Feb. 26, 1952

O. L. BRAUN

2,586,912

CURB AND GUTTER FORM

Filed June 7, 1947

2 SHEETS—SHEET 1

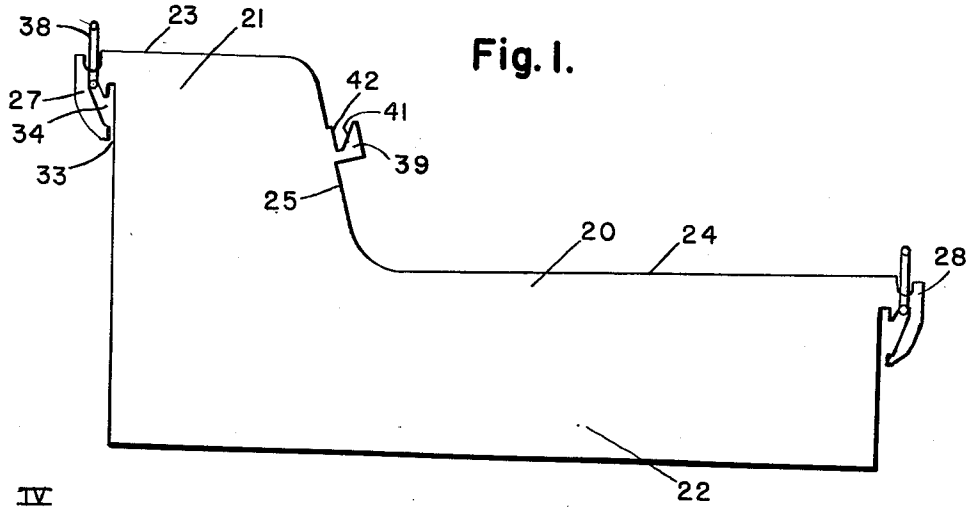


Fig. 1.

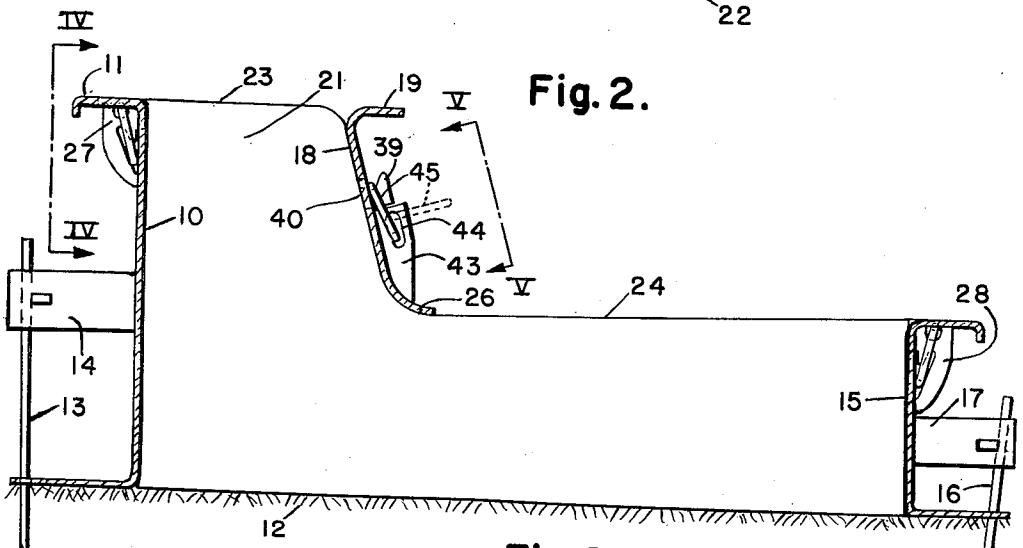


Fig. 2.

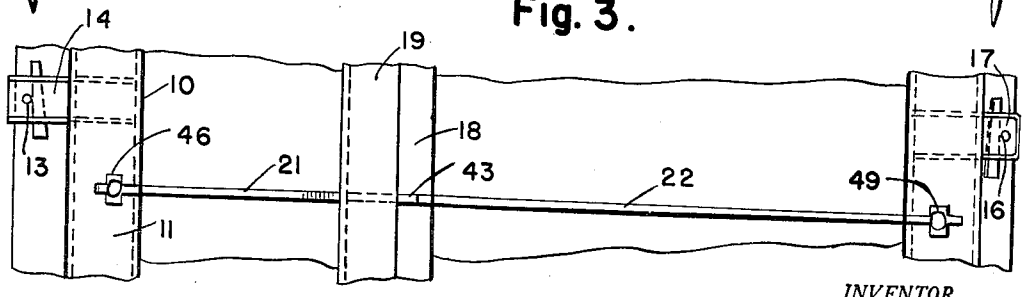


Fig. 3.

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2 SHEETS—SHEET 2

Fig. 4.

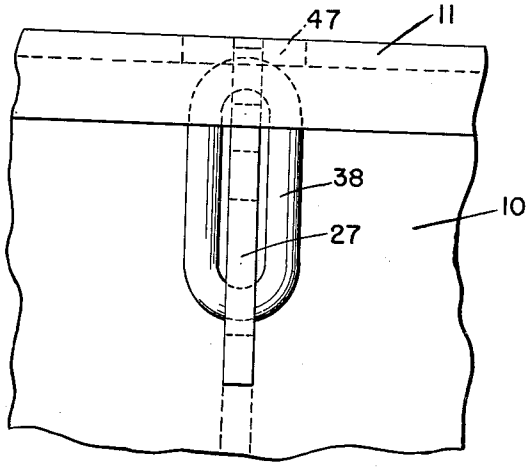


Fig. 7.

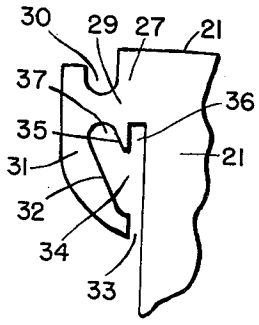


Fig. 5.

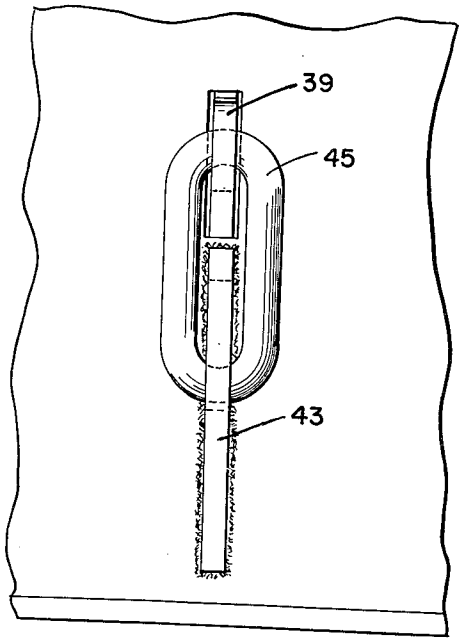
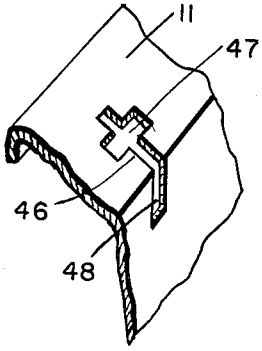


Fig. 6.



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UNITED STATES PATENT OFFICE

2,586,912

CURB AND GUTTER FORM

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Application June 7, 1947, Serial No. 753,274

6 Claims. (Cl. 25—118)

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This invention relates in general to concrete forms or molds and more particularly to a curb and gutter form for use primarily in connection with streets and highways and provides means for spacing and securing the road forms and curb forms to each other, whereby a mold is provided in which the curb and gutter, usually of concrete, can be formed.

In the construction of a concrete curb and gutter, it is common to use a front rail, a back rail, and a curb form secured in position relative to the prepared ground. The front and back rails or forms are held by stakes driven through stake pockets attached to the rails and into the ground. The rails are also held in spaced relation by division plates which extend transversely between and are secured by their ends to the front and back rails by lug-like projections received in slots in the forms. The division plates also support and secure in position the curb form or face rail in operative relation to the front and back rails, as well as provide openings when the plates are removed after the concrete has set for expansion joints at suitable intervals along the curb and gutter.

Difficulty has been experienced in supporting the curb forms in position, and various arrangements have been tried for this purpose. They have usually been fairly complicated and cumbersome, and interfere with the finishing of the top of the curb. In my arrangement the curb form is secured at intervals to a division plate by a relatively simple lug and slot connection which locks the plate and curb form together in a manner which can be readily unlocked, and the plate and curb form then separated. The division plate has lugs thereon having cam surfaces whereby the plate may be securely wedged to the rails and curb forms, and provide a sturdy molding structure.

It is an object of my invention to provide a curb and gutter mold which is durable, simple, effective, and one which can be readily and accurately set up and dismantled by unskilled labor. It is also an object of my invention to provide an improved division plate or spacer member which will firmly tie the various forms together and automatically space them the correct distance apart. At the same time the division plates or spacer members will be located at the points where it is desired to arrange expansion joints. The division plate will hold the curb form rigidly in position at the desired elevation, will not interfere with troweling or finishing the top of the curb, and will prevent deflection of the forms under the concrete pressure. The whole mold may be readily dismantled and shifted to a new location without injury to the green concrete.

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It is also an object to provide a simple, strong, efficient and durable locking device whereby the division plates may be securely fastened to the various forms employed, and which can be readily unlocked without the use of tools or highly skilled help.

In the drawings, in which I have shown for purposes of illustration only the present preferred embodiment of my invention:

Figure 1 is a view in elevation of my division plates;

Figure 2 is a view in elevation showing a section of the forms and the division plates in position between the various forms;

Figure 3 is a plan view showing the back and front forms, the curb form and the division plate arranged in position for molding;

Figure 4 is a view along the line IV—IV of Figure 2;

Figure 5 is a view along the line V—V of Figure 2;

Figure 6 is a view in perspective of a portion of one of the road forms showing a division plate receiving slot; and

Figure 7 is an enlarged view of one of the fastening lugs.

In the drawings, the numeral 10 indicates a metal back form or back rail of well known channel-like shape, including a top flange 11. The edge rail 10 is secured to the ground 12 by means of stakes 13 received in stake pockets 14 attached to form 10. A similarly shaped front rail 15 is parallelly spaced from the rail 10 and secured to the ground by stakes 16 received in stake pockets 17 attached to rail 15. The rails 10 and 15 are of any convenient length, usually about 16 feet, and of desired proportions. Any number of forms may be assembled in end-to-end relationship, as well known in the art.

Between the front and back rails a metal curb form or face rail 18 of suitable shape to mold the curb face and having a top flange 19, is located. The flanges 11 and 19 define the plane of the top part of the curb.

At suitable intervals longitudinally of the assembled rails and conveniently at locations for expansion joints, division plates or spacer members 20 are used. The plate formed from sheet metal of desired thickness, usually about $\frac{3}{16}$ of an inch, is disposed transversely of the rails in a vertical plane and has a curb portion 21, dis-

posed between the back rails 10 and curb form 18, and the gutter portion 22 extending from below the curb form 18 to the front rail 15. The plate is shaped so as to correspond to the desired cross section of the curb and gutter. The edge 23 of portion 21 in the plane of flanges 11 and 19 conforms to the top of the curb and an edge 25 conforms to the face of the curb, the upper edge 25 of the portion 22 conforms to the surface of the gutter and the corner between edge 24 and 25 is shaped to conform with the lower edge portion 26 of the form 18; the web of the form 18 bears against the edge 25.

As shown in Figures 1 and 7 the top left end of portion 21 and the top right end of portion 22 terminate in lug-like projections 27 and 28 respectively. The projection 27 includes a reduced neck portion 29, a depression 30, the outer end of which is below the level of edge 21, a dependent finger 31 spaced from the plate and inwardly inclined toward portion 21 so as to form an inwardly-inclined cam surface 32 which terminates just short of portion 21 to leave an opening 33 equal to the width of the web of the rail 10. In the upper portion of a link receiving space 34, between the finger 31 and portion 21 is a protuberance 35 spaced so as to provide a notch 36 the width of the web of rail 10 and a recess 37 a little larger than the width of the opening 33. A metal link 38 (see Figure 1) is received in recess 37, the link being formed from a round bar which is thicker than the opening 33, so that when the link is placed in position in space 34 it will not drop out through space 33. It will be necessary to slightly spring the finger 31 to permit the link to enter the space, or the link may be placed in position with one side opened and then welded to form the complete link. The link 38 is of such length that when in locking position shown in Figure 2 it will be tightly engaged between cam surface 32 and the web of rail 10, and the top of the link will be below the flange 11.

The lug 28 projecting from the right end of portion 22 is similar to the lug 27 which have just described. It is therefore unnecessary to further describe it.

Formed integrally with the edge 25 of the plate 21 is a projecting lug 39 (see Figure 1) which is adapted to project through a slot 40 in form 18 as shown in Figure 2. The lug 39 has a cam surface 41 downwardly and inwardly inclined toward the edge 25. The lug 39 has a shoulder 42 which is less in thickness than the web of form 18. When the form 18 is in molding position relative to plate 21 the upper edge of the shoulder 42 is in contact with the upper edge of the slot 40.

The curb form 18 has a flat metal projection 43 welded at right angles to the web of form 18. On the plate or projection 43 is a slot 44, the sides of which are parallel to the face of plate 18. In this slot a metal link 45 is slidably disposed and is of a size so that when it is at the upper end of slot 44 it can be hooked over the lug 39. When the link is moved downwardly the upper end of it will slide along the cam surface until it binds between the cam surface 41 and the outer surface of form 18. This will wedge plate 21 and form 18 into tight engagement.

Along the top edges of rail 10 at intervals equal to the spacing of plates 21 a series of cruciform slots 46 are cut out. The slots extend along the top flanges and along the adjoining web of form 10 (see Figure 6). The slots are of such size as to extend into the flange 11 a distance such as will receive the projection 27 and the longitudinally extending portion 47 of slot 46 will receive the link 38. The slot portion 48 extending from the edge of flange 11 downwardly into the web of rail 10 is of such depth that when the plate 21 is positioned, the upper end of notch 36 will bear against the lower edge of slot portion 48 and the top edge 23 of plate 1 will lie in the horizontal plane of flange 11. The slots 46 are commonly placed at the expansion joints if such are employed, otherwise as the designer might indicate. A spacing of from 6 to 10 feet is usual.

A like arrangement of slots 49 is provided in the front rail 15.

The various components are assembled to form the curb and gutter form as follows:

The rails 10 and 15 are placed in the desired position on the graded ground and secured by the stakes 13 and 16. The plates 21 are then positioned so that the lugs 27 are entered into the cruciform slots 46 of back rail 10 and placed in locking position. The binding links 38 are slid into locking engagement between the cam surfaces 32 and the webs of the rail. The operation is repeated on the front rail 15. Next the lug 39 is positioned in notch 40 and the link 45 is placed against cam surface 41, then slid therealong to engage the outside of the form 18.

It is to be understood that the operation need not be performed in the order set forth as either form can be fastened to the plate 21 in any order desired.

When it is desirable to disassemble the mold, the links are raised from wedging engagement and the division plates 21 lifted from the plastic mass without the use of special hooks or tools.

It is also within the contemplation of my invention to prepare molds for curbs only. In such instance forms 10 and 18 only need be used, and the portion 22 of plate 21 may be considerably shortened. The portion 22 should be staked to the graded ground in any desired fashion, for example, by the use of U-shaped stakes (not shown).

While I have shown for purposes of illustration only the present preferred embodiment of my invention, it is to be understood that it may be otherwise practised within the scope of the following claims.

I claim:

1. For use in a construction mold, the combination of an edge rail having a top flange and a connecting vertical web, a curb form having a web portion, a spacer member extending between the rail and the form, a slot partly in the top flange and partly in the web, a lug on the spacer member extending through the slot, a slot in the web of the curb form, a projection on the spacer member extending through the last mentioned slot, a cam surface on the lug extending downwardly and inwardly toward the rail web, a cam surface on the projection extending downwardly and inwardly toward the curb form web, a link member slidably engaging the rail web and cam surface of the lug and a link member slidably engaging the form web and cam surface of the projection whereby the rail, the form and the spacer member may be fastened together.

2. In a curb and gutter mold, an edge rail having a top flange and a depending web, a slot in the top flange, a connecting vertical slot in the web, a curb form spaced laterally from the edge rail, and a division plate extending between the rail and the form, the plate having a lug protruding from the end thereof and receivable in the slots, a depression in the top edge of the lug,

the lug having a depedent finger spaced from the side of the plate and inwardly inclined toward the side of the plate to form a cam surface and to partly enclose a link receiving space, and a link movable in said space along the cam surface whereby the rail web and lug may be wedged relative to each other.

3. In a curb and gutter mold, an edge rail having a top flange and a depending web, a slot in the top flange, a connecting vertical slot in the web, a curb form spaced laterally from the edge rail, and a division plate extending between the rail and the form, the plate having a lug protruding from the end thereof and receivable in the slots, a depression in the top edge of the lug, the lug having a dependent finger spaced from the side of the plate and inwardly inclined toward the side of the plate to form a cam surface and to partly enclose a link receiving space, the link receiving space having a notch in the upper portion wherein the lower edge of the slot is received, and a link movable in said space along the cam surface whereby the rail web and lug may be wedged relative to each other.

4. In a curb and gutter mold, an edge rail having a top flange and a depending web, slot in the top flange, a connecting vertical slot in the web, a curb form spaced laterally from the edge rail, a vertical slot in the curb form, and a division plate extending between the rail and the form, the plate having a lug projecting from one end adjacent the top, the lug having a depending inwardly directed finger including a cam surface, which finger is passable through the slots, a lug projecting from another end of the plate and through the slot in the form, the lug having a downwardly and inwardly directed cam surface facing the form, and wedging means between said cam surfaces and the adjoining surfaces of the rail and the form.

5. In a curb and gutter mold, the combination of an edge rail having a top flange and a depending web with a slot therethrough, a spacer plate extending laterally from the rail and having a lug projecting through said slot, a camming part spaced from the edge of said plate and depending from said lug to provide a camming surface sloping inwardly and downwardly toward the web of the rail through which the lug projects, and a link mounted in the space between said depending camming part and plate edge for movement upwardly to a position in engagement with the lug and for movement downwardly in said space to a wedging position in which it is tightly engaged between said camming surface and said web to secure said plate against movement away from said rail.

6. A mold as claimed in claim 5 characterized by said flange being provided with a slot communicating with said web slot through which said lug and link may be lowered to a position with said lug projecting through said web slot, said link when in wedging position being positioned entirely below and clear of the upper surface of said rail flange but being movable upwardly through the slot in said flange to release the connection between said plate and rail and into said position in engagement with said lug.

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