No. 812,365. PATENTED FEB. 13, 1906.

J. L. RICHARDSON.

MOLD FOR CONCRETE WALLS.

APPLICATION FILED APR. 19, 1905.

2 SHEETS—SHEET 1.

Fig. 1

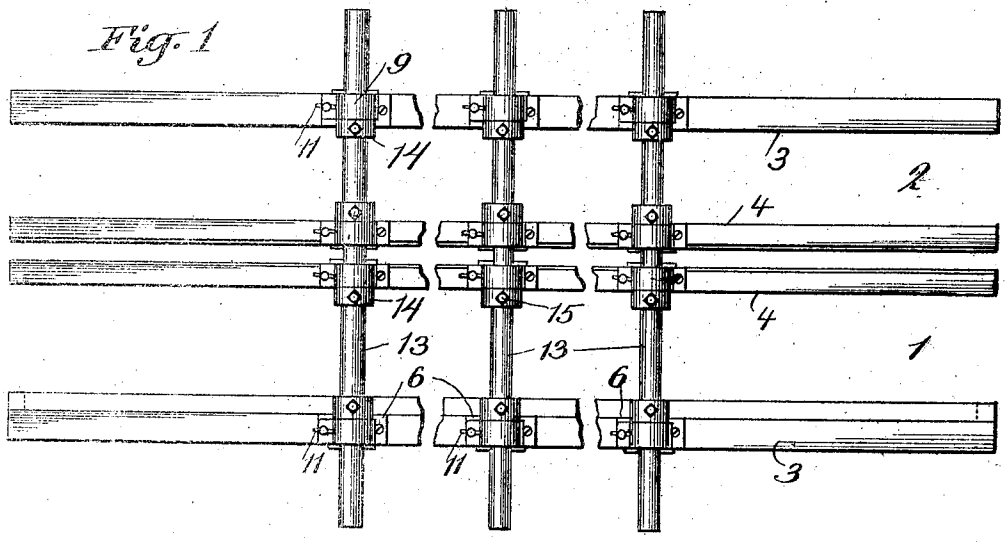


Fig. 2

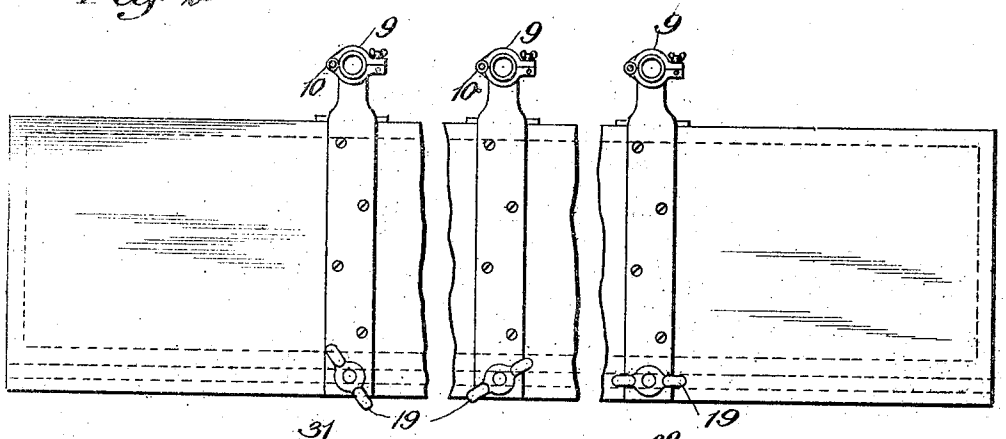


Fig. 7

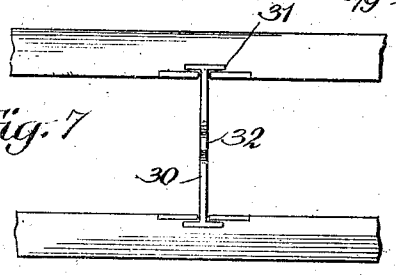
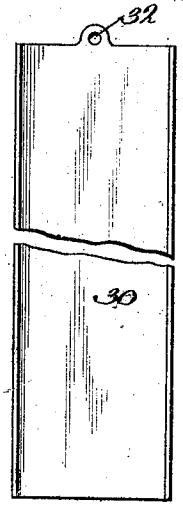


Fig. 8.



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BY Charles Jones

His ATTORNEY

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MOLD FOR CONCRETE WALLS.

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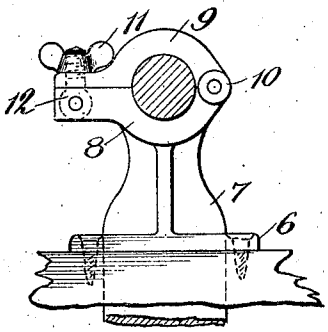
2 SHEETS—SHEET 2.

Fig. 5,



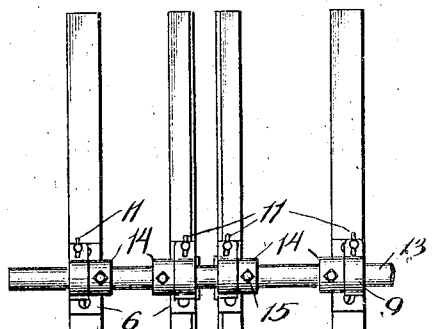


Fig. 3,

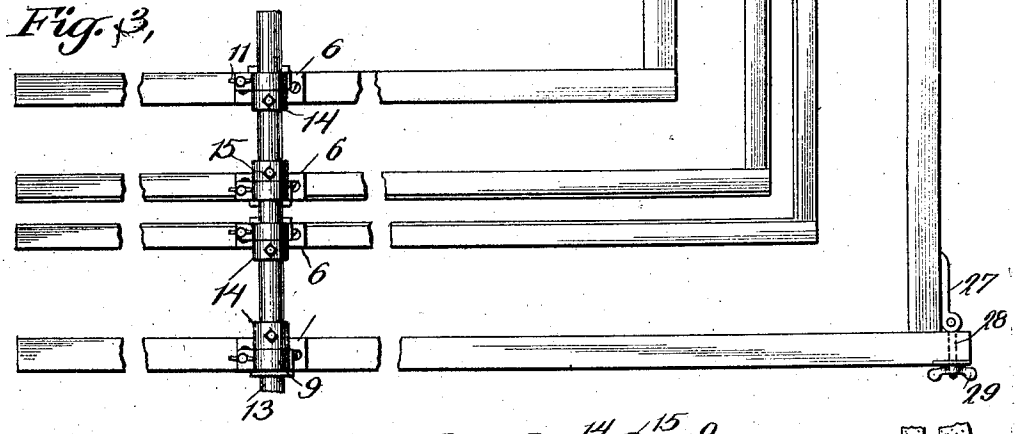


Fig. 4,

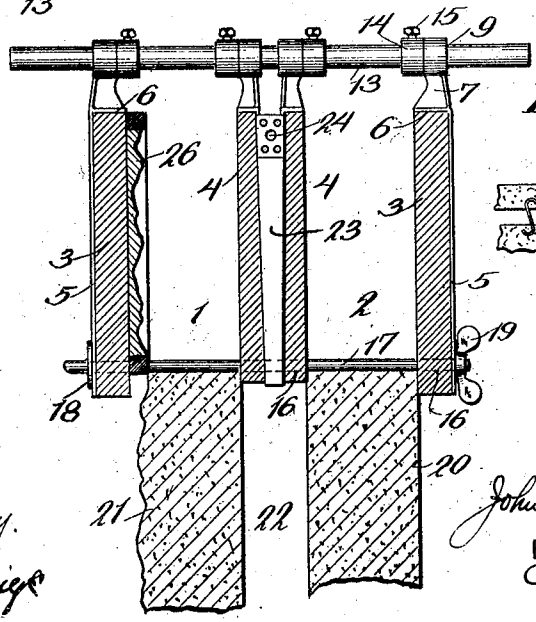
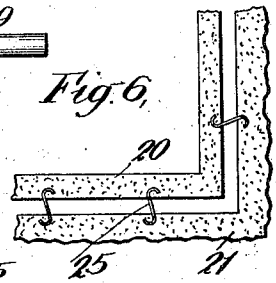


Fig. 6,



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UNITED STATES PATENT OFFICE.

JOHN L. RICHARDSON, OF BLOOMSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO FRED J. RICHARD, OF BLOOMSBURG, PENNSYLVANIA.

MOLD FOR CONCRETE WALLS.

No. 812,365. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed April 19, 1905. Serial No. 256,506.

To all whom it may concern:

Be it known that I, JOHN L. RICHARDSON, a citizen of the United States, residing at Bloomsburg, in the State of Pennsylvania, have invented certain new and useful Improvements in Molds for Concrete Walls, of which the following is a specification.

The present invention relates to a mold for the construction of concrete walls, abutments, piers, buttresses, and like structures, the object being to produce a comparatively simple mold wherein the parts may be readily assembled and securely held in position during the charging and tamping of the concrete and in which the manual operations necessary to set up the mold as the work progresses may be expedited.

In carrying out my invention I construct the mold of a series of plates each of which is provided with means by which it is suspended on a coupling-rod so as to be adjustable longitudinally of said rod, thus adapting the mold to walls of variable thickness. When building a wall with an air-space, I provide additional plates which constitute a core, said plates being similar to the outside plates of the mold and similarly adjustable on the coupling-rod. In connection with the core-plates I provide a spreader to insure their maintenance at a uniform distance apart throughout their height.

The above and other features of the invention will be understood by reference to the accompanying drawings, in which—

Figure 1 is a top view of my improved mold designed for the construction of a straight wall; Fig. 2, a side view thereof; Fig. 3, a top view of a form adapted to the construction of corners; Fig. 4, a transverse vertical sectional view of Fig. 1; Fig. 5, a detail view of the means for attaching the plates to the coupling-rod; Fig. 6, a top view of a section of a hollow wall, showing retaining-ties; Fig. 7, a top view of a plate which may be used to connect the mold-plates, and Fig. 8 a side view thereof.

Similar reference-numerals indicate similar parts in the several views.

The invention is designed primarily for the building of a hollow wall, and I have shown a complete mold for that purpose, although it will be obvious that several features of the invention are applicable to the building of a solid wall.

For the building of a hollow wall—that is, one having an air-space between the wall-sections—I construct the mold of outer and inner sections 1 and 2, respectively, each section comprising outer form-plates 3 3 and inner form-plates 4 4. These plates are preferably of well-seasoned wood suitable for the purpose, and to their outer sides are bolted hangers comprising metal plates 5, having flanges 6, which rest upon the upper edges of said plates. The upper end of each hanger is formed with a web 7, and integral therewith or secured thereto by suitable means, if formed separately, is the lower member 8 of a clamp. The upper member 9 of said clamp is pivoted at 10 to the lower member, the two parts being securely held together by a thumb-nut 11, engaging a screw-bolt 12, secured to the lower member 8 and passing through an opening in the member 9. The members of the clamp are formed with suitable seats adapted to receive and retain a coupling-rod 13 when the clamps of the several plates are in alinement as shown in Figs. 1, 3, and 4. Instead of the particular form of clamp shown any other adapted to the purpose may be used. Each coupling-rod 13 carries a series of rings or collars 14, adjustable thereon by means of set-screws 15, said collars serving as gages in setting the plates of the mold. Near their lower ends the plates constituting the two sections of the mold are provided with transverse openings 16, through which a tie-rod 17 is passed. This rod at one end is provided with a flange 18, adapted to bear against the outside plate 3 of one of the mold-sections, and at the other end with a nut 19. The openings 16 are located sufficiently far above the lower edges of the plates 3 and 4 to permit said plates to bear for a short distance against the upper sides of the inner and outer wall-sections 20 and 21, respectively, of the preceding course of concrete, as indicated in Fig. 4, the tie-rod 17 resting upon the top of said course.

The two inside plates 4 4 are adapted to form the air-space 22 between the sections 20 and 21 of the wall, and in order to permit their ready withdrawal when the mold is to be removed after the concrete has set sufficiently their opposing faces are inclined so as to converge toward each other downwardly, and into this space is inserted a spreader 23, having its sides correspondingly inclined—

that is, downwardly converging—so as to be wedged tightly between the plates 4 4 to maintain them throughout their height a uniform distance apart. The spreader 23 is also provided with a transverse opening to receive the tie-rod 17. Said spreader is also provided near its upper end with an eye 24, adapted to receive a suitable tool by which it may be withdrawn. At suitable intervals, preferably about eighteen inches, are placed wall-retaining ties 25, having their ends embedded in the two sections of the wall. These ties may be of any desired form for the purpose, the lower edge of the two inside plates being cut out at the points where they meet said ties to permit said plates to be lowered to their proper position, the plates thus resting upon the ties 25.

A die or pattern plate 26 may be secured to the inner face of plate 3 of the outer section of the mold, so as to give the finished wall any desired ornamental appearance or imitation of dressed stone. This plate 26 may be made of sheet metal stamped with any desired design and secured to its plate 3 by any suitable means, so as to form a permanent structure therewith, or it may be removably attached, as may be desired.

In Fig. 3 I have shown the sections of the mold assembled for the laying of a corner course, the meeting ends of the plates constituting the two corner-sections being secured together by any suitable form of joint or temporarily connected by means of locking devices, such as a plate 27, bolted to the outer plate 3 of the outer mold-section, said plate having pivoted thereto a screw-bolt 28, adapted to pass through an opening in the abutting plate and engaged by a nut 29.

In practice the plates of the mold-sections may be made of any desired length and width, usually about nine feet by thirteen inches, and when, for example, it is desired to construct a dwelling the sections of the mold may extend throughout the entire course of the wall, or each course may be laid in sections, as may be desired. In laying a course of any desired length the plates of the mold-sections are properly assembled by bringing the clamps of the several plates into alinement. The rods 13 are then secured to their seats in the clamps, the collars 14 having been previously adjusted for spacing the mold-plates a suitable distance apart in accordance with the desired thickness of the wall-sections. Thus the two wall-sections may be made of the same or variable thicknesses. The inner plates 4 4 constitute a core by which the air-space is formed, said plates being held a uniform distance apart by the spreader 23, as before described. The tie-rod 17 is then passed through the alined openings 16 and the nut 19 tightened, so as to prevent spreading of the mold-sections. The mold is then filled with concrete prepared in any well-known or usual manner and the composition allowed to set sufficiently before the mold is dismantled. The removal of the mold is effected by withdrawing the tie-rod 17 and spreader 23, thus permitting the inner plates 4 4 to be collapsed or moved toward each other upon loosening their corresponding collars 14 and clamps. The entire mold may then be raised by means of the coupling-rods 13 and again assembled for the laying of the next course, in which case the mold will be seated on the preceding course, as shown in Fig. 4, with the inside plates 4 4 resting on the retaining-ties 25 and the tie-rod 17 resting on the top edge of said course. The nuts 11, 15, and 19 are then tightened, so as to secure the mold-sections in position, when the charging and tamping of the concrete is proceeded with as before. A course may be completed in this way by a continuous mold, or a course may be built in sections of desired lengths, the mold being permitted to remain in place until the concrete has sufficiently set. The openings made in the wall of the exposed portions of the rods 17 may be filled or covered subsequent to the removal of the mold and the face of the wall pointed off in any desired manner.

Instead of the tie-rods 17 I may employ an I or a double T plate 30, (shown in Figs. 7 and 8,) said plate being adapted to be slipped into vertical grooves 31, cut into the sides of the plates 3 and 4. The plate 30 may be provided with an eye or lug 32, by which it may be removed by a suitable tool. I prefer, however, to use the rods 17, as they are adapted to walls of variable thicknesses, whereas a standard plate 30 can be used only for a single thickness of wall.

The mold above described is extremely simple, but efficient for its intended purposes. It is capable of ready and quick assemblage and dismantling. Moreover, a set of mold-sections is adapted to the building of walls of various thicknesses without special or additional appliances, and the wall may be tapered as it progresses by simply shifting the plates in position on the coupling-rods 13. The air-space 22 formed by the inside plates 4 4 may extend throughout the wall or only partly, as may be desired, depending upon the length of said plates. In the latter case the wall will be formed with webs extending between the sections 20 and 21. If a wall solid throughout is to be built, I simply remove the inside plates 4 4 and their corresponding collars 14, retaining all the other features of the mold.

While I have shown a mold in two sections, I do not desire to limit myself thereto, as it is obvious that any desired number of sections may be assembled on the coupling-rods 13.

What I claim, and desire to secure by Letters Patent, is—

1. A mold for the purpose described comprising form-plates, a rod extending trans-

versely above said plates, and means for connecting and adjusting said plates independently of each other on said rod.

2. A mold for the purpose described comprising form-plates, a rod extending transversely above said plates, a clamp adapted to engage said rod carried by each of said plates whereby said plates are capable of independent connection with and adjustment on said rod.

3. A mold for the purpose described comprising two sets of plates assembled to form wall-sections separated by an air-space, a rod extending transversely above said plates, a clamp adapted to engage said rod carried by each of said plates whereby said plates are capable of independent connection with and adjustment on said rod.

4. A mold for the purpose described comprising form-plates, a rod extending transversely above said plates, a gage for each plate adjustably mounted on said rods, a clamp adapted to engage said rod carried by each of said plates whereby said plates may be connected to and adjusted on said rod independently of each other.

5. A mold for the purpose described comprising two sets of plates assembled to form wall-sections separated by an air-space the inner plates of said sections having their opposing faces inclined so as to converge toward each other downwardly, a correspondingly-shaped spreader adapted to be inserted into the space between said inner plates, a rod extending transversely above said plates, a clamp adapted to engage said rod carried by each of said plates whereby said plates may be connected to and adjusted on said rod independently of each other.

6. A mold for the purpose described comprising form-plates a rod extending transversely above said plates, means for connecting and adjusting said plates independently of each other on said rod, and a tie-rod passing through said plates to clamp them to the preceding course, said tie-rod being so disposed as to rest upon the top of said course when the parts of the mold are assembled.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN L. RICHARDSON.

Witnesses:
GRANT HERRING,
M. MILLIKEN.