O. KOFSTAD.

MOLD FOR HOLLOW WALLS.

APPLICATION FILED MAR. 14, 1919.

1,345,371. Patented July 6, 1920.

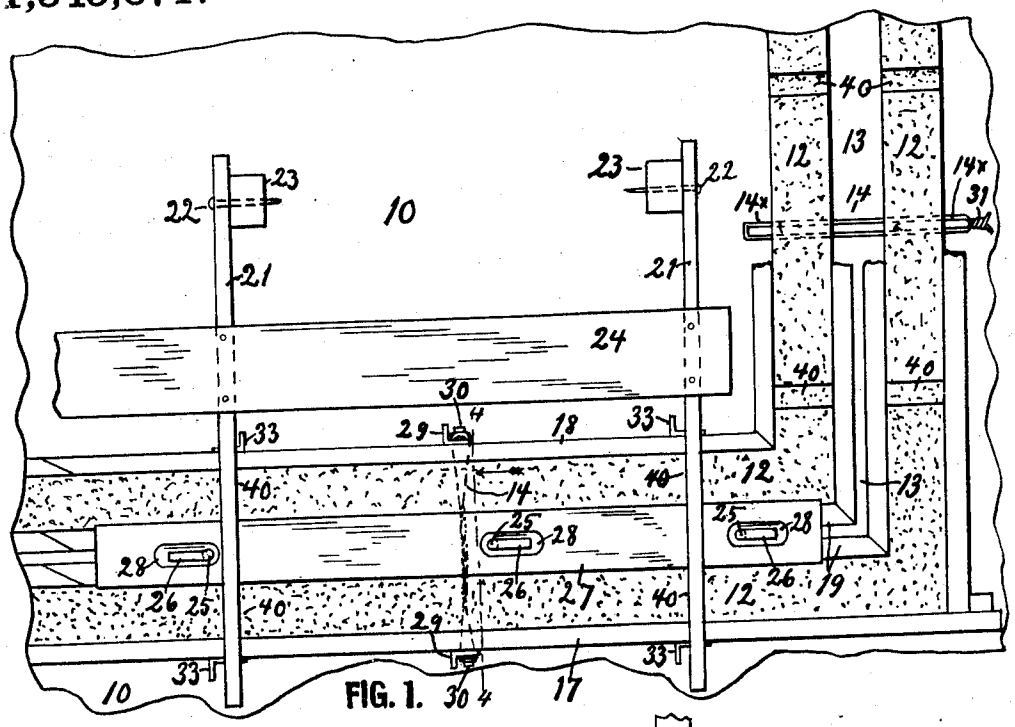


FIG. 1.

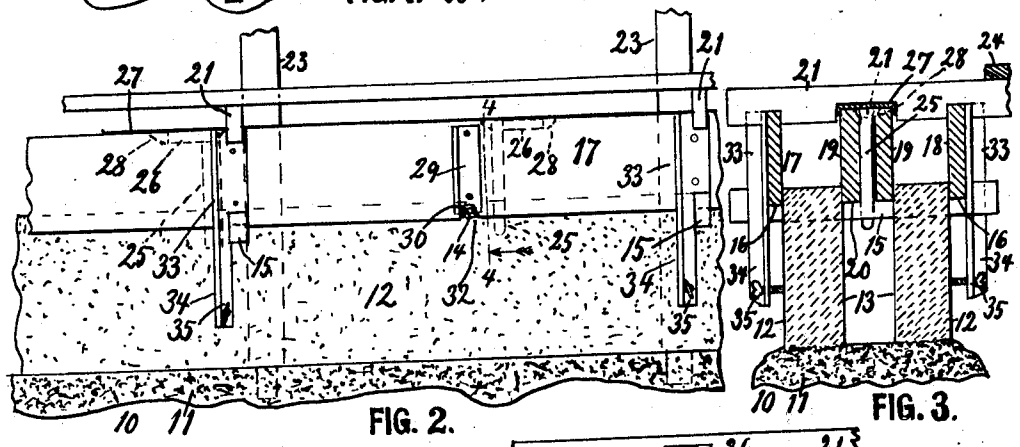


FIG. 2.

FIG. 3.

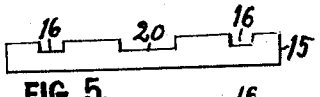


FIG. 5.

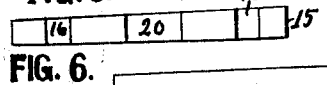


FIG. 6.

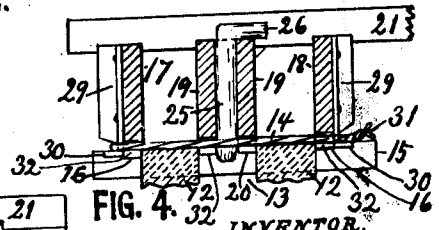


FIG. 4.

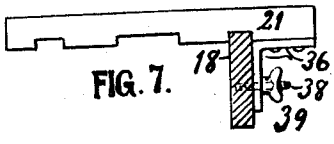


FIG. 7.

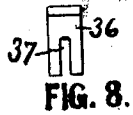


FIG. 8.

INVENTOR.

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OTTO KOFSTAD, OF WARROAD, MINNESOTA.

MOLD FOR HOLLOW WALLS.

1,345,371. Specification of Letters Patent. Patented July 6, 1920.

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To all whom it may concern:

Be it known that I, OTTO KOFSTAD, a citizen of the United States, residing at Warroad, in the county of Roseau and State of Minnesota, have invented a new and useful Mold for Hollow Walls, of which the following is a specification.

My invention relates to molds and cores for building hollow concrete walls; and the main object is to construct a concrete building having a double wall with a continuous air space between the walls or wall members all around the building. Another object is to provide an improved mold, including a collapsible core for building such walls.

In the accompanying drawing:

Figure 1 is a plan view of a piece of ground with a corner portion of a building under construction by the use of my improved mold and core. Fig. 2 is a side elevation of the portion of Fig. 1 near above it. Fig. 3 is a right hand end view of Fig. 2. Fig. 4 is a section of the upper portion of Fig. 2, on the line 4—4 in either Fig. 1 or Fig. 2, with the cover 27 omitted. Fig. 5 is a side view and Fig. 6 is a top view of one of the bars 15 in the other views. Fig. 7 shows modified means for holding the side wall of the mold in plumb position. Fig. 8 is a detail view of the bracket 36 in Fig. 7.

Referring to the drawing by reference numerals, 10 designates the ground upon which is usually provided a base 11, on which are molded of finer concrete than the base, parallel wall members 12 with a continuous air space 13 between them. The only element traversing said air space in the finished wall is a series of spaced double wires, 14, which are preferably twisted, as best shown in Fig. 4, so as to stick firmly in the wall members. How these wires are applied in the construction of the wall will presently be more fully described.

The mold comprises several supporting bars 15, adapted to be placed across the base 11, or later on farther up in the building across the two wall members. Each of said bars is provided in its upper side with notches 16, in which to guide and support planks or outer mold sections 17 and inner mold sections or members 18, while intermediate mold members 19 rest in a notch 20. The upper edges of the mold members 17, 18, 19 are spaced by means of notched bars 21 placed across them and having their inner ends secured at 22 to posts 23, which may be secured in upright position by any suitable means; and upon said bars 21 may be secured planks 24 for the workmen to walk on.

The mold members 19 are spaced apart by several rods 25, placed vertically between the members and having each at the upper end a hook 26, which may rest upon one of the planks 19, as shown in Fig. 4, or the rod may hang through a hole in a cover 27 and have the hook or handle 26 resting in a cavity 28 therein. Said cover 27 serves to prevent concrete or other things from dropping into the air-space; and the cavities 28 are to allow the handles 26 to sink sufficiently down to be fairly out of the way for the tool used in leveling the top of the soft concrete even with the top of the mold.

Secured upon the members 17, 18, are vertical cleats 29 having their lower ends provided with toes 30, to which the wires 14 are secured, preferably by placing the middle of the wire over one of the toes and at the other toe twist the ends of the wire together, as shown at 31, after the wires have been placed across the wall members and in position to be received into notches 32 in the lower edges of the mold members, so as to allow the members to overlap slightly downwardly on the wall and rest on the bars 15.

The members 17, 18 are also provided with other cleats, 33, preferably on angle-iron stiff enough to prevent warping of the mold members. Said cleats 33 are each provided with a downwardly projecting arm 34, having a thumb-screw 35, which by being screwed against the wall will regulate the mold member to exactly plumb position, in which position the bars 21 will further help to hold it.

In cases where it is inconvenient to use the bars or braces 21, extended to the posts 23, said bars may be cut short, as in Fig. 7 and provided each with a bracket 36, having a hole, or slot, 37 for a standing bolt 38, which is fixed in the section 18 and provided with a nut 39, which when drawn tight will cause the section to assume a vertical position to the bar 21, and thus stand plumb, because the bar 21 rests on member 17, and the members 17 and 18 are of equal depth and rest at the same plane or level upon the bar 15; and if one mold member stands plumb, they must all stand plumb, because of their connection with the plumb member through the notched bars 15 and 21.

In the operation of the device, the mold is placed about as shown in the drawing, and concrete is filled in between the mold members up to the top of them, where it is then leveled off. After the concrete is set the spacing rods 25 are pulled upward to allow the members 19 to move toward each other and be removed; also the other mold members are removed for use higher up, the last members removed are the bars 15, which being tapered, as shown in Figs. 5 and 6, are pulled out of the wall, their spaces in the wall filled with concrete and the bars placed in the notches 40, which during the operation just described were formed in the top of the wall members by the bars 21. The mold is then set up again for the formation of the next higher layer of concrete. After the wall is finished the projections 14* of the wires 14 are cut away to leave the wall smooth.

What I claim is:

1. A mold for concrete hollow wall construction, the same comprising parallel flat vertical mold members adapted to form the inner and outer sides of the wall, a collapsible core spaced between said mold members, and means for holdng the mold members and the core in the desired relation and position; said core composed of two parallel flat core members and a series of removable spacing rods inserted between said core members; said core having a cover over the space between its members, and said spacing rods being suspended through holes in the cover and having their upper ends provided with means for engaging the cover to suspend the rods and to serve as handles in removing the rods.

2. The structure specified in claim 1; said holding means comprising several supporting bars adapted to be placed across the top of the wall and having in their upper sides notches for the mold members and the core members to rest in, and upper bars with notches in their undersides for the upper edges of the mold members and core members, and means for holding said upper bars with the mold members in vertical position.

3. The structure specified in claim 2, said supporting bars being tapered from one end to the other, to facilitate their extraction from the wall.

4. The structure specified in claim 1; said mold members having upon their outward sides vertical cleats with their lower ends extending beyond the mold members and provided with screws arranged to contact with their ends against the wall, for the purpose set forth.

In testimony whereof I affix my signature.

OTTO KOFSTAD.