

Dec. 29, 1925.

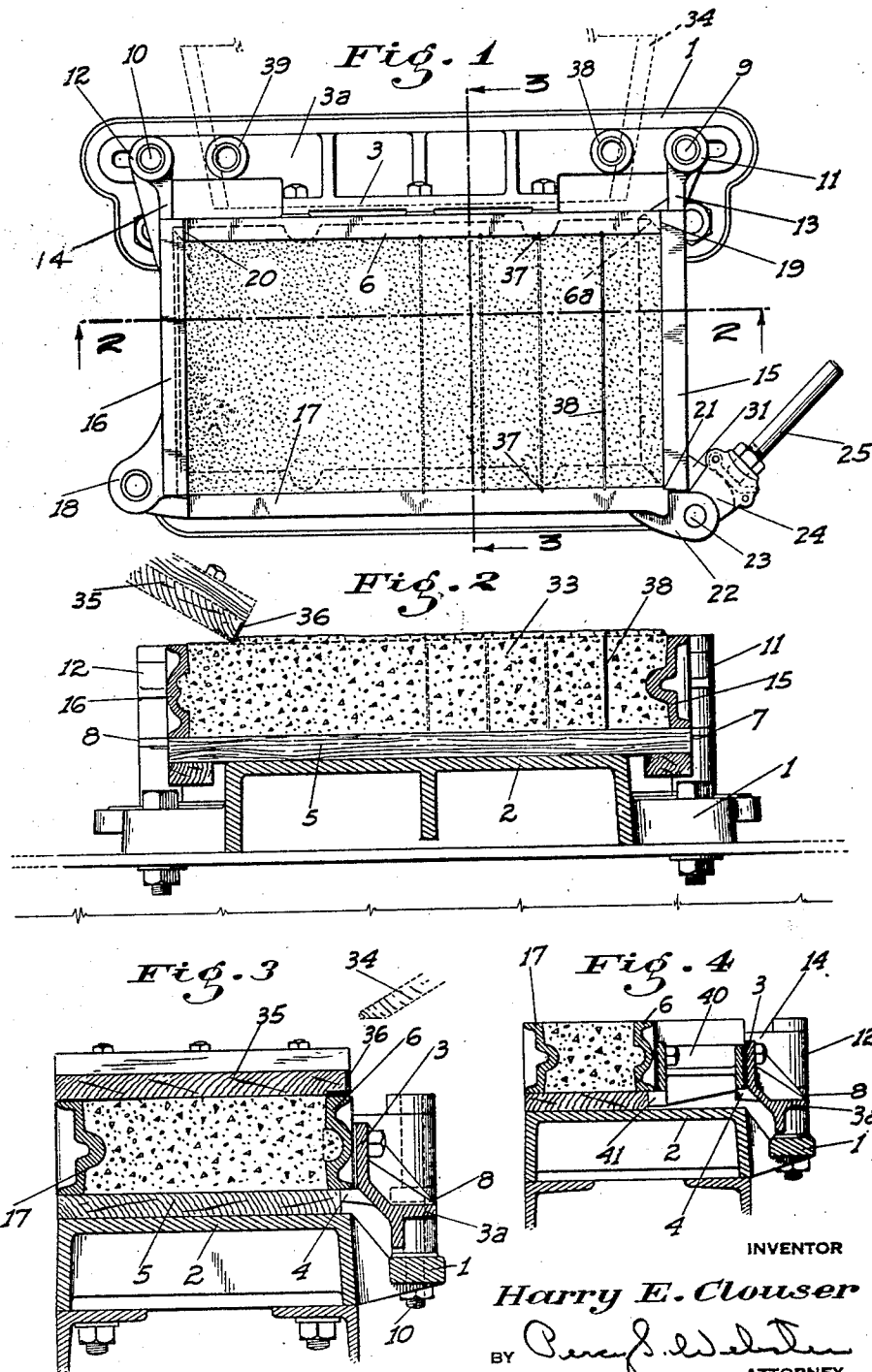
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MOLD FOR FORMING CONCRETE BUILDING UNITS

Filed Nov. 29, 1924

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

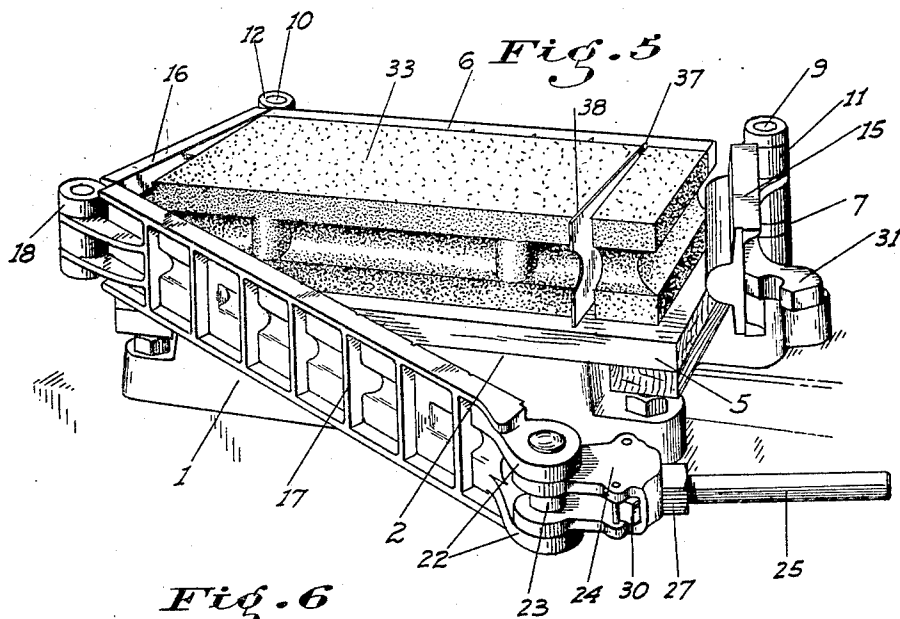


Fig. 6

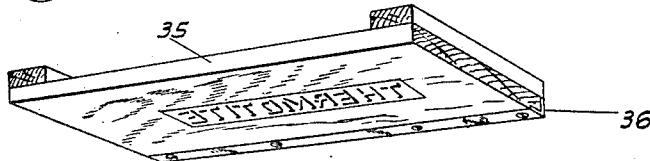
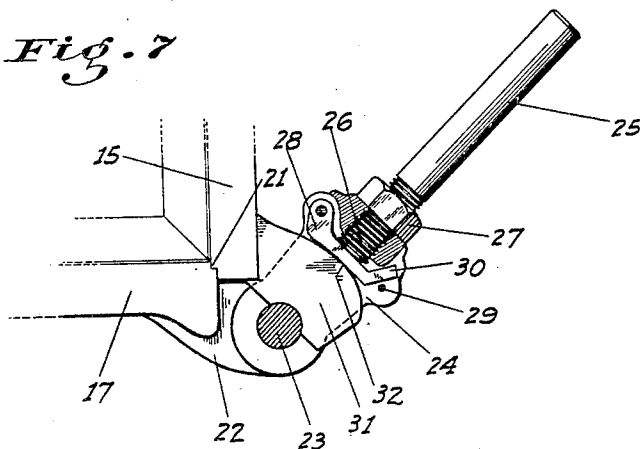


Fig. 7



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MOLD FOR FORMING CONCRETE BUILDING UNITS.

Application filed November 29, 1924. Serial No. 752,925.

To all whom it may concern:

Be it known that I, HARRY E. CLOUSER, a citizen of the United States, residing at San Jose, county of Santa Clara, State of California, have invented certain new and useful Improvements in Molds for Forming Concrete Building Units; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to the building art, and particularly to the making of concrete building units, the object of the invention being to produce a mold in which the units are formed.

The main aim of the invention is to produce a mold for the purpose noted which can be readily and efficiently set up to receive the concrete and as readily and easily disassembled to remove the completed concrete unit therefrom.

A further object of the invention is to produce the mold of such construction as to its operating parts that the sides of the mold will at all times remain in fixed position relative to each other so as to allow each unit to be formed with its sides perfectly mechanically true and square with respect to each other. Forms commonly used heretofore in making concrete units have been such that it was possible for the sides of the mold to spring outwardly or at an angle with respect to each other, with the result that the product would not be mechanically true, and consequently a building erected from same could easily be put out of plumb, or would require a great deal of skilled labor in the erection thereof to insure its being properly in plumb.

The use of my improved form will do away with these objections, as the rectangular form of each unit will be perfectly true with respect to the rectangular form of every other unit of the same size.

Another aim of my invention is to so produce the mold that the concrete used in forming the building units cannot get into the operating parts of the mold in such a manner as to clog or interfere with the same, thereby lessening the efficiency of the mold.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effec-

tive for the purposes for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Fig. 1 is a top plan view of the mold as it appears when the sides are closed ready to receive the concrete.

Fig. 2 is a sectional view taken on a line 2-2 of Fig. 1, and showing how the top finishing pallet is made useful in scraping the superfluous concrete from the top edge of the mold after the tamping operation has been had.

Fig. 3 is a sectional view taken on a line 3-3 of Fig. 1.

Fig. 4 is a cross sectional view showing a modification of the mold as shown in the other views, whereby the mold can be utilized to produce a narrower unit than the standard unit produced in the form of mold shown in the other views.

Fig. 5 is a perspective view showing the mold with its sides in open position with two units of different size shown completed within the mold.

Fig. 6 is a perspective view of the finishing pallet of the mold.

Fig. 7 is a detached view in section of my improved corner lock for the mold.

Referring now more particularly to the characters of reference marked on the drawings, the numeral 1 designates the base plate of the mold, which may be of any desired form for attachment to a support. Cast integral with the base 1 is a center upstanding tamping table 2.

The numeral 3 designates a back plate secured to the base 1 by a bracket 3^a and extending above and substantially parallel with the back edge of the tamping table 2. This plate 3 has forwardly projecting supporting flanges 4 which form back stops for the finishing pallet 5 positioned on the table 2, and also form a bracing support for the back side 6 of the mold which is detachably but rigidly bolted or otherwise secured to the plate 3.

Bushings 7 and 8 are mounted on the bracket 3^a at a spaced distance back of the back side 6 of the mold. These bushings re-

ceive bolts or pins 9 and 10 respectively on which are journaled sleeves 11 and 12 respectively carrying projecting arms 13 and 14, to which are secured or formed as an integral part thereof the sides 15 and 16 of the mold. The front side 17 of the mold is hinged to the end 16 as at 18 at a point outside of the plane of both members 16 and 17 so that when they are brought together their adjacent faces will abut at right angles to one another. Also at this point it may be well to state that by reason of the hinged points for the ends being back of the back side of the mold the ends of the mold will likewise abut directly against the free ends of the back side of the mold at right angles thereto, as shown at 19 and 20 respectively, this being one of the important features of my invention, as will be hereinafter exemplified.

Similarly the end 15 and front side 17 are brought into direct right angle contact with each other by contacting mitered corners 21 which are brought into contact and locked in position by means of my improved locking means, which I will now proceed to describe.

Projecting from the free end of the side 17 are a pair of spaced ears 22 fixed through which is the pin 23. A yoke 24 is turnable on the pin 23 and has a handle member 25 threaded into the end of the yoke, as at 26, a lock-nut 27 being provided to fix the position of the handle 25 relative to the yoke 24. A cam 28 is pivoted in the yoke 24 in the path of the handle 25 which projects into the yoke, the pivoted movement of the cam being limited by means of a pin 29 engageable by a lug 30 on the free end of the cam.

With the movement of the handle 25 the yoke 24 is designed to straddle a latch 31 projecting from the member 15 and having a curved outer surface 32 to engage the cam 28 whereby the latch will be forced into locking engagement with the pin 23.

By this construction it will be seen that the free ends of the mold can be positively latched together without any pressure being put directly between the adjacent end of the two sides of the mold. I have found from experience that when the two sides at their free ends were pinched directly together under pressure this was apt to sprain one or the other and this would deform the finished unit; and it has therefore been the aim of my invention throughout to form all the sides for direct right angle contact with each other with no lever action between the same at the contacting points, so that the sides of the mold would remain relatively mechanically square with each other under all conditions, thus insuring a perfect product, the back side element 6 being the fixture gaging the position of the other sides of the mold as they are closed, this fixture always remaining positively true and correct due to its being independently secured to the back plate

and having no hinged or other connection whatsoever with the other sides.

In practice when it is desired to make use of the mold the bottom pallet board is mounted on the tamping table 2 and set against the stops 4, which brings it underneath the back side of the mold 6, as clearly shown in Fig. 3. The other sides of the mold are then brought to closed position, the members 15 and 16 striking at direct right angles against the ends of the back 6, which trues those sides of the molds up at right angles with the said back member.

The front side 17 is then brought into right angle contact with the two elements 15 and 16 as described, and the whole mold is then locked into closed position by means of a handle 25 being operated to engage the yoke 24 and cam 28 with the latch 31, causing it to positively engage the pin 23 in frictional contact therewith so as to hold the parts in their true right angle position relative to each other, but without bringing any leverage strain against the sides, the entire locking friction being against the pin 23 only. The frictional engagement of the cam 28 with the latch 31 is adjusted by means of the threaded end 26 of the handle 25.

The sides of the mold having been closed over the lower pallet board 5 as described, a concrete material 33 is then filled in between the sides of the mold from any source of supply, such as a chute 34 or the like. The top pallet board 35 is then placed over the material and the same tamped by any suitable tamping mechanism, more preferably of that type shown in my copending application for patent, Serial No. 750,776, filed Nov. 19, 1924.

After the material is thought to be sufficiently tamped the top pallet is removed and handled, as shown graphically in Fig. 2, the edge off the tops of the sides of the mold to clear the same of any of the concrete material which may have adhered thereto. This pallet has a metal edge 36 for this purpose. This being done the pallet board is then replaced on top of the material and same given a few final strokes of the tamping mechanism so as to properly finish the unit. The tamping operation being over, the sides of the mold are again opened and all sides except the back can be freely removed from the unit, as shown in Fig. 5, whereupon the bottom pallet board may be easily removed, carrying the unit with it so that the finished units may be stacked for proper curing.

The hinged points of the ends of the mold, being at points removed from the contact of such ends with the back side of the mold, positively prevents the concrete material from getting squeezed in between the contacting points between the elements, which of course often would result in a lever action which might either deteriorate the

mold elements or disfigure the mold. By my direct right angle contact between the sides this condition is avoided, and furthermore any possible squeezing of the material between the lower side of the back of the mold and the ends is obviated by beveling off the lower edges of the said member 6, as at 6^a.

The front and back sides of the mold are provided with alined slots 37 in which may be positioned spacing elements 38 so that units of different sizes and dimensions may be made in one standard mold. The size of a standard mold may be shortened by moving the pins 10 and 11 into bushings 38 and 39 spaced a less distance apart than are the bushings 7 and 8. When this was done of course a shorter back side for the mold would be used, and otherwise the mold structure would remain the same.

If it is desired to make a mold of narrower dimensions than that shown for the standard size, spacing elements 40 (see Fig. 4) may be mounted on the plate 3 and the back plate 6 would then be secured to these spacing elements instead of directly to the plate 3, such spacing elements 40 having front projecting flanges 41 to act as the back stop for the bottom tamping board, and to support the back side 6 of the mold, as already described.

The top pallet 35 is a great benefit in finishing the unit off uniformly and of the proper density on both surfaces as will be apparent to those skilled in the art.

Many different shapes, forms and sizes of units may of course be manufactured in a form of the structure described by me, this being controlled by the positioning of parts and the shape of the sides of the mold. I have shown in the present drawings my preferred type of unit, no particular claim to that being made in this application, as I reserve my right to use my form in making any size, shape or material desired for a unit.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. A mold including a fixed side, hinge elements at points removed from the fixed side, the ends of the mold being mounted on the removed hinges and engaging the free ends of the fixed side, the other side of the

mold being hinged to one end and arranged for interlocking engagement with the other to close the mold.

2. A mold including a base, a back plate on the base to be then relatively immovable, a mold side removably fixed to the plate, and other mold sides hinged to the base and to each other, two of said hinged sides being arranged to contact with the fixed side to complete the mold.

3. A mold comprising a fixed and relatively immovable side, hinges spaced from and independent of said fixed side, ends connected with the hinges and arranged to abut against the free ends of the fixed side, and another side hinged to one end and arranged for locking engagement with the other.

4. A mold including a base, a tamping table upstanding from the base, a back plate on the base above the back edge of the tamping table, a mold side fixed to the plate, and hinged mold sides co-operating with the fixed side to complete the mold.

5. A mold structure including a base, a tamping table upstanding from the base, a back plate on the base above the tamping table, front flanges on the plate, a mold side fixed to the plate and supported on the flanges, and hinged mold sides co-operating with the fixed side to complete the mold.

6. A mold structure including a base, a back plate on the base, spacing elements arranged for removable attachment to the back plate, a mold side arranged for attachment to the spacing elements, and hinged mold sides mounted on the base independent of the spacing elements and first named mold side but arranged for co-operation with the latter to complete the mold.

7. A mold structure including a base, a rigid back plate thereon, a mold side removably mounted on the back plate whereby the length of such side may be varied, and mold sides to complete the mold with said removable side adjustably hinged onto the base.

8. A mold including sides mounted in hinged relation except at one corner of the mold, and a latching means at such corner; such means comprising projecting ears on one mold side, a pin mounted in the ears, a yoke turnable on the pin, a handle on the yoke extending radially of the pin, a latch on the adjacent mold side for engagement with the pin and adapted to project between the sides of the mold, a flat cam element mounted in the yoke beyond the latch and adapted to frictionally engage the same, and means between the handle and cam whereby the frictional pressure of the cam on the latch may be varied.

9. A mold including sides mounted in hinged relation except at one corner of the mold, and a latching means at such corner; such means comprising projecting ears on

one mold side, a pin mounted in the ears, a yoke turnable on the pin, a handle on the yoke extending radially of the pin, a latch on the adjacent mold side for engagement with the pin and adapted to project between the sides of the mold, a flat cam element mounted in the yoke beyond the latch and adapted to frictionally engage the same, said

cam being disposed transversely of the longitudinal plane of the handle and the latter pressing against the cam and being capable of longitudinal adjustment in the yoke, whereby to enable the distance of the cam from the pin to be altered at will. 10

In testimony whereof I affix my signature.

HARRY E. CLOUSER.