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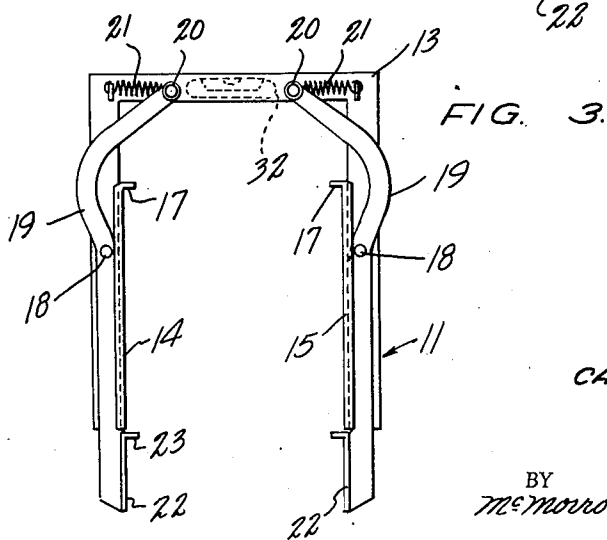
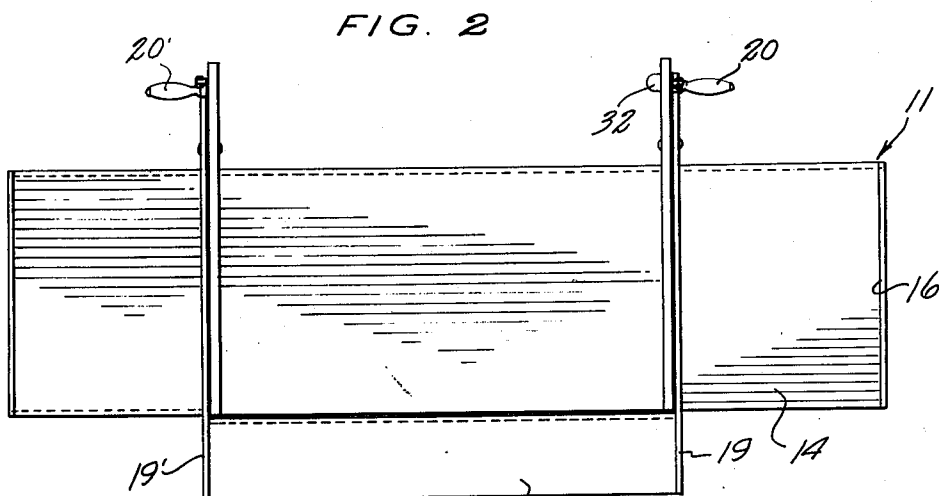
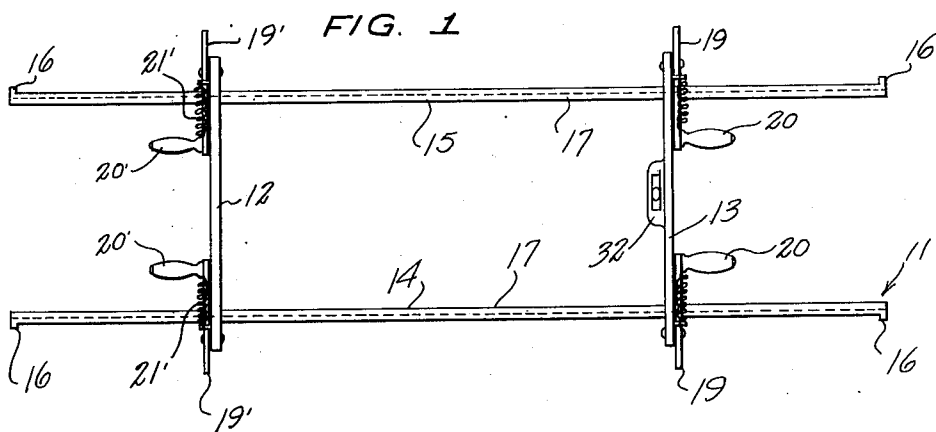
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2,616,147

MASONRY WALL-BUILDING MACHINE

Filed June 29, 1951

2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

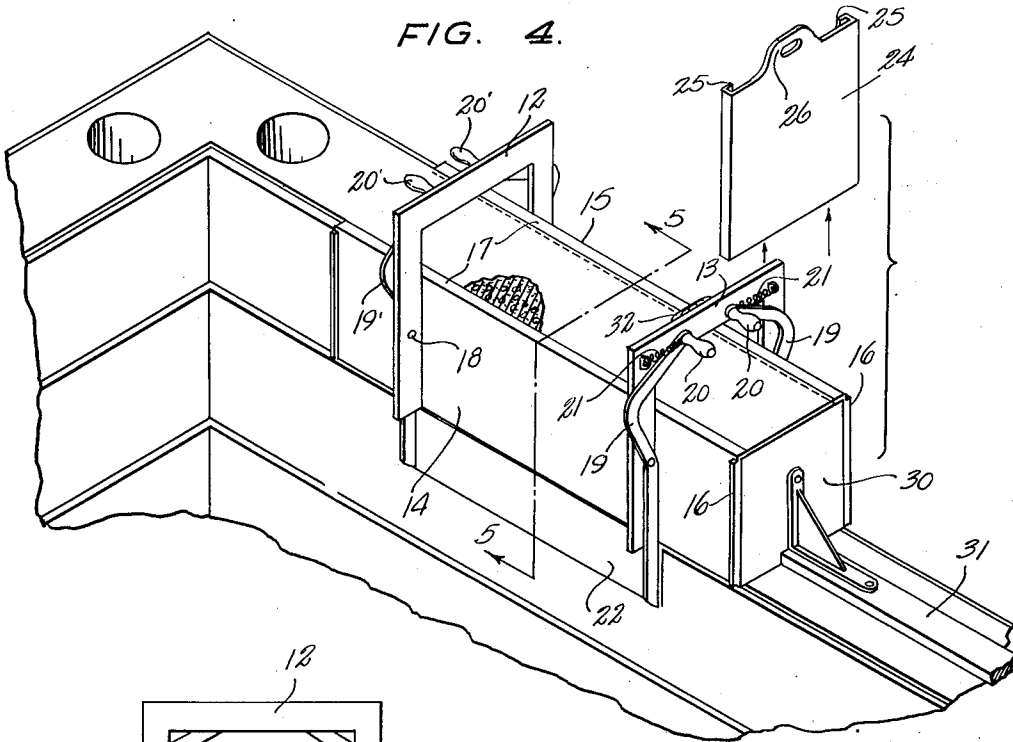


FIG. 4.

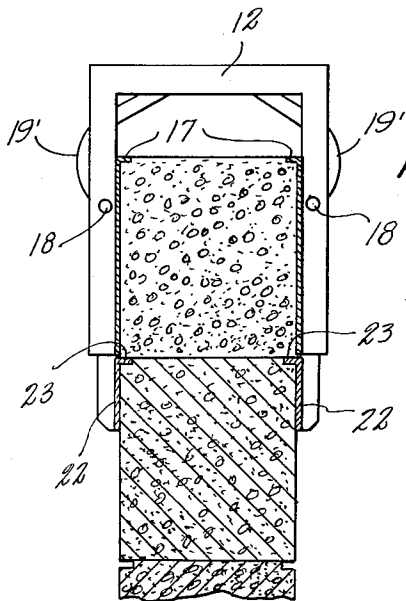


FIG. 5.

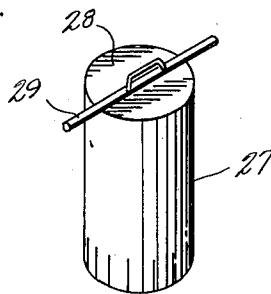


FIG. 6.

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MASONRY WALL-BUILDING MACHINE

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3 Claims. (Cl. 25—131)

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This invention relates to wall-building forms, and more particularly to an improved machine for building masonry wall structures.

A main object of the invention is to provide a novel and improved masonry wall-building implement which is simple in construction, which provides accurate alignment of the successive portions of a masonry wall erected by its use, and which is easy to manipulate.

A further object of the invention is to provide an improved masonry wall-building appliance involving relatively inexpensive parts, which is rugged in construction, which may be employed for building walls composed of different types of suitable mixtures, such as mixtures employing sand, cinders, clay, or any other material that is mixed with liquid to form a plastic mass and which dries or hardens to a rigid condition, the device enabling walls to be constructed without the need of any further forms, without requiring the use of highly skilled artisans, being operable by a single workman, being operable to provide openings in a wall wherever desired, and being arranged for turning corners, as required in the course of constructing masonry walls.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a top plan view of an improved implement for building masonry walls according to the present invention;

Figure 2 is a side elevational view of the improved device of Figure 1;

Figure 3 is an end elevational view of the wall-building device of Figures 1 and 2;

Figure 4 is a perspective view illustrating the manner of use of the improved implement of Figures 1, 2 and 3, and showing the device employed in forming a portion of a masonry wall;

Figure 5 is an enlarged cross-sectional view taken on the line 5—5 of Figure 4;

Figure 6 is a perspective view of a core device adapted to be employed with the implement to form vertical openings through elements of a masonry wall formed by the use of the improved implement of the present invention.

Referring to the drawings, and more particularly to Figures 1, 2 and 3, the improved wall-building implement is designated generally at 11. The device 11 comprises a pair of inverted, U-shaped, rigid support members 12 and 13 disposed parallel to each other and spaced apart, and connected by respective, longitudinally extending, vertical plate members 14 and 15

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which are rigidly secured to the inside edges of the respective vertical arms of the U-shaped members 12 and 13. As shown in Figure 1, the plate members 14 and 15 are of similar length and are formed at their end edges with the outwardly projecting flanges 16. At their top edges the plate members 14 and 15 are formed with the inwardly projecting, longitudinal flanges 17. Pivoted to the intermediate portions of the vertical arms of the U-shaped member 13 at 18, 18 are the respective levers 19, 19, the upper portions of said levers being curved in the manner shown in Figure 3 and being provided at their top ends with the handles 20. The top ends of the levers are connected to the top corner portions of the member 13 by respective coil springs 21, 21 biasing the top ends of the levers outwardly, as viewed in Figure 3, and biasing the depending lower portions of the levers inwardly toward each other. Similar levers 19', 19' are pivoted to the depending vertical arms of the U-shaped member 12, the top ends of the levers 19' being provided with the handles 20', and said top ends being connected to the top corner portions of the member 12 by coil springs 21', whereby the lower depending portions of the levers 19', 19' are biased toward each other by the action of the springs 21'.

Secured to the lower portions of the levers 19 and 19' on each side of the device are the respective longitudinally extending, vertical plate elements 22, 22 which are normally disposed below the respective plate members 14 and 15. As shown in Figure 2, the plate members 22 are shorter in length than the plate members 14 and 15, and terminate at the levers 19 and 19'. Said levers 19 and 19' are spaced inwardly from the respective end edges of the plate members 14 and 15 by distances substantially equal to the spacing between the plate members 14 and 15 for a purpose presently to be described.

The top edges of the plate members 22, 22 are formed with inwardly projecting, longitudinal flanges 23 similar in transverse width to the flanges 17.

Designated at 24 is a removable end plate formed at its side edges with the inturned flange elements 25, 25 adapted to be engaged around the flanges 16, 16 at the ends of the plates 14 and 15 for temporarily closing off the end of the space defined between the walls 14 and 15, as will presently be described. Plate 24 is provided with the flange 26 at its top margin serving as a hand grip for elevating the end plate 24 to a disengaged position with respect to the flanges 16, 16

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when it is desired to remove the end plate. An end plate 24 may obviously be employed at either end of the device, since flanges 16, 16 are provided on the vertical end edges of plates 14 and 15 at either end of the implement.

The hinge elements 18, 18 are preferably removable so that the device may be initially employed without the depending plate members 22, 22. Furthermore, both ends of the device may be closed off by the provision of two end plates 24 in order to form a complete block at the beginning of the building of a wall.

In order to form air spaces or passages for ducts and the like in a wall, suitable plugs are provided, such as the hollow plug 27 shown in Figure 6, said plug comprising a cylindrical hollow body having a closed top wall 28 to which is secured a transversely extending supporting pin 29 adapted to rest on the top flanges 17, 17 of the plates 14 and 15 to support the plugs 27 in vertical positions between said plates.

In forming a wall, the hinge elements 18 are removed for the first course, and the levers 19 and 19' are likewise removed along with the plate elements 22, 22. End plates 24 are engaged on the ends of the plate members 14 and 15, and suitable plugs, such as the plugs 27, are mounted in the space between the plates 14 and 15 if air spaces or duct passages are desired in the block. The form is filled with mortar, tamped and leveled. The end plates 24 are then removed and a supporting device comprising a rectangular plate 30 secured to a bottom member 31, as shown in Figure 4, is held against one end of the block, the plate 30 fitting between the plates 14 and 15 in the manner shown in Figure 4, to support the plastic block when the members 14 and 15 are moved longitudinally into position for forming the second block of the course. When the supporting plate 30 is in position, the device is moved longitudinally into position for forming the next block of the wall, the supporting member 30 is removed and the end plate 24 is replaced on the flanges 16, 16 at the end of the device opposite to the previously-formed block. The procedure employed to form the first block is then repeated, the supporting device 30 being employed to support the end of the newly formed block when the wall-forming device is moved into position for the next block. The first course is thus laid along a predetermined line, corners being formed as required. When the first course has been completed, the device is reassembled by replacing the levers 19 and 19' and the hinge elements 18, the device remaining assembled for the remainder of the wall-building operation. In forming the next course, the flanges 23 of the depending plate members 22 are fitted into the longitudinal recesses formed in the first course of blocks by the flanges 17 of plate members 14 and 15, whereby the device is supported on the members 22, 22 and may be slid longitudinally along the first course of blocks. The second course of blocks is then formed by following substantially the same procedure employed in forming the first course, employing the two end gates 24 to form the first block of the second course and employing only one end gate 24 for the subsequent blocks. As in the previously-described procedure, the device 30, 31 is employed to support the end of the newly formed block as the machine is moved longitudinally into a position for forming a subsequent block.

It will be noted that the springs 21, 21 bias the plate elements 22, 22 inwardly, whereby said springs provide a light clamping action which

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maintains the apparatus in fixed position during the pouring of a block. After a block has been formed, the end gate is removed and the end-supporting means 30 is engaged with the end of the freshly poured portion of the wall. Then the device is grasped by taking hold of the sides of the U-shaped member about midway of each side at the end facing the direction in which the device is to be moved, and the machine is moved to its new position by pulling on said sides. In said new position, a small portion of the previously-formed block, for example, a portion about eight inches in length, is retained between the plate elements 14 and 15. As shown in Figure 4, the end-supporting means 30 is engaged with the end of the previously-formed block while the device is moved to its next position. As shown in Figure 4, the bar 31 lies on the subadjacent course. Bar 31 may be suitably held down by placing a weight or by stepping on said bar to maintain the supporting element 30 in engaged position with the end of the previously-formed block, while the block forming machine is moved to its next position, as above described.

It will be noted that in forming a corner, the plate members 22, 22 terminate short of the end of the wall by a distance equal to the width of the wall. This enables the corner blocks to be formed without interference from the guide plates 22, 22.

It is to be noted that at the corner of the structure the device cannot be slid longitudinally to an advanced position because the plates 22, 22 are substantially in engagement with the corner formed in the subadjacent course of the wall. To remove the machine, it is therefore necessary to lift the machine vertically. Therefore, the handles 20, 20 and 20', 20' are squeezed inwardly sufficiently to move the flanges 23 of plates 22 outwardly to clear the block formed at the corner, and at the same time the machine is lifted vertically out of engagement with said block by means of said handles.

While a specific embodiment of an improved masonry wall-building machine has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. A masonry wall building machine comprising a pair of parallel, inverted, U-shaped supports, respective elongated, vertical main plate members of similar length secured to the inner edges of the depending arms of said supports and defining a mold therebetween, outwardly turned flanges on the end edges of said plate members, an end plate slidably engaged with the flanges on the end edges of said plate members and being vertically movable to a disengaged position, respective depending levers pivoted to the arms of said supports, a pair of elongated auxiliary plate members coplanar with said main plate members respectively secured to the levers below the main plate members, each of said auxiliary plate members being secured at each end to one of said levers, and spring means biasing said auxiliary plate members toward each other.

2. A masonry wall-building machine comprising a pair of parallel, inverted, U-shaped supports, respective elongated, vertical main plate members of similar length secured to the inner edges of the depending arms of said supports

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and defining a mold therebetween, an end plate slidably engaged with the end edges of said plate members and being vertically movable to a disengaged position, respective depending levers pivoted to the arms of said supports, a pair of elongated auxiliary plate members coplanar with said main plate members respectively secured at each end to a lever below the main plate members, spring means biasing said auxiliary plate members toward each other, and an inwardly directed, longitudinal flange on the top edge of each of said auxiliary plate members.

3. A masonry wall-building machine comprising a pair of parallel, inverted, U-shaped supports, respective elongated, vertical main plate members of similar length secured to the inner edges of the depending arms of said support and defining a mold therebetween, an end plate slidably engaged with the end edges of said plate members and being vertically movable to a disengaged position, respective depending levers pivoted to the arms of said supports, a pair of auxiliary plate members coplanar with the main plate

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members respectively secured at each end to a lever below the main plate members, spring means biasing said auxiliary plate members toward each other, an inwardly directed, longitudinal flange on the top edge of each of said auxiliary plate members, and respective inwardly directed, longitudinal flanges on the top edges of the main plate members, the auxiliary plate members being shorter than the main plate members at each end by an amount substantially equal to the distance between the main plate members.

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