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CURB AND GUTTER FORM

Filed July 3, 1924

Fig. 1.

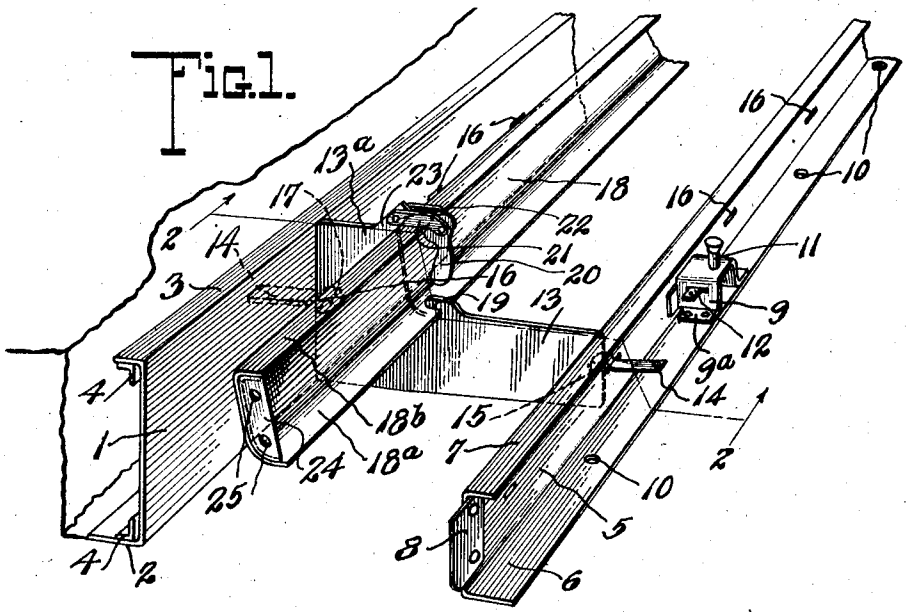


Fig. 2.

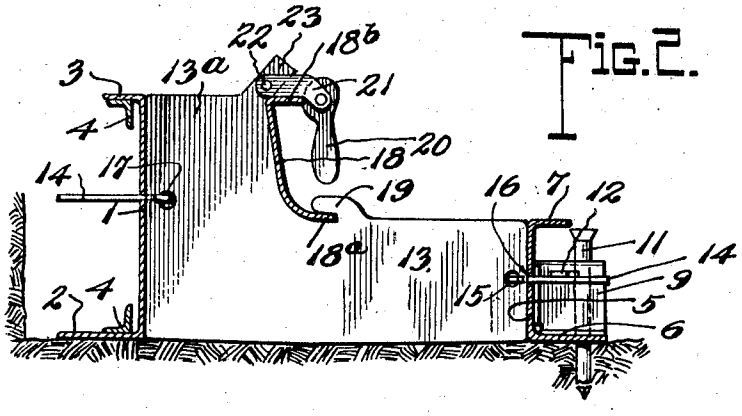
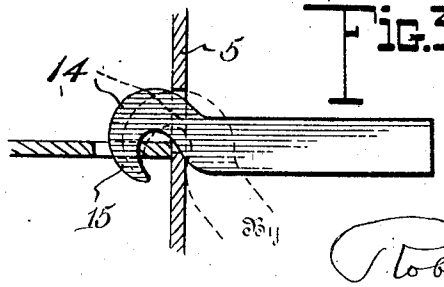


Fig. 3.



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UNITED STATES PATENT OFFICE.

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CURB AND GUTTER FORM.

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In the art of curb and gutter forms or molds it has heretofore been proposed to utilize as essential form or mold elements three main parts, namely, a back rail of substantially the height of the curb or coping, and gutter, a face rail of substantially the depth of the gutter face of the curb or coping, and an edge rail which forms the inner edge portion of the gutter at the point where the latter will join the pavement. It is proposed by the present invention to utilize novel means for supporting these various main parts of a curb and gutter form in rigid interlocked positions. In previous forms or molds of the type of the invention the face rail has usually been held in place by inadequate means and it has been found that there is a considerable tendency for this rail to become displaced or to float laterally or upwardly under the pressure of the concrete disposed between it and the back rail. This tendency must be counteracted, of course, and some crude expedients have been resorted to for this purpose.

In the present invention we utilize a special form of divider plate and means in conjunction therewith for establishing the desired interlocking relations between the back rail, the face rail, and the edge rail.

Additionally this invention presents specific features of novelty in respect to the means employed for interengaging the several rails above referred to whereby to rigidly and firmly maintain them in proper working conditions under practical conditions of service.

In the accompanying drawings:

Fig. 1 is a perspective view showing a curb and gutter form or mold embodying the principal features of the invention.

Fig. 2 is a vertical transverse sectional view through the form, on the line 2—2 of Figure 1.

Figure 3 is a plan view, certain parts shown in section, bringing out more clearly the coaction of the camming hook with the divider plate and adjacent rail.

Similar reference characters referred to similar parts throughout the following description and in the illustration of the drawings.

Our curb and gutter form may be briefly described as including the back rail 1, which is a rail of considerable height, in fact of a height equivalent, practically speaking, to the combined height of the curb and coping and the depth of the gutter base which will be formed by the use of our invention.

This rail is preferably made of a channel having a base flange 2 and a top flange 3 extending outwardly therefrom, the base flange of somewhat greater area to provide an adequate supporting base for the rail. The flanges 2 and 3 may be provided at the angles, if desired, with angle irons 4 for a purpose to be hereafter described.

The edge rail 5 by which the inner edge of the gutter section of a combined curb and gutter is formed, is of a construction somewhat similar to the back rail 1 in that it is provided with the base flange 6 and the top flange 7. The body of the rail has an end protruding male interlocking member 8 applied thereto by rivets or similar fastenings.

Suitable means may be employed to anchor the rails 1 and 5 upon the subgrade on which the curb and gutter are to be laid. Typical means are illustrated in Fig. 1 most clearly as including a stake box 9 riveted to the base 6 of the rail 5 and to the body of said rail as shown at 9^a and 9^b, respectively. A stake may pass through a stake opening 10 in the base part 6 and said stake, designated 11, may be driven into the subgrade to hold the rail 5 in place in a well known manner. To support the rail 5 in proper horizontal alignment a wedge 12, also well known as an expedient used in the art, passes transversely through the stake box 9 and engages the stake 11. Any suitable number of the devices 9 and 11 may be provided in the length of the rail 5, and at intervals the stake openings 10 are provided without any stake box for reception of auxiliary stakes co-operating with the stakes that are mounted in the stake boxes. The rail 1 may be equipped with stake boxes and stakes in substantially the same manner as in the rail 5.

The rails 1 and 5 are held rigidly in proper spaced relation by means of divider plates, typical one of which is designated 13, said divider plate having a vertical extension 13^a at one end and being united or interlocked to the rails 1 and 5 by peculiar locking hooks 14. The hooks 14 comprise bodies having hook cams 15 at one end, the hook cams being adapted to be inserted through slots or openings 16 in the rails 1

or 5, as the case may be, and by a sort of pivotal camming movement the hook 15 is adapted to be engaged in an opening 17 at the adjacent end of the divider plate 13. In this manner the end of the divider plate with which a hook 14 co-operates is adapted to be cammed or wedged firmly into edgewise engagement with the inner adjacent face of the rail 1 or 5, as the case may be. The hooks 14 preferably co-act with the plate or plates 13 about centrally between the upper and lower edges of the adjacent end portions of the said plates 13. It may be desirable some times to use more than one hook 14 at an end of the plate 13, but in practice we have found excellent results of firm interlocking action obtained by the construction as illustrated.

The divider plate or plates 13 support the face rail 18. This face rail 18 has a lower curved flange 18^a and an upper flange 18^b, the latter substantially horizontal throughout its whole area. The lower flange 18^a of the face rail is interlockingly engaged to prevent lateral outward movement, or upward floating movement through the provision of a hook arm 19 on the upper edge of the divider plate 13. To firmly clamp the face rail down upon the divider plate or plates 13 in its engagement with the hook arm or arms 19, I use a special clamp comprising a cam lever 20 connected by a pair of links 21 pivoted at 22 to an extension 23 projecting upwardly from the vertical extension 13^a of the divider plate 13. The links 21 are adapted to be freely moved to overlap and engage the upper surface of the flange 18^b of the rail 18, and when so disposed the cam lever 20 will be moved downwards so that its cam engages the free edge of the flange 18^b and firmly clamps the rail 18 down upon and interlocked with the divider plate or plates 13.

The angle irons 4 are slightly spaced from the body portions of the rails 1 so that an interlocking extension on an adjacent rail, somewhat like the member 8 previously described, may engage between the parts 1 and 4, when a series of rails are assembled end to end preliminary to the molding of a long section of curb and gutter construction. The member 8 is adapted to co-operate with members like the members 4 carried by an adjacent rail similar to the rail 5. As these connections are well known in the art of concrete forms, they need not be further set forth. On the ends of the face rail 18 are provided joint plates 24 having openings 25 adapted to receive dowels or pins projecting from corresponding joint plates in a matching opposing rail end.

The various rails of our curb and gutter form may be quickly set up in place on the subgrade and assembled in rigid interlocked relations by means of the divider plate feature 13, the locking hooks 14 and the cam levers 20. When so disposed, as illustrated in Fig. 1, we have found our form or mold apparatus possessed of great rigidity, susceptible of being readily knocked down by merely lifting the cam levers 20 and knocking out the locking hooks 14.

It is noted that the locking hook means 14 may be employed in what are known as side-walk forms which usually comprise two edge rails similar to the rails 6 and connected together by means of suitable divider plates. In side-walk forms the hooks 14 connect the edge rails and divider plates substantially as shown in Figure 1

Having thus described our invention what we claim as new and desire to secure by Letters Patent, is:

1. In a curb and gutter form, in combination, a back rail, an edge rail, a divider plate connecting these rails, a face rail mounted on the divider plate, and means interlocking said face rail at its upper and lower portions to the divider plate.

2. In a combined curb and gutter form, in combination, a back rail, an edge rail spaced therefrom, a divider plate intermediate the two, means interlocking opposite ends of the divider plate to said rails, said divider plate having a vertical extension at one end at the inner side of the back rail, a face rail mounted on the divider plate and engaging an edge of said vertical extension thereof, means intermediate the lower edge of the face rail and divider plate detachably interlocking the same with respect to the divider plate, and means coacting to hold the upper part of the face rail against said vertical extension of the divider plate.

3. In a combined curb and gutter form, in combination, a back rail, an edge rail spaced therefrom, a divider plate intermediate thereto, means interlocking opposite ends of the divider plate to said rails, said divider plate having a vertical extension at one end at the inner side of the back rail, a face rail mounted on the divider plate and engaging an edge of said vertical extension thereof, and a swinging cam lever attached to the divider plate to swing over the face rail and hold the same down upon the divider plate.

4. In a combined curb and gutter form, in combination, a back rail, an edge rail spaced therefrom, a divider plate intermediate there too, means interlocking opposite ends of the divider plate to said rails, said divider plate having a vertical extension at one end at the inner side of the back rail, a face rail mounted on the divider plate and engaging an edge of said vertical extension thereof, a swinging cam lever attached to the divider plate to swing over the face rail and hold the same down upon the divider plate, together with a hook arm carried by the di-

vider plate to engage the base of the face rail and maintain such engagement under the action of the swinging cam lever.

5. In a combined curb and gutter form, in combination, a back rail, an edge rail spaced therefrom, a divider plate intermediate thereto, means connecting opposite ends of the divider plate to said rails, said divider plate having a vertical extension at one end at the inner side of the back rail, a face rail mounted on the divider plate and engaging an edge of said vertical extension thereof, the face rail embodying an upper flange and a lower flange, the divider plate having an integral locking arm engaging the base flange of the face rail, and a device against the extension of the divider plate detachably engaging the face rail whereby to hold said parts in position.

6. In combination, a back rail, an edge rail, a divider plate having its ends abutting with the inner faces of said rails, and means connecting the divider plate and rails, consisting of locking hooks loosely passing through the rails and having cam hooks adapted for cam engagement with the adjacent end of the divider plates.

7. In combination, a back rail, an edge rail, a divider plate having its ends abutting with the inner faces of said rails, and means connecting the divider plate and rails, consisting of locking hooks loosely passing through the rails and having cam hooks adapted for cam engagement with the adjacent end of the divider plates, the said locking hooks comprising flat bodies passing through the rails, and the divider plate having openings in its ends in which the hooks may engage and have a camming action on the divider plate and rails to draw the same together.

8. In combination, curb and gutter mold main parts consisting of a back rail, an edge rail, a divider plate, having its ends abutting the inner faces of said rails, a face rail supported on said divider plate detachable connections between the ends of the divider plate and the back and edge rails, and detachable connections between the upper and lower portions of the face rail and the divider plate substantially as set forth.

9. In combination, an edge rail, a divider plate having an end thereof abutting the inner face of said edge rail and detachable connecting means between the plate and rail including a locking hook hooked into the end of the divider plate and having a camming action thereon, said locking hook being passed through and engaged with said edge rail.

10. In combination, an edge rail, a divider plate having an end thereof abutting against a face of the edge rail, a locking hook passing through the edge rail and having engagement with the latter, the divider plate being formed with an opening in which the said hook engages, the hook being so formed as to have a camming engagement against said divider plate at the opening aforesaid.

11. In a curb and gutter form, in combination, a back rail, an edge rail, a divider plate connecting these rails and having a vertical extension at one end, a face rail mounted on the divider plate so that it engages the inner vertical edge of the vertical extension aforesaid, said divider plate having means adjacent to the bottom of the vertical extension establishing an interlock between the divider plate and the lower edge of the face rail, and means to interlock the upper edge of the face rail with the upper end portion of said vertical extension.

12. In combination, curb and gutter mold main parts consisting of a back rail, an edge rail spaced therefrom, a divider plate transversely to said rails and having its ends abutting the inner faces thereof, said divider plate being formed with a vertical extension at the end adjacent to the back rail, said divider plate having also a hook arm on its upper edge near the base of the said extension, a face rail supported on the divider plate, detachable connections between the ends of the divider plate and the back and edge rails, the face rail being mounted so that its lower portion is engaged with the hook arm of the divider plate, and a member coacting with the upper part of the face rail to hold the same firmly against the said vertical extension of the divider plate by conjoint action with the hook arm previously referred to.

In testimony whereof we affix our signatures.

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