, against which it is held by clamping devices comprising handles 16, pivoted on pins 17 and rotating in the plane of the arms to carry their inner ends 18 laterally into and out of operative position beneath the ends of the bottom. Provided on the inner end of each of the handles are wear-pieces, such as screws 19, which may be adjusted so that the bottom 7 may always be clamped firmly in position. When it is unclamped by turning the handles on their pivots, the bottom may be rotated outwardly into engagement with depending stops 20 on the arms 3, as will be further explained.

The front side of the mold-box (indicated by 21) is pivoted to the edge of the bottom at 22 and extends upwardly, as shown in Figs. 6 and 7, to coöperate with the end boards 23, with which it is locked in engagement by handles 24, pivoted on said boards and provided with offsets or shoulders extending over the ends of the side 21, through which project set-screws 25, coöperating with curved eccentric surfaces of bosses 26 thereon. The rear side of the mold, formed by a removable pallet-board 27, is located between the ends 23 and rests upon the bottom 7, being held in place by inwardly-extending flanges 28 on the proximate sides of the arms 4. Also provided on said arms are ribs 29, which extend outwardly, as shown in Fig. 3, to form a guide for the hinge members 30, to which the doors 23 are detachably secured by the pintles 35. Each of the hinge members has an end 36 extending in rear of the flange 28 and provided with a set-screw 37, the end of which projects into a longitudinally-extending recess 38, formed of sufficient depth to permit the screw to be loosened and the member adjusted longitudinally on the arm with-

out its being accidentally disengaged therefrom.

The parts heretofore described are those employed when the usual rectangular blocks are molded, and if it is desired to make these hollow in form a core 39 may be used, which is inserted through an aperture in the front board 21 and temporarily secured by a pivoted cross-bar 40. Blocks of various sizes may be molded by substituting mold-boards of different length or width, and to further adapt the machine for forming blocks having two wall-faces, which are disposed at other than a right angle or which have one face extending at an angle to both the longitudinal and the transverse walls of the block, I provide additional parts, as will hereinafter appear.

In forming a block of this character the front and rear side pieces or mold-boards 21 and 27 are formed of greater width at one end than at the other, as indicated by 45, and one of the end pieces 23′ is preferably made of corresponding height. The bottom piece employed is provided with a transversely-extending groove or recess 46, in which engages the end of an auxiliary face-plate 47, having at its outer end an extension 48, forming an end for molding the end face of the block. In order that the extension or plate 48 may be readily removed, it is detachably connected to the plate 47 by hook connections, which are adapted to normally support the plate 48 in the desired angular position on the plate 47, but permitting it to be rotated outwardly thereon away from the block. In the present instance these connections are formed by providing the face-plate with an offset 49, at its outer end forming an open channel beneath the overhanging end 50 thereon, and the plate 48 is provided with a corresponding offset end 51, adapted to fit the recess or channel and to engage beneath the end 50. The end plate 48 is further supported by means of a pin or stud 52 projecting through an elongated aperture 53, formed in the front board 21 of the mold-box upon an arc described from the lower end of the face-plate 47, whereby an adjustment of the pin in the slot will cause the face-plate to be adjusted to vary its angularity. The pin 52, projecting in rear of the end plate 48, is sufficient to support the parts, but as both the end plate and the face-plate are subjected to strain and the jarring action caused by packing the material in the mold the former is provided with a shoulder 54, engaging the pin, and an additional adjustable support is provided for the face-plate 47. In the present instance this support comprises the plate 55, supported on hook-shaped fingers 56 at the lower edge of the door 23′ and extending between the inner faces of the side boards 21 and 27, where it engages the end of the plate 47 at such an angle that the plate is supported across its entire width, and its lower end is forced downwardly into close engagement with the forward edge of the recess 46, preventing its disengagement therefrom. The plate 55 is held in adjusted position by means of a set-screw 57, and it is further locked by a similar screw 58, bearing against a rearwardly-extending projection 59 on the plate. When blocks having angular wall-faces are molded, it is also desirable to provide the angularly-extending portion of the block with an aperture, and to this end a supplemental core 60 may be employed similar to the core 39, which is centered by passing it through an aperture in the front board 21, where it is secured by a pivoted strap 61.

The operation of the machine will readily be understood from the foregoing description and the accompanying illustrations. When it is desired to mold a building-block of the usual rectangular form, a mold-box of the desired size and pattern is selected, and the parts thereof are secured to the supporting-frame, the side pieces of which are given the required adjustment on the shaft 2. The mold-box is then closed by securing the bottom 7 to the arms 3 by means of the clamping devices 16, when the front and ends are closed and secured by the locking devices or handles 24. The molding operation may then be performed in the usual manner and the box tilted or rotated to turn the block on its side face, when the bottom, front side, and ends of the box may be opened, as illustrated in Fig. 8, permitting the block to be removed on the pallet 27. The same operation takes place when it is desired to mold blocks having the angular wall-faces, the only changes necessary being the substitution of the specially-formed parts of the mold-box, which are secured in operative position, as before described, and the face and end plates 47 and 48 inserted, as shown in Fig. 5, and secured in the desired position by the adjustment of the pin 52 and the plate 55. As the only connection between the sides of the mold-box and the inclosed face and end plates is the pin 52, it will be seen that after the block has been tilted onto its side face and the side 21, together with the bottom 7, is rotated out of engagement with the block the face-plate and end plate will be disengaged and allowed to rest on the pallet. The end plate may then be rotated away from the end of the block and its hook connection with the face-plate disengaged, permitting the latter to be also removed without marring the face of the block.

I claim as my invention—

1. In a mold-box, the combination with boards for forming the bottom, sides and one end of a block, of an auxiliary plate adjustable at an angle to one of said boards, an end board for the box coöperating with the auxiliary plate and means for adjusting the latter.

2. In a mold-box, the combination with boards for molding the bottom and side faces and one end face of a block, of a movable auxiliary plate engaging one of said boards, means for adjusting the auxiliary plate at an angle to said board and a board coöperating with said plate and forming an end for the box.

3. The combination with a mold-box comprising two sides, a bottom and an end, of a plate having one end resting on the bottom, means for adjusting the other end relatively thereto and an end for the box carried on the plate.

4. The combination with a mold-box comprised of mold-boards forming two sides, a bottom and one end, one of said boards being provided with a recess, of a plate having one end resting in the recess in said board and adjustable at an angle thereto and an end on the plate forming an end for the mold-box.

5. The combination with a mold-box comprised of mold-boards forming two sides, a bottom and one end, of a plate having one of its ends resting against one of the boards, means for supporting its other end at an angle to the board and an angular extension on said plate forming an end for the mold-box.

6. The combination with a mold-box comprised of mold-boards forming two sides, a bottom and one end, of a plate engaging one of the boards and adjustable angularly relatively thereto, an end board for the box and detachable connections between it and the plate.

7. The combination with a mold-box comprised of mold-boards forming two sides, a bottom and one end, of a face-plate coöperating with one of said boards and situated at an angle thereto, an end plate for the mold-box and hook connections between said plates.

8. The combination with a mold-box comprised of mold-boards forming the sides, bottom and one end of the box, of a face-plate disposed at an angle to one of said boards and having one end engaging therewith, an end plate coöperating with the face-plate, detachable hook connections between said plates and means for adjustably securing the end plate to the mold-box.

9. The combination with a mold-box comprised of mold-boards forming the sides, bottom and one end of the box, of an end plate, means for adjustably securing it in the box, a face-plate having an end engaging one of the mold-boards and detachable connections between it and the end plate supporting the face-plate at an angle to said mold-board and end plate.

10. The combination with a mold-box comprised of mold-boards forming the sides, bottom and one end of the box, of an end plate, means for detachably supporting it in the mold-box, a face-plate extending at an angle to the end plate and engaging one of the mold-boards and hook connections securing said plates against relative inward movement in the box permitting them to be detached by a relative outward movement.

11. The combination with a mold-box embodying detachable side and bottom boards and an end board, of a face-plate disposed at an angle to the bottom provided with an end forming one end for the mold-box, a stop on one of the side mold-boards projecting in rear of said end on the plate.

12. The combination with a mold-box embodying detachable side and bottom boards and an end board, of a face-plate disposed at an angle to the bottom provided with an end forming one end for the mold-box, a stop adjustably attached to one of the side mold-boards and a projection on said end of the face-plate engaging the stop.

13. The combination with a mold-box embodying detachable side and bottom pieces and an end piece, of a face-plate disposed at an angle to the bottom of the box, a supporting member located between the side pieces and engaging the end of the plate and an end on the plate projecting upwardly at an angle thereto.

14. In a machine for molding blocks, the combination with a frame, a mold-box embodying detachable side and bottom pieces and an end piece, of a face-plate disposed at an angle to the bottom, a support therefor arranged on the frame, means for adjusting it and a projecting end on the plate forming an end for the mold-box.

15. In a machine for molding blocks, the combination with a frame, a mold-box embodying a bottom having a recess therein and detachable side pieces and an end, of a face-plate having one edge engaging in the recess, an adjustable supporting member arranged on the frame extending between the side pieces and engaging the face-plate to hold it in engagement with the bottom and support its outer edge in elevated position and an end on the plate forming an end for the mold-box.

16. In a machine for molding blocks, the combination with a frame, a mold-box embodying a bottom having a recess therein and detachable side pieces and an end, of a face-plate having one edge engaging in the recess, an adjustable supporting member arranged on the frame extending between the side pieces and engaging the face-plate to hold it in engagement with the bottom and support its outer edge in elevated position, an end plate for the mold-box detachably connected to the face-plate, and an adjustable stop on one of the side pieces detachably engaging the rear of said plate.

17. In a machine for molding blocks, the combination with a main frame embodying a shaft, a mold-box-supporting frame journaled thereon having divergent arms, and a mold-box bottom journaled on the shaft, of side

and end boards coöperating therewith and supported between the arms, a laterally-movable clamping device pivoted on one of the arms and engaging beneath the bottom, and a stop on the arm for limiting the movement of the latter when the clamp is disengaged, sides and ends coöperating with the bottom and locking devices securing them in operative position.

18. In a machine for molding blocks, the combination with a main frame embodying a shaft, a mold-box-supporting frame journaled thereon and a mold-box bottom also pivoted on the shaft, of clamping devices movable in the plane of the bottom and engaging the lower side thereof, offset-stops on the frame engaged by the bottom when it is unclamped, sides and ends coöperating with the bottom and locking devices securing them in operative position.

19. In a machine for molding blocks, the combination with a main frame having a shaft, a pivoted frame thereon comprising arms adapted to support the bottom of a mold-box, and other arms adapted to support one side of the box having a laterally-projecting rib, of hinge members guided on the rib and securing devices for the members engaging the arm in rear of the rib, and end pieces removably attached to the hinge members, a second side piece coöperating with the bottom and means for locking it to the end pieces.

20. In a machine for molding blocks, the combination with a main frame having a shaft, a pivoted frame thereon comprising arms adapted to support the bottom of a mold-box and other arms having flanges on their approximate edges adapted to support one side of the box and provided with outwardly-extending ribs offset relatively to the flanges, of hinge members guided on the ribs, securing devices therefor engaging the arms in rear of said flanges, a second side piece coöperating with the bottom, end pieces journaled on the hinge members and means for locking the parts together.

21. In a mold-box, the combination with a bottom, front and rear side pieces and end pieces, of clamping-levers pivoted on the end pieces and provided with offsets, set-screws on the levers, means for locking them in adjusted position and rounded surfaces on the side pieces arranged eccentrically to the pivotal points of the levers with which said screws engage.

22. In a machine for molding blocks, the combination with a support, a shaft thereon and a mold-box frame journaled on the shaft, of a mold-box comprising front and rear sides, ends and a bottom, jaws on the latter embracing the shaft, pins securing the latter therein, and set-screws adjustably engaging the shaft to take up lost motion between it and the jaws.

23. In a machine for molding blocks, the combination with a mold-box-supporting frame and mold-box sides and ends arranged thereon, of a bottom for the box movable relatively to the frame and laterally movable pivoted clamping devices on the frame coöperating with the bottom.

24. In a machine for molding blocks, the combination with a mold-box-supporting frame and mold-box sides and ends arranged thereon, of a bottom for the box movable relatively to the frame and pivoted arms having their ends extending beneath the bottom and adjustable bearing members on said ends.

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