March 9, 1926. 1,576,291

J. D. ACKER

MOLD FORM

Filed Sept. 18, 1925 2 Sheets-Sheet 1

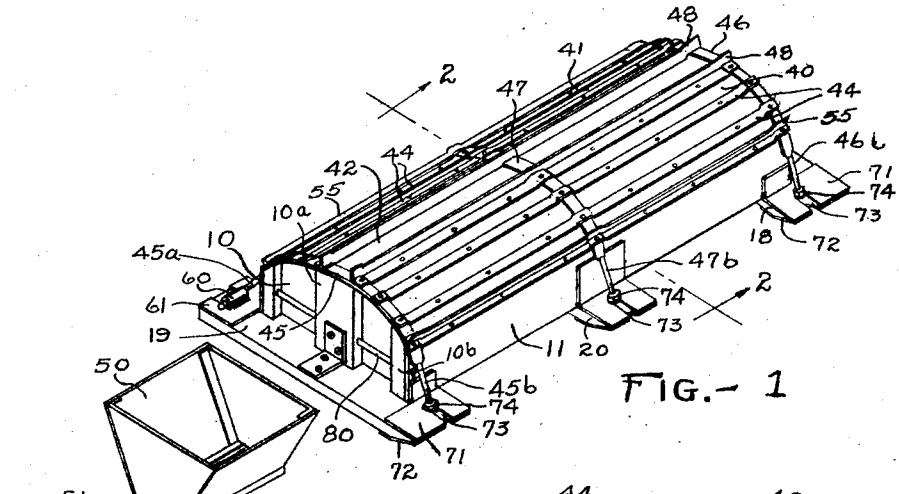


FIG.- 1

FIG.- 4

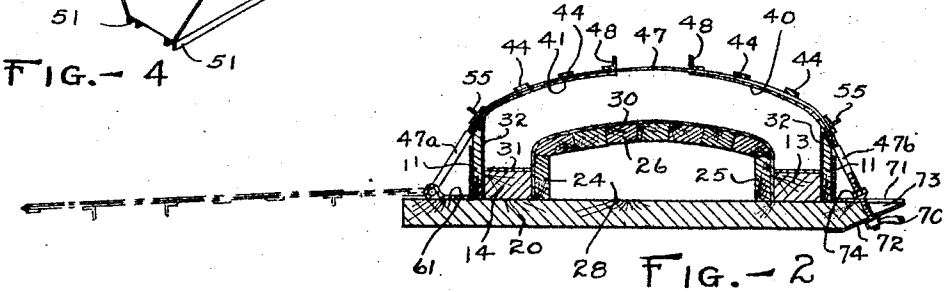


FIG.- 2

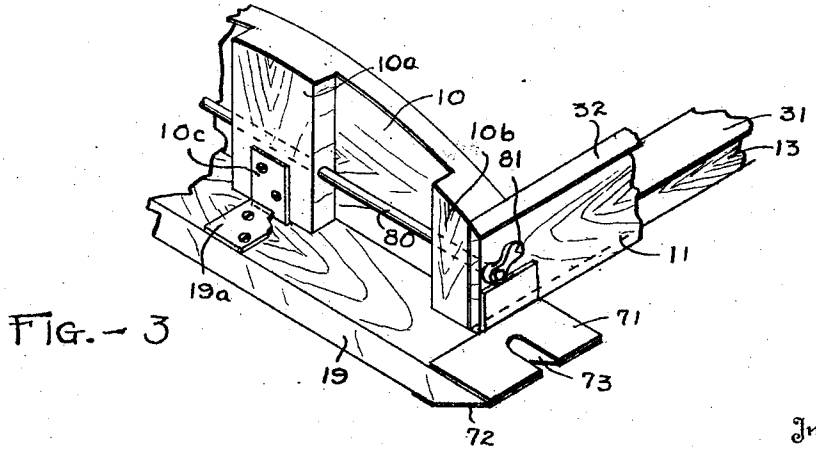


FIG.- 3

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MOLD FORM

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FIG.- 8

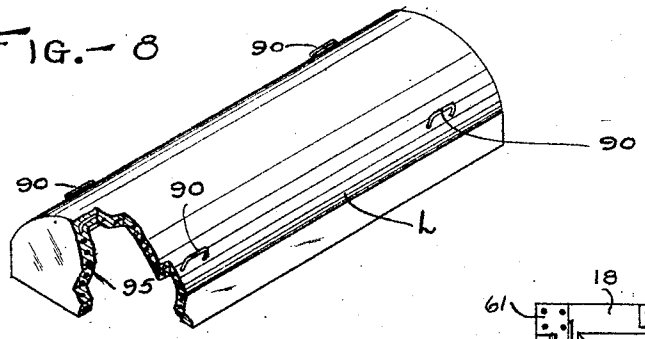
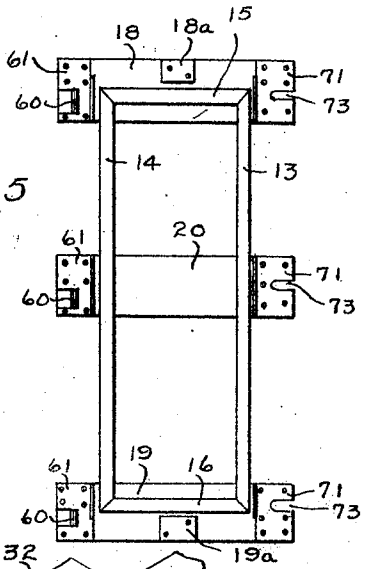


FIG.- 5



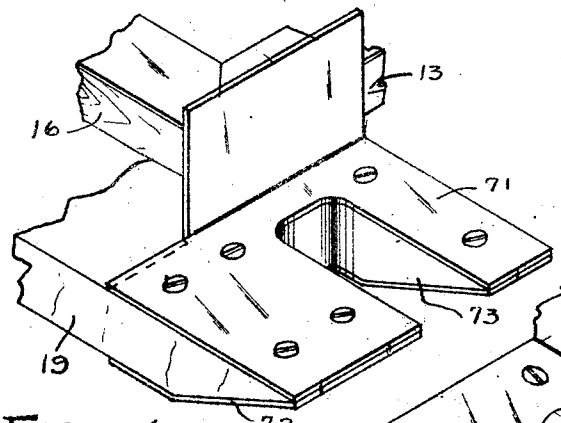


FIG.- 6

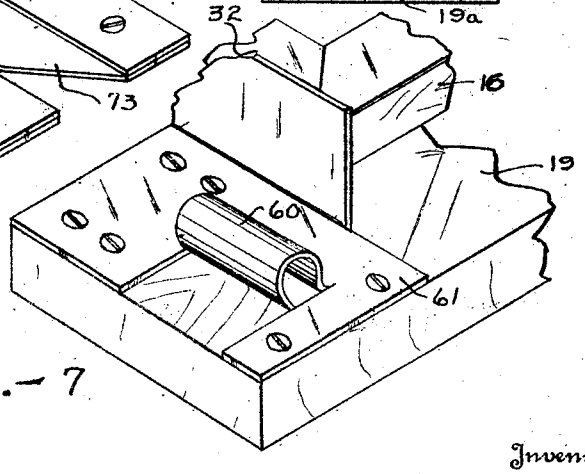


FIG.- 7

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Patented Mar. 9, 1926. 1,576,291

UNITED STATES PATENT OFFICE.

JAY D. ACKER, OF NORWALK, OHIO.

MOLD FORM.

Application filed September 18, 1925. Serial No. 57,046.

To all whom it may concern:

Be it known that I, JAY D. ACKER, a citizen of the United States, residing at 28 Summit St., in the county of Huron, city of Norwalk, and State of Ohio, have invented a certain new and useful Improvement in a Mold Form, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention is concerned with mold forms and more particularly, with mold forms for molding concrete vaults and the general object thereof is to provide a mold structure which can be rapidly assembled to receive the wet concrete, and thereafter be readily removed when once the concrete is set.

More specifically, my invention is directed to the provision of a novel form of top structure which may be flexed to produce an arcuate surface on the material being molded and which may be readily attached to the mold in a leak-proof manner with a quickly detachable clamping means.

Other objects of my invention will hereinafter be set forth in the following description referring to the accompanying drawings illustrating a preferred form thereof. The essential characteristics are summarized in the claims.

In the drawings, Fig. 1 is a perspective view of a mold structure embodying the novel features of my invention; Fig. 2 is a cross-sectional elevation taken through the center of the mold substantially along the line 2—2 of Fig. 1; Fig. 3 is an enlarged perspective detail of a corner structure of the mold walls; Fig. 4 is a perspective view of a removable pouring hopper for the mold; Fig. 5 is a plan view of the top structure or base of the mold structure; Fig. 6 is an enlarged fragmentary perspective detail of one corner of the base structure of the mold; Fig. 7 is a view similar to Fig. 6 showing the mold structure of an opposite corner of the base; and Fig. 8 is a perspective view of the article molded.

Mold forms for the molding of concrete vaults and particularly those forms now in use for the molding of lid of concrete vaults embody a core structure mounted on a base and removable outer walls and a top which may be stripped from the formed concrete before the concrete is completely set, whereby the article may be troweled and finished to remove and correct any irregularities incident to the pouring of the concrete. Such mold forms usually embody a large number of bolts and clamps for securing the sides and end walls and the top together in a leak-proof manner. Due to the usual length of the article to be molded relative to its width, the top and side members frequently warp or buckle under the clamping action to causing deficient proportioning in the lid.

My invention contemplates the provision of a mold construction which may be rapidly removed from the poured concrete after it has solidified and before it has completely set and the characteristics of the members comprising the mold whereby this removability may be obtained, is such that the longitudinal members comprising the mold will have no tendency to warp or buckle.

The preferred forms of mold construction, which I illustrate in the drawings, is particularly adaptable to the molding of a cover or lid having an arcuate top. As shown in the drawings, the mold may comprise end walls 10 and side walls 11 removably mounted upon a base structure (see Fig. 5) comprising metal-lined longitudinal members 13 and 14 and transverse bottom members 15 and 16. These members may be secured to transverse base members 18 and 19 disposed at the ends of the mold structure and to an intermediately disposed base member 20. These latter members extend or project from the sides of the base for a purpose to be hereinafter set forth.

Disposed within the inner marginal boundaries of the bottom members 13, 14, 15 and 16, may be a core structure comprising longitudinal members 24 and 25 and top longitudinal members 26, resting upon end members 28. All of the core members are preferably covered by a metal lining 30, extending thereover. The outer side members 11 of the mold and the bottom members 13, 14, 15 and 16 may also be lined with metal strips 31 and 32 respectively as shown in Fig. 2.

The end members 10 have the upper edges thereof arcuately formed as shown in Figs. 1 and 3 to arcuately support a top or closure structure which is preferably formed of sheet metal which may be longitudinally reinforced in such manner as to remain slightly flexible. The top structure may accordingly comprise longitudinally extending sheet metal members 40 and 41 spaced apart to provide a pouring gate 42; the sheet

metal members 40 and 41 being reinforced by longitudinal strips 44 extending over the outside surface thereof. The strips and the sheet metal members may be carried by flat transversely extending band members 45, 46 and 47. Angle members 48 may extend longitudinally along the top of the closure structure adjacent the pouring gate and form flanges for the pouring gate. A pouring hopper 50, shown in Fig. 4, may have channel-shaped members 51 spaced apart and secured to the bottom thereof to ride upon the angle members 48. The lower longitudinal edges of the metallic members 40 and 41, immediately above the side wall members 11 may be reinforced by T bars 55 secured thereto and to the flat band members 45, 46 and 47.

To afford a proper clamping action for bringing the cover into leak proof contact with the top surfaces of the end walls and side walls 10 and 11 of the mold body, I prefer to form extensions on the transverse straps 45, 46 and 47 which on one end may comprise extension bars 45^a, 46^a, 47^a respectively, and which may have their lower ends thereof bent at right angles to form hinge portions engaging sockets 60 formed on plate members 61 secured to the back ends of the transverse base members 18, 19 and 20. The forward ends of the strips 45, 46, and 47 may have similar extension bars 45^b, 46^b, and 47^b respectively formed thereon which may be threaded to afford attachment for adjustable clamping members 70. The transverse members 18, 19 and 20 are suitably slotted as at 73 and reinforced by metallic plates 71 and 72 at the forward ends thereof to afford proper engagement for the clamping members 70, and the threaded extensions of the transverse bar members. If desired, adjustable members in the form of nuts 74 may be mounted on the threaded ends of the transverse bars to limit the amount of clamping movement of the transverse bar members which may be effected by the clamping members 70.

The forward ends of the transverse base members 18, 19 and 20 are provided with plates 71 and 72 as shown in Figs. 3 and 6. The inner portions of the upper plates 71 extend upwardly at right angles to the base members, thus closely engaging and supporting the side wall 11. Fig. 7 shows the plates 61 as attached to the rearward ends of the base members 18, 19 and 20 with the inner portion extending upwardly at right angles to the base member, thus facing and supporting the side wall 11. The inner upright portion of the plates 61 and 71 on the middle base member 20 may be higher and wider than the like portions of the plates 61 and 71 on the end base members, since the tie rods 80 tend to take the strain of supporting the ends of the walls 11. The end wall 10 may be reinforced by an intermediate upright member 10^c and end members 10^b through which may extend clamping rods 80 having adjustable clamps 81 on the ends thereof to afford ready removal when it is desired to remove the wall members of the mold. The end transverse base members 18 and 19 may be provided with metal plates 18^a and 19^a which may abut similar plates 10^b secured to the end wall members, the plates serving to accurately gauge the position of the end wall members and to oppose any buckling or warping thereof.

When it is desired to provide the lid L, (see Fig. 8) with handles 90 and a metallic reinforcement 95, the reinforcing frame work 95 may be suspended in the mold cavity by extensions of the handles and the handles may be carried by the top closure structure in a well known manner.

From the foregoing description of the preferred form of my invention it will be apparent that the corners of the mold are efficiently closed by the clamping action of two rods 80, one at each end of the mold; that the longitudinal members comprising the side walls are prevented from warping outwardly at the bottom by the action of the plates positioned on the transverse members. It will also be apparent that the closure structure may be efficiently placed in sealed relation with the top edges of the end members 10 and side members 11, comprising the walls of the mold, by the clamping action of the clamp members 70 which place tension upon the transverse bars 45, 46 and 47, thus bringing the under surface of the closure structure into intimate contact with the side walls 11 along the top edges thereof. If it is desired to remove the outer portions of the mold, these clamp members 70 may be unscrewed and the top swung to the dot and dash position shown in Fig. 2 and the side and end wall members may thereafter be removed by releasing the two clamp bars 80. In the particular form of mold structure which I disclose, it will be evident that the longitudinal members may be sufficiently reinforced without constructing the removable parts of the mold in a cumbersome manner, and the finished product while in the green state will require but little troweling of its surfaces to smooth the same.

I claim:

1. In a mold form of the character described, the combination of a core structure, removable side and end wall members mounted upon a base carrying the core and a flexible top arcuately supported by the end and side wall members.

2. In a mold form of the character described, the combination of a core structure, removable side and end wall members mounted upon a base carrying the core struc-

ture and a flexible metallic top structure adapted to be arcuately supported by the end and side wall members.

3. In a mold form of the character described, the combination of a core structure, removable side and end wall members mounted upon a base carrying the core structure and a flexible swingable top structure arcuately supported by the end and side wall members.

4. In a mold form the combination of a base structure, a core structure mounted on the base structure, end members and side members mounted upon said base structure, said end members having the tops thereof arcuately formed, and a flexible sheet metal structure extending across the top and side members, said sheet metal structure being removably secured to the base structure.

5. In a mold form the combination of a base structure, a core structure mounted on the base structure, end members and side members removably mounted upon said base structure, said end members having the top thereof arcuately formed, separable means holding the side and end members in relative position and a top structure extending across the top and side members, said top structure being removably secured to the base structure.

6. In a mold form the combination of a base structure, a core structure mounted on the base structure, end members and side members removably mounted upon said base structure and a top structure extending across the top and side members, said top structure being swingably secured to the base structure.

7. In a mold for forming concrete vaults, the combination of a base structure, a core structure mounted upon the base structure, side and end wall members and a flexible metallic mold closing structure surmounting the sides and end wall members of the mold and having a pouring gate formed along the top thereof.

8. In a mold for forming concrete vaults, the combination of a base structure, a core structure mounted upon the base structure, removable side and end wall members, cross bars clamping said wall members in relative position and a mold closing structure surmounting the side and end wall members of the mold having a pouring gate formed along the top thereof.

9. In a mold for forming concrete vaults, the combination of a base structure, a core structure mounted upon the base structure, side and end walls removably clamped together and a flexible metallic mold closing structure surmounting the sides and end walls of the mold member and positioned in compressed relation thereto.

10. In a mold of the character described, the combination of side and end walls, said end walls being arcuately formed at the top thereof, a base structure including transverse members positioned beneath the end walls of the mold and intermediate the end walls, a top closure structure hingedly connected to the transverse members and means included in said top structure for drawing the top structure to intimate contact with the side and end walls thereof.

11. In a mold of the character described, the combination of side and end walls, said end walls being arcuately formed at the top thereof, a base structure including transverse members positioned beneath the end walls of the mold and intermediate the end walls, and a top closure structure hingedly connected to the transverse members.

12. In a mold of the character described, the combination of side and end walls, means for clamping the walls in relative position, said end walls being arcuately formed at the top thereof, a base structure including projecting members extending outwardly from the side walls of the mold, and a top closure structure hingedly connected at one side of the mold to the transverse members and at the other side by clamping means.

13. In a mold of the character described, the combination of a box-like structure having a bottom structure, side and end walls, said end and side walls being removable from the bottom structure and a top closure comprising reinforced, sheet metal members and means associated therewith for removably attaching said sheet metal members to the bottom structure of the mold.

14. In a mold of the character described, the combination of a bottom structure, side and end walls removably mounted thereon, cross bars clampingly joining the side walls and the end walls, said end walls having the top edges thereof arcuately formed, a closure for the top of the mold comprising a flexible metallic structure, having transverse members hingedly connected to the mold structure at one side and removably connected to the mold structure at the other side.

15. In a mold of the character described, the combination of a box like structure having a bottom structure, side and end walls, said end and side walls being removable from the bottom structure, there being gage plates on the bottom structure for positioning the side and end walls and a top closure comprising reinforced sheet metal members and transverse bars secured thereto and means associated with the bars for removably maintaining said sheet metal members in contact with the top edges of the end and side wall members.

16. In a mold of the character described, the combination of a bottom structure including transversely projecting members, side and end walls removably mounted

thereon, cross bars clampingly joining the side walls and the end walls, said end walls having the top edges thereof arcuately formed, a closure for the top of the mold comprising a flexible metallic structure having a longitudinally extending pouring gate and including transverse bar members hingedly connected to the projecting members at one side of the mold and clampingly connected to the projecting members at the other side of the mold.

17. In a mold of the character described, the combination of a box-like structure having a bottom including laterally projecting members, side and end walls removably positioned thereon, said end and side walls being freely set on the bottom structure and a top closure comprising reinforced sheet metal members and means associated therewith for forcing said sheet metal members into intimate contact with the top edge of the side and end members and thereby maintaining said members in contact with the bottom structure.

In testimony whereof, I hereunto affix my signature.

JAY D. ACKER.