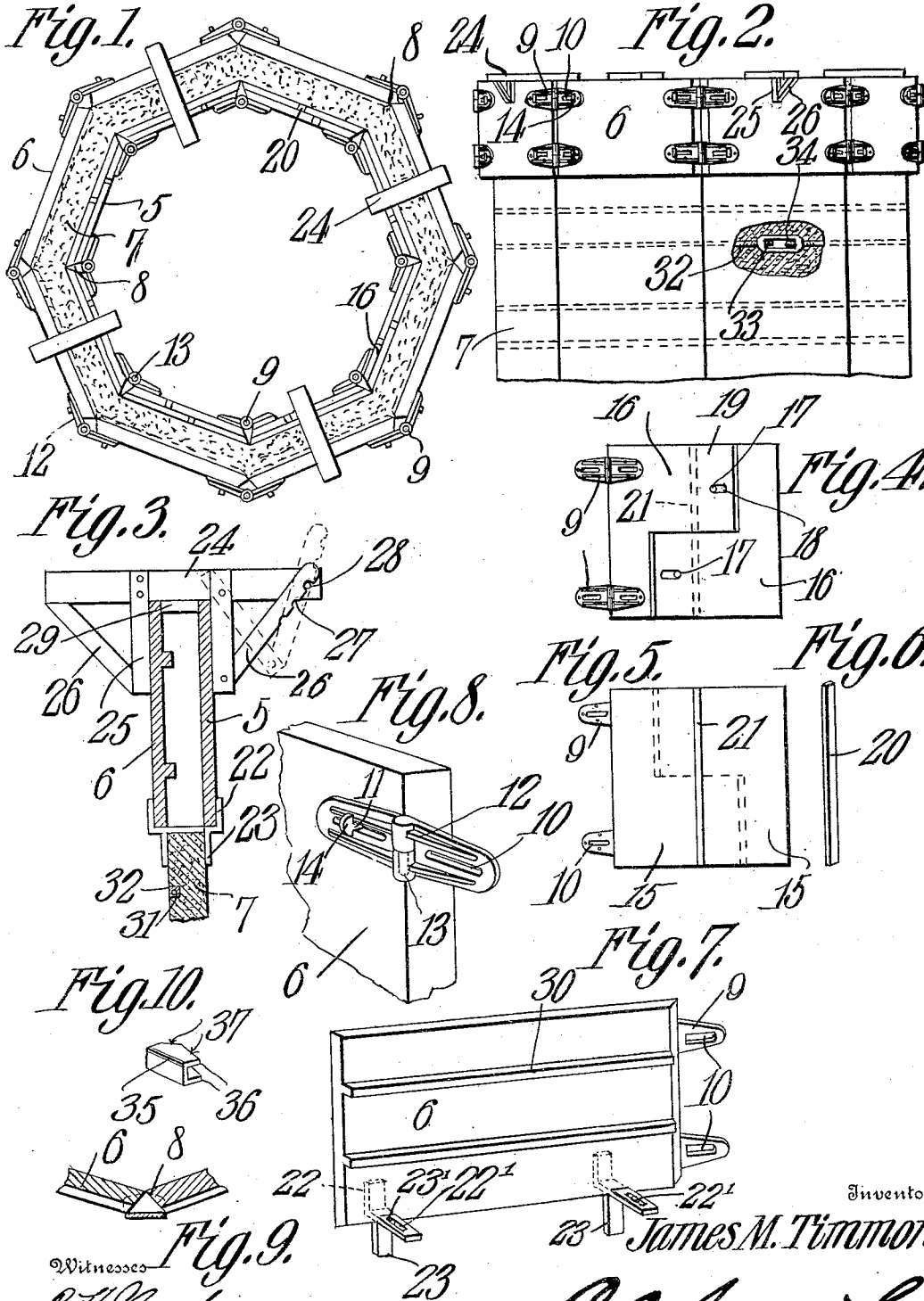


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MOLD FOR MAKING CONCRETE STRUCTURES.
APPLICATION FILED SEPT. 23, 1907.

940,090.

Patented Nov. 16, 1909.



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Specification of Letters Patent.

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Application filed September 23, 1907. Serial No. 394,224.

To all whom it may concern:

Be it known that I, JAMES M. TIMMONS, a citizen of the United States, residing at Delaware, in the county of Delaware and State of Ohio, have invented a new and useful Mold for Making Concrete Structures, of which the following is a specification.

This invention relates to molds for making walls, silos, tanks and similar structures from cement, concrete and other plastic material and has for its object to provide a mold including a plurality of pivotally connected sections capable of being adjusted laterally to permit the formation of tanks of different cross sectional diameters.

A further object of the invention is to provide the inner mold section with laterally extending ribs which project within the molding compartment so as to form the exterior walls of the tank or silo with spaced circumferential seating grooves for the reception of reinforcing bands.

A further object is to provide improved means for clamping the mold sections in assembled position, and means for bridging the ribs at the juncture of adjacent sections.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a top plan view of a mold constructed in accordance with my invention showing the same in position on a wall. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged vertical sectional view. Fig. 4 is a rear elevation of one of the pivotal sections of the inner shell detached. Fig. 5 is a front elevation of said inner shell section. Fig. 6 is a perspective view of one of the filling strips used in connection with the inner shell sections. Fig. 7 is a perspective view of the inner face of one of the outer shell sections. Fig. 8 is a perspective view of the opposite side of the outer shell section. Fig. 9 is a detail transverse sectional view showing the

manner of bridging the grooves forming the ribs. Fig. 10 is a detail perspective view of the bridge member detached.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved mold forming the subject matter of the present invention includes an inner shell 5 and an outer shell 6, said shells being spaced apart to form an intermediate molding compartment for the reception of the cement, concrete or other plastic material constituting the wall 7.

The inner and outer shells are each preferably formed of a plurality of sections having their opposite ends inclined or beveled at 8 and pivotally connected by suitable hinges 9 so that the sections may be adjusted laterally and thereby permit the formation of tanks of different cross sectional diameters.

The leaves of the hinges are provided with elongated slots 10 for the reception of screws or similar fastening devices 11 whereby the inclined ends of adjacent mold sections may be spaced apart when forming certain styles of walls.

The hinges are preferably reinforced and strengthened by the provision of one or more longitudinal ribs 12, while each hinge is provided with a depending pin 13 which engages a corresponding socket formed in the adjacent leaf of the hinge whereby the sections of the inner and outer shells may be lifted vertically off the wall after the cement or concrete has set.

The fastening devices 11 are provided with enlarged heads 14 having opposite flat faces so that by rotating the fastening devices until the flat faces thereof register with the slots 10 either leaf of the hinge may be readily disconnected from the adjacent section of the mold.

The pivoted members constituting the inner shell of the mold are each preferably formed in two sections 15 and 16, the inner sections 15 being provided with inwardly extending pins or lugs 17 which engage correspondingly shaped slots 18 formed in the outer sections 16 so that said sections may be adjusted laterally to conform to the pivoted sections of the outer shell of the mold.

The sections 15 and 16 of the inner shell members are each preferably formed in two

parts, the parts forming the outer sections 16 being provided with lateral extensions 19 which over-lap the parts forming the inner sections 15, there being suitable filling strips 20 adapted to engage the vertical slots 21 formed between the parts of the inner sections 15 when the latter are adjusted thereby to form a smooth unobstructed surface for contact with the cement or other plastic material forming the wall.

Secured to the lower longitudinal edges of the several mold sections are supporting brackets 22 which extend transversely across the molding compartment and bear against the upper face of the finished wall, said brackets being provided with depending feet 23 which engage the opposite faces of the wall and serve to hold the lower edges of the mold section against accidental displacement.

The depending feet 23 are adjustable laterally so that they may be arranged in alignment with the outer faces of the mold sections when one mold is positioned above the other during the erection of a wall.

The horizontal arms of the brackets 22 are preferably provided with elongated slots 22' in which are seated bolts or similar fastening devices 23' which latter engage the lower edges of the mold and serve to maintain the brackets in position thereon.

As a means for retaining the sections comprising the inner and outer shells in position on the wall there are provided one or more clamping members each consisting of a horizontally disposed bar 24 provided with spaced depending arms 25 which engage the exterior faces of adjacent mold sections and are connected with the opposite ends of the bar by means of diagonal braces 26.

One of the depending arms of each clamp is pivotally connected with the bar 24 and also with the end of the adjacent brace 26, the latter being provided with spaced notches or recesses 27 which engage a locking pin 28 so that by releasing the pin from engagement with the notch the brace together with the supporting arm may be swung laterally to the dotted line position shown in Fig. 3 of the drawings thereby to permit the ready detachment of the clamp.

Secured to the lower face of each bar 24 is a block 29 which serves to space the adjacent mold sections and support the same in contact with the depending arms 25.

Secured to the inner face of the sections comprising the outer shell are spaced longitudinally disposed ribs 30 which project within the molding compartment and serve to form the exterior face of the wall or tank with a plurality of spaced circumferential seating grooves 31 for the reception of the reinforcing bands or wires 32.

The reinforcing bands or wires 32 are provided with terminal threads 33 for en-

gagement with the turn buckle 34 so that by adjusting the turn buckles the tension of the clamping bands may be adjusted, the seating grooves 31 being subsequently filled with cement so as to effectually house the clamping bands and present a smooth unobstructed surface at the exterior face of the wall.

In order to form a continuous seating groove in the wall suitable bridge pieces 35 are disposed at the juncture of the pivoted mold sections of the outer shell with their upper and lower faces 36 embracing the adjacent edges of the ribs, as best shown in Fig. 2 of the drawing, the longitudinal edges of said faces being inclined or beveled in opposite directions, as indicated at 37, so as to fit in the angle between the adjacent sections of the mold.

In erecting a tank, silo or similar structure the inner and outer shells are placed in position on the ground with the depending feet embedded therein, after which the clamps are extended transversely across said shell with the spacing blocks bearing against the interior faces of the adjacent mold sections.

The cement, concrete or other plastic material is then shoveled or otherwise introduced in the molding compartment and thoroughly tamped. After the lower course is formed the clamping members are removed and the several sections comprising the mold placed in position on the upper edge of the completed wall with the depending feet bearing against the adjacent faces of the wall, as best shown in Fig. 3 of the drawings, this operation being continued until the entire wall is formed.

When it is desired to employ two or more molds during the erection of the wall the depending feet 23 are adjusted laterally so that when one mold is positioned upon the other the depending feet 23 of the upper mold will bear against the exterior walls of the lower mold and thus maintain said mold in vertical alinement when filling the same. After the wall is completed the clamping bands 32 are introduced in the seating grooves and the tension thereof regulated by adjusting the turn buckles after which the clamping bands are housed by introducing cement in the seating grooves, in the manner before stated.

In order to increase or diminish the size of the tank it is merely necessary to adjust the mold sections longitudinally or laterally with respect to each other, the slots 10 and fastening devices 11 permitting said adjustment.

It will of course be understood that prior to the introduction of the cement in the molding compartment the upper members or bridge pieces 26 will be placed in position at the juncture of the ribs of adjacent sections so that the exterior face of the wall

will be formed with a continuous seating groove for the reception of the clamping bands or wires.

While it is preferred to use a single tier of mold sections in constructing the wall it is obvious that a plurality of tiers of said sections may be employed in which event the depending feet of the upper section will engage the exterior walls of the lower mold section, as before stated.

Having thus described the invention what is claimed is:

1. A mold including inner and outer shells spaced apart to form an intermediate molding compartment, each shell being formed of a plurality of sections, groove forming ribs extending laterally from one of said shell sections and projecting within the molding compartment, and bridge pieces connecting the ribs.

2. A mold including inner and outer shells each formed of a plurality of pivotally connected sections, hinges disposed at the juncture of adjacent sections and having elongated slots formed therein, and fastening devices passing through said slots and engaging the sections for locking the sections in adjusted position.

3. A mold including sectional inner and outer shells spaced apart to form an intermediate molding compartment, slotted hinges connecting the sections of each shell, and ribs extending laterally from the sections of the outer shell and projecting within the molding compartment.

4. A mold including sectional inner and outer shells spaced apart to form an intermediate holding compartment, each section of the inner shell being formed of two or more members having a pin and slot connection between the same.

5. A mold including sectional inner and outer shells spaced apart to form an intermediate holding compartment, the sections comprising the inner shell being each formed of two or more members having a pin and slot connection between the same, and ribs extending laterally from the sections of the outer shell and projecting within the molding compartment.

6. A mold including sectional inner and outer shells spaced apart to form an intermediate molding compartment, the sections of the inner shell being each formed of laterally adjustable members having a pin and slot connection, slotted hinges connecting the sections of the inner and outer shells, and ribs extending laterally from the sections of the outer shells and projecting within the molding compartment.

7. A mold including sectional inner and outer shells, hinges forming a pivotal connection between the sections of each shell and having elongated slots formed therein, strengthening ribs disposed on each side of

the slots, fastening devices passing through the slots and engaging the adjacent sections, ribs extending inwardly and laterally from the inner faces of the outer shell sections and projecting within the molding compartment, and bridge pieces disposed at the juncture of adjacent ribs.

8. A mold including inner and outer shells spaced apart to form an intermediate molding compartment, and each formed of a plurality of pivotally connected sections ribs formed on the inner faces of the sections of the outer shell and projecting within the molding compartment, bridge pieces connecting the ribs at the juncture of said sections and clamping members extending transversely across the molding compartment and provided with spacing blocks for engagement with the inner walls of said shells.

9. A mold including inner and outer shells spaced apart to form an intermediate molding compartment, each shell being formed of a plurality of longitudinally adjustable pivotally united sections, brackets secured to the exterior faces of said sections and extending transversely across the molding compartment, shoes depending from the brackets, and clamping members extending transversely across the upper edges of the sections and provided with depending spacing blocks seated within the molding compartment and bearing against the inner walls of adjacent shells.

10. A mold including inner and outer shells spaced apart to form an intermediate molding compartment and each formed of a plurality of pivotally connected sections capable of being adjusted laterally, ribs secured to the inner faces of the sections of the outer shell and projecting within the molding compartment, bridge pieces disposed at the juncture of adjacent sections and embracing the adjacent ribs, bars extending transversely across the upper edges of the shells and provided with depending arms having lateral braces connected therewith, one of the said arms and the adjacent brace being pivotally connected and movable laterally to released position, spaced blocks secured to the bars and seated in the molding compartment, brackets secured to the lower edges of the sections, and laterally adjustable shoes depending from the brackets.

11. A mold including inner and outer shells spaced apart to form an intermediate molding compartment and each formed with pivotally united sections having their opposite ends inclined or beveled, each section comprising the inner shell being formed in two parts having a pin and slot connection, hinges forming a pivotal connection between the sections of the inner and outer shells and provided with elongated slots, fastening devices passing through said slots and engaging the adjacent sections, ribs formed on the

inner faces of the outer shell sections and projecting within the molding compartment to form spaced circumferential grooves in the wall for the reception of reinforcing bands, clamps engaging the upper longitudinal edges of the shell sections, and brackets secured to the lower longitudinal edges of the sections and provided with depending shoes.

10 12. A mold including inner and outer sectional shells spaced apart to form an intermediate molding compartment, the sections forming the inner shell being each formed of two members adjustable one upon the other

15 and having a pin and slot connection, ribs

secured to the inner faces of the outer shell sections and projecting within the molding compartment, slotted hinges forming a pivotal connection between the sections of the inner and outer shells, and filling strips for closing the spaces between the adjustable members constituting the sections of the inner shell.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES M. TIMMONS.

Witnesses:

ERNEST R. DIKE,
E. D. WATSON.