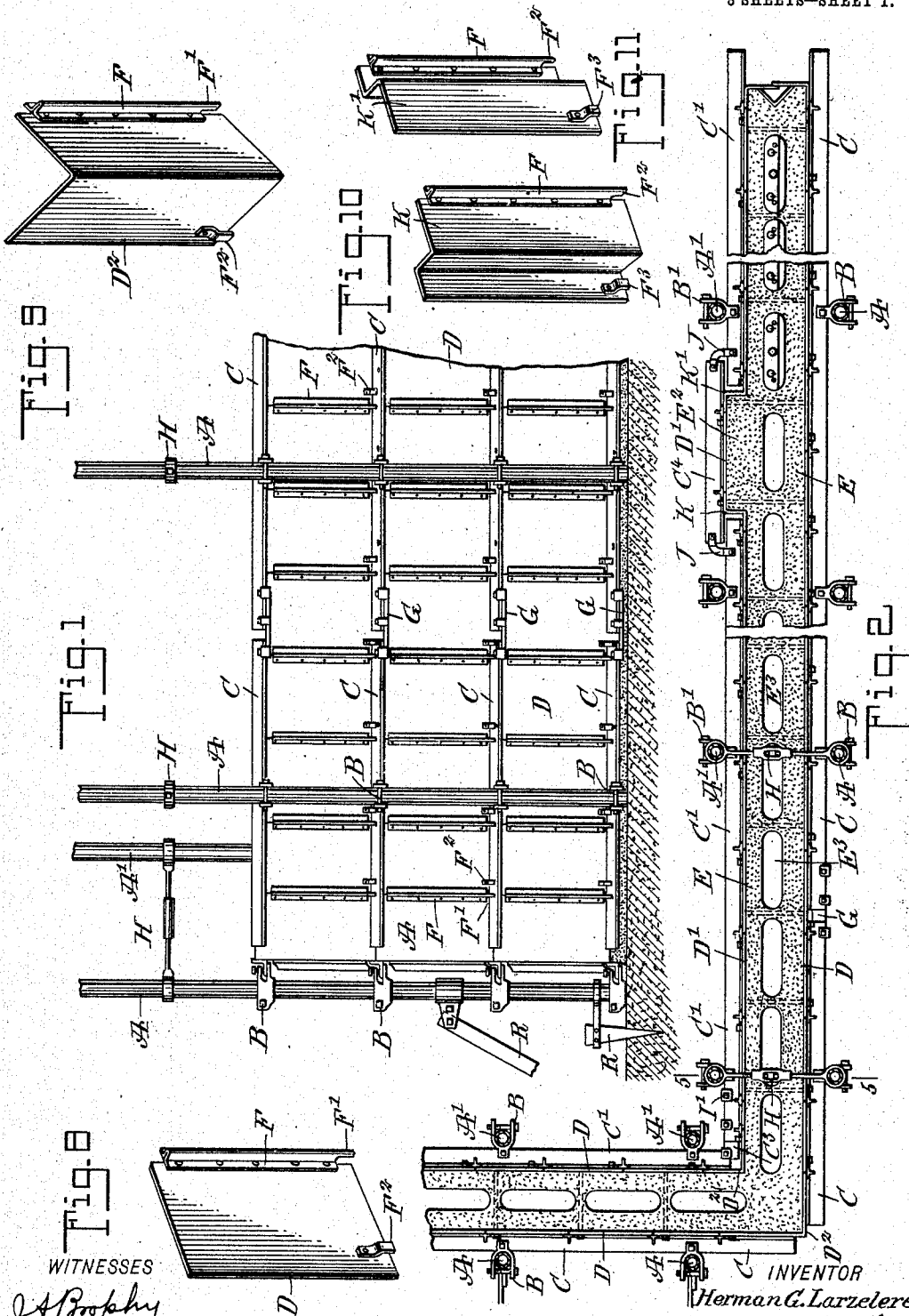


H. G. LARZELERE.
METALLIC MOLD.
APPLICATION FILED FEB. 11, 1908.

946,233.

Patented Jan. 11, 1910.

3 SHEETS—SHEET 1.



WITNESSES

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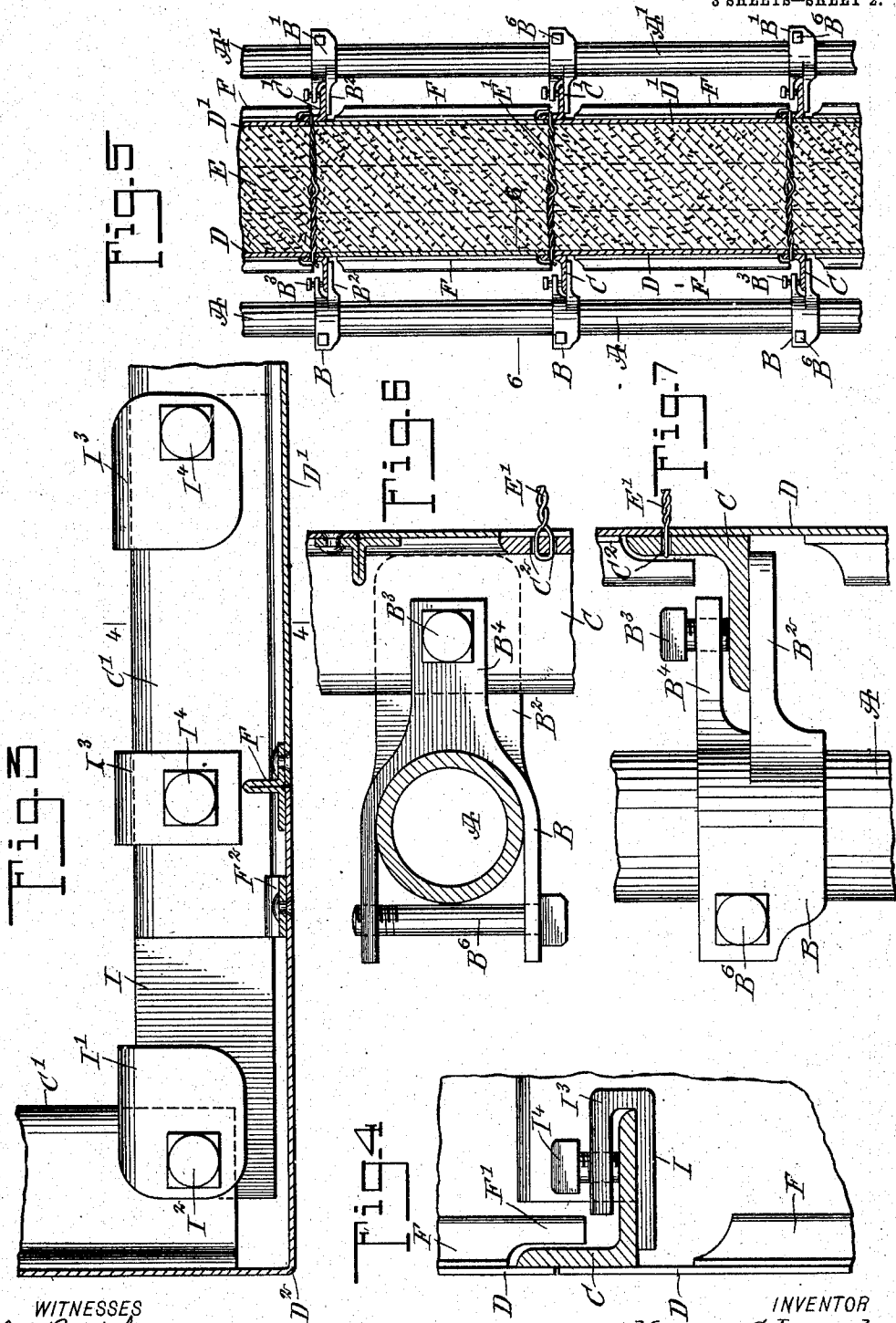
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

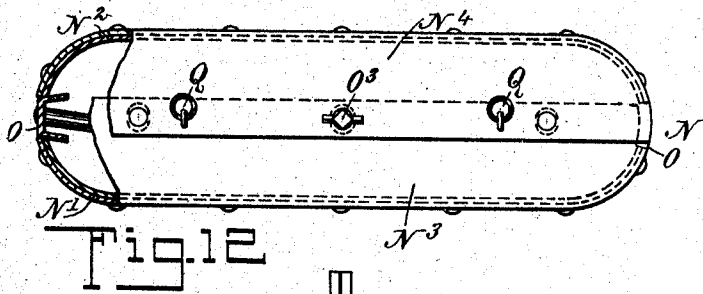


Fig. 12

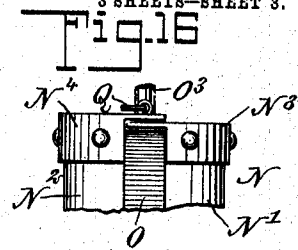


Fig. 16

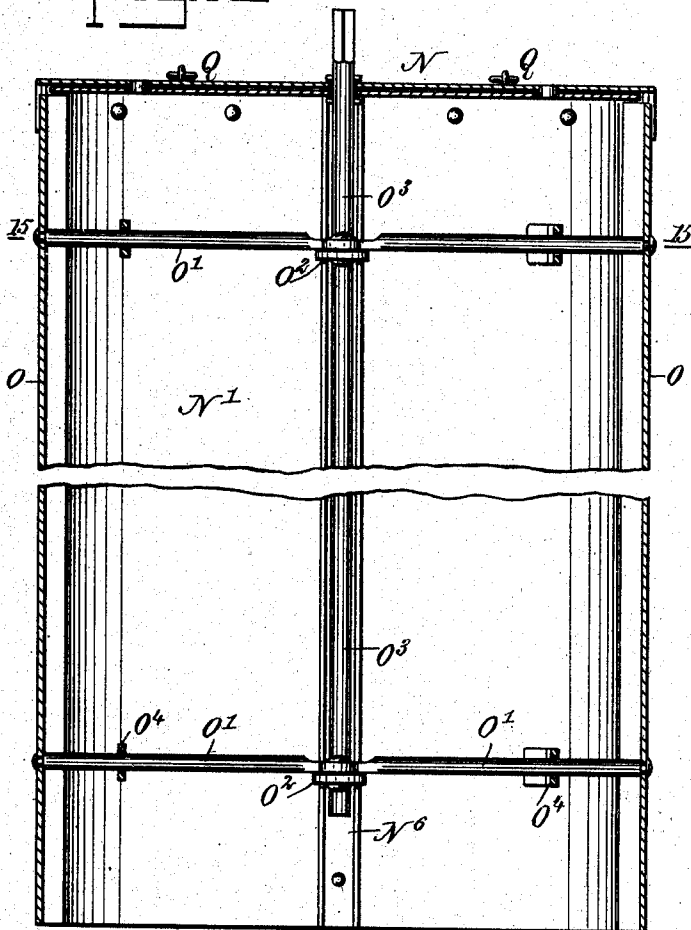


Fig. 13

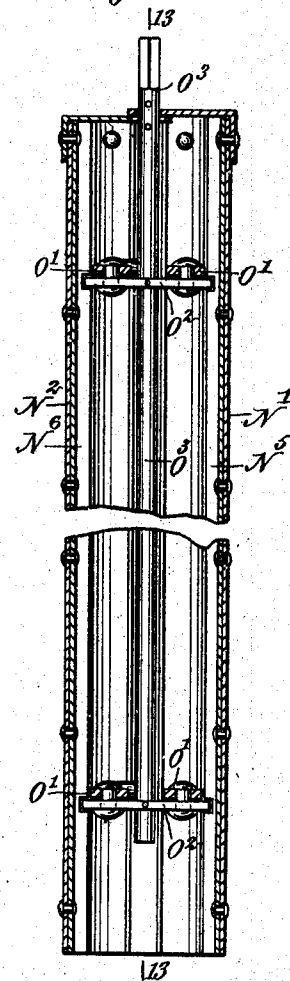


Fig. 14

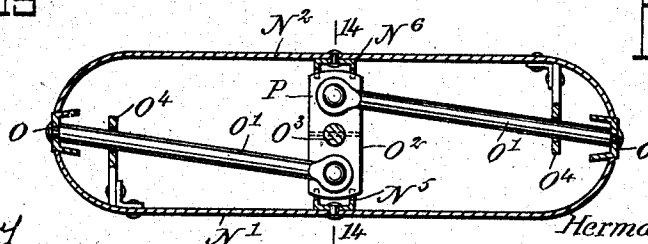


Fig. 15

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UNITED STATES PATENT OFFICE.

HERMAN GRANT LARZELERE, OF NEW YORK, N. Y.

METALLIC MOLD.

946,233.

Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed February 11, 1908. Serial No. 415,301.

To all whom it may concern:

Be it known that I, HERMAN GRANT LARZELERE, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Metallic Mold, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved metallic mold for use in building houses and other structures of concrete or other cementitious and like plastic material, the mold being made in sections, capable of being readily set up and removably connected with each other, to allow the use of the mold for a great variety of work.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement; Fig. 2 is a plan view of the same, the posts being shown in section; Fig. 3 is a sectional plan view of the inner wall of the mold at the corner; Fig. 4 is a cross section of the same, on the line 4—4 of Fig. 3; Fig. 5 is an enlarged cross section of the improvement, on the line 5—5 of Fig. 2; Fig. 6 is an enlarged sectional plan view of the same, on the line 6—6 of Fig. 5; Fig. 7 is a side elevation of the same partly in section; Fig. 8 is a perspective view of one of the main plates; Fig. 9 is a like view of one of the outside corner plates; Fig. 10 is a perspective view of one of the bay side plates; Fig. 11 is a similar view of another bay side plate; Fig. 12 is an enlarged plan view of one of the cores, parts being in section; Fig. 13 is a sectional elevation of the same, on the line 13—13 of Fig. 14; Fig. 14 is a cross section of the same, on the line 14—14 of Fig. 15; Fig. 15 is a sectional plan view of the same, on the line 15—15 of Fig. 13, and Fig. 16 is an edge view of the upper end of the core.

Pairs of posts A, A' are set on the ground and the pairs are spaced suitable distances apart and support by means of clamps B, B' the longitudinal rails C, C' adapted to carry sheet metal plates D, D', between which the

concrete or other plastic material E is placed, to form a wall or like structure. Each of the rails C, C' is preferably in the form of an angle iron, the horizontal member of which rests on an arm B² of the corresponding clamp B or B', and the said horizontal member is secured in place by a set screw B³, screwing in a top member B⁴ of the clamp B, as plainly indicated in Figs. 5, 6 and 7. Each clamp B or B' can be moved up or down on the post A and then secured in place by its clamping bolt B⁵, so as to hold the clamp in the desired position on the post A or A'. The sheet metal plates D, D' are each provided at one side and on the outer face thereof with a joint covering bar F, arranged to overlap the side of an adjacent plate, as plainly indicated in the drawings, and the lower end of the joint covering bar F terminates in a lug F', adapted to engage the vertical member of the rail C or C', with a view to support the plate D or D' under the corresponding rail in conjunction with another lug F², secured to the plate D or D' at the lower end thereof, and near the free side thereof, as plainly indicated in Fig. 8.

Now by the arrangement described a row of plates D or D' can be set, one alongside the other on a rail C or C'; the lower edges of the plates D or D' reaching about midway of the inner face of the vertical member of the rail C or C', so that the several rows of plates D, D' form one continuous surface, between which the concrete or like material E is placed, the horizontal joints between the plates being covered by the rail C or C' while the vertical joints are covered by the covering bars F.

In order to reinforce the concrete material E, reinforcing strands E' of twisted wire or other material are employed and arranged transversely (see Figs. 5, 6 and 7), the ends of the strands being passed through apertures C² formed in the vertical members of the rail C or C', to securely hold the reinforcing members E' in position, while the concrete or other plastic material is filled in between the outer and inner sets of plates D and D'. When the wall is finished, the strands E' can be readily cut at the apertures C², to disconnect the strands from the rails C and C'.

In order to permit of conveniently handling the rails the latter are made in short lengths, connected with each other at their

adjacent ends by plates G, clamped or otherwise fastened to the horizontal members of the rails. As indicated in Fig. 1, the joint of the short rail length is preferably
5 about midway between the adjacent posts A—A or A'—A'.

In order to give the desired stability to the pairs of posts A, A', the same are preferably connected with each other above the
10 uppermost rail C or C' by links H, each made in sections, having a turn-buckle, to permit of conveniently lengthening or shortening the links, according to the thickness of the wall to be formed by the mold. At a
15 corner of the building corner plates D² are used (see Figs. 2 and 9) made angular both for the inside and outside corners, each plate being however provided at one side with a joint covering bar F, having a lug F' at its
20 lower end, the other side having a lug F², to permit of engaging the lugs with the adjacent rails C, C or C', C', at the corner of the mold.

In order to connect the inner rails C', C', at the corner of the mold (see Figs. 3 and 4), use is made of a connecting bar I', having at one end an upturned clamping member I' provided with a set screw I², for securing this end of the bar I to the horizontal member of one rail C', the other end
30 of the bar I being secured by upturned members I³ and set screws I⁴ to the horizontal member of the adjacent corner rail C.

In order to form a bay E² in the wall the following arrangement is made, special reference being had to Fig. 2: The adjacent rails C' terminate a short distance from the intended bay, and to the ends of these two rails C' is secured an auxiliary rail C⁴,
40 by suitable clamps J, and this auxiliary rail C⁴ supports angular corner pieces K, K' (see Figs. 10 and 11) by the use of the lugs F², F³, the same as on the main plates D, D', the lugs F² being formed on the lower ends
45 of the joint covering bars F. Between the corner plates K, K' I place one, two or more main plates D' according to the length of the bay, as will be readily understood by reference to Fig. 2.

From the foregoing it will be seen that by the arrangement described the mold can be readily built up to form walls of any desired thickness, length and height in a very convenient and simple manner, it being understood that if the lower portion of the wall has set and hardened then the corresponding clamps B, B', rails C, C' and plates D, D' can be removed and used as a continuation of the upper portion of the
60 mold, so that it requires comparatively a small number of individual parts to form a wall of any desired height and length. By making the parts of metal they readily maintain their shape and consequently can be
65 used over and over again without danger

of being broken or otherwise injured and rendered unfit for use.

In order to provide the desired air spaces E³ in the concrete wall, use is made of collapsible cores N placed in position between the mold walls, as indicated at the right of Fig. 2, the said cores being collapsible to permit their ready removal after the wall has been built up to within a short distance of the upper end of a core. The detail construction of the core N is as follows: The body of the core N is formed of two main members N', N², curved at the ends toward each other and provided with overlapping tops N³, N⁴. Between the ends of the main members N', N² extend retractable bars O connected by links O' with the ends of arms O², secured at their middle on a vertical shaft O³, journaled in suitable bearings P, carried loosely in notches formed in channel irons N⁵, N⁶, riveted to the inside of the main members N', N². The upper end of the shaft O³ extends through openings in the tops N³, N⁴, and the upper outer terminal of the shaft O³ is made polygonal, to permit the convenient application of a crank wrench or other tool, to turn the shaft O³ and to cause the arm O² and links O' to move the bars O, O inward and out of position between the ends of the main members N', N², with a view to permit the latter to move toward each other. The core is thus collapsed and can be readily drawn out of the concrete E, use being preferably made for this purpose of a suitable hoisting device connected with rings Q attached to the top N⁴. The links O' are guided in suitable guideways O⁴ attached to the inside of the main members N', N², as plainly shown in Figs. 13 and 15.

In using the mold, the pairs of posts A, A' are set up on the ground, and, if desired, anchored by suitable devices R, as indicated at the left in Fig. 1. Clamps B, B' are then attached to the posts at the lower ends thereof, to rest on the ground and then the lowermost rails C, C' are secured to the clamps B, B'. Another set of rails C, C' higher up is then secured by clamps B, B' to the posts, after which the main plates D, D' are placed in position to form a space, into which the cores are set and which space is then filled with the plastic material. After the plastic material has been filled in and properly tamped to about the lengths of the first row of main plates D, D', then a second row of plates D, D' is set up, and the above-described operation is repeated. In the meantime the plastic material in the lower courses may have set sufficiently to allow removal of the lower rows of plates D, D', their supporting rails C, C' and clamps B, B' for re-use above, as before explained. When the wall material has reached about the height of a

core N, the latter is first collapsed and then raised clear of the wall, after which it is expanded by turning the shaft O³ in the reverse direction and to again pass the joint bars O between the ends of the main members N', N². The core is then again in position for re-use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A mold for making concrete constructions, comprising spaced posts, longitudinal rails, means for removably supporting the said rails from the said posts, metallic side plates arranged one alongside the other and one set on top of the other, to form a side wall member, the upper and lower ends of the plates terminating approximately at the middle of the said rails, for the latter to cover the horizontal joints, means for covering the vertical joints of the plates, and lugs carried by the plates and projecting below the lower ends thereof and engaging the rail to hold the plates on the rails.

2. A mold for making concrete constructions, comprising spaced posts, angular longitudinal rails, means for removably supporting said rails from the said posts, metallic side plates arranged one alongside the other and one set on top of the other, to form a side wall member, the upper and lower ends of the plates terminating approximately at the middle of the said rails for the latter to cover the horizontal joints, a member carried by each plate for covering the vertical joints of the plates and lugs on the lower ends of the said plates, said lugs projecting below the plates, and adapted to engage the vertical members of said rails for holding the plates to the rails.

3. A mold for making concrete constructions, comprising spaced posts, longitudinal rails, means for removably supporting the said rails from the said posts, metallic side plates arranged one alongside the other and one set on top of the other to form a side wall member, the upper and lower ends of the plates terminating approximately at the middle of the said rails for the latter to cover the horizontal joints, a joint cover-bar secured to each plate at one side thereof and projecting beyond the same, to cover the side joint between adjacent plates, the lower end of the said covering bar terminating in a lug for engagement with a rail to support the side plates on the rail, and a lug spaced from the said bar lug and secured to the lower end of the side plate for engaging the rail.

4. A mold for making concrete constructions, comprising spaced posts, longitudinal rails, means for removably supporting the said rails from the said posts, metallic side plates arranged one alongside the other and one set on top of the other to form a side

wall member, the upper and lower ends of the plates terminating approximately at the middle of the said rails for the latter to cover the horizontal joints, means carried by the said side plates for engaging the said rails, to hold the plates to the rails, and a bar secured to one edge of each plate for connecting the ends of adjacent rails with each other between adjacent posts, the bars extending approximately the length of the plates.

5. A mold formed of spaced walls between which the plastic material is placed, each wall being formed of plates arranged in longitudinal rows, longitudinal rails removably supporting the rows of plates, posts removably supporting the said rails, an auxiliary longitudinal bay rail, means for removably supporting the bay rail from adjacent main rails, and angular bay side plates removably supported on the said auxiliary bay rail.

6. A mold formed of spaced walls between which the plastic material is placed, each wall being formed of plates arranged in longitudinal rows, longitudinal rails removably supporting the rows of plates, posts removably supporting the said rails, an auxiliary longitudinal bay rail, means for removably supporting the bay rail from adjacent main rails, a bay side plate supported on the said bay rail, and angular bay side plates supported from the said auxiliary bay rail.

7. A mold having a supporting rail of angle iron and a side plate provided at one side with a joint covering plate having a lug at its lower end, the lug being adapted to engage the vertical member of the said rail to support the side plate on the said rail.

8. A mold having a supporting rail of angle iron and a side plate provided at one side with a joint covering plate having a lug at its lower end, the plate having at its lower end adjacent to the side opposite that carrying the joint covering plate, a lug, the lugs being adapted to engage the vertical member of the said rail to support the side plate on the said rail, the lower edge of the side plate engaging the inner face of the said vertical member approximately at the middle thereof.

9. A mold having a collapsible core, comprising two main sections provided with overlapping tops and with vertical members secured to their inner faces, side joint bars fitting between the members at the sides thereof, links connected with the said joint bars, an arm connected at its ends with the said links, bearings loosely engaging the members on the inner faces of the sections, and a shaft mounted to turn in the said bearings and on which the said arm is secured at its middle.

10. A mold comprising posts, clamps secured to the posts, angular longitudinal rails

having their horizontal members detachably secured to the clamps, and metallic side plates resting upon each other and against one side of the vertical members of the rails, 5 said plates being provided with lugs projecting below the lower ends of the plates and engaging the said vertical members of the rails.

11. A mold comprising posts, clamps secured to the posts and provided with spaced 10 members, one of which is provided with a set screw, angular longitudinal rails having their horizontal members extending between the members of the clamps, and metallic 15 side plates resting upon each other and against one side of the vertical members of the rails, said plates being provided with lugs projecting below the lower ends of the plates and engaging the said vertical mem- 20 bers of the rails.

12. A mold comprising posts, longitudinal rails detachably and adjustably secured to the posts, metallic side plates resting upon each other and against one side of the vertical members of the rails, whereby the longitudinal joints of the plates will be covered 25 by the rails, and bars carried by the ends of the plates for covering the joints of the plates, said bars extending approximately the length of the plates and having lugs for 30 engaging the rails to hold the plates in position.

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

HERMAN GRANT LARZELERE.

Witnesses:

JOHN HERRIES, Jr.,
FRED W. SHERWIN.