C. M. STARR.

BRICK MACHINE.

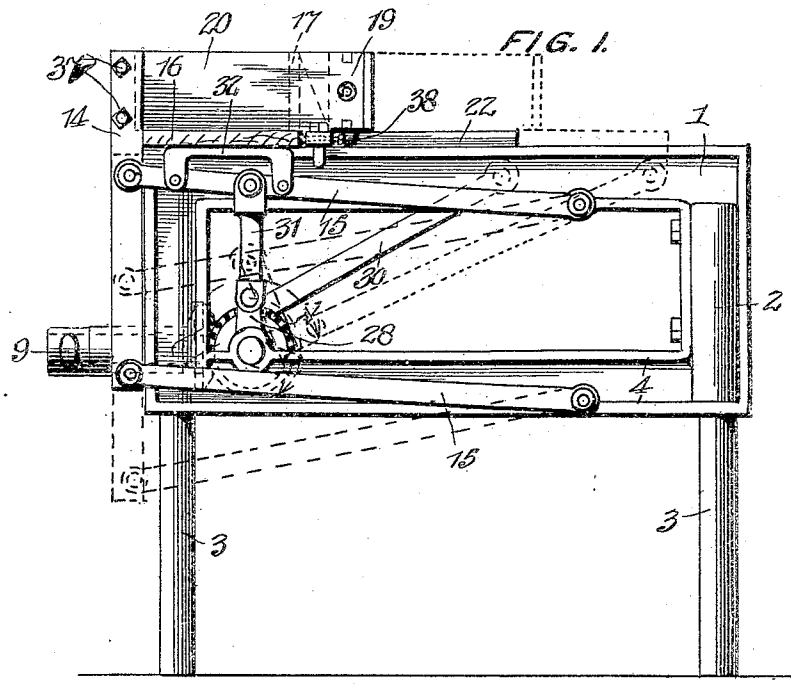
APPLICATION FILED SEPT. 21, 1908.

940,623.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.

FIG. 1.



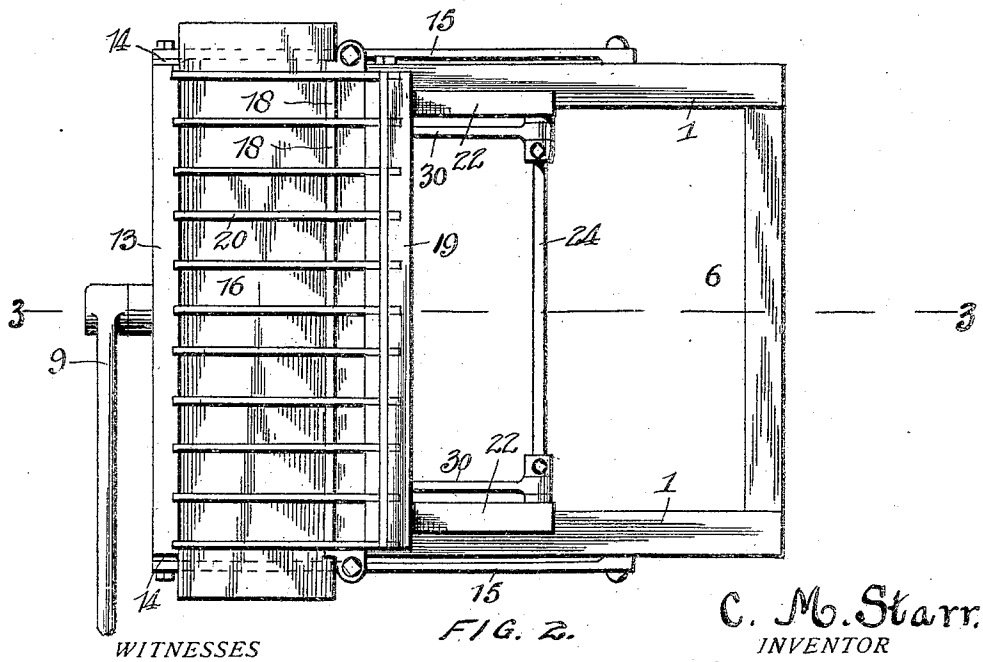


FIG. 2.

WITNESSES

C. K. Davis

H. D. Smith.

C. M. Starr.

INVENTOR

C. L. Parker.

Attorney

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

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2 SHEETS--SHEET 2.

FIG. 3.

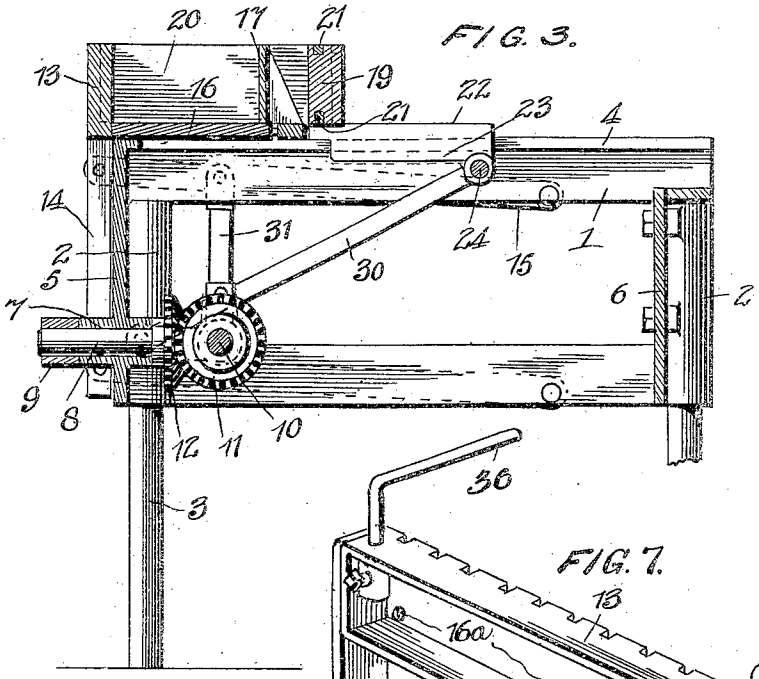


FIG. 7.

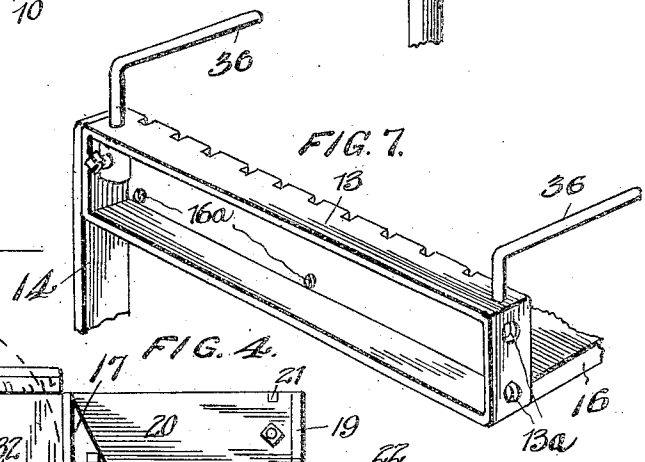


FIG. 4.

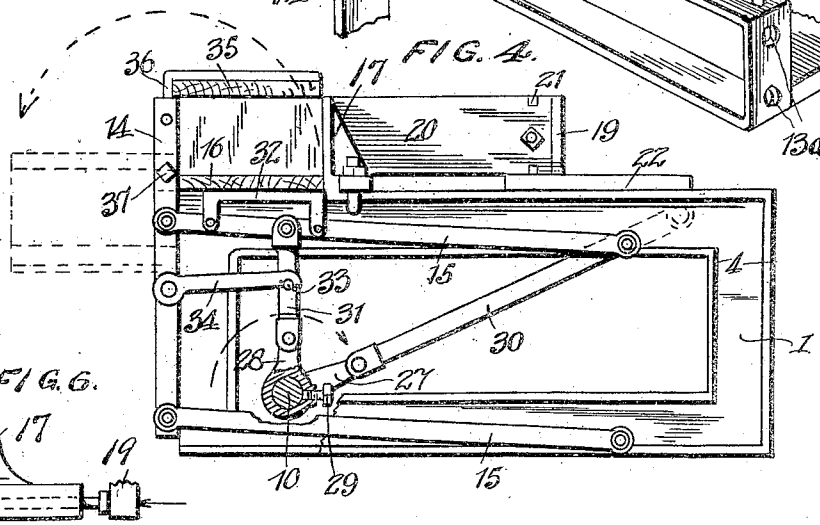


FIG. 6.

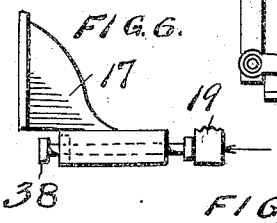
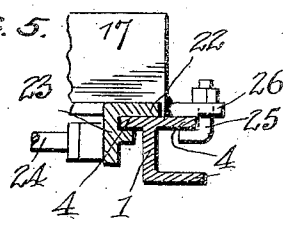


FIG. 5.



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Attorney

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UNITED STATES PATENT OFFICE.

CHARLES M. STARR, OF SOUTH BEND, INDIANA.

BRICK-MACHINE.

940,623. Specification of Letters Patent. Patented Nov. 16, 1909.

Application filed September 21, 1908. Serial No. 453,908.

To all whom it may concern:

Be it known that I, CHARLES M. STARR, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Brick-Machines, of which the following is a specification.

My invention relates to brick machines for molding a plurality of bricks in one operation, and the object thereof is to provide a novel and useful structure which may be readily and quickly operated upon the insertion and withdrawal of the pallet board, and which will obviate numerous objections of this class of machines now in use.

In the accompanying drawings illustrating my invention, and forming a part of this specification, and wherein like numerals are used to designate like parts throughout the several figures, Figure 1 is a side elevation of my improved machine. Fig. 2 is a top plan view thereof. Fig. 3 is a central vertical sectional view taken therethrough on the line 3 3 of Fig. 2. Fig. 4 is a side elevation of a machine constructed in accordance with my invention and embodying a slightly modified form thereof. Fig. 5 is a detailed sectional view through a portion of my improved machine, and illustrating the connection of the sliding draw-head bars, upon the side frames. Fig. 6 is a detail side elevation of the rear mold wall removed, and Fig. 7 is a perspective elevation of the front mold wall and its adjacent parts broken away.

In the practical embodiment of my invention, I provide a pair of side frames 1, which may be set up and secured upon a suitable support as contemplated in the form shown in Fig. 4, or which may be provided with tubular portions 2, at their forward and rear ends as shown in the other figures, adapted for the reception of supporting posts or legs 3. The side frames 1 are provided with outwardly extending edge flanges 4, and are connected at their forward and rear ends by the end plates 5 and 6, respectively, which forward end plate 5 is provided with a laterally extending tubular portion 7 forming the journal for a short operating shaft 8, provided upon its outer end with an operating handle 9 suitably secured thereon. Extending transversely between the side frames 1, and through journals carried thereby, adjacent the forward end plate 5, is a counter shaft 10, having connection with the operating shaft 8 by relatively engaging beveled gears 11 and 12 respectively carried thereby.

Mounted forwardly and transversely of the side frames 1, is a front wall 13 of the mold, provided with depending side bars 14, to the outer side surfaces of which are pivotally connected the forward ends of upper and lower pivot bars 15, pivotally connected at their rear ends to and extending along the outside of the side frames 1, whereby said mold wall 13 may move vertically adjacent and in front of the forward end-plate 5 upwardly to, and downwardly from its operative position above the upper edges of the frames 1.

The side bars 14, as shown, are attached to the ends of the front mold wall 13 by bolts or screws 37 passing therethrough and through openings 13^a adjacent the upper and lower sides of the said mold wall, whereby the upper bolts or screws may be removed for a purpose to be hereinafter described.

In operation, the pallet board 16 is placed upon the upper edges of the side frames 1, extending transversely thereof, with its rear longitudinal edge extending beneath the rear skeleton wall 17 of the mold, as shown in Fig. 3, which rear wall 17 is rigidly secured to the side frames 1 against movement by an angle bolt 25, locked through an extending portion 26 thereof and engaging beneath the outer edge of flange 4 of the side frames, and comprises a plurality of spaced upstanding plates 18, of substantially the width of the bricks to be formed. A draw-head 19, is slidably mounted transversely upon the side frames 1 and is provided with a plurality of partitions 20, secured therein and adapted to extend therefrom between the upstanding plates 18 of the rear mold wall 17, to and within transverse slots in the front mold wall 13, at their forward ends. The rear ends of the partitions 20 are rigidly secured within transverse slots in the draw-head 19, by longitudinally extending strips or keys 21, extending within longitudinally extending key ways in said draw-head cut also throughout the upper and lower edges of the series of bars 20. The draw-head 19 is provided with rearwardly extending parallel slide bars 22, resting and sliding upon the upper edge of the frames 1, which slide bars are provided with short angular inner sides

23, connected at their rear ends by a transverse shaft 24 and provided with a flange extending beneath the inner edge of the outer flange 4 of said side frames 1.

The counter shaft 10 which controls the movement of the vertical movable gate 13 forming the front wall of the mold, and the draw-head 19 is provided with arms 27 and 28 having tubular portions surrounding said shaft, and secured at an angle thereto, and at right angles to one another by set screws 29. The arms 27 and 28 are respectively connected by pivotal links 30 and 31 to the transverse shaft 24 connecting the draw-head slide bars 22, and to the pivot bars 15 of the vertical moving gate or front wall 13. In their relative positions when the mold is closed as shown in Figs. 1 and 3, the shaft arm 27 extends forwardly in the horizontal plane of said shaft, while the arm 28 extends vertically at right angle to the arm 27, thus forcing the front mold wall 13 upwardly, and the draw-head 19 forwardly in the position to receive the material to be formed into bricks, and constituting the closed position of the mold. The upper pivot bars 15 of the mold wall 13 are provided with U-shaped brackets 32, which, when the mold is closed, engage with and force the pallet board 16 upwardly and tightly against the lower edges of the partitions 20.

In the operation of my improved machine, and to open the mold from the position shown in Figs. 1 and 3, the operating handle 9 is rotated one-half of a complete rotation thereof, causing the oscillation of counter shaft 10 through the operating shaft 8 and beveled gears 11 and 12 whereby arms 27 and 28 are rotated to respectively force the draw-head rearwardly, and draw down the front mold wall 13, through the respective links 30 and 31. This opening movement of the mold results in the open position thereof as shown by dotted lines in Fig. 1, the pallet board 16 being thereby free for withdrawal with the molded bricks thereon.

The rear wall 17, which, it will be remembered, is adjustably clamped upon the side frames, by bolts 25, may be provided with headed pins 38 loosely projecting therethrough, which pins are parallel and in alinement with the pallet board 16, when the same is in position, and are adapted to be struck by the draw-head 19, as the mold is closed, to force said pallet board tightly against the front mold wall 13.

In the form shown in Fig. 4, which is of precisely the same structure as the just described form, with the exception of a few additional parts to render another movement of the mold possible, I provide the link 31 with an outstanding pin 33 adapted for engagement by a latch 34 pivotally mounted upon one of the depending bars 14 of the front mold wall 13 whereby when set screw 29, of arm 28 is loosened, movement of said mold wall is prevented. In this form, the upper side bar fastening bolts or screws 37, are withdrawn whereby the lower ones constitute a pivot upon which the front mold wall 13 may be swung forwardly, carrying the pallet board 16, which is secured thereto by screws 16a. In this form also, the front mold wall 13 is provided with upwardly extending angular arms 37, parallel with the pallet board 16, and beneath which a mold board 35 may be inserted, after the material has been tamped and before the mold is rotated upon the aforementioned pivot, to the position shown in dotted lines in Fig. 4. Thus after such pivotal or swinging movement, the bricks may be removed by withdrawing said mold board 35. This construction is especially advantageous when molding bricks with a design pallet board to provide the same for instance with a beveled edge.

From the foregoing description, it will be seen that I provide an adjustable apparatus by which different length bricks may be molded, and in which the operating elements are locked at the limits of movement thereof by reason of resting upon a dead center.

In either of the described forms of my invention, the rear mold wall 17 which, it will be remembered, is secured to the upper portions of the side frames 1, may be adjusted toward and away from the front mold wall by means of said screws 38, one of which is shown in Fig. 1.

Having described my invention, I claim:

1. In a brick machine, the combination of a supporting frame, a pallet mounted thereon, a mold wall movable vertically upon said frame at one side of said pallet, a mold wall beneath which the opposite side of said pallet extends, adjustably secured upon said frame to move toward and away from said first named wall and comprising spaced upstanding sections, a draw-head mounted to slide horizontally upon said frame, and provided with spaced partitions extending between said wall sections above said pallet, and means for simultaneously moving said movable wall and said draw-head, substantially as described.

2. In a brick machine, the combination of a supporting frame, a pallet mounted thereon, a mold wall movable vertically upon said frame at one side of said pallet, a mold wall beneath which the opposite side of said pallet extends, adjustably secured upon said frame to move toward and away from said first named wall and comprising spaced upstanding sections, a draw-head mounted to slide horizontally upon said frame, and provided with spaced partitions extending between said wall sections above said pallet, and means for simultaneously moving said

vertical movable wall and said draw-head, embodying an element for engagement with said pallet to force the same tightly against said partitions, substantially as described.

3. In a brick machine, the combination of a movable wall, a stationary wall opposing said movable wall, a pallet disposed between said walls, a draw-head having partitions extending through one of said walls and movable toward and away from the same, and devices engageable by said draw-head to force said pallet into close contact with the opposite wall, substantially as described.

4. In a brick machine, the combination of a supporting frame, a mold box disposed thereon, and comprising a wall, means supporting said wall from said frame for vertical movement with relation thereto, a wall opposing said first named wall, a pallet disposed between said walls, a horizontally movable drawhead provided with spaced partitions adapted to extend through said last named wall, said first named wall being connected to its supporting means for pivotal movement, and means to lock the said first named wall against vertical movement, substantially as described.

5. In a brick machine, the combination of a supporting frame, a mold box disposed thereon, and comprising a wall, a second wall opposing the same, and a pallet disposed between said walls, means supporting said first named wall from said frame for vertical movement with relation thereto, a horizontally movable drawhead provided with spaced partitions adapted to extend through said last named wall, said first named wall being connected to its said supporting means by elements forming pivots for the independent swinging movement thereof, means for moving said vertically movable wall and said drawhead, and means for locking said wall from vertical movement when it is desired to swing the same.

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

CHARLES M. STARR.

Witnesses:
CHAS. M. KRIEGHBAUM,
EDGAR J. CLARK.