No. 775,980. PATENTED NOV. 29, 1904.

I. L. LANDIS.

BUILDING BLOCK MOLD.

APPLICATION FILED JULY 18, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

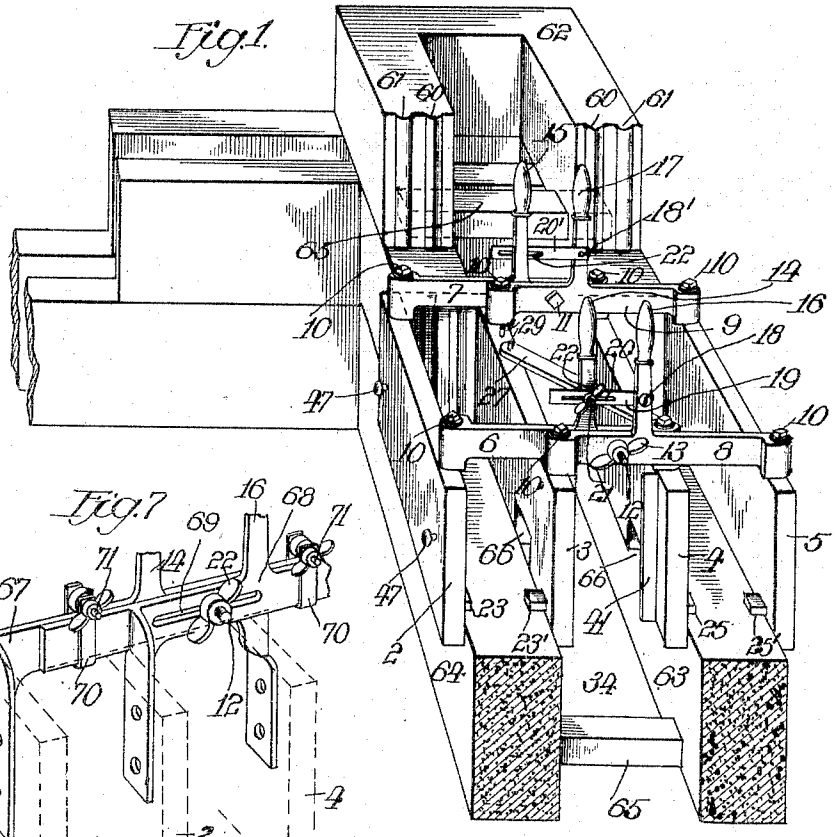


Fig. 7.

Fig. 9.

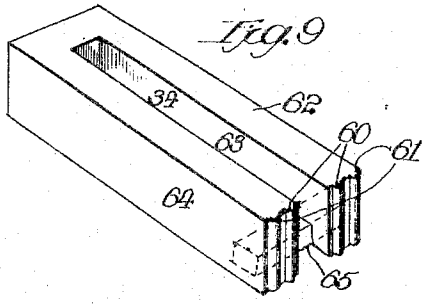


Fig. 8.

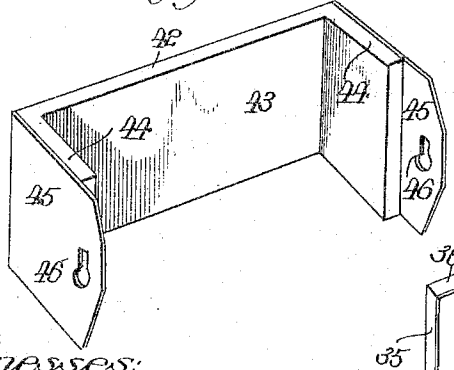
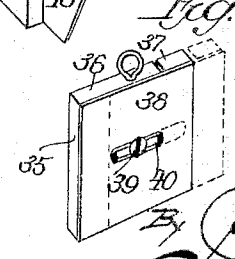


Fig. 10.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig 2

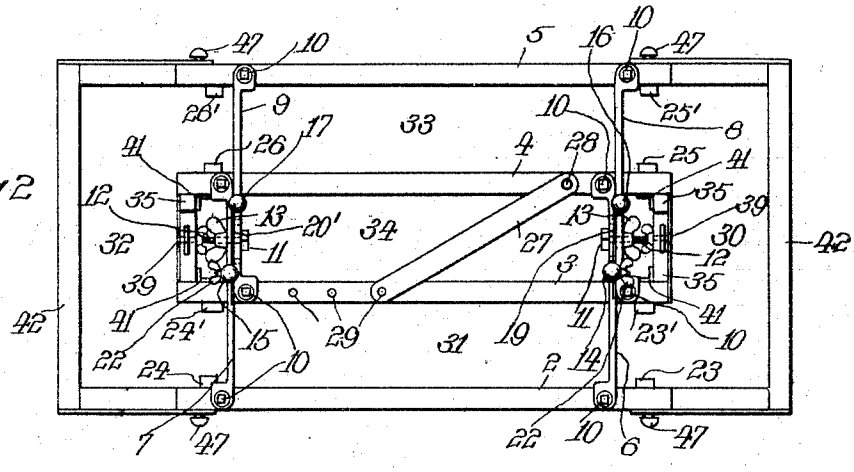


Fig 3.

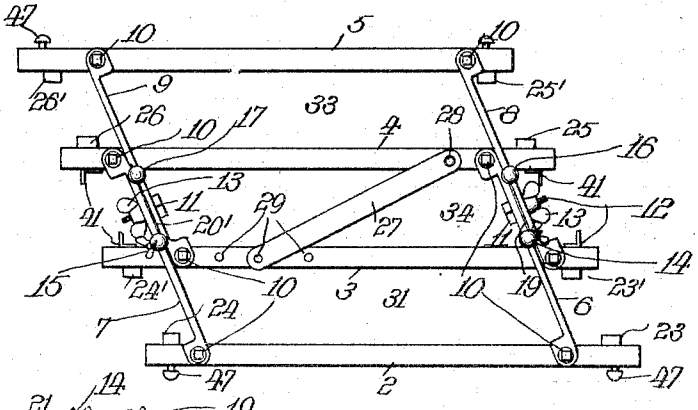


Fig 4.

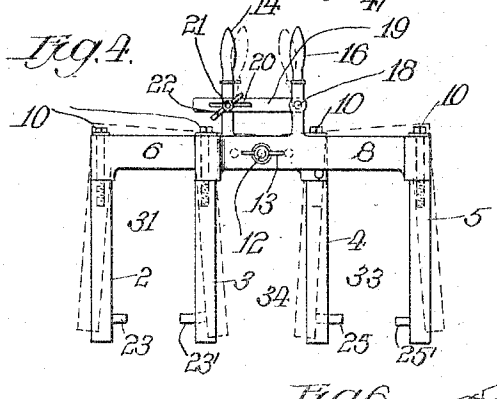


Fig 5.

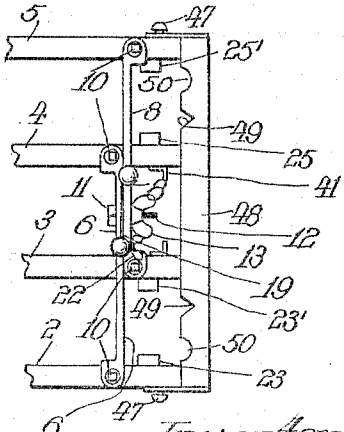
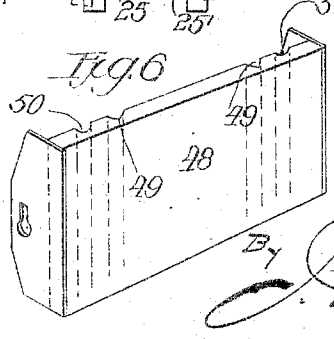


Fig 6



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No. 775,980. Patented November 29, 1904.

UNITED STATES PATENT OFFICE.

ISRAEL L. LANDIS, OF CHICAGO, ILLINOIS.

BUILDING-BLOCK MOLD.

SPECIFICATION forming part of Letters Patent No. 775,980, dated November 29, 1904.

Application filed July 18, 1904. Serial No. 217,147. (No model.)

To all whom it may concern:

Be it known that I, ISRAEL L. LANDIS, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Building-Block Molds, of which the following is a specification.

This invention relates to machines for molding building-blocks and hollow walls. Its general object is to provide a practicable and convenient machine of light construction, so that it can be easily handled or moved about, of simple elements which may be constructed and assembled by any ordinary mechanic, and which may be manufactured at a comparatively small cost.

Another object of the invention is the provision of a mold for concrete walls, building-blocks, and the like which may be readily separated from the plastic material.

Another object is to provide a device at once simple and adaptable to a variety of adjustments and releasing movements, as circumstances may require.

Other collateral objects will appear in the subjoined description.

With the above objects in view my invention consists in the novel construction and arrangement of parts hereinafter described in detail, illustrated in the drawings, and incorporated in the claims.

In the drawings, Figure 1 is a perspective view of a partly-constructed hollow wall with a machine embodying my invention in operative position. Fig. 2 is a top plan view of the machine. Fig. 3 is a top plan view of the machine adjusted in a different position and having its extension end gates removed. Fig. 4 is an end view. Fig. 5 is a top plan view of a portion of the end of the machine, showing the grooved end gate used in forming abutting ends of blocks or sections. Fig. 6 is a perspective view of the end gate shown in Fig. 5. Fig. 7 illustrates a modification in the fittings for the side members with a portion broken away. Fig. 8 illustrates one of the extension end gates in constructing a complete building-block or the exposed or outer end of a course or layer of wall. Fig. 9 is a perspective view of a three-sided building-block as it appears in a wall in course of construction, and Fig. 10 is a view of one of the extensible inner end gates closing the ends of the spacing portion of the machine.

Referring to the drawings, 2, 3, 4, and 5 represent two pairs of mold sides or members consisting, preferably, of rectangular boards or other light and rigid material. The members 2 4 comprise one pair and the members 3 5 the other pair of said members, the members 2 and 4 being connected by yokes or cross-pieces 6 and 7 and the members 3 and 5 by similar yokes 8 and 9. The respective ends of said yokes are secured pivotally to the several members by means of pivot-pins 10, fixed in the sides near their ends. The two pairs of yokes 6 7 and 8 9, respectively, are pivoted together upon pivots 11 and 12, which may be ordinary bolts with thumb-nuts 13. The yokes 6 and 7 are provided with handles 14 and 15 and the yokes 8 and 9 with similar handles 16 and 17. Pivoted at 18 to the handle 16 is a slotted tie-bar 19, the slotted end of which is clamped upon the handle 14 by means of a bolt 21, having a thumb-nut 22. A similar tie-bar 20′ is pivoted at 18′ to handle 17 and clamped to the handle 15 in like manner. Near the lower edges of adjacent walls of sides or members 2 and 3 and 4 and 5 are a series of supporting lugs, blocks, or projections 23 23′, 24 24′, 25 25′, and 26 26′, by means of which the machine is supported on a wall in course of construction. The members 2, 3, 4, and 5 are normally held against relative longitudinal or parallel movement by a diagonal brace 27, having its one end pivoted at 28 to the member 4. Its other end is provided with an eye engaging one of a series of pins 29, fixed in the member 3.

In Fig. 2, 30, 31, 32, and 33 represent spaces for the plastic material forming a complete four-sided building-block, and 34 the hollow space provided with extensible end gates 35. (Shown in perspective view, Fig. 10.) This end gate consists of abutting rectangular pieces 36 and 37, clamped together by a metal plate 38, fixed to the piece 37 and slidable upon the piece 36. A screw 39, occupying a

slot 40 in the plate 38 and having threaded engagement with the piece 36, serves to lock the parts together.

The dotted lines in Fig. 10 illustrate how the sections or pieces 36 and 37 may be moved apart or adjusted to varying widths of space between sides 3 and 4, made possible by the modification shown in Fig. 7, to be described hereinafter. Vertical strips or stops 41 for the end gates 35 are secured to adjacent faces and at opposite ends of members 3 and 4.

42 42 are extension end gates secured to the sides 2 and 5 and lengthen the members 2 and 5 beyond the members 3 and 4 to provide the end spaces 30 and 32, Fig. 2. The construction of this gate is shown in Fig. 8 as consisting of end piece 43, to which is secured side pieces 44 44, sheathed with binding-plates 45 45, having eyes 46 46 adapted to engage pins 47 on the outer sides of members 2 and 5. The extension end gate 42 is employed when making an individual building-block or forming the exposed end of the last block in one course or layer. When the end of a block molded into the wall is to be continued by an abutting block, I provide an end gate 48, Figs. 5 and 6, with vertical grooves 49 and 50, adapted to form ribs or beads 60 61 in the ends of the block. (See Fig. 1.) This end gate, as shown in Fig. 5, is placed against all of the ends of members 2, 3, 4, and 5. In forming the abutting block against the ribbed end of the block 62 grooves corresponding to the ribs 60 and 61 will be formed in the former, engaging said ribs, and the two blocks will be interlocked against lateral horizontal movement. In order to bind together the vertical wall-sections of each block, (designated by the numerals 63 and 64,) I insert a brick 65 or similar binder in each of the blocks 62, and for this purpose my machine is provided with rectangular apertures or recesses 66 66 in the sides 3 and 4. These recesses are designed to accommodate the ends of a brick or other binder while the plastic material is molded around it.

In order that my machine may, if desired, be adjusted to produce various thicknesses of wall, or, in other words, to vary the spaces 31, 33, and 34, I have provided means for adjusting the yokes 6 8 and 7 9 longitudinally of each other by the arrangement shown in Fig. 7, where 67 and 68 represent, respectively, yokes each provided with a slot 69 for the bolt 11 or 12. In the latter arrangement I also show a pair of straps 70, embracing the overlapping ends of the yokes to prevent relative movement angularly. By loosening the bolts 71, clamping straps 70 to the yokes, as well as bolt 12, the yokes 67 and 68 may be adjusted along each other longitudinally, thereby widening or narrowing the mold-spaces between the members 2 3 and 4 5 and effecting a corresponding variation inversely in the space between members 3 and 4. Where it is desired to make the increase or decrease correspond exactly to the same change in the spaces 31 and 33, it may be effected by adjusting the members 2, 3, 4, and 5 as shown in Fig. 3, in which case the ends of the individual sections or blocks would be slanted instead of square and the gate or gates 35 would have to be adjusted accordingly. It is of course obvious that the end piece 43 of the gate 42, as well as grooved gate 48, may be made in adjustable sections, like the extensible gate 35, to accommodate them to the parallel adjustment shown in Fig. 3. In that event the sides 44 would be flexibly instead of rigidly secured to the end 43 of gate 42.

My invention is operated as follows: Assuming that work is commenced upon the corner of the building to be erected and a block 62 is to be formed, in that case one end of the mold will be closed by a gate 42 and a gate 35 and the opposite end closed by a gate 48. This will leave spaces 30 or 32, 31, and 33 for the plastic material, which when filled with cement, concrete, or the like will produce a block 62. The mold will then be prepared for the next or abutting block by removing the gates 42 and 35, leaving only gate 48 on the opposite end. The open end, from which gates 42 and 35 have been removed, will next be placed against the end of the block 62, already formed, having ribs 60 61 formed by gate 48, as shown in Fig. 1, with the exception that said figure does not show the gate 48 in position, and the work continued as previously described until the last block in the row is formed, when instead of gate 48 gates 42 and 35 will be substituted.

Referring to the means I have provided for loosening the side members 2, 3, 4, and 5 from the molded block, same is accomplished by loosening the thumb-nut 22 on bolt 21, clamping tie-bars 19 and 19′ against the handles 14 and 15, and grasping one pair of handles 14 16 and 15 17 in each hand, so as to move them toward each other angularly, as illustrated by dotted lines in Fig. 4, which will move the sides 2 and 5 angularly away from the outer sides of the hollow wall and move the sides 3 4 toward each other into the hollow space 34. By moving the members 2, 3, 4, and 5 angularly away from the molded block they will be loosened gradually from successive portions of the surface instead of forced to yield every point of surface contact with the block at the same time, which would require considerably more power. Furthermore, as all of the side members are forced to move none of them will be permitted to adhere while others loosen, requiring the operator to pull the whole machine bodily away from the adhering surfaces of the wall after the loosening mechanism had been operated. Such a manipulation of the machine would

not only be exceedingly awkward, but liable to result in breaking the block after being molded.

When the mold is arranged with its ends on a slanting line, as shown in Fig. 3, either the angular releasing movement above described may be employed or the sides 2, 3, 4, and 5 may be moved parallel endwise of each other, when they would also loosen simultaneously, as no two of them could remain unmoved while the other two moved—a serious objection to other machines heretofore constructed. Before the members 2, 3, 4, and 5 could be moved endwise from the position shown in Fig. 3 toward the position shown in Fig. 2 the brace-bar 27 would have to be released from the pin 29 engaging its free end.

The shape or contour of the members 2, 3, 4, and 5 may be modified to adapt them for making walls of various shapes—such as round tanks, silos, and other forms of structures—and the walls of said members which face the plastic material exteriorly may take the form of dies for producing artistic effects. The pair of members 3 and 4 or the pair of members 2 and 5 may be employed separately for the purpose of building a solid wall. If the outer members are used for this purpose, the inner members may be removed from the yokes. The two remaining members would then serve as a mold-chamber provided with gates, and the relative movements of said two remaining members would be the same as if all the members of the two pairs were employed for building a hollow wall. It is obvious that numerous other modifications may be made in the embodiment of my invention without departing from the spirit thereof, and I therefore do not wish to confine same to the specific details of construction herein shown and described.

What I claim as new, and desire to secure by Letters Patent, is—

1. A molding-machine having several pairs of sides, and means for adjusting said sides angularly relatively to each other.

2. A molding-machine having mold-boards arranged substantially within the boundary-lines of a parallelogram and means for adjusting said boards with their sides and ends on the lines of either a rectangle or a rhomboid.

3. A molding-machine having several pairs of sides, and means for adjusting said sides longitudinally and angularly with relation to each other.

4. A molding-machine having a plurality of sides, means for adjusting said sides longitudinally and locking them in the adjusted position, and means for moving said sides angularly with relation to each other in their adjusted position.

5. A molding-machine consisting of a plurality of sets of members assembled to form intervening mold-chambers separated by a space, and means for simultaneously actuating each of said members with relation to each of the other members.

6. A machine for molding double walls, consisting of two sets of members, one member of each set being adjustable angularly with relation to the companion member of the set, means for moving the members of one set pivotally with relation to the members of the other set, and means for simultaneously adjusting all of the members parallel to each other.

7. A machine for molding double walls, consisting of two sets of members, one member of each set being adjustable angularly with respect to the companion member of the set, and handles or levers secured to each set of members for actuating the same.

8. A machine for molding double walls, consisting of two sets of members, each set yoked together pivotally and the yokes of both sets pivoted together for angular movement relatively to each other.

9. A machine for molding double walls, consisting of two sets of members each set having handles, said members and handles being assembled to form a series of levers fulcrumed upon each other.

10. A molding-machine having a series of members and gates therefor assembled to form mold-chambers separated by a space, means for adjusting said members relatively to each other and means for expanding or contracting said gates.

11. A molding-machine consisting of two sets of sides yoked together with one member of each set between the members of the other set, said members forming mold-chambers with an intervening space, and means for simultaneously extending said mold-chambers and closing the ends thereof.

12. The combination with a molding-machine consisting of two sets of laterally-adjustable members assembled to form mold-chambers with an intervening space, of an expansible and contractible gate for the end of said space.

13. A molding-machine consisting of a series of members arranged in pairs, means for holding the members of each pair in parallel relation, and means for moving the pairs of members angularly with relation to each other.

14. A molding-machine consisting of a series of members arranged in pairs, means for holding the members of each pair in parallel relation and normally in alinement, and means for moving said members out of alinement with each other.

15. A molding-machine consisting of a series of members arranged in pairs, means for holding the members of each pair in parallel relation with the ends of said members arranged in planes vertical to the sides thereof,

and means for moving the ends of said members into planes non-vertical to the planes of the sides of said members.

16. A molding-machine consisting of a series of members arranged in pairs yoked to each other for movement in parallel planes, and means for moving the members of each pair into planes intersecting the planes of the other members.

17. A molding-machine consisting of a series of members arranged in pairs, means yoking the members of said pairs together for movement in parallel planes, means for moving the members of each pair into planes intersecting the planes of the other members, and means for moving all the individual members in unison and to the same extent.

18. In a molding-machine, a pair of moldboards, means for adjusting said boards angularly with relation to each other and laterally-projecting feet or lugs for supporting said boards upon a wall in planes beyond the outer faces thereof.

19. In a molding-machine, a pair of moldboards, means for moving said boards longitudinally of each other and laterally-projecting feet or lugs adapted to support said boards upon, and beyond the vertical plane of, a wall.

20. In a molding-machine, a pair of moldboards, means for moving said boards relatively in parallel and intersecting planes and lateral lugs or feet for supporting said boards upon a wall.

21. In a molding-machine, a pair of moldboards, means for adjusting said boards angularly, longitudinally and laterally of each other and means for supporting said machine upon a wall.

22. In a molding-machine, two sets of members, means for adjusting one member of each set angularly and in opposite parallel directions with relation to the companion member of the set, means for supporting said machine upon a partly-constructed wall, and a pair of recesses in the inner members adapted to contain the ends of a binding member such as a brick or the like.

23. In a machine for molding double walls, two pairs of members, one member of each pair arranged between the members of the other pair, means for moving each pair together as a single rigid member, means for moving and adjusting each individual member relatively to all the other members, and means for supporting said machine upon a wall.

24. In a machine for molding double walls, two pairs of members, one member of each pair arranged between the members of the other pair, means for moving each pair as a unit, means for moving each individual member relatively to each of the other individual members, the adjacent members of the two pairs being recessed for a wall-binder such as a brick, and means for supporting said members upon a wall.

25. In a machine for molding double walls, two pairs of members, each pair yoked together by a pair of yokes pivoted to its members, levers upon said yokes for moving same and the members attached thereto angularly with relation to each other, all of said members being movable laterally and longitudinally relatively to each other, and means for supporting said members upon a wall.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ISRAEL L. LANDIS.

Witnesses:
EDW. P. BARRETT,
M. SEELEY.