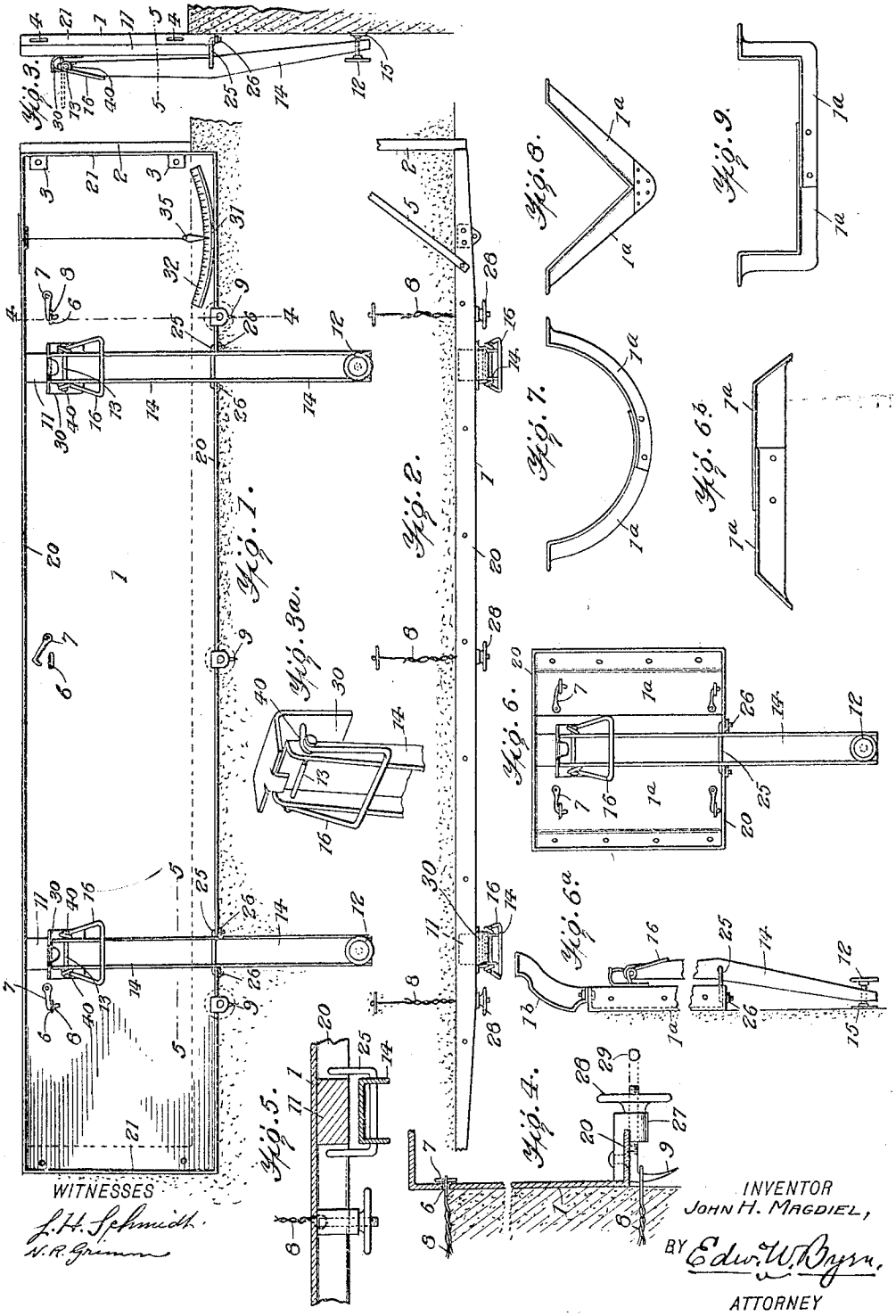
J. H. MAGDIEL.

ONE SIDE MOLD FOR CONCRETE WALLS.

APPLICATION FILED OCT. 19, 1908.

926,269. Patented June 29, 1909.



WITNESSES

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ONE-SIDE MOLD FOR CONCRETE WALLS.

No. 926,269. Specification of Letters Patent. Patented June 29, 1909.

Application filed October 19, 1908. Serial No. 458,351.

To all whom it may concern:

Be it known that I, JOHN H. MAGDIEL, a subject of the King of Norway, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in One-Side Molds for Concrete Walls, of which the following is a specification.

My invention is in the nature of a new apparatus for building concrete walls, especially against an old wall, or making walls which are already braced up by another wall or by the dirt or ground, as for instance, in a cellar where there is wanted a concrete wall and the excavators have left the dirt wall to build against, or for building against a retaining wall, river-bank wall, or any brick or lumber wall which it may be desired to have veneered with concrete.

The object of the invention is to make said walls at a minimum expense by dispensing with the use of lumber and plank centering or backing entirely, and also avoiding costly labor and at the same time to make as good or better walls by tamping the concrete in courses of about twelve inches thick.

The mold is easily and quickly operated by virtue of its simple and plain mechanical construction and is thoroughly practical as required under actual conditions of service.

My invention consists in the apparatus which I will now proceed to describe with reference to the accompanying drawings in which—

Figure 1 is a side view of the mold shown applied to a wall in process of construction, Fig. 2 is a top plan view of the same, Fig. 3 is an end view from the right-hand end, Fig. 3ª is a detail of the clamp locking devices, Fig. 4 is a vertical section through line 4—4 of Fig. 1, Fig. 5 is a section on line 5—5 of Figs. 1 and 3, Figs. 6, 6ª, 6ᵇ are respectively front, side and top views of a modification and Figs. 7 to 9 are top views of other shapes of such modifications.

In the drawing 1 is the main side plate of sheet metal having flanges 20 at top and bottom edges which flanges taper toward the ends. The vertical edges of the ends also have flanges 21. The flanges 20 have holes at certain intervals for attaching extra plates, corners, end-gates, etc. At one end of the plate 1 is the door 2 made of board equal in length to the width of the wall, which door is held in place by screws and small angle lugs 3 inserted through the slots 4, Fig. 3, in the end flanges 21 and the brace or strap 5, Fig. 2, extending from one of the holes in the top flange 20 of the main side plate 1. The side plate has longitudinal holes 6 near the upper edge about two inches from the flange 20 and beside each hole is pivoted a rotary adjustable gage hook 7. In vertical alinement beneath the holes 6 are corresponding downwardly projecting supporting hooks 9, Fig. 4, which are adjustably secured to the lower edge of the plate 1 and project below the edge of the flange 20. These hooks 9 in connection with the vertically alined holes 6 and gage hooks 7 have an important function in carrying out the method of constructing the wall, as will be more fully described hereafter; it being sufficient, for the present, to say, that the wall mold is clamped against the wall by adjustable clamp levers hereafter described, but is sustained as against gravity and outward thrust by the penetration of the hooks 9, see Fig. 4, into the projecting loops on the end of wire anchors 8 which are built into the concrete when it rises to the level of the holes 6, the loops of said anchors protruding through the holes 6 and being gaged in the extent of their protrusion by the hooks 7 which are entered into the ends of the loops and hold the anchors while being covered with concrete.

To the side of the plate 1 at two or more points are attached the clamp levers 14 which hold the mold to the wall. Behind each lever is a wooden bar 11 secured vertically to the plate 1 to stiffen the same. These levers are fulcrumed on stirrups 25, see Fig. 5, whose middle portion passes through the flanges of the channeled lever 14 and the ends of which stirrup are bent down in hook-shape and extended through holes in the lower marginal flange 20 of the main plate on opposite sides of the wooden bar 11. These down-turned ends are screw threaded and provided with nuts 26 for detachability. The levers 14 have on their lower ends bearing feet 15 Fig. 3, constructed as disks loose on the ends of handle screws 12. At the upper end each lever has a handle 16 formed as a loop with its two sides bent into a coil 40 in which is jour-

naled a bolt 13 passing through the side flanges of the lever, the inner ends of the handle being bent and extended toward a metal bearing plate 30 on the bar 11 against which they press. This plate, see Figs. 1, 3 and 3ª is curled over at the top so that it overhangs the upper end of lever 14 and prevents the latter from swinging out too far and also protects it against falling concrete. When the handle 16 is raised, as in dotted lines in Fig. 3, these inner ends of the handle leave the face of the plate 30 and the mold is loosened from the wall, but when the handle 16 is turned down, as in full lines in Fig. 3, the inner ends of the handle are thrust against the bearing plate 30 of bar 11 and the foot 15 below being against the wall, the thrust of the handle 16 acts against the bar 11 and plate 1 to hold the latter strongly up to its place to form the mold and resist the lateral stress of the newly deposited concrete.

It will be seen that the lever 14 is fulcrumed at the bottom of the mold to its lower flange 30 and extends from its lower bearing on the previously made wall to the upper part of the mold. It thus acts in connection with the handle 16 as a cantaliver to make a strong and substantial brace which can be applied and loosened in an instant. For adjusting the foot 15, to hold the mold true, this is conveniently effected by the handle screw 12.

To render the supporting hooks 9 adjustable they are formed with screw shanks, see Fig. 4, that pass through brackets 27 bolted to the flange 20 and are provided with a screw nut 28. The upper part of the screw flange is flattened as seen at 29 and this flat side by fitting up against the bottom of flange 20 prevents the screw shank from turning and causes its hook 9 to always point downward.

To adjust the wall mold plumb, or at any desired angle, see Fig. 1, I attach to the top flange 20 a plumb-bob 35, whose point below registers with a center point on a plate 31 fixed to the top of lower flange 20. A curved graduated bar 32, attached to the face of the mold, indicates any desired angle. The plumb-bob with its graduated bar 32 and center plate 31 are on the outside of the mold plate and inside the flanges of the same, where they are protected. The center plate 31 regulates the vertical plane of the plate and the graduated bar 32 permits inclined runs of wall to be built at a uniform angle. As these devices remain on the mold during the tamping any variation incident thereto may be immediately observed and remedied.

I will now describe the method of building the wall with my mold.

The lower part of the wall having been started with anchors 8 embedded in the same and with the loops at the ends of the anchors slightly projecting from the side of the wall, the side 1 of the mold is adjusted to the upper edge of the wall and the hooks 9 at the lower edge of the mold are entered into the projecting loops of the correspondingly spaced anchors. The handle 16 is then brought down to tighten the cantaliver between its wall foot 15 below and the mold plate above. The end gate being then in place, concrete is filled in the mold and tamped until the level of the holes 6 is reached. Then upper anchors 8, Fig. 4, are laid transversely across the concrete and the loops are extended through the holes 6. The gage hooks 7 are then turned over and their ends entered through the anchor loops to limit the protrusion of the loops, so that they shall have the same projection from the wall that the anchor loops below have. The balance of the concrete is then filled in on top of these last laid anchors and tamped. The hooks 7 are then turned out, and the mold is then loosened from the wall by releasing its clamps and is moved horizontally along the wall for a continuation of this layer. After this layer has been completed, the mold is adjusted to the top of this last laid layer and, as the cement will have sufficiently set to hold the anchors last laid, the hooks 9 of the mold are fitted into the projecting loops of said anchors, the cantalivers tightened as before described, and the next layer is then run. As the hooks 9 are immediately below the anchor holes 6, it will be seen that the hooks always fit in the anchor loops as the mold is shifted along the wall. It will be seen that in this method of wall construction the concrete is built in progressive layers and each layer embodies and holds the projecting supports for securing the mold for the next layer as against gravity and outward thrust, said anchors being arranged in vertical alinement and a uniform distance apart in the vertical series.

An important and distinctive feature of my mold and method of wall building is that I employ only a single horizontal row of loop shaped anchors of wire, which are cheaply constructed and conveniently incorporated in the wall. This is made possible by building this single horizontal row of anchors at a level in each layer of concrete slightly below the upper surface of each layer and above the middle line of each layer. This also does away with all projecting parts above the level of the mold, so that there is nothing to interfere with the movement of the conveyer buckets and no risk of having the mold knocked loose thereby. It will be seen, also, that in my invention the anchors 8 are formed with loops or eyes at one end and with the other end provided with a T or cross head which terminates and is embedded in the concrete of

the wall, and that such anchors are detached and not connected directly with the wall plate, but merely protrude through the holes 6 and are held by the gage hooks 7 and that the anchors are free to move longitudinally with the gage hooks and wall plate in or out, so that the plate being plumb, the loops of the anchors are always made to project the right distance from the wall to receive the penetrating points of the hooks 9 below and insure the carrying up of the wall in a true vertical plane.

As shown in Figs. 1 and 2 the mold is designed for running horizontal courses, but I may construct it in short upright sections as seen in Figs. 6, 6[a] and 6[b] for running up columns, pilasters, or vertical recesses in the wall. These upright molds may take various forms in a horizontal section, as seen in Figs. 6[b], 7, 8 and 9. In all cases the plates, however, will be made in two pieces, 1[a], 1[a] lapped and provided with holes to render them adjustable as to width. The perforated flanges of these plates adapt them to receive other detachable face plates, while at the top a hopper-shape cornice mold may be attached as seen at 1[b] in Fig. 6[a].

I claim:

1. A one-side wall mold, consisting of a single horizontally extended metal plate with strengthened edges, said plate having below its upper edge and above its middle line a horizontal series of equally spaced openings through it and said plate having projecting below its lower edge a corresponding series of downwardly extended penetrating points adapted to enter downwardly into terminal openings in wall anchors bedded in the wall, each penetrating point being arranged in vertical alinement with one of the horizontal series of holes in the upper part of the plate.

2. A one-side wall mold, consisting of a single horizontally extended metal plate with strengthened edges, said plate having below its upper edge and above its middle line a horizontal series of equally spaced openings through it and said plate having projecting below its lower edge a corresponding series of downwardly extending penetrating points adapted to enter downwardly into terminal openings in wall anchors bedded in the wall, each penetrating point being arranged in vertical alinement with one of the horizontal series of holes in the upper part of the plate, and a pivoted hook loosely connected to the side of the mold plate beside each opening to lock into and hold, adjust and gage the wall anchor.

3. A one-side wall mold, consisting of a single horizontally extended metal plate with strengthened edges, said plate having below its upper edge and above its middle line a horizontal series of equally spaced openings through it and said plate having projecting below its lower edge a corresponding series of downwardly extended penetrating points adapted to enter downwardly into terminal openings in wall anchors bedded in the wall, each penetrating point being arranged in vertical alinement with one of the horizontal series of holes in the upper part of the plate and a locking stop and gage loosely connected to the mold plate beside each of its horizontal series of holes, said stop and gage being arranged to engage a wall anchor whose opposite end is embedded and terminates in the wall and lock it against both movement in and out and determine the extent of its protrusion.

4. A one-side wall mold, consisting of a single horizontally extended metal plate with strengthened edges, said plate having below its upper edge and above its middle line a horizontal series of equally spaced openings through it and said plate having projecting below its lower edge a corresponding series of downwardly extended penetrating points adapted to enter downwardly into terminal openings in wall anchors bedded in the wall each penetrating point being arranged in vertical alinement with one of the horizontal series of holes in the upper part of the plate and vertical levers fulcrumed to the lower edge of the plate and projecting below it and provided at their lower ends with bearing feet for the wall and at their upper ends with locking devices for the plate.

5. A one-side wall mold consisting of a single horizontally extended plate, vertical levers fulcrumed to its lower edge and extending below the same for bearing contact with the previously laid wall, a clamping and locking device connecting the upper end of each lever to the plate and a restraining device for limiting the movement of each lever about its fulcrum in relation to the plate.

6. A wall mold consisting of a horizontally extended plate, means for supporting it on the wall, vertical levers fulcrumed to the lower edge of the plate and extending below the fulcrum and also to a point near the upper edge of the plate, a fulcrumed locking device with swinging handle at the upper end of the lever arranged to press against the wall plate, and an adjustable screw foot at the lower end of the lever.

7. A one-side wall mold, consisting, of a plate having flanged edges, a vertical lever fulcrumed to the lower edge of the same and extending above and below its fulcrum, a bearing foot at its lower end for the wall, a pressure locking device between the upper end and the plate, means for limiting the movement of the lever away from the plate and means for sustaining the plate on one side of the wall.

8. A wall mold consisting of a stiff side piece, clamp levers fulcrumed along the lower edge of said side piece and extending

below the same and provided with a bearing foot and a pressure locking device arranged between the upper end of said lever and the upper part of the mold side and a stop device fastened to the mold side and extending in front of each clamp lever to limit its movement.

9. A one side wall mold consisting of a stiff side piece, clamp levers fulcrumed along the lower edge of said side piece and extending below the same and provided with a bearing foot and a pressure locking device arranged between the upper end of said lever and the upper part of the mold side, and consisting of a loop handle having its ends coiled and extended, a fulcrum bolt extending through the coils and the clamp lever, and a bearing plate on the mold to receive the pressure strain of the handle ends.

10. A wall mold consisting of a horizontally extended plate, means for supporting it on the wall, vertical levers fulcrumed to the lower edge of the plate and extending below the fulcrum and also to a point near the upper edge of the plate, a fulcrumed locking device with swinging handle at the upper end of the lever arranged to press against the wall plate, an adjustable screw foot at the lower end of the lever and a plumbing device fixed to the exterior face of the plate.

11. A wall mold consisting of a side piece having a flange along its lower edge, a stirrup having its ends bent screw threaded and entered through holes in said flange, nuts on said ends below the flange for locking said ends to said flange and a clamp lever of channel iron having its flanges fulcrumed upon the middle loop of the stirrup and extending above and below the same and means for clamping the lever.

12. A one side mold having, near the top, openings through its side to allow the protrusion of anchor loops therethrough and pivoted gaging and locking hooks arranged near said holes to engage and lock in proper position the protruding loop of the anchors while being set, and supporting devices for the lower edge of the mold consisting of anchor engaging devices arranged in the vertical line of the anchor openings and means for adjusting the anchor engaging devices to or from the wall.

13. A wall mold having near the top openings through its side to allow the protrusion of anchors therethrough and adjustable gaging and locking devices arranged near said holes to engage and lock in proper position the protruding anchors while being set, and supporting devices for the lower edge of the mold consisting of anchor engaging devices arranged in the vertical line of the anchor openings and means for adjusting the anchor engaging devices to or from the wall, consisting of a hook with screw threaded shank having a flat side, a bracket fastened to the mold and supporting said hook and a screw nut for said shank.

14. A wall mold having near the top openings through its side to allow the protrusion of anchors therethrough and adjustable gaging and locking devices arranged near said holes to engage and lock in proper position the protruding anchors while being set, and supporting devices for the lower edge of the mold consisting of anchor engaging devices arranged in the vertical line of the anchor openings and means for adjusting the anchor engaging devices to or from the wall, consisting of a hook with screw threaded shank having a flat side, a bracket fastened to the mold and supporting said hook and a screw nut for said shank, the mold side being formed with a right angular flange at its lower edge riveted to said bracket and lying flat against the flat side of the shank of the hook.

15. A wall mold consisting of a plate having right angular flanges at its top and bottom edges, a plumb-bob attached to the exterior side of the plate within the plane of the flanges and a centering plate 31 and curved and graduated scale 32 also applied to the exterior of the plate within its flanges to indicate variations in the plane of the plate.

16. A one-side wall mold, consisting of a single sheet metal side plate with a horizontal row of openings through the same near its upper edge, a vertical clamping lever fulcrumed near the lower edge of said plate and extending above and below the same, means for clamping the same, anchors having loops at one end and the other end adapted to terminate in and be embedded in the wall, gage devices attached to the plate and adapted to pass through the protruding loops of the anchors and fix them a definite distance from the wall and supports for the mold plate adapted to enter the loops of the anchors.

17. A wall mold consisting of a stiff side piece, clamp levers fulcrumed along the lower edge of said side piece and extending below the same and provided with a bearing foot and a pressure locking device arranged between the upper end of said lever and the upper part of the mold side, and a plate for the pressure locking device to operate against said plate being bent over to act as a restraining stop for the upper end of the lever and form a cover for the same.

18. A one-side wall mold, consisting of a single side piece having openings through it near its upper edge, wall anchors formed at their outer ends with eyes arranged to protrude through the openings in the side piece, a penetrating gage connected to the side

piece and arranged to pass through the eyes of the wall anchors and cause them to move both in and out with the side piece of the mold to determine their position in the wall.

19. A one-side wall mold, consisting of a single side piece having a horizontal set of openings through it near its upper edge, wall anchors formed at their outer ends with eyes arranged to protrude through the openings in the side piece, a penetrating gage connected to the side piece and arranged to pass through the eyes of the wall anchors and cause them to move both in and out with the side piece of the mold to determine their position in the wall and a plumbing device fixed to the side piece to determine its plane.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. MAGDIEL.

Witnesses:

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