Sept. 5, 1933. G. L. QUICK 1,925,775

MOLD FOR CONCRETE CONSTRUCTION

Filed Jan. 14, 1931 2 Sheets-Sheet 1

Fig. 1

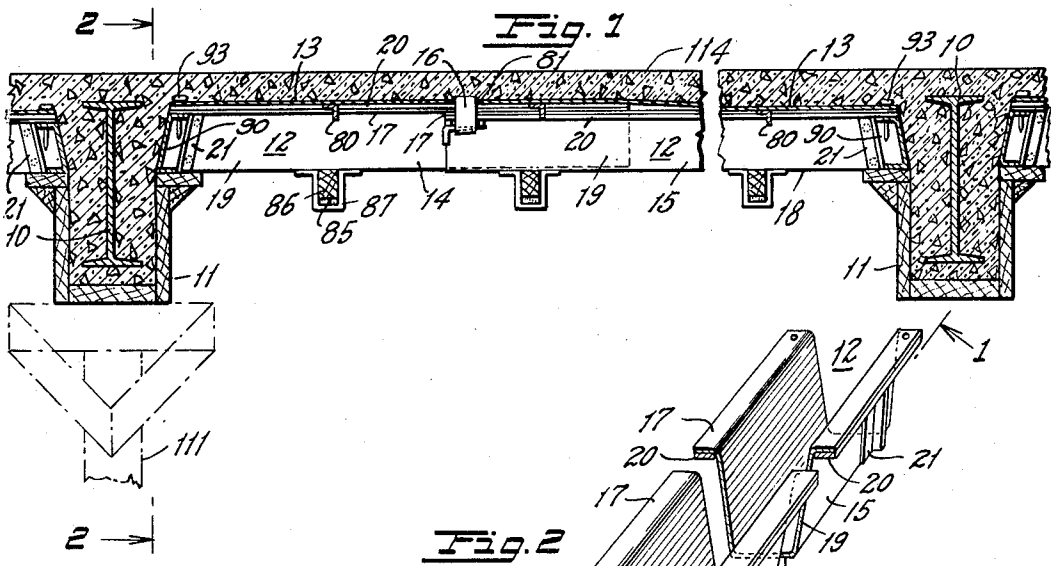
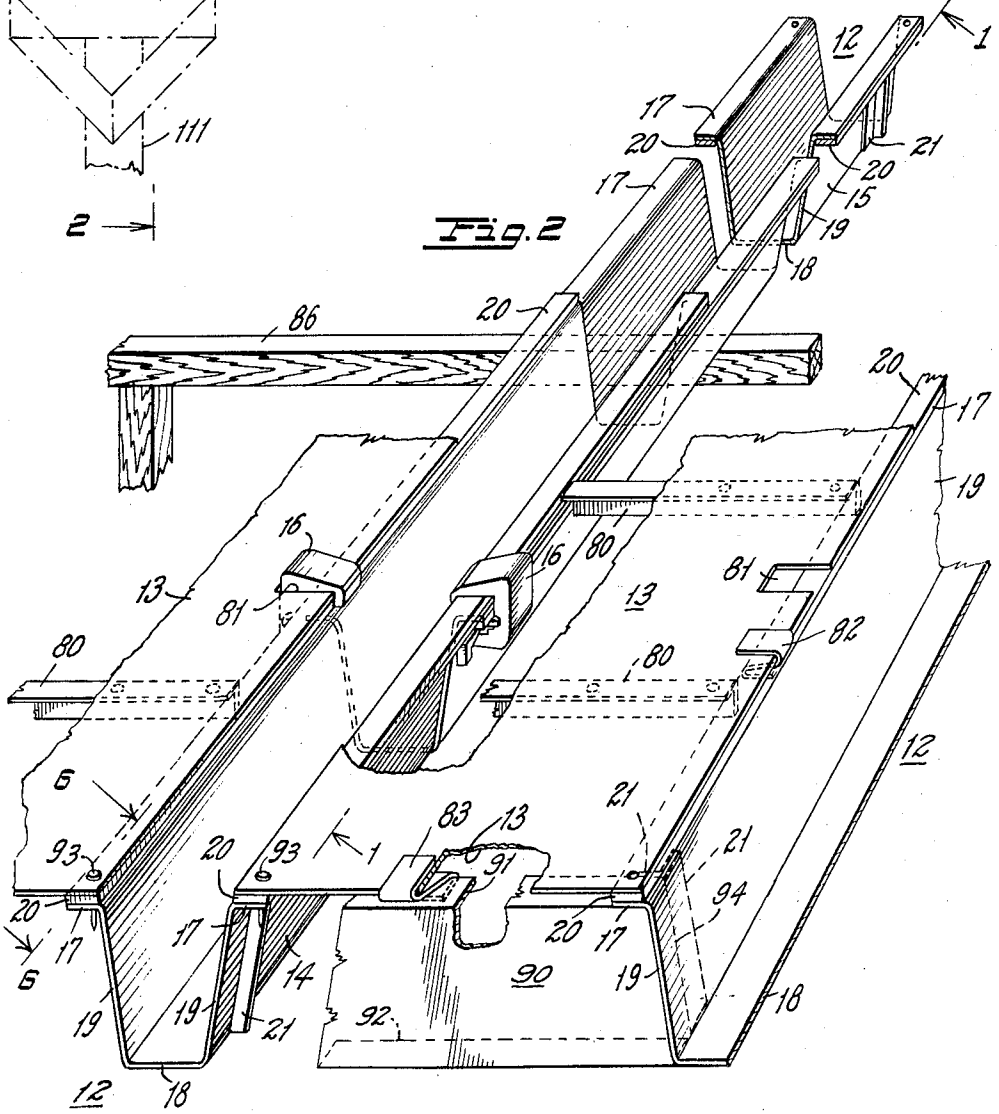


Fig. 2



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Fig. 3

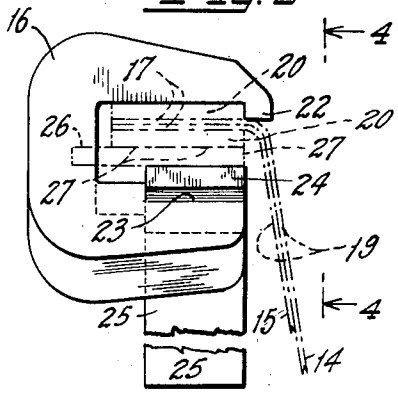


Fig. 4

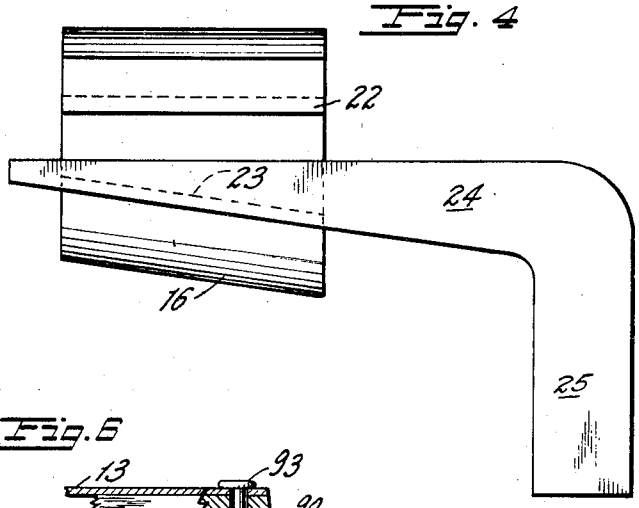


Fig. 5

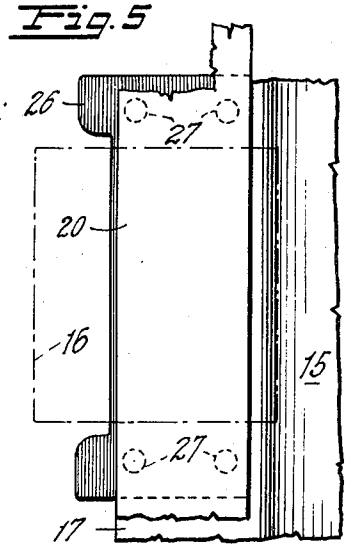


Fig. 6

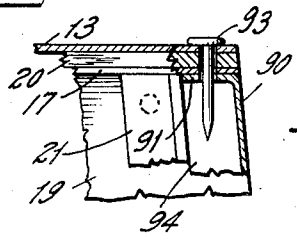


Fig. 7

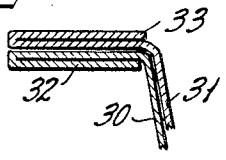


Fig. 12

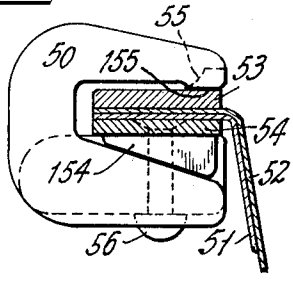


Fig. 8

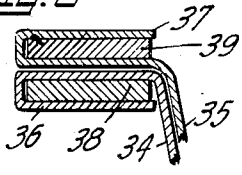


Fig. 9

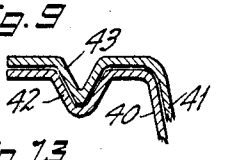


Fig. 10

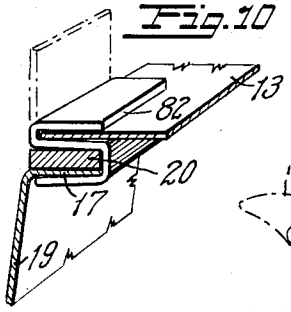


Fig. 11

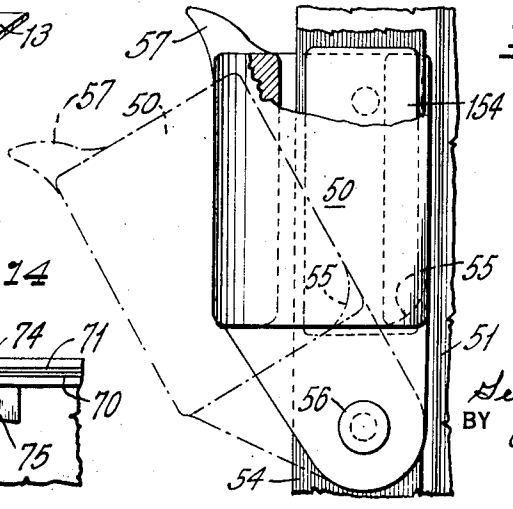


Fig. 13

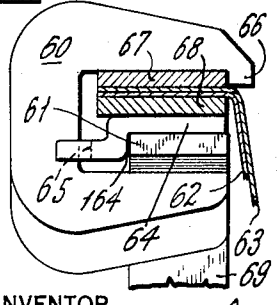
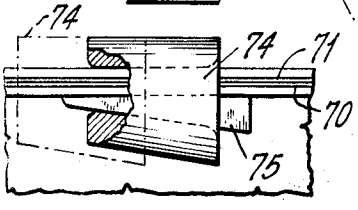


Fig. 14



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Patented Sept. 5, 1933 1,925,775

UNITED STATES PATENT OFFICE

1,925,775

MOLD FOR CONCRETE CONSTRUCTION

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Application January 14, 1931. Serial No. 508,672

4 Claims. (Cl. 25—131.5)

The invention relates to forms for concrete molds and more particularly to channel forms for exposed concrete beams.

One of the objects of the invention is to provide an extensible channel form having reinforced flanges.

Another object of the invention is to provide a channel form having reinforced ends to prevent deformation at the ends.

Another object of the invention is to provide a clamp for clamping the channel sections together in a simple and expeditious manner.

Another object of the invention is to provide means for preventing tipping of the channel forms during the pouring of the concrete.

Another object of the invention is to provide clips for holding the mold panels and end plates in proper relation to the mold channels.

Other objects will be apparent from the following description and claims when considered with the accompanying drawings, in which

Fig. 1 represents a section of a concrete floor before the mold forms have been removed;

Fig. 2 is a perspective of a mold for concrete flooring according to the invention;

Fig. 3 is an end view of a preferred form of clamp;

Fig. 4 is a side view of such clamp;

Fig. 5 is a plan view of a section of the channel mold illustrating positioning means for the clamp;

Fig. 6 is a detail illustrating the connection between panel, channel mold and end plate;

Figs. 7, 8 and 9 illustrate modified ways for reinforcing the channel mold;

Fig. 10 is a detail illustrating how the clip connects the panel and channel mold;

Figs. 11 and 12 are bottom plan view and cross section, respectively, of a channel mold having a modified form of clamp;

Figs. 13 and 14 illustrate further modified forms of clamp.

In the following description and in the claims parts will be identified by specific names for convenience, but they are intended to be as generic in their application to similar parts as the art will permit.

Like reference characters denote like parts in the several figures of the drawings.

In the drawings accompanying and forming part of this specification, practical commercial embodiments of the invention are shown, but as such illustrations are primarily for purposes of disclosure, it will be understood that the structures may be modified in various respects without departure from the broad spirit and scope of the invention as hereinafter defined and claimed.

Referring now to the drawings, and more particularly to Figs. 1 and 2, the structural beams of the building are denoted by 10, and the wooden forms for the concrete around the beams 10 are denoted by 11. These forms 11 in themselves form no part of the present invention. They are supported by suitable posts indicated diagrammatically by 111.

Resting upon the mold parts 11 are the extensible channels indicated by 12, it being understood that these channels are arranged parallel to each other along the main structural beams 10 of the building, and between such beams, as indicated.

The channel molds 12 are formed in two sections 14 and 15 suitably clamped together by clamps 16. A plurality of panels 13 extend between adjacent mold channels to support the concrete which is indicated by 114 in Fig. 1.

Each channel section 14 and 15 is made of thin sheet metal and comprises a bottom wall 18, side walls 19, and flanges 17. A relatively heavy reinforcing strip of metal 20 is suitably spot-welded to the flanges 17 to reinforce these flanges and to prevent deformation of the mold in use. In section 14 the reinforcing strips 20 are secured to the tops of the flanges 17, while in section 15 they are secured to the bottom of the flanges 17.

To prevent distortion of the ends of the channel molds angle irons 21 are suitably spot-welded thereto, as indicated, particularly in Figs. 1, 2 and 6. These reinforcing strips 21 extend substantially the entire heights of the side walls 19 so that the weight of the mold, when filled with concrete, is distributed throughout the entire area of the end of the channel mold.

Referring now to Figs. 3 and 4, the clamp 16 comprises a C-shaped tapered body having a projecting tongue 22 which overhangs the top reinforcing strip 20 of the mold section 14. The lower part of the body has a depressed seat 23 in which is placed a tapered wedge 24 having a depending part 25.

If desired, plates 26 may be spot-welded to the lower side of the lower reinforcing strip 20 of the channel section 15. These plates 26 have recesses in which the body of the clamp fits, as indicated best in Fig. 5. The wedge 24 of the clamp is driven home against this plate 26 to tightly clamp the sections 14 and 15 of the channel mold together. The tongue 22 insures proper positioning of the clamp and the seat 23 insures

proper positioning of the wedge 24 so that the clamping effect is obtained as close to the side walls 19 of the mold sections as possible. It will be understood that for removing the clamps the wedges may be struck on the depending portions 25.

Referring again to Figs. 1 and 2, after the channel molds are placed in position upon the mold parts 11 and the sections are properly clamped together, the top panels 13 may be placed on the channels extending from one channel to the adjacent, as indicated. The panels may be made of thin sheet metal having reinforcing angles 80 spot-welded to its lower surface to impart rigidity and strength to the panels. The panels may be provided with recesses or notches 81 to clear clamp 16, as indicated.

To retain the concrete at the ends of the channel molds end plates 90 are provided. These plates are made up of sheet metal and may be bounded by upper and lower flanges 91 and 92 and side flanges 94 which may be made by bending the body of the metal or by suitable angle irons welded thereto. The end plates 90 are placed in the position shown in Figs. 1, 2 and 6, and, if desired, nails 93 may be passed through aligned holes in the panel 13, channel mold 14 and end wall 90 which have been made for this purpose. If desired, the flanges on the end walls 90 may abut the strengthening angles 21, as indicated.

Another manner by which the proper relation between the panels 13 and the channel molds 12 may be maintained is by S-shaped clips, indicated by 82, which pass over the top of the panel 13, between the panel and the channel mold 12, and under the flange of the channel mold, as indicated, particularly in Figs. 2 and 10. These clips 82 are convenient when it is necessary to spring the sides 19 of the channel molds closer together to get the standard size panels 13 in position, this condition occurring when it is necessary to converge the channel molds 12 slightly. These clips may also be used to properly position the end walls 90 with respect to the panels 13, a clip for this purpose being indicated by 83.

To prevent the channel molds 12 from tipping over before and during the pouring of the concrete, the sections 14 and 15 may be provided with U-shaped straps 87 suitably spot-welded to the bottoms 18. Wooden members, indicated by 86, pass through the straps 87 of adjacent channel molds and wedge members 85 may be used to tightly clamp the wooden members 86 and the straps 87 together. It is preferable to pass a single wooden member 86 through the straps 87 of a pair of adjacent channel molds.

If desired, the sections of the channel mold 12 may be reinforced in the manner indicated in Figs. 7, 8 and 9. In Fig. 7 the sections are indicated by 30 and 31 with the flange on the inner section 31 being bent back on itself, as indicated by 33 and the flange on the outer section 30 being bent back on itself, as indicated by 32. The bent back portion 33 is on top in the upper section, and the bent back portion 32 is underneath in the lower section.

In Fig. 8 the sections of the mold are indicated by 34 and 35 and flanges 37 and 36 are bent back, as indicated. Reinforcing members 38 and 39 may be placed between the flanges and their bent back ends, as indicated, and suitably spot-welded in position.

In Fig. 9 the sections of the channel mold are indicated by 40 and 41, and their flanges are provided with strengthening ridges 42 and 43, which inter-fit as shown.

Referring now to Figs. 11 and 12, for a modified form of clamp, the clamp body is denoted by 50 and is pivoted to the lower flange 54 of the lower section 51 by pivot pin 56, as indicated. Secured also to the flange 54 by spot-welding or the like is a tapered member 154. The clamp body 50 is provided with a contact portion 155 which bears against the upper flange 53, and the corner of the body 50 is provided with a cam surface 55 for assisting in drawing the flanges 53 and 54 together in case they should be slightly separated during the process of setting up the molds.

The clamp is driven to position by striking the body 50 with a hammer or similar instrument and the sections 51 and 52 are properly clamped together as close as possible to the side walls between the projecting portion 155 of the clamp and the wedge 154. For removing the clamp, a projection 57 is provided on the body 50 under which a hammer or similar instrument may be inserted for prying loose the clamp. This construction has the advantage of being self-positioning and being always assembled with the channel mold so that the clamp parts cannot become lost.

Referring now to Fig. 13, for a still further modified form of clamping device, the channel sections are indicated by 62 and 63, and the reinforced flanges by 68 and 67. A plate 64 is suitably spot-welded to the lower side of flange 68 and is provided with a seat 164 for the tapered wedge 61. The plate 64 is provided with a recess 65 for receiving the clamp body 60 in the same manner as explained above in connection with Figs. 3, 4 and 5.

The clamp has a projecting lip 66 and the wedge 61 has a depending portion 69. The lip 66 and the seat 164 insure correct position of the clamp body 60 and the wedge 61, respectively, and the depending portion 69 assists in the removal of the clamp when stripping down the forms.

Referring now to Fig. 14 the reinforcing flanges of the inner and outer sections are indicated by 71 and 70, respectively. In this construction the wedge 75 is welded to the lower surface of the reinforced flange 70 and the body of the clamp, indicated by 74, is driven to position from the position indicated by the dot and dash lines to the position indicated by the full lines. It will be understood that the construction of the body 74 is the same as the construction of the body of the clamp 16 in Figs. 3, 4 and 5.

It is thught that the use of the apparatus above described will be obvious to those skilled in the art from the above description and the drawings. A channel mold construction has been provided which is of comparatively light weight and yet of rugged construction. The parts of the channel sections, such as the top flanges, are sufficiently reinforced to prevent undue distortion and bending at these points. Furthermore, the ends of the channel molds are properly reinforced by the members 21 to prevent distortion at these points. The clamps 16 are of such construction that the channel sections are rigidly clamped together at points which are as close to the side walls of the channels as possible.

Furthermore, the positioning devices insure placing the clamps at the proper position. The U-shaped straps 87 are important and are sufficiently rugged due to their being secured at both ends to the bottom wall of the mold to prevent bending of these members which otherwise might occur.

Thus, a mold construction has been provided which is of comparatively light weight and yet which is sufficiently rugged to withstand the heavy weights of concrete which it must hold. It is properly reinforced so that undue bending and distortion of the thin sheet metal parts cannot take place.

While certain novel features of the invention have been shown and described and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. In forms for concrete or the like, a plurality of channel molds each comprising a bottom wall and side walls, depending straps secured at both ends thereof to said bottom wall, members passing through the adjacent straps of a pair of adjacent molds to prevent tipping of the molds.

2. In forms for concrete or the like, a plurality of channel molds each comprising a bottom wall and side walls, depending straps secured at both ends thereof to said bottom wall, and members passing through said straps to prevent tipping of the molds.

3. In an extensible channel mold, a pair of adjoining sections having superimposed flanges, a clamp surrounding said flanges, each lower flange having a positioning plate secured to its lower surface, said plate having a recess for the clamp, said clamps being detachable from said sections.

4. In an extensible channel mold, a pair of adjoining sections having superimposed flanges, a clamp surrounding said flanges, each lower flange having a positioning member to locate the clamp and a wedge driven between said clamp and said flanges.

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