

No. 676,620.

Patented June 18, 1901.

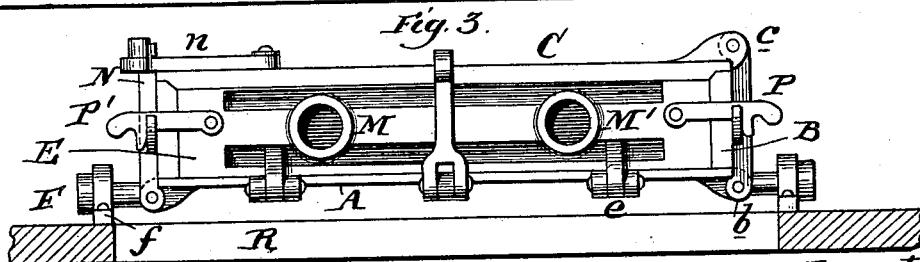
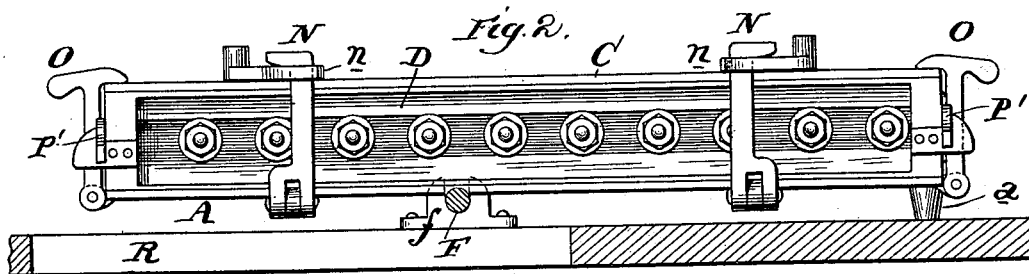
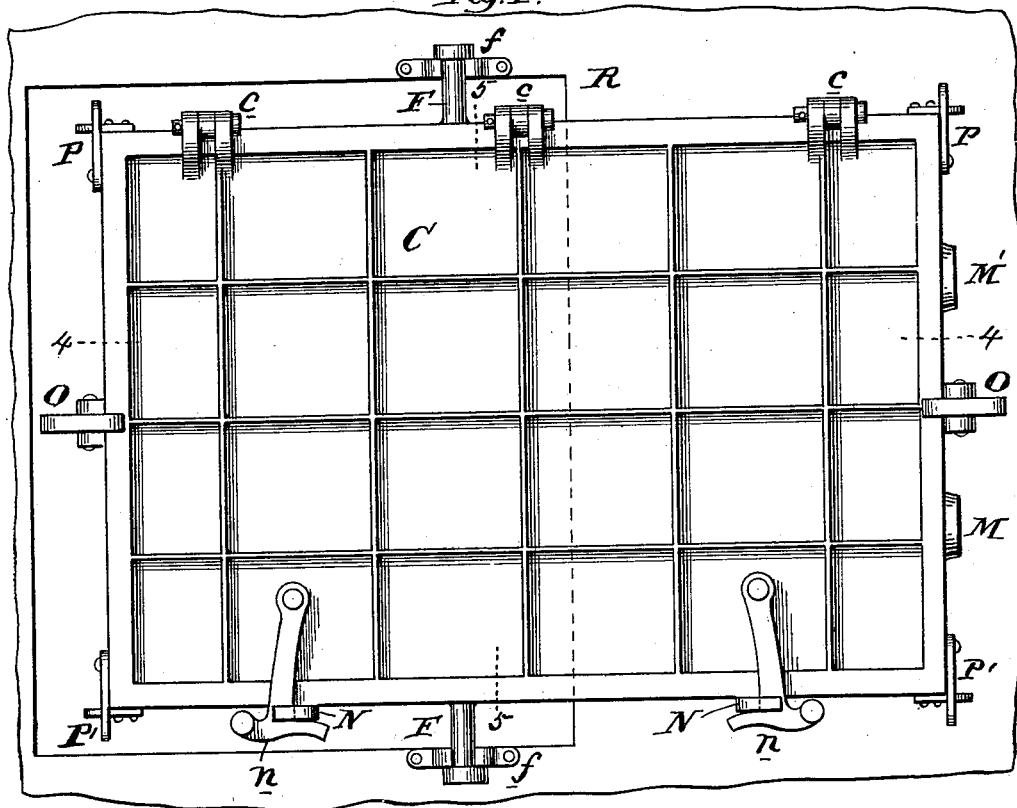
L. H. DE FERNELMONT.  
MOLD FOR BUILDING TILES.

(Application filed Aug. 4, 1900.)

2 Sheets—Sheet 1.

(No Model.)

Fig. 1.



Witnesses:  
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By *[Signature]* Atty.



# UNITED STATES PATENT OFFICE.

LEONARD H. DE FERNELMONT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE AMERICAN PLASTER VENTILATED TILE COMPANY, OF NEW JERSEY.

## MOLD FOR BUILDING-TILES.

SPECIFICATION forming part of Letters Patent No. 676,620, dated June 18, 1901.

Application filed August 4, 1900. Serial No. 25,860. (No model.)

*To all whom it may concern:*

Be it known that I, LEONARD H. DE FERNELMONT, of the city and county of Philadelphia, in the State of Pennsylvania, have invented an Improvement in Molds for Building-Tiles, of which the following is a specification.

My invention has reference to molds for molding hollow tiles for building purposes; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

My improvements comprehend certain constructions of a mold adapted to the manufacture of hollow tile or brick of the general character illustrated in Letters Patent No. 483,105 of September 20, 1892, and consists more specifically in a multiple-part mold having the sides and bottom (and top, if employed) mechanically connected, so as to be held in position to produce a box-mold and so as to be capable of being opened to expose the entire interior and permit the ready removal of the cores and that portion of the mold carrying the cores and its subsequent separation from the tile or brick. Moreover, the front plate of the mold is detachable and furnished with a series of tapering core extensions, about which the plastic material is caused to flow and set and which are readily removable from the cast after the same has set sufficiently not to have its shape destroyed by its own weight.

When my improved mold is provided with a tight cover or lid, I prefer to hinge the mold on suitable trunnions, whereby it is adapted to be turned on edge, and through suitable apertures in the end thereof the material of which the cast is to be made while in a fluid condition may be poured into the mold, the said material entering one aperture and the air escaping through the other.

More specifically, the mold consists of a bottom plate with a back and two side plates hinged thereto and adapted to be folded upward to form the three sides of the box-shaped structure. To the back is hinged the top plate or lid, which is also shaped to tightly fit to said back and side plates of the mold. The front plate of the mold is detachable,

but so shaped as to fit tightly between the bottom plate, the forward edges of the side plates, and the top plate or lid. The said front plate is provided with a series of projecting core portions of special shape and preferably somewhat tapering and terminating in short projections of small diameter, which are received and sustained by the back plate. In this manner the core portions are sustained in proper relative position within the box structure of the mold, and all of the parts are suitably locked together by simple clamping structures for tightly holding the several parts together and resisting any tendency of the expanded molded material to move them in any direction, either horizontally or vertically. I further prefer to form the joints between the several plates making up the mold on bevel lines, so that the said parts may come together and adjust themselves in such a manner as to make absolutely tight joints, whereby the corners or edges of the molded article will be clean and sharp and no leakage during molding occur.

My invention also comprehends various details of construction, all of which will be better understood by reference to the drawings, in which—

Figure 1 is a plan view of my improved mold. Fig. 2 is a front elevation of same. Fig. 3 is an end elevation of same. Fig. 4 is a sectional elevation of my improved mold on line 4 4 of Fig. 1. Fig. 5 is a transverse section of same on line 5 5 of Fig. 1. Fig. 6 is a plan view of the front plate and the cores with the middle portion broken away. Fig. 7 is an elevation of the molded brick or tile with part in section, and Fig. 8 is an end view of the said brick or tile.

A is the bottom plate of the mold and may be provided with trunnions F, supported in suitable bearings f on the table R, so that the mold may be allowed to remain horizontal or turned vertically or on edge, as desired. Hinged to the back of the bottom plate A at b is the back plate B, and hinged to this back plate at c is the top plate or lid C. The top plate or lid is substantially the same as the bottom plate.

E E are the side plates, and these are hinged to the bottom plate A at e. In this manner

the back plate and side plates turn outward and the lid or top plate upward or backward. The said construction will produce a box-shaped structure having the front portion open, and in this open part is placed a detachable plate D, which snugly fits the space formed between the bottom, top, and side plates. To insure a very tight fit between the several plates and to prevent leakage of the fluid material of which the molded article is to be made, I form the juncture between the said plates on beveled lines, as at L, so that any tendency of the plates to move inward under the pressure of the clamps will insure an exceedingly tight joint and at the same time will enable the said joint to adjust itself automatically to suit the pressures applied.

The back plate when turned forward is locked to the side plates E E by means of the hand-clamps P, each consisting of a hinged lever having a slightly beveled or inclined locking hooked end, which creates a pressure on being forced downward into locking position in the manner which is well known in locking-clamps of this description. When the side and bottom plates are thus locked together, the lid C will be in a raised position and sustained by the cord K, passing over the pulley K' and counterweighted at k. When in this condition, the front plate D, with its cores D', is placed in position and the small projecting ends d of the cores are received in recesses j in the inner face of the back plate B to positively sustain the said cores at their free ends. These cores D may be solid or hollow, as desired, the latter being preferable in large work to reduce the weight thereof. The joint between the front plate D and the top, bottom, and side plates of the mold is also made on a bevel, as at L, Fig. 5, to insure a tight joint, as in the cases referred to.

The front plate is forced into position and the top plate or lid held down by a pair of special clamps N n. These clamps consist of the upright levers N, hinged to the bottom plate and which force the plate D inward, and levers n, arranged at right angles to the levers N and hinged to the top plate or lid, the said levers interlocking together and their interengaged parts being beveled, so that the interlocking action draws the lever N inward against the plate D and the lever n downward against the lid C. Additional side clamps O may be employed for holding the bottom and top plates to the intermediate portions of the side plates E to prevent springing under the expansion of the plaster-of-paris or the material of which the molded article is to be made. Additional clamps P', similar to the clamps P at the rear, may be employed between the front ends of the side plates E E and the ends of the front plate D, said clamps acting to lock the ends of the plates E and D against outward movement and insuring a very tight joint at the juncture of said plates.

One of the end plates E is provided with

the two apertures M and M', into one of which the plastic material may be poured and in the other of which the air may escape. While these apertures are shown on one of the end plates as being the most desirable place in which to place them, they may, however, be located upon either one of the other plates.

Referring to the tile T, (shown in Figs. 7 and 8,) it will be observed that it is hollow, having the large vertical apertures W opening through the top in the small apertures w. It will further be observed that two of the edges of the said tile are provided with grooves 2 and 3, into the latter of which the large apertures W open, and also with outwardly-projecting ribs 4 and 5 upon its remaining two edges, through the latter of which the small apertures w pass. A tile of this construction will be very light and will cover a large surface and at its upper ends will in effect form an obstructing-wall to the vertical tubular apertures W, which come in alinement when several tiles are placed together, so as to interrupt or break up any sound-waves set in motion through said apertures W. In this manner sounds are prevented from being materially transmitted through the walls built up of these tiles. The construction of the grooves 2 and 3 and the projecting ribs 4 and 5 on the edges of the tiles enable all of the tiles to be alike and interlocked or interengaged with each other to form an extended surface and with tight joints. By examining Fig. 8 it will be seen that the projections and grooves have inclined side edges or faces, thus making the adjacent tiles wedge into each other to produce an absolutely firm and tight joint, which not only secures warmth, but cleanliness. These grooves and ribs on the edges of the tile are produced by suitable conformation on the inner faces of the side, back, and front plates. For example, the back plate B is provided with a longitudinal recess or channel J, which has inclined walls to correspond to the projection 5 on the tile. The front plate D is provided with an inward-projecting rib I, having a cross-section of such shape as to produce the grooved channel-way 3 of the tile. It will also be observed in this connection that the cored parts D' are preferably of such diameter at their ends adjacent to the front plate D as to correspond in thickness to the greatest width of the rib I. The side plates E E are respectively provided one with a groove or channel-way H and the other with a projection or rib G, of similar constructions to those above described, for respectively producing the rib 4 and groove 2 of the tile.

When the mold is properly clamped in position, it may be turned on edge, as indicated in Fig. 4, and the plaster-of-paris or other compound poured in through the aperture M, while the air escapes from the aperture M'. When the mold is filled, a short period of

time is given to allow the material to set, and then the mold is turned over into its original position, (indicated in Figs. 1 and 2,) it being provided with a foot *a*, adapted to hold it horizontally relatively to the table R. The various clamps are then opened, the lid raised, and the sides and back turned outward. The front plate is then lifted out by hand and with it the molded plaster. It is then turned with the small projections *d* downward and tapped upon the floor, with the effect of loosening the plaster cast and permitting the cores *D'* *d* to be drawn out.

The cross-section of the cores *D'* are clearly shown in Fig. 4, the adjacent sides being made flat and the top and bottom surfaces somewhat curved, the said construction being employed to give the greatest strength to the plaster cast, while at the same time securing a maximum aperture *W* therein.

On account of the great tendency of the plaster-of-paris to expand it is most important to firmly lock all of the plates together. To increase the said strength of the jointed parts, the top plate *C* may, if desired, be formed with overhanging edges *C'* on its sides adjacent to the side plates *E E* for the purpose of locking the said side plates against outward movement, and when this construction is employed it is possible to omit the front clamps *P'*, if so desired.

While I have described the construction as adapted to a wholly-inclosed mold, such as is necessary where both faces of the tile are to be perfectly smooth and polished, nevertheless in those cases where only one face of the tile requires to be smoothly finished the lid *C* may be entirely omitted, in which case the clamps *P'* will be wholly relied upon for holding the front plate *D* in position upon the side plates. When the mold is used in this manner, the apertures *M* may be dispensed with, as the plastic material may be poured in from the open side of the mold and smoothed with a trowel or straight-edge moved over the upper surface of the mold, as will be understood by those skilled in the art of molding.

While I prefer the construction shown as being excellently adapted for the purpose and being very efficient in practical manufacturing, I do not confine myself to the minor details, as these may be modified without departing from the spirit of the invention.

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

1. In a mold, the combination of a bottom plate of large area, with two side plates and a back plate hinged to the bottom plate and of small height relatively to the width or length of the bottom plate, a wholly-removable front plate of the same size as the hinged back plate and of same height as the side plates and having parallel core projections adapted to extend to and rest against the back plate and parallel to the bottom plate, and clamping devices for holding the several plates tightly together.

2. In a mold, the combination of a bottom plate of large area, with two side plates of greatly-smaller height than the width and length of the bottom plate provided respectively with a grooved and ribbed inner face and hinged to the bottom plate, a back plate of same height as the side plates having a grooved inner face also hinged to the bottom plate, a wholly-removable front plate of the same size as the hinged back plate provided with a longitudinal rib having parallel core projections adapted to extend to and rest against the back plate and parallel to the bottom plate, and clamping devices for holding the several plates tightly together.

3. In a mold, the combination of a bottom plate of large area, with two side plates of small area and height, (one of which is provided between its edges with apertures for casting,) and a back plate of small area and height hinged to the bottom plate, a wholly-removable front plate of the same area as the hinged back plate having a series of parallel core projections parallel to the bottom plate adapted to extend to and rest against the hinged back plate, a cover or lid plate parallel to the plane of the cores resting upon the side and front plates and hinged to the back plate on a line parallel with the plane of the series of cores, and clamping devices for holding the several plates tightly together.

4. In a mold, the combination of a bottom plate, with two side plates and a back plate hinged to the bottom plate, a wholly-removable front plate of the same size as the back plate having parallel core projections adapted to extend to and rest against the back plate, a cover or lid plate resting upon the side back and front plates, a two-part clamp one part carried by the bottom plate and the other part carried by the lid or top plate for holding the front plate in position against the sides top and bottom plates and the lid down tightly upon them, and independent clamping devices for holding the several side and back plates tightly together at the corners.

5. In a mold, the combination of a bottom plate of large area, with two side plates of small area and height, (one of which is provided between its edges with apertures for casting,) and a back plate of small area and height hinged to the bottom plate, a wholly-removable front plate having a series of parallel core projections parallel to the bottom plate adapted to extend to and rest against the hinged back plate, a cover or lid plate parallel to the plane of the cores resting upon the side and front plates and directly hinged to the back plate on a line parallel with the plane of the series of cores, clamping devices for holding the several plates tightly together, and trunnions upon the bottom plate upon which the mold is pivoted so as to permit the side having the casting-apertures to be turned upward.

6. In a mold, the combination of a bottom plate of large area, with two side plates of

small area and height, (one of which is provided between its edges with apertures for casting,) and a back plate of small area and height hinged to the bottom plate, a wholly-removable front plate having a series of parallel core projections parallel to the bottom plate adapted to extend to and rest against the hinged back plate, a cover or lid plate parallel to the plane of the cores resting upon the side and front plates and hinged to the back plate on a line parallel with the plane of the series of cores, clamping devices for holding the several plates tightly together, trunnions upon the bottom plate upon which the mold is pivoted so as to permit the side having the casting-apertures to be turned upward, a counterbalance-weight, and a flexible connection between the weight and lid or top plate of the mold whereby it may be raised and held raised when the back plate is being lowered.

7. In a mold, the combination of a bottom plate, with two side plates and a back plate hinged to the bottom plate, a removable front plate having parallel core projections made tapering with flat adjacent sides and terminating in small projecting portions of small sectional area, said cores adapted to extend to and rest against the back plate, and clamping devices for holding the several plates tightly together.

8. In a mold, the combination of a bottom plate, back and side plates hinged thereto, and a removable front plate equal in size to the back plate adapted to fit the front portion of the bottom and side plates and having a series of parallel cores extending to the back plate, the several side back and front plates being fitted to the bottom plate throughout the line of junction by beveled joints, and clamping devices for detachably holding the several plates together.

9. In a mold, a box-shaped structure having sides, back, front and bottom plates detachably held together and provided with transverse parallel cores supported a little above the bottom plate, a removable lid or top plate having beveled edges L throughout their lengths fitting corresponding continuous beveled edges along the length of the upper edges of the side front and back plates, and clamping devices for holding the several plates together.

10. In a mold, the combination of the bottom plate, side and back plates hinged thereto, a front plate having a series of parallel tapering cores made flat upon their adjacent surfaces and curved on their top and bottom sides and further provided with extensions upon their ends of small sectional area compared to the body of the core said ends being received by the back plate, and clamping devices for holding the several plates together.

11. In a mold, the combination of a box-shaped structure having an open front and a

hinged top or lid, a removable front plate having core structures carried thereby and projecting into the mold, and two-part lever-clamps one part pivoted to the base of the mold and the other part to the lid and adapted to simultaneously draw the front plate in and the lid down upon the mold.

12. In a mold, a bottom plate, two side plates, and a back plate hinged to the bottom plate, in combination with a wholly-removable front plate having core projections attached thereto, and a lid hinged to the upper edge of the back plate and movable bodily with it relatively to the bottom plate.

13. In a mold, the combination of side front and back plates having continuous beveled upper and lower edges, with a bottom plate and a flat top or lid plate also having continuous beveled-offsets to fit tightly to the beveled edges of the side front and back plates to form tight oblique joints L between the several parts.

14. In a mold, the combination of a box-shaped mold-frame having a smooth bottom and shallow sides, back and front plates and in which the inner faces of its opposite side plates are formed one with a channel-groove H and the other with a rib G, and the inner faces of its front and back plates are formed one with a channel-groove J and the other with a rib I.

15. In a mold, the combination of a box-shaped mold-frame having a smooth bottom and shallow sides, back and front plates and in which the inner faces of its opposite side plates are formed one with a channel-groove H and the other with a rib G, and the inner faces of its front and back plates are formed one with a channel-groove J and the other with a rib I, and rigid core projections secured to the rib I of the front plate and extending across the mold into the channel-groove J of the back plate.

16. In a mold, the combination of a box-shaped mold-frame having a smooth bottom and shallow sides, back and front plates and in which the inner faces of its opposite side plates are formed one with a channel-groove H and the other with a rib G, and the inner faces of its front and back plates are formed one with a channel-groove J and the other with a rib I and rigid core projections secured to the rib I of the front plate and extending across the mold into the channel-groove J of the back plate, a flat lid having a smooth inner face hinged to the back plate, and clamps for holding the lid tightly to the box-shaped frame structure.

In testimony of which invention I have hereunto set my hand August 1, 1900.

LEONARD H. DE FERNELMONT.

Witnesses:

RUPERT G. RAEZER,  
JOHN THIEL.