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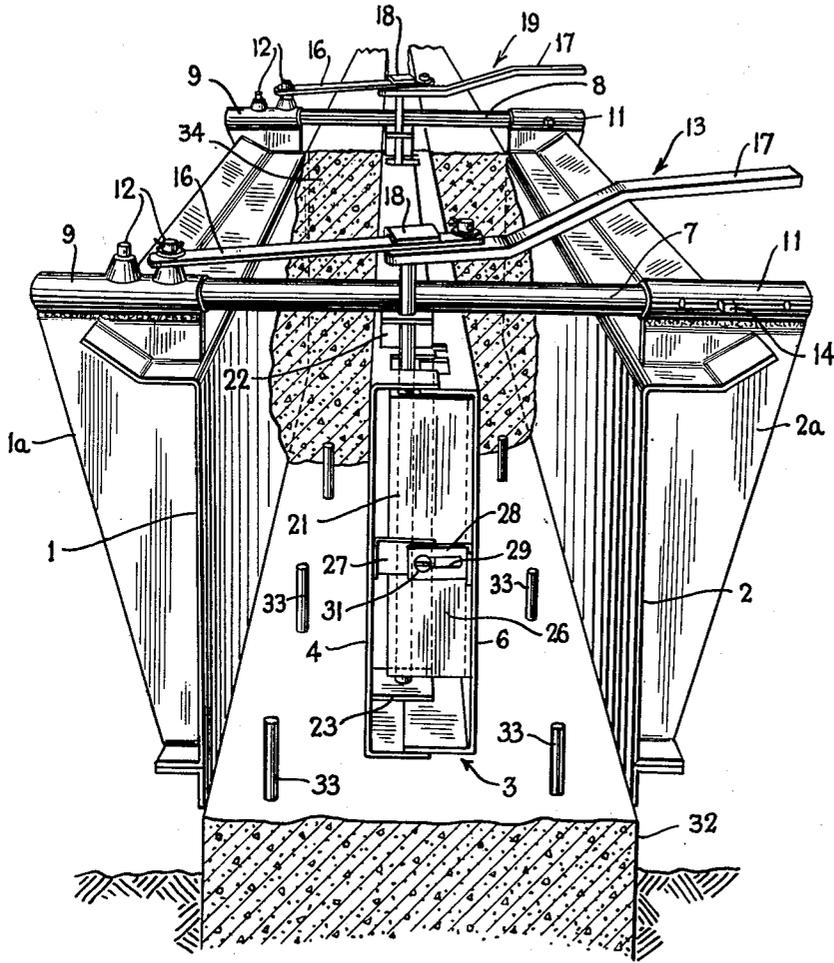
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FORM FOR MOLDING CEMENTITIOUS MATERIAL

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2 Sheets-Sheet 1

*Fig. 1.*



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## FORM FOR MOLDING CEMENTITIOUS MATERIAL

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3 Claims. (Cl. 25—131)

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This invention relates to a form for molding walls of cementitious material such as concrete and more particularly to metal forms to replace the usual wooden forms.

In metal forms for molding concrete walls prior to my invention the construction is somewhat complicated and costly to manufacture. The present invention is particularly concerned with a metal form which can be used for molding concrete walls having an air-space within the outer surfaces of the wall. To this end, the invention provides a plurality of outer wall molding plates together with spaced intermediate plates serving as the core to form the air-space within the wall. In making concrete walls, considerable difficulty is experienced in breaking the adhesion between the mold form and the green concrete. The present invention provides positive means for separating the outer mold walls and for bringing together the two parts of the core of the mold so that the mold can be removed from the green concrete without damaging or injuring the newly molded construction.

Accordingly, one of the primary objects of the invention provides an improved, reliable and simple mold of the type described for building concrete walls.

Another object is to provide such a mold which is inexpensive and can be made from standard sheet and tube structural members.

A still further object is to provide a wall forming mold in which means are provided for positively breaking the adhesion between the mold and the green concrete without damaging the latter by causing separation of the respective oppositely disposed adjacent ends.

A still further object is to provide such a mold which can be readily adjusted for making walls of different thicknesses.

A still further object is to provide molding apparatus of the character specified in which the member for forming the air-space within the wall consists of a core having walls movable towards and away from each other and in which the actuating means therefor is disposed between said walls.

Other and further objects will be readily apparent from the following description when considered in connection with the accompanying drawings, illustrating an embodiment of the invention, and in which:

Figure 1 is a perspective view of the mold made in accordance with the present invention and showing the manner in which the mold is used.

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Figure 2 is a partial perspective view showing the form in the molding position.

Figure 3 is a partial perspective view showing the form in the position to permit its removal from the wall.

Figure 4 is a partial horizontal sectional view on line 4—4 of Figure 2.

Figure 5 is a partial horizontal sectional view on line 5—5 of Figure 3.

The form of the invention shown for purpose of illustration comprises a molding form having two outer side-plates 1 and 2 and an intermediate core member 3 between the two outer side walls. The core 3 comprises two nested U-shaped channel side wall members 4 and 6 which are adapted to be held apart in the position shown in Figure 1 when the mold is in operation and adapted to be pulled together in nested relation for the purpose of removing the mold from the newly formed concrete wall. As will be described later, the two outer side plates 1 and 2 are adapted to be moved apart from each other at the same time that the members 4 and 6 are moved inwardly.

As will be readily apparent from the drawings, the outer side plates 1 and 2 are provided with gusset plates 1a and 2a, respectively, which serve to reinforce the plates 1 and 2 and prevent them from bowing outwardly when green concrete is poured and tamped in the form. It will be readily apparent that a number of these gusset plates can be placed lengthwise of the form members. Although not shown in the drawings, it will be readily understood that reinforcing gusset plates could also be provided for strengthening the U-shaped members 4 and 6.

The outer side plates 1 and 2 and the core 3 are held together as an integral unit by means of transverse tubular members 7 and 8 which extend transversely of the mold at the opposite ends of the latter. Suitable tubes 9 welded to the top of side plate 1 and another tube 11 similarly welded to the top of side plate 2 are adapted to slide over the opposite ends of the transverse tubular members 7, 8. The tubes 9 and 11 are adjustable on the ends of the tubular members 7, 8 for the purpose of determining the thickness of the wall and are further adjustable so that they may be separated to remove the form from the green concrete wall. To this end, the tube 9 is provided with a plurality of pivots 12 to which a lever mechanism 13 may be adjustably connected and the tube 11 is provided with suitable set-screw 14 for the purpose of fixing the position of the tube relative to the tubular member 7. It will be readily apparent that

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the thickness of the two parts of the wall can be determined by the positioning of the tubes 9 and 11 on the transverse tubular members 7, 8 it being understood that the pivotal connection 12 will determine the distance between the side plate 1 and the U-shaped core member 4 and the position of the tubes 11 on the members 7, 8 will determine the thickness of the wall between side plate 2 and core member 6. The lever mechanism 13 comprises a link 16, one end of which is pivoted to pivotal connection 12 and the other end of which is pivoted to the lever 17 at a point between the fulcrum of the latter and the right hand end thereof as shown in Figure 1. A suitable stop 18 is welded to the link 16 to limit the movement of the lever 17 so that when the latter is in the position shown in Figures 1 and 2 it will be in the locked position, the stop 18 preventing the lever from turning further in the clockwise direction. This holds the two outer side plates 1 and 2 in fixed positions while concrete is being poured and tamped in the mold. It will be readily understood that the lever mechanism 19 at the opposite end of the mold form is similar to the lever mechanism 13 just described and therefore no detailed description of the lever mechanism 19 is believed necessary.

The mechanism for actuating the side wall members 4 and 6 of the core 3 is more clearly shown in Figures 4 and 5. The fulcrum of the lever mechanism 13 is a rod 21 which is journaled in the bracket 22 suitably fixed, as by welding, to the member 4. The lower end of the rod 21 may be suitably journaled in a suitable similar bracket 23 (Fig. 1) also attached to the member 4. A suitable Z-shaped structural strip member 24 has one of its legs welded to the side wall member 6 throughout substantially the entire width of the latter. A U-shaped structural channel member 26 has one side welded to the rod 21 and the other side is adapted to fit between the overhanging leg of the member 24 and the side wall member 6 as clearly shown in Figure 5. When the lever 17 is operated in a counter-clockwise direction, it will be seen that the rod 21 will be turned in the same direction so that the outer end of the U-shaped member 26 will engage the overhanging leg of the member 24 to pull the latter and the side wall member 6 toward the side wall member 4. It will, of course, be understood from the previous description that at the same time that the member 6 moves inwardly away from the side plate 2 that the side plate 1 will be moved away from the side wall member 4. In this way the width of the core 3 is reduced and the space between the plates 1 and 2 is increased so that the form may be readily lifted from the green concrete wall without damaging the latter. It will also be seen that when the lever 17 is in the position shown in Figures 1 and 2 the member 25 will be engaged against the side wall member 6 and serve as a reinforcement for the latter against the pressure of the concrete. For the purpose of preventing relative longitudinal movement between side wall members 4 and 6, suitable structural angle members 27 have one flange fixed to the member 4 and angle members 28 have one flange fixed to the member 6. The other flanges of the members 28 are provided with suitable slots 29 engaged by bolts, screws or rivets 31 which also engage flanges of angle members 27 to prevent relative separation of angle members 27, 28. Although only one pair of angle members 27, 28 are shown it is to be understood that a similar pair is arranged at

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the opposite ends of the side plates 1, 2 and intermediate pairs may be provided if desired.

Since the construction of the mechanism at the opposite ends of the form is exactly the same, it is believed that further detailed description of the construction at the other end of the mold form is unnecessary.

The manner in which the invention is used is clearly shown in Figure 1, where the mold form is shown in place for building a hollow concrete wall on a solid concrete foundation 32 having the usual steel reinforcing rods 33. The fresh concrete aggregate 34 is placed between the side plates 1, 2 and properly tamped to prevent voids in the new concrete. The open end of the mold form may be closed with a board or the like to retain the new concrete aggregate.

After the green concrete is sufficiently set the mold form is removed from the green concrete wall by operating one of the lever mechanisms 13 or 19 ahead of the other. By operating one of these at a time the adhesion between the green concrete and the fold form is easily broken, it being understood that there is sufficient looseness between the tubes 9 and the transverse members 7 and 8 to permit a small amount of angularity between the side plates 1, 2.

The mold form may be moved progressively along the foundation where the operation can be repeated to build a hollow wall the full length of the foundation. Likewise, the mold form may be used to build the hollow wall to the desired height.

From the foregoing description it will be readily apparent that the present invention provides a very simple inexpensive construction which may be made from parts of standard structural steel elements, such as steel stampings, pressings and tubes.

Although the invention has been described in considerable detail, it will be apparent to those skilled in the art that many variations are possible without departing from the inventive concept. It is therefore desired that the invention not be limited except insofar as is made necessary by the prior art and by the appended claims.

I claim:

1. Molding apparatus of the type described comprising a unit for molding spaced walls comprising outer side plates movable relative to each other, a core intermediate said side plates and having side walls movable relative to each other, a rod journaled on one of said core walls, a lever fixed to said rod, a link pivotally connected to said lever at a point spaced from the connection of the latter to said rod and to one of said side plates, means connected to said rod and engageable with the other of said side walls of said core for moving the latter whereby said side plate can be moved relative to said side wall of said core and to the other of said side plates at the same time that the other of said side walls of said core is moved relative to said latter side wall.

2. In the form for molding walls of cementitious material, the combination of outer side plates to be supported in substantially parallel relation, means at each end of said plates for determining the relative position of said side plates comprising transverse tubular members, said transverse members being fixed to the opposite ends of one of said plates and being slidably coupled to the opposite ends of the other of said plates so that the other of said plates is movable relative thereto, a core positioned intermediate said outer plates having side walls rectilinearly

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movable toward and away from each other, means journalled on one of said core side walls and to said other of said plates for moving the oppositely disposed outer side plate rectilinearly relative to that core side wall and having lost motion coupling means intercoupled with the other core side wall for moving the other core side wall relative to the outer side plate fixed to said transverse member.

3. In a form for molding walls of cementitious material, the combination of outer side plates to be supported in substantially parallel relation, means at each end of said plates for determining the relative position of said side plates comprising transverse tubular members, said transverse members being fixed to the opposite ends of one of said plates and being slidably coupled to the opposite ends of the other of said plates so that the other of said plates is movable relative thereto, a core positioned intermediate said outer plates having side walls rectilinearly movable toward and away from each other, a rotatable

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actuating member journalled on one of said side walls having a link eccentrically coupled with said slidably coupled outer side plate for moving the outer side plate relative to that core side wall and having lost motion coupling with the other of said core side walls for moving said other core side wall relative to the outer side plate fixed to said transverse members.

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