W. H. EVERS.

CORE MOLD FOR CONCRETE STRUCTURES.

APPLICATION FILED MAR. 15, 1913.

1,099,171. Patented June 9, 1914.

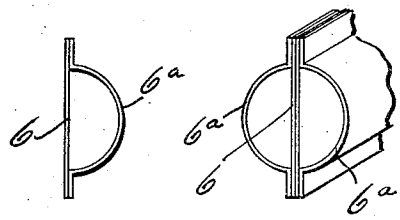


Fig. 2.

Fig. 1.

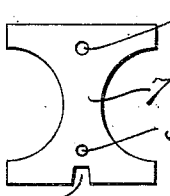


Fig. 3.

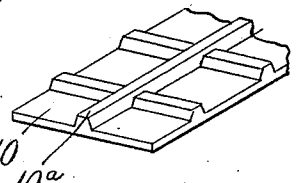


Fig. 4.



Fig. 5.

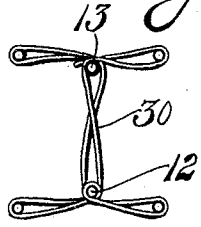


Fig. 6.

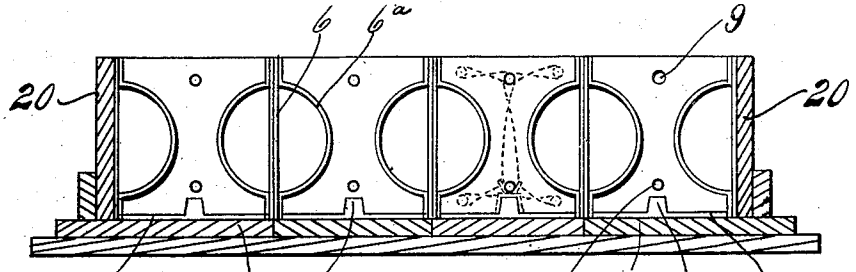


Fig. 7.

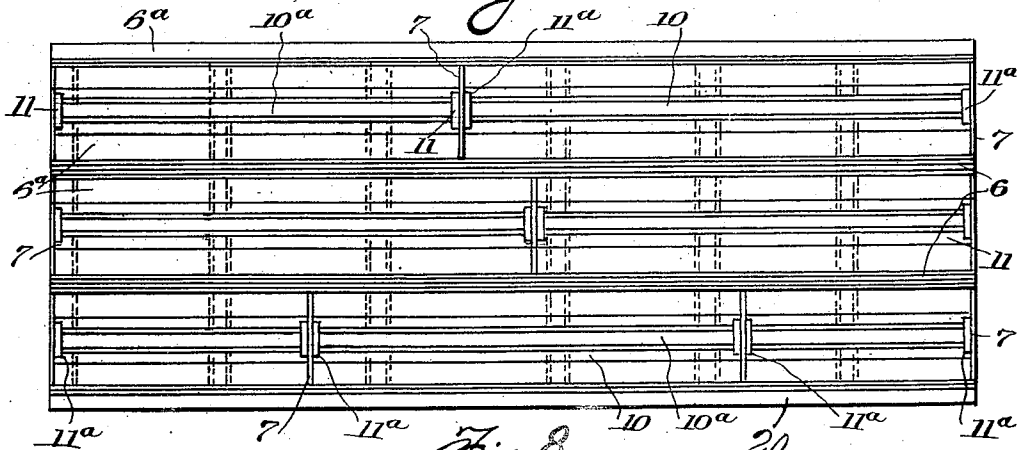


Fig. 8.

Witnesses
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UNITED STATES PATENT OFFICE.

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CORE-MOLD FOR CONCRETE STRUCTURES.

1,099,171. Specification of Letters Patent. Patented June 9, 1914.

Application filed March 15, 1913. Serial No. 754,514.

To all whom it may concern:

Be it known that I, WILLIAM H. EVERS, a citizen of the United States, residing at Lakewood, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Core-Molds for Concrete Structures, of which the following is a specification.

This invention relates to molds for concrete structures and provides a cheap, serviceable, simple, and practical core-mold, for the manufacture of reinforced concrete constructions such as hollow beams and girders, and has the following objects: first, to make it possible to build in the factory, a reinforced concrete beam or girder of any length, and of very light weight, so that its transportation to the place of erection is easy, and that said beam or girder can then readily be placed in position for long spans, without the use of forms and supports; second, to provide a minimum section of concrete in the building of the shape; third, to properly position and hold in place in the mold, the metallic reinforcement, so that after concrete is poured in said mold, the metal is properly bedded in concrete for protection against oxidation and fire, and will take up all shear and bending moments of applied outside forces; fourth to provide core-molds which can be used in conjunction with each other, so as to cast many beams or girders side by side at one operation; fifth, to provide a core-mold easily disassembled, without injury to the exterior of the newly formed beam or girder.

The invention will be readily understood from the following description for using the mold in the building of a beam of I section.

In the drawings—Figure 1 is a detail in perspective of one of the core sections. Fig. 2 is an end view of associated core section. Fig. 3 is an elevation of a separator or spacing plate. Fig. 4 is a perspective view of a bottom or rib plate. Fig. 5 is an elevation of a clip for holding a reinforcing bar in position. Fig. 6 is an end view of an arrangement of metal reinforcements. Fig. 7 is a sectional view of the mold with various parts assembled. Fig. 8 is a plan view of the parts shown in Fig. 7.

Referring specifically to the drawings, 20 indicates the sides and 21 the bottom boards of a mold box or frame in which the various sections of the mold are set up. This box may be of any size desired according to the work at hand, to accommodate the number of beams or shapes to be molded at each operation. Against one side of this box is placed one of the core sections, consisting of a flat plate 6, to which is attached the edges of a longitudinally extending core plate 6^a, conveniently formed by bending or shaping a piece of sheet metal according to the desired outline of the recess or core to be produced in the side of the beam. In the illustration shown, this plate 6^a is semi-circular in cross section. It extends the full length of the mold box.

10 is a bottom plate with ribs which is then set on the bottom of the frame, the ribs being provided to produce the lateral and longitudinal grooves or depressions in the compression flange of the beam, so that proper adhesion can be secured for the applied plaster or other surfacing material to the finished beam. At the edge of this plate 10 is placed another core section consisting of the plates 6 and 6^a, in opposite relation to the core section above described, and against the second core section is applied another core section for the next beam; and so the box is filled with bottom plates and core sections to accommodate the number of beams desired to be molded.

Between the respective side core sections are placed spacing or partition plates 7, the shape or outline of which exactly corresponds to the section of the beam to be produced, these plates having cut out portions to receive the core plate 6^a, as clearly shown in Fig. 7. The plates 7 are notched at the bottom as indicated at 8, to fit the longitudinal rib on the bottom plate 10. This exactly positions the spacing plates and holds the same in place on the bottom plate. The spacing plates will be set a distance apart corresponding to the length of beam desired and if the box be long enough several beams may be molded end to end.

The plates 7 are provided with holes 9 at top and bottom to receive the longitudinal reinforcing bars 12 and 13, the bar 12 being also supported between the arms 11^a of clips 11 set on the longitudinal rib 10^a of the plate 10. And the reinforcing rods or wires 30, as desired, may be wound or bent around the bars 12 and 13 before the concrete is poured.

In the construction of beams with this mold, a box of proper dimensions is built, and the side core and spacing plates are

then set up side by side as above described. The reinforcing bars and rods are then put in place, and the whole series of assembled molds are then clamped together in the box, and are ready to receive the concrete which is poured in at the top. By the use of additional plates and associated parts any number of molds can be set up side by side. After the concrete has set the mold is readily taken apart by unclamping the box or frame and removing the half core section at one side and taking out the finished beam and the following core sections in consecutive order, the supporting plates and rib plates being detached by light tapping.

The apparatus may be modified in various ways to construct different shapes of beams, with different methods of reinforcing, and no limitation in this respect is implied. After the beams are made they can be transported to the place of use and set up in a building without making special molds *in situ* as customary.

What I claim as new is:

A mold for concrete beams and the like, having a bottom plate provided with a rib, spacing cross plates held in position by the rib, said cross plates having openings to support reinforcing bars in position, and clips on said rib, to engage and hold one of said bars in position.

In testimony whereof, I do affix my signature in presence of two witnesses.

WILLIAM H. EVERS.

Witnesses:
JOHN A. BOMMHARDT,
RALPH SCOTT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."