Jan. 1, 1929.

1,696,925

M. C. SCHWEINERT

WALL BUILDING APPARATUS

Filed Nov. 24, 1923 2 Sheets-Sheet 1

Fig. 7.

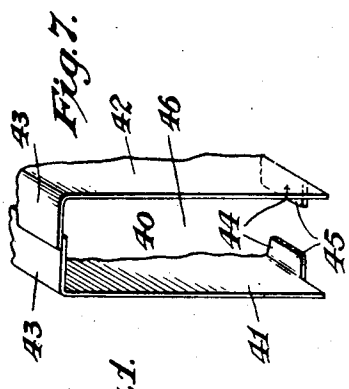


Fig. 1.

INVENTOR

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Fig. 2.

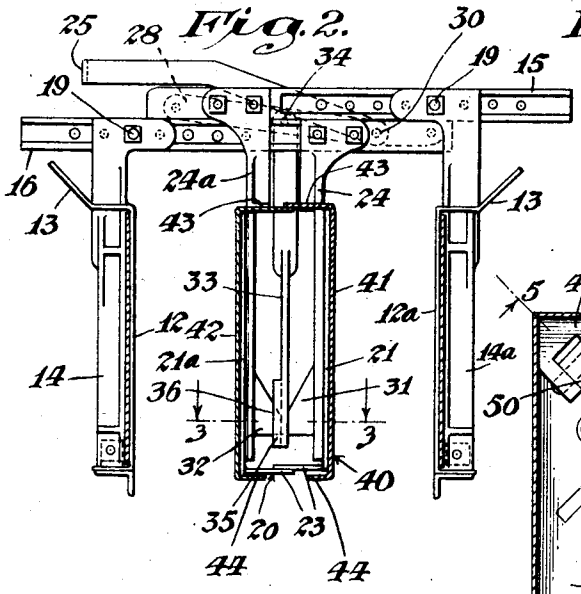


Fig. 3.

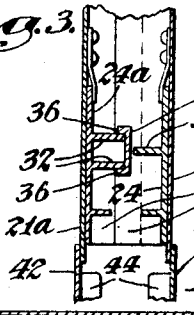


Fig. 4.

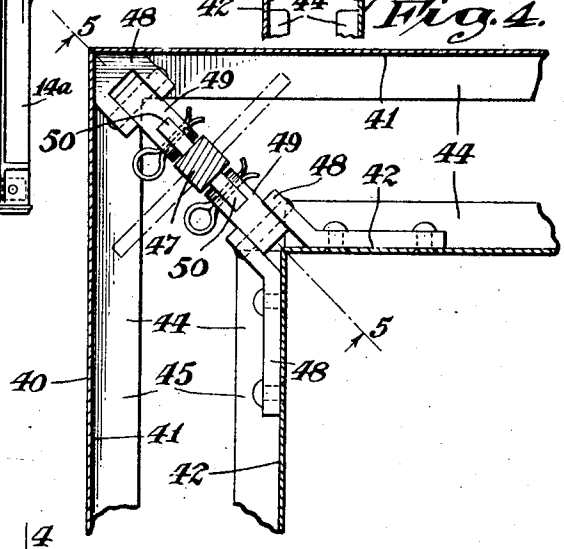


Fig. 5

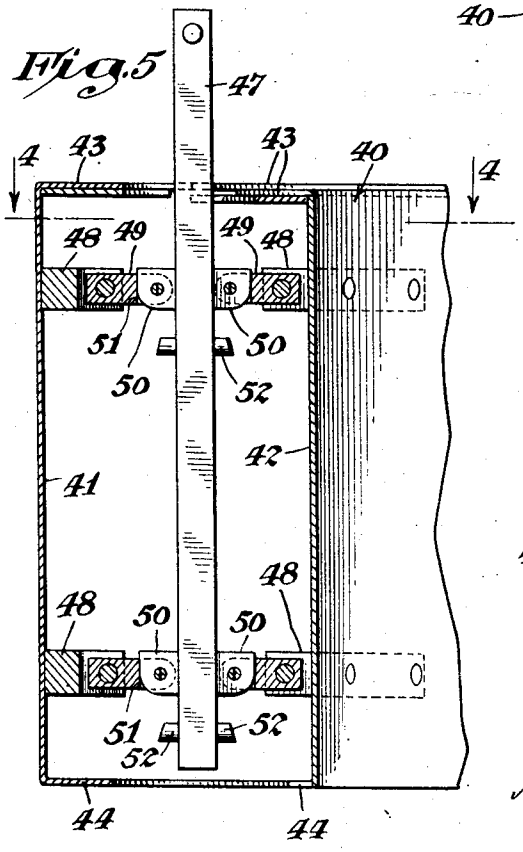
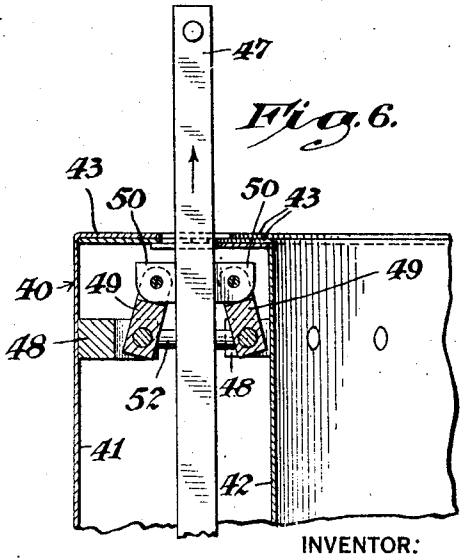


Fig. 6.



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UNITED STATES PATENT OFFICE.

MAXIMILIAN CHARLES SCHWEINERT, OF NEW YORK, N. Y.; CARL E. WHITNEY, MAY SCHWEINERT, AND THE FARMERS LOAN AND TRUST COMPANY, EXECUTORS OF SAID MAXIMILIAN CHARLES SCHWEINERT, DECEASED.

WALL-BUILDING APPARATUS.

Application filed November 24, 1926. Serial No. 150,615.

My invention relates to means for molding or forming hollow walls or the like, employing concrete or other plastic materials; and the same has for its object more particularly to provide a simple, reliable and efficient apparatus for that purpose which may be readily removed after the wall molding or forming operation.

Further, said invention has for its object to provide apparatus of the character specified in which a core is employed to form an intermediate air space in the wall portion or the like being constructed, and in which said core may be readily actuated to permit of the removal of the same from position without damaging or injuring the newly molded construction.

Further, said invention has for its object to provide apparatus of the character specified in which the air space forming member thereof 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 to permit of the application of the actuating forces thereto at points located within the confines of said walls and arranged symmetrically relative thereto.

Further, said invention has for its object to provide apparatus of the character specified in which the member or core serving to form an air space in the wall portion to be constructed is collapsible to permit of the ready removal thereof when the wall portion is completed, and in which the actuating means for said core serves to brace the same in the operative or molding position thereof.

Further, said invention has for its object to provide apparatus of the character specified in which an auxiliary core is associated with the cores of wall molding or forming machines or the like to form a continuous air space in the wall portion being constructed, and in which said auxiliary core is collapsible to permit of the ready removal thereof from position.

Further, said invention has for its object to provide apparatus of the character specified in which the walls of the collapsible core are maintained against movement towards each other at the outer ends thereof by the wall forming or molding machines or elements associated therewith.

Other objects will in part be obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends my invention consists in the novel details of construction, and in the combination, connection and arrangement of parts hereinafter more fully described and then pointed out in the claims.

In the accompanying drawings showing an illustrative embodiment of the invention—

Figure 1 is a plan with parts broken away, of one form of apparatus constructed according to and embodying my said invention;

Fig 2 is a sectional elevation thereof on the line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is a detail sectional view on the line 3—3 of Fig. 2, looking in the direction of the arrow;

Fig. 4 is an enlarged sectional view of a portion of the collapsible core on the line 4—4 of Fig. 5, looking in the direction of the arrows;

Fig. 5 is a sectional elevation thereof on the line 5—5 of Fig. 4, looking in the direction of the arrows, and showing the collapsible core in operative position;

Fig. 6 is a similar view showing the collapsible core in the position to permit of the removal thereof; and

Fig. 7 is a perspective of said collapsible core, looking at one end thereof.

Referring to the drawings, I have illustrated, as one example, my invention in connection with molding or wall building machines of the type shown, described and claimed in the Van Guilder Patent No. 1,250,394, granted December 18, 1917, although other types of wall molding or building machines or the like may be employed in connection with my said invention.

Each of the wall molding machines 10 and 11 shown comprises outer walls 12, 12ª having hopper extensions or portions 13 at the

upper edges thereof. The walls 12, 12ª are supported by the uprights or brackets 14, 14ª secured to the outer sides thereof at the ends, and extending upwardly through the hopper portions 13.

Relative movement of the outer walls 12, 12ª away from and towards each other, is effected by means of the angle irons or members 15 and 16, disposed one upon the other and arranged in pairs at the opposite ends of each machine. The members 15 and 16 are maintained in sliding relation by means of the bolts 17 carried by the lower member 16 and operating in the slots 18 of the upper member 15.

The brackets or members 14 and 14ª are secured at their upper ends to the outer faces of the sliding members 16 and 15 by means of bolts or other suitable securing means 19.

Intermediate the outer walls 12, 12ª of each machine is disposed a collapsible core 20 consisting of the walls 21, 21ª having inwardly directed overlapping flange portions 22 and 23 at the top and bottom thereof, substantially closing the core 20 at the top and bottom to prevent access of the building material to the interior thereof, the overlapping portions 22 and 23 being in slidable engagement to permit of the relative movement of the walls 21, 21ª towards and away from each other.

The walls 21, 21ª are supported by means of the uprights or brackets 24, 24ª secured to the inner faces of said walls 21, 21ª at the ends thereof, and carried by and secured to the slide bars 16 and 15 like the brackets 14, 14ª are.

Relative movement between the walls is effected by means of an actuating member 25 having arms 26 pivoted at their outer ends 27 to the lower slide bars 16 at corresponding ends thereof. Links 28 are pivoted at corresponding ends 29 to the opposite ends of the upper slide bars 15, and at their opposite ends 30 said links are pivotally connected to intermediate portions of said arms 26.

The swinging of the actuating member 25 moves the walls 12 and 21 and the walls 12ª and 21ª in opposite directions, the actuation of said member 25 in one direction moving the walls 12, 12ª inwardly and the walls 21, 21ª outwardly, and the actuation of said member in the opposite direction causing the reverse movement of said walls.

Each core 20 is maintained in operative position against inward movement of the walls thereof by means such as the following: The upright or bracket 24 at its lower end within the core 20 is provided with an inwardly projecting beveled lug or portion 31, and the upright or bracket 24ª is provided with a pair of similar beveled lugs 32 projecting inwardly at the opposite side of the core 20, and in vertical planes at opposite sides of the lug 31. Members 33 are pivotally connected at their upper ends 34 to the links 28, and said members 33 operate at their lower ends 35 between the corresponding lugs 31 and 32. When the member 25 is actuated to release the machine, the members 33 are raised, and the parts 35 moved from between the lugs 31 and 32 to permit of the movement of the walls 21, 21ª towards each other. When the member 25 is actuated in the opposite direction, the parts 35 are disposed between the lugs 31, 32 and serve to prevent the inward movement of said walls during the tamping operation. The flanges 36 on the parts 35 serve to retain the latter in operative relation with the lugs 31, 32.

Each machine 10 and 11 is provided with auxiliary wall portions, or slides 37 and 38, guided between the uprights 14 and 14ª and the walls 12 and 12ª, and forming extensions of said walls.

As shown at Fig. 1, a pair of machines may be employed to form corners, pilasters, chimneys, flues or other portions, the machines being arranged at various angles, according to the angularity of the wall portion to be formed, or according to the nature of the portion to be constructed. At Fig. 1, as one example, the machines are arranged to form a 90° corner, and for this purpose, the extensions or slides 37 and 38 are drawn out to form the angular space in which the corner of the portion is to be formed. The adjacent ends of the extension 37 are preferably secured together by suitable means 39.

For forming an air space within the corner portion of the wall, an angular core 40 is provided adapted to form with the cores 20 of the machines a continuous air space in the portion of the wall to be formed within the mold system.

The angular core 40 comprises a pair of angular walls 41, 42, movable towards and away from each other, and having inwardly directed flanges 43 at the top overlapping each other in slidable engagement, and providing a closed top for preventing access of the plastic or other material to the interior thereof.

The lower portions of the walls 41, 42, are reinforced by the inwardly directed flange portions 44 which terminate inwardly of the opposite ends of the core walls, as indicated at 45. The opposite ends 46 of the core 40 are open to permit of the reception of the ends of the cores 20 of the adjacent machines between the core walls 41, 42.

The core 40 is actuated or controlled by a reciprocating member 47 disposed between the walls 41 and 42 and projecting through the closed top of the core to provide a handle. Brackets 48 are secured to the upper and lower inner portions of each wall 41, 42

at the angle thereof. Connections are made between said reciprocating actuating member 47 and said brackets 48, through the links 49 pivoted at their outer ends to said brackets and at their inner ends to suitable lugs 50 carried by said actuating member.

When the actuating member 47 is moved from the position shown at Fig. 6 to the position shown at Fig. 5 the contiguous portions 51 of the links 49 and the lugs 50, constituting stops, engage each other to maintain said links in alignment and said walls in operative position, and held against inward movement towards each other by said actuating means.

The outer ends of the cooperating walls of the cores 20, received between the core walls 41 and 42, serve to maintain the outer ends of the core walls 41 and 42 in operative position against inward movement, the cores 20 being held in that position by the members 33. When the member 47 is actuated in the opposite or upward direction, after first actuating the machines 10 and 11 to collapse the core walls of the cores 20, the core walls 41 and 42 move inwardly towards each other, the upward movement of the member 47 being limited by the stops 52 carried thereby and adapted in the upper position of the actuating member 47, to engage the links 49. The core 40 can then be readily removed or lifted from the air space in the newly formed wall without damaging or injuring the latter.

In operation, the machines 10 and 11 are disposed in the desired relation according to the shape of the wall portion to be built. The core 40 is then actuated to expand the same, and is placed into position with the ends of the cores 20 extending into the ends of the same. The machines are then actuated to place the walls thereof into operative position, the core portions 20 with the actuating means of the core 40 serving to maintain the walls of the latter against inward movement.

The plastic building material or concrete is now introduced into the mold and suitably tamped. The operating members 25 are now actuated to move the walls 12 and 12^a away from each other and the walls 21, 21^a towards each other. The core 40 is then actuated to move the walls thereof towards each other, and the same can then be lifted out of position.

In my invention the core walls are actuated by means disposed between the same and connected thereto at the upper and lower portions thereof. By this arrangement the forces tending to expand or collapse the core are applied at points located within the confines of said core and arranged symmetrically relative thereto. Hence, the operation of the core is facilitated, and binding or other torsional stresses are obviated. Further, in said arrangement the actuating means serves to maintain the core walls against inward movement when the same are in operative position.

The core embodying my said invention is, therefore, readily actuated, and may be readily placed in position, and may be readily removed, when the wall portion has been completed, without danger of scraping over the newly molded soft construction and damaging the same.

Having thus described my said invention, what I claim and desire to secure by Letters Patent is:

1. The combination of a plurality of molding machines each having outer and intermediate walls movable laterally to and from operative position; the intermediate walls of said machines constituting cores for forming air spaces, means for actuating the walls of said machines, wall portions carried by said machines to form extensions thereof and connecting the outer walls of one machine with the corresponding walls of an adjacent machine to provide a continuous wall forming mold with said machines, with a core separate from and disposed between said connecting wall portions, and having movable walls, and means for actuating said core walls to permit of the same being placed in and removed from position between said connecting wall portions.

2. The combination of a plurality of molding machines each having outer and intermediate walls movable laterally to and from operative position, means for actuating the walls of each machine, and wall portions connecting the outer walls of one machine with the outer walls of an adjacent machine, with a core disposed between said connecting wall portions, and having movable walls engaging the adjacent ends of the intermediate walls of said machines; said intermediate walls serving to maintain the walls of said core against movement towards each other.

3. The combination of a plurality of molding machines each having outer and intermediate walls movable laterally to and from operative position, means for actuating the walls of each machine, and wall portions connecting the outer walls of one machine with the outer walls of an adjacent machine, with a core disposed between said connecting wall portions, and having movable walls engaging the adjacent ends of the intermediate walls of said machines, and means for actuating said core walls, and for maintaining the intermediate portions of said core walls against movement towards each other; the intermediate walls of said machines serving to maintain said core walls against relative movement at the ends thereof.

4. The combination of a plurality of

molding machines disposed in angular relation, and each having outer and intermediate walls movable to and from operative position, means for actuating the walls of each machine, and angularly arranged wall portions constituting extensions of said machines and connecting the outer walls of one machine with the corresponding walls of an adjacent machine, with a core separate from and disposed between said connecting wall portions, and having angular walls movable towards and away from each other, and means disposed between said core walls centrally thereof for actuating the same.

5. The combination of a plurality of molding machines disposed in angular relation, and each having outer and intermediate walls movable to and from operative position, means for actuating the walls of each machine, and angularly arranged wall portions connecting the outer walls of one machine with the corresponding walls of an adjacent machine, with a core disposed between said connecting wall portions, and having angular walls movable towards and away from each other, and receiving the adjacent ends of said intermediate walls between the same; said intermediate walls serving to maintain said angular core walls against movement towards each other at the ends thereof, and an actuating member disposed between said core walls at the angle thereof, and serving to brace the same in the operative position thereof.

6. An apparatus of the character specified comprising a core having walls movable towards and away from each other; said core being open at the opposite ends thereof for the reception of cooperating cores of wall forming machines, an actuating member disposed between said walls centrally thereof and projecting from the upper portion of said core, and movable connections between said member and said walls.

7. An apparatus of the character specified comprising a core having walls movable towards and away from each other; said core being open at the opposite ends thereof for the reception of other cores adapted to brace said walls at the ends thereof, an actuating member disposed between said walls centrally thereof and projecting from the upper portion of said core, and a plurality of connections between said member and each of said walls, and serving to brace the intermediate portions of said walls in the operative position thereof.

8. An apparatus of the character specified comprising a core having walls movable towards and away from each other; said core being open at the opposite ends thereof for the reception of other cores adapted to brace said walls at the ends thereof, a vertically reciprocable actuating member disposed between said walls centrally thereof and projecting from the upper portion of said core, and link connections between said actuating member and said walls.

9. An apparatus of the character specified comprising a core having angular walls movable towards and away from each other, a vertically reciprocable actuating member disposed between said walls centrally thereof and projecting above the same, links pivotally connected to the upper and lower portions of each side wall at the angle thereof and to said actuating member; said link connections including means serving to maintain the same in alignment in the operative position of said side walls whereby to brace said walls in said position, and stops carried by said actuating member to limit the core releasing movement thereof.

10. An apparatus of the character specified comprising a core having walls movable towards and away from each other and overlapping upper flange portions slidable over each other to provide a closed top; the opposite ends of said core being open to receive between said walls cooperating cores adapted to brace said walls at the ends thereof, a vertically reciprocable actuating member disposed between said walls centrally thereof and projecting through said closed top, and connections between said actuating member and said walls serving to brace the intermediate portions thereof in the operative position thereof.

11. An apparatus of the character specified comprising a core having angular wall portions movable towards and away from each other; the opposite ends of said core being open to receive between said walls cooperating cores serving to brace said walls at the ends thereof against inward movement, an actuating member disposed centrally between said walls and projecting above the same, and movable connections between said actuating member and said walls at the angles thereof serving to brace the intermediate portions thereof.

12. An apparatus of the character specified comprising a core having walls movable towards and away from each other, and open at the opposite ends, flange portions extending inwardly from said walls to provide top and bottom portions, the lower of said flange portions terminating inwardly of the ends of said walls to permit of the reception of cooperating cores within said open ends.

13. An apparatus of the character specified comprising a core having angular walls movable towards and away from each other; the opposite ends of said core being open to receive between said walls cooperating cores serving to brace said walls against inward movement, inwardly extending flange portions slidably overlapping each other to form a closed top, a vertically reciprocable actuating member disposed centrally be-

tween said walls and projecting through said top, links connecting the upper and lower portions of each wall at the angle thereof with said actuating member, means associated with said link connections for maintaining said links in alignment in the operative position of said walls whereby to brace the same, and stops carried by said actuating member and adapted to engage said links for limiting the core releasing movement of said actuating member.

Signed at the city of New York, in the county and State of New York, this 12th day of November, one thousand nine hundred and twenty-six.

M. CHARLES SCHWEINERT.