

Jan. 2, 1923.

1,440,380

H. EDON-BROWN.
MOLD FOR CASTING HOLLOW CONCRETE STRUCTURES.
FILED JAN. 6, 1921.

2 SHEETS-SHEET 1

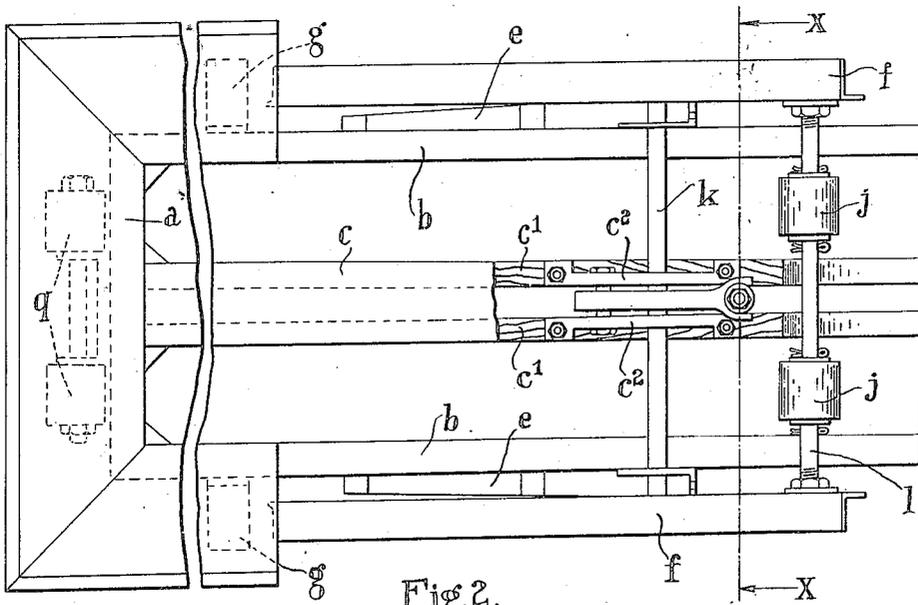
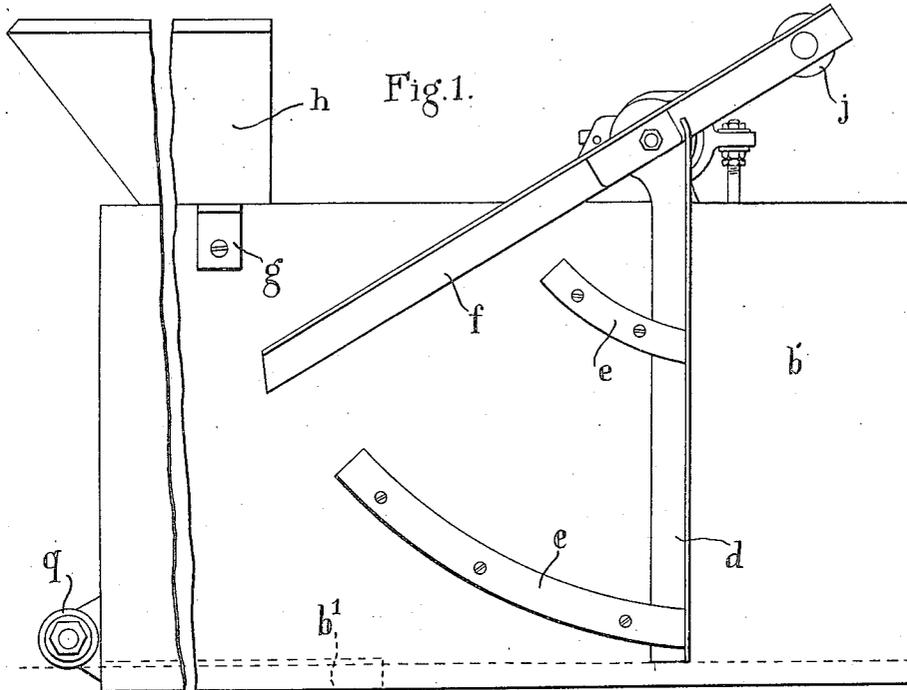


Fig. 2.

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2 SHEETS-SHEET 2

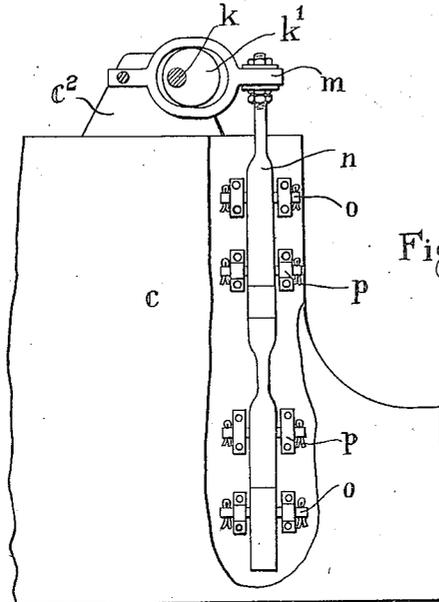


Fig. 3.

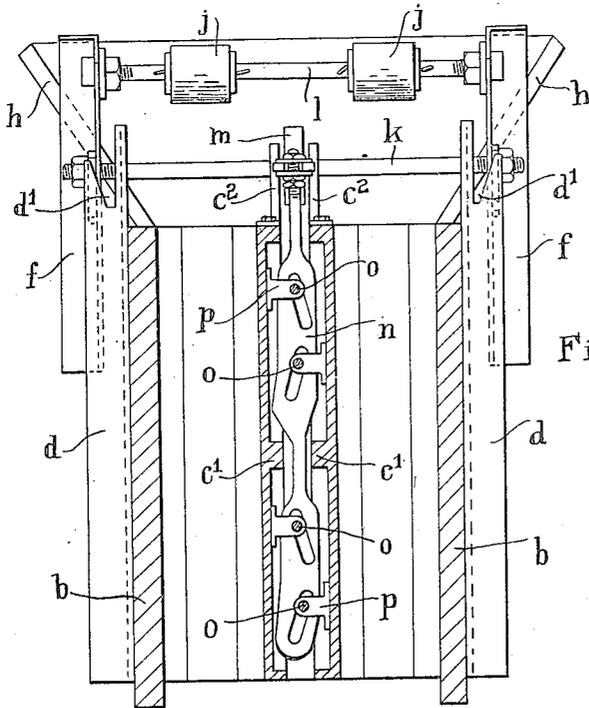


Fig. 4.

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UNITED STATES PATENT OFFICE.

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MOLD FOR CASTING HOLLOW CONCRETE STRUCTURES.

Application filed January 6, 1921. Serial No. 435,536.

To all whom it may concern:

Be it known that I, HERBERT EDON-BROWN, a subject of the King of Great Britain and Ireland, residing at 1 Carteret Street, Westminster, London, England, have invented certain new and useful Improvements in Molds for Casting Hollow Concrete Structures, of which the following is a specification.

10 This invention relates to molds employed for casting hollow concrete and like structures such as walls, and is primarily intended for use in casting hollow concrete walls in situ.

15 The usual practice employed in casting walls in situ necessitates the use of a large amount of formwork or shuttering, between which the concrete is poured in a comparatively semi-liquid condition, the said shuttering having to be maintained in position until the concrete has set sufficiently to maintain its form. This method is open to the objection that the cost of formwork is high and the time of erection is comparatively long.

20 In casting walls with the molds constructed in accordance with this invention the concrete is placed in the molds in a comparatively dry condition and is tamped; the mold is immediately then stripped in a horizontal direction and the next length of wall is then cast. When each horizontal course is completed, the mold is raised and placed upon the course previously cast, and the next course is then cast in successive lengths, the joints in successive courses being preferably staggered.

25 The molds constructed in accordance with this invention are of the type adapted to be stripped horizontally and comprise a core which is attached to an end member carrying side members which yield sufficiently when the mold is unclamped to facilitate their withdrawal from the cast length of wall. The core is of the collapsible type and according to this invention is so constructed by hinging or by elasticity of the parts that when the sides of the mold are clamped together for casting, its sides are parallel; but when the clamping means are released its sides become slightly inclined with reference to each other to facilitate stripping from the work.

30 The clamping is effected by means of a pair of arms which engage at one end cam-plates attached to the side members of the

35 mold and which are connected near their centres by a cross shaft which carries the core-expanding mechanism. Between these arms at their other ends is mounted a shaft carrying one or more rollers adapted to ride over the top surface of the work previously cast and to facilitate the horizontal movement of the mold to its next position. Similar rollers are attached to the fixed end of the mold.

40 The free end of the core is provided with a cut-away portion or portions to enable concrete cross-ties to be cast between the two walls. To facilitate the formation of these cross-ties, a false-core, preferably collapsible, is inserted in the cavity at the end of the length of wall previously cast.

45 As is usual in molds of this type, the side members are placed so as slightly to overlap at their inner surfaces the lower surface on to which the concrete is being cast, and in order to facilitate the horizontal withdrawal of these overlapping portions, a portion of the outside members of the mold towards the fixed ends may be hinged to the main portion in accordance with our invention and the opening and closing of these hinged portions may be effected from the clamping arms.

50 In the accompanying drawings, which illustrate the preferred form of mold constructed in accordance with our invention,

55 Fig. 1 represents an elevation of the mold with the parts shown in the inoperative or unclamped position.

60 Fig. 2 represents a plan with a portion of the core-sheathing removed.

65 Fig. 3 represents an elevation of the front portion of the core, partly in section to expose the core-collapsing mechanism.

70 Fig. 4 represents an end view, partly in section upon the line *xx* of Fig. 2.

75 The end member *a* consisting of a board or plate has attached thereto side members *b* and the core *c*; the latter consists of boards or plates *c'* held when in operative or clamped position parallel to each other. To prevent concrete or the like from getting between these plates *c'* sheet metal or like covers adapted to slide over each other are preferably provided.

80 The clamping arms *f* consist conveniently of bars of angle section and are secured against rotation relatively to a cross-shaft *g* which operates the core-expanding mechanism. These angle bars cooperate with ta-

pered notches d' in angle bars d fixed to the side members b and serve to force the latter slightly outwards when the mold is in the unclamped position.

5 Pivoted angle stops g are provided to support the arms f when in fully raised position; the stops are turned about their pivots to allow the arms f to pass beyond them and are then turned back to support the arms.
 10 Rollers j are carried by a shaft l carried between the front ends of the arms; when back ends of the latter are raised, the rollers rest upon the surface of the concrete previously cast and assist the movement of the
 15 mold to the next operative position. Other rollers g may be mounted on the back of the end member a to assist the movement of the mold along the bed surface. The back portions b' of the lower parts of the side
 20 members indicated in dotted lines may be hinged at their upper edges so that they may be folded upwards to prevent friction with the side surfaces of the lower layer of concrete or other surface upon which the concrete is
 25 being cast.

Cam plates e are mounted upon the side members b and coast with the arms f to clamp the mold in operative position.

30 The core-expanding mechanism consists of a cam plate n provided with slots in which engage pins o carried between brackets p mounted in recesses in the inner sides of the plates c' . The cam plate n is operated by a sheave-arm m pivoted between
 35 brackets c^2 , the sheave engaging an eccentric k' carried by the shaft k .

It will be seen that downward movement of the clamping arms f in the counter-clockwise direction in Fig. 1 will clamp the side
 40 members b and will lift the cam plate n thus expanding the core. It will, of course, be understood that the relative angular movement of the side members and core
 45 plates required to enable the mold to be stripped is quite small.

In order to facilitate the filling of the mold a hopper h may be fixed to the back upper surface thereof.

50 Although the mold is primarily intended for casting walls in situ thus giving a monolithic or jointless construction, it may be employed if desired for casting successively separate blocks open at one end. In this
 55 case end plates may be placed in the closed ends of the mold to keep separate blocks formed by successive casting in a horizontal line.

What I claim is:—

60 1. In a mold for casting concrete and the like, a vertical end member, vertical side members, clamping arms therefor, rollers carried on a transverse shaft mounted between the upper ends of said arms and
 65 means for causing said rollers to bear upon the cast concrete to facilitate horizontal

movement of the mold to the next casting position.

2. In a mold for casting concrete and the like, a vertical end member, vertical side
 70 members, cam-plates carried by said side members, supporting ears carried by said side members and projecting above them, clamping arms pivoted to said ears and
 75 acting with said cam-plates, positive means for releasing the side members after casting and means for moving the mold horizontally to its next casting position.

3. In a mold for casting concrete and the like a vertical end member, vertical side
 80 members, cam plates carried by said side members, supporting ears carried by said side members and projecting above them, clamping arms pivoted to said ears and
 85 coasting with said cam-plates, lowerback hinged portions on said members, positive means for releasing the side members after casting, and means for moving the mold horizontally to its next casting position.

4. A mold for casting concrete structures, comprising an end member, side members
 90 secured thereto, a collapsible core carried by the end member, means for collapsing the core, rollers mounted on the end member, angle bars secured to the side members
 95 extending above said members and formed at the upper ends with cam slots, cam plates secured to the side members, a lever pivoted above the side members having clamping
 100 arms extending beyond said members and adapted to engage the cam plates for holding the side members in mold forming position in one position thereof, the arms having their
 105 free upper ends connected by a bar carrying rollers, the movement of the lever and arms to another position operating to release the side members by the engagement of the
 110 arms in the cam slots of the angle bars, said movement also operating the core collapsing means to collapse the core and for projecting the rollers carried by the bar into engagement with a wall surface, so that said
 115 rollers and the rollers on the end member will facilitate the movement of the mold on the wall.

5. A mold for casting concrete structures, comprising an end member, side members
 115 secured thereto, a collapsible core carried by the end member, cam members secured to the side members, a lever pivoted above the side members carrying rollers at the outer
 120 free end thereof, the lever being formed to engage the cam members on the side members, and rollers carried by the end member, whereby the movement of the lever
 125 into one position will lock the side members together in mold forming position by engagement with one cam member and when moved to another position will release the side members and separate them by engagement
 130 with another cam member, at the same

time positioning said rollers to engage the upper face of the wall formed, for facilitating the movement of the mold.

5 6. A mold for concrete structures, comprising an end member, side members, pairs of cam members carried by the side members, a lever mounted for pivotal movement, and means for facilitating the movement of the mold on the formed wall
10 controlled by said lever, the lever being adapted in movement in one direction to lock the side members together in mold forming position by engagement with one pair of cam members and in movement in
15 the other direction to spring said side members away from the formed wall by engagement with the other pair of cam members, the lever at the same time operating said means for projecting it into operative position.
20

7. A mold for concrete structures, com-

prising an end member, side members secured thereto, a collapsible core carried by the end member, and a lever pivotally
25 mounted for movement in one direction to clamp the side members and core member in mold forming position and on movement in the other direction to collapse the core and disengage the side members from the
30 formed wall.

8. In a mold for casting hollow concrete and like structures, vertical side members, a vertical end member, a collapsible core projecting from the vertical end member, clamping means, means for causing the side
35 members to assume a position slightly inclined to each other when the clamping means is released, and means for moving the mold horizontally from one casting position to the next.
40

In testimony whereof I affix my signature.
HERBERT EDON-BROWN.