Sept. 23, 1952 F. TORRELLI 2,611,169

CURB FORM

Filed Aug. 14, 1950 2 SHEETS—SHEET 1

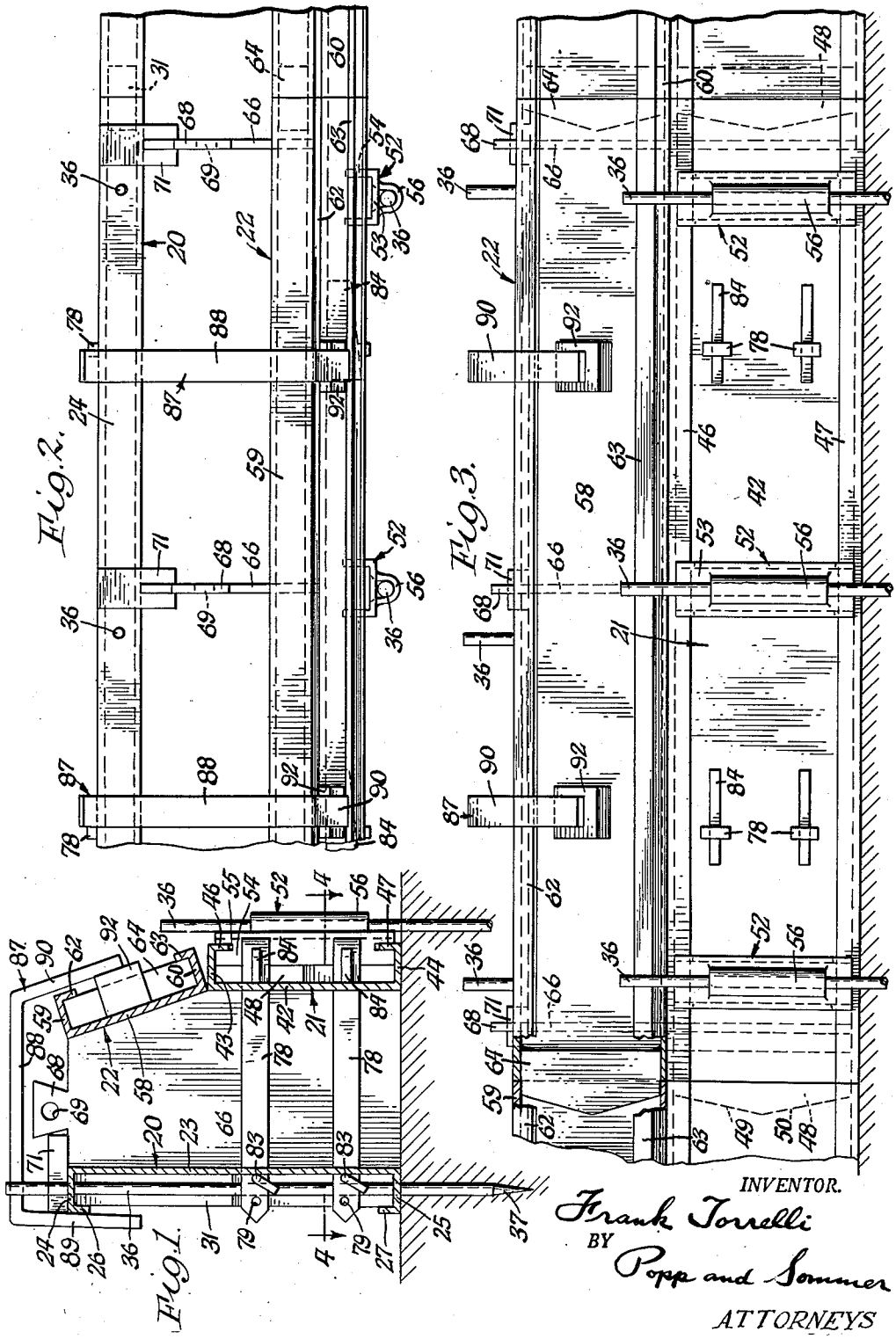


Fig. 1.

Fig. 2.

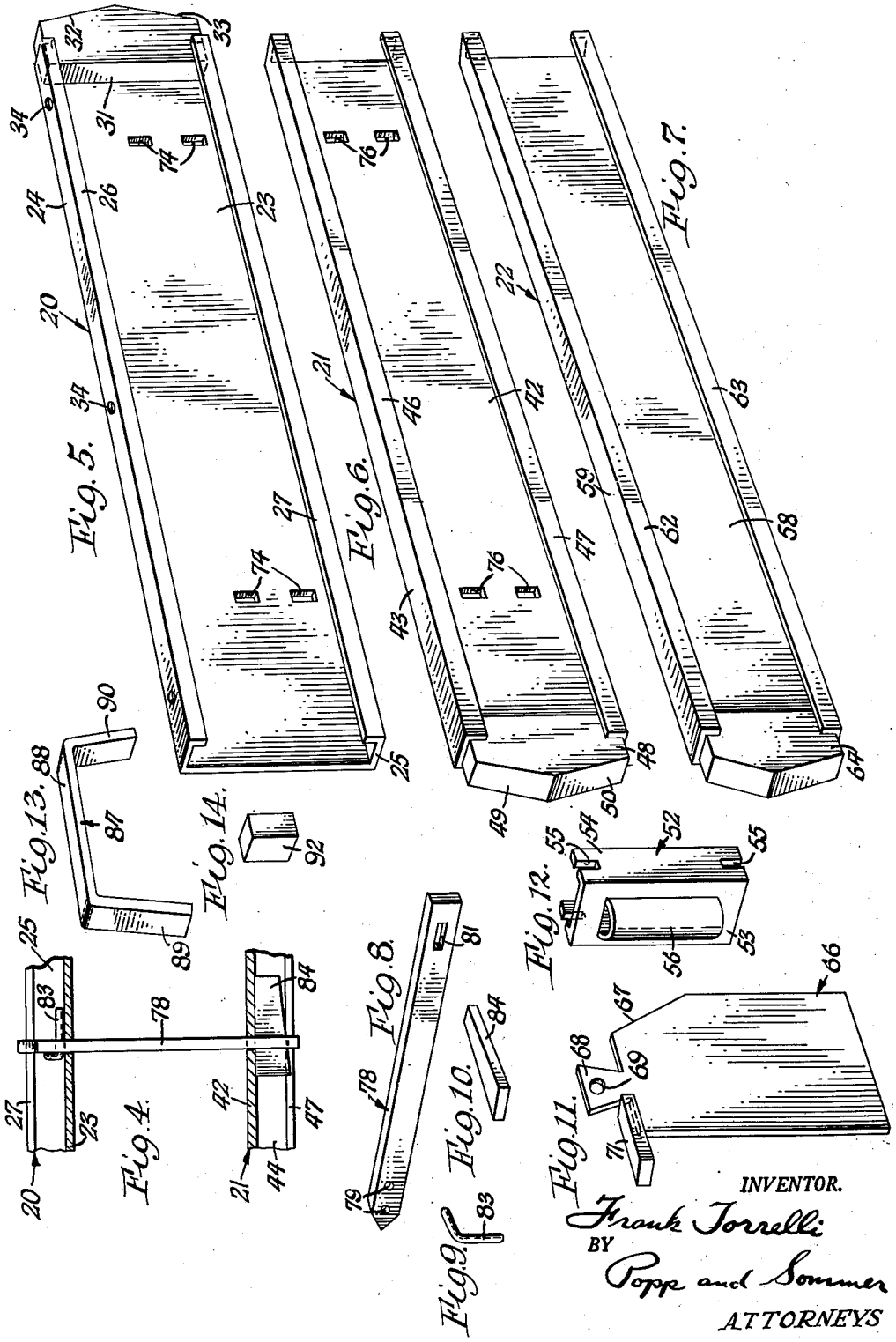
Fig. 3.

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CURB FORM

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5 Claims. (Cl. 25—118)

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This invention relates to forms or molds for the construction of poured concrete curbs and particularly to such forms as are made in sections which may be easily and conveniently assembled to permit the construction of curbs of various lengths.

It is an object of the invention to provide sectional forms for poured concrete curbs which are easily assembled, are securely held together and are easily stripped from the curb when the concrete thereof has set.

Another object of the invention is to provide in sectional forms for the construction of concrete curbs improved and novel means for retaining the form sections in position against lateral displacement.

A further object of the invention is to provide an improved division plate for separating the poured concrete curb into lengths to allow for expansion and contraction.

Still another object of the invention is to provide improved means for alining and joining the ends of the plates used in forms of the character described.

A still further object of the invention is to provide sectional forms for concrete curbs which are of rugged, durable construction and are inexpensive to maintain.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings in which:

Fig. 1 is a transverse sectional view through an assembled form constructed in accordance with the present invention;

Fig. 2 is a fragmentary, top plan view of a form assembled as shown in Fig. 1;

Fig. 3 is a fragmentary front elevation of a form assembled as shown in Figs. 1 and 2;

Fig. 4 is a fragmentary, horizontal, sectional view taken on the line 4—4 of Fig. 1 showing in detail the means employed for clamping together the vertical front and rear members of the form;

Fig. 5 is a perspective view of a rear vertical form member;

Fig. 6 is a perspective view of a vertical lower front form member;

Fig. 7 is a perspective view of an upper front form member;

Fig. 8 is a perspective view of a tie used to fasten the vertical form members together;

Figs. 9 and 10 are perspective views, respectively, of a pin and a wedge which are used with the ties shown in Fig. 8;

Fig. 11 is a perspective view of a division and

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spacing plate employed in constructing forms according to the present invention;

Fig. 12 is a perspective view of a stake holder bracket used with the lower front form members; and

Figs. 13 and 14 are perspective views, respectively, of a U-clamp and a block employed in holding the upper front form members in position against the division plates.

The concrete form shown in Figs. 1, 2 and 3 of the drawings is designed for use in the construction of curbs for streets, roads and the like. The forms compose a mold adapted to rest on the ground and having an open bottom and top. The two sides of the curb are molded by one or more form sections which are designed to be joined end to end.

Each section of the form comprises as principal elements three rails, which are preferably sheet steel channel members. In each form section the rear face of the curb, i. e. the side away from the road or street, is molded against a single upright horizontal rail 20. On the front, each form section comprises a lower horizontal rail 21 that also is preferably upright and an upper horizontal rail 22 which rests on the rail 21 and is preferably inclined rearwardly.

The rear or back rail 20 comprises a web 23 having longitudinal top and bottom lateral flanges 24 and 25, respectively. The outer edge of each of the flanges is preferably turned inwardly, as shown at 26 and 27, to provide additional strength and rigidity to the channel member 20. An end block 31 is secured, by suitable means such as welding, within the channels formed between the inturned edges 26 and 27 of the flanges 24 and 25 and the web 23 at one end of each of the rails 20. Each of the blocks 31 has a portion projecting longitudinally from the end of the rail 20, the outer end of the projecting portion being provided with bevelled edges 32 and 33 which facilitate its entrance into the end of an abutting channel member 20.

At spaced intervals along the top and bottom lateral flanges 24 and 25 of each of the rails 20 there are provided vertically alined holes 34 through which there may be passed a spike or stake 36 having a sharpened lower end 37 which may be driven into the ground to anchor the rails 20 in upright position against horizontal displacement.

Each of the lower front channel members 21 is of similar construction to the back rail 20, having a web 42 and longitudinal top and bottom outwardly projecting lateral flanges 43 and 44.

The edges 46 and 47, respectively, of the flanges 43 and 44 are turned inwardly and preferably alined with each other parallel to the web 42. Each of the rails 21 is also provided at one end with an end block 48 similar to the blocks 31, the outwardly extending portion of which is provided with bevelled edge portions 49 and 50. As with the back channel members 20, the protruding portions of the end blocks 48 fit into the ends of abutting channel members 21 and maintain them in alignment. Unlike the back channel member 20, however, the front rail 21 is not provided with holes through the horizontal flanges 43 and 44 to receive anchoring stakes, but is fastened to the ground in the desired location by stakes or spikes 36 which pass through stake holder brackets or fittings 52.

Each of the brackets 52 comprises a face plate 53 which is preferably provided with integral, rearwardly projecting, vertical flanges 54 on each side thereof. In the top and bottom of each of the flanges 54 there is provided a transverse notch or groove 55. The notches 55 are arranged in the same plane and, as best shown in Fig. 1, are adapted to slidably engage the inwardly turned edges 46 and 47 of the flanges 43 and 44, respectively, of the lower front rail 21. On the front of the face plate 53 there is formed a protruding, vertically disposed, elongated, rigid loop or semi-circular barrel 56 adapted to receive a stake or spike 36. The stake holder brackets 52 may be mounted on the rails 21 for slidable, longitudinal movement thereon.

The front surface of the concrete curb according to the present invention is preferably formed with a rearwardly inclined top portion. The mold for this portion of the front surface is provided by the upper front channel members or rails 22 each of which is of generally similar form to the rails 20 and 21 and has a web 58, longitudinal top and bottom outwardly projecting lateral flanges 59 and 60, the edges 62 and 63, respectively, of which are preferably turned inwardly in opposed facing relation, and end blocks 64 similar to the blocks 31 and 48. The bottoms of the channel members 22 rest on the tops of the lower front rails 21 and the rails 22 are supported in the desired inclined position by division and spacing plates 66 which are placed transversely between the front and rear channels or rails at regular intervals.

Each of the division plates 66 is preferably formed of sheet metal of substantial thickness so as to be stiff and resist bending and the main portion of each plate is shaped as a rectangle with the upper front edge being bevelled, as best shown at 67 in Fig. 11, at the angle desired for the inclined top of the curb. The length and width of the rectangle are the same as the height and thickness, respectively, of the curb which is to be constructed. A tab or ear 68 is formed, preferably integrally, at the top of each of the division plates 66, and is provided with a hole or perforation 69. Each of the division plates 66 is also provided on the rear upper edge thereof with a block 71 of substantial size which projects rearwardly from the plate and is adapted to rest on the upper flange 24 of the rear rail 20 to hold the division plate in proper position. The blocks 71 are preferably rigidly attached, as by welding, to the plates 66.

Each of the back rails 20 is provided at intervals along its length with a plurality of slots 74 in the lower portion of the web 23 thereof, the slots 74 being arranged in vertically disposed pairs. In like fashion each of the lower front rails 21 is provided with similar slots 76 which are arranged and spaced so that each may be laterally alined with one of the slots 74 in the rail 20. Ties 78 are employed to hold the back rails 20 and the lower front rails 21 in place in spaced relationship determined by the width of the transverse division plates 66 interposed between the rails.

Each of the ties 78 is formed as an elongated rod or bar, one end of which is preferably bevelled and provided with a plurality of transversely extending holes 79. Adjacent the other end of each of the ties 78 there is provided a longitudinally extending slot 81. The ties 78 are retained in place and hold the front and rear upright rails in position by means of pins 83 and flat wedges 84. Each of the pins 83 is preferably L-shaped and is adapted, as best shown in Fig. 4, to be placed through one of the holes 79 in one of the ties 78 outside the channel member 20. Each of the wedges 84 is adapted to be mounted in the slot 81 of one of the ties 78 and, by its wedging action, cause the rear and front rails 20 and 21 to be drawn together against the division plates 66.

The upper front channel members or rails 22, the flat webs 58 of which form the inclined upper surface of the curb front, are held in position against the bevelled front edge portions 67 of the division plates 66 by metal U-clamps 87. Each clamp comprises a horizontal base 88 and two depending legs 89 and 90. The leg 89 is disposed substantially vertically to the base 88 while the other leg 90 extends from the base at an obtuse angle which is preferably the same as the angle formed with the base by extending the bevelled edge portion of one of the plates 66. In using the U-clamps 87 the rails 22 are placed in position with their lower edges resting on the tops of the lower front rails 21 and inclined rearwardly so as to rest against the bevelled edges 67 of the division and spacing plates 66. The U-clamps are placed over the tops of the rails 20 and 22 with a block 92, preferably of wood or other resilient material, placed under the end of the inclined leg 90 of each clamp and resting against the outer face of the web 58 of the rail 22. The clamps are driven down. Since the rear, vertically disposed legs 89 engage the depending edges 26 of the back rails 20 and the inclined legs 90 are sprung outwardly by the blocks 92 as they move downwardly, the U-clamps will securely hold the rails in place.

In erecting or setting up curb forms as above described, the following procedure has been found convenient although other sequences of steps may be used. A rear channel member or rail 20 and a lower front rail 21 are placed in upright spaced position and division plates 66 are placed between them at suitable intervals with the blocks 71 thereof resting on the top of the rail 20. A plurality of stake holder brackets 52 are mounted along the length of the channel member 21 at appropriate points. Ties 78 are then pushed through the alined slots 74 and 76 and a pin 83 is run through one of the transverse holes 79 in the rearwardly extending end of each of the ties. The holes in which the pins are placed are so chosen that the slots 81 in the ties partially extend forwardly beyond the webs 42 of the front rails 21 and the rails may therefore be clamped together by inserting and driving into each of the slots 81 one of the wedges 84. Preferably each

tie is given a thin coating of grease before assembly.

When one section of the curb form has been thus assembled, additional rails **20** and **21** may be joined to the assembled rails by inserting the projecting end blocks **31** and **48**, respectively, of the additional rails in the channels of the positioned rails and driving the ends of the rails into contact. The end blocks **31** and **48** lock the abutting rails together and insure against their relative displacement. The newly positioned rails may then be laterally spaced by plates **66** and clamped together with ties **78** as described above, and the process of assembling sections of the forms may be continued in the same manner until a form of desired length has been provided.

The assembled form members are now alined and securely anchored in the desired position by driving stakes or spikes **36** through the alined holes **34** in the rearwardly projecting flanges **24** and **25** of the rear channel member **20** and through the loops **56** of the stake holder brackets **52** that are adjustably mounted on the front lower rails **21**. The upper front rails **22** are then assembled end to end with the blocks **64** serving to aline and lock the channel members together and are placed in position on top of the lower front channel members **21** and against the bevelled edges **67** of the division and spacing plates **66**. U-clamps **87** and resilient blocks **92** are thereupon placed in position at suitable intervals and the clamps are driven down so as to wedge the rails **22** securely against the division plates.

Concrete may then be poured in the mold provided by the assembled forms. When the concrete has partially set the U-clamps **87** may be removed to permit taking off the upper front channel members **22** so that the upper front and top of the curb surface may be smoothed and finished while the concrete is still fresh. After the concrete has become thoroughly set the wedges **84** are driven out of the slots **81** in the ties **79** and the ties may be pulled out of the concrete, the grease coating thereon preventing bonding of the concrete to the tie. The rear rail **20** and the lower front rail **41** are released by pulling up the stakes **36** and a suitable tool may then be placed in the holes **69** in the ears **68** of the division plates **66** and the plates may be pulled vertically from the molded concrete. It should be noted that the plates **66** serve not only to space the rails of the forms, but also to provide expansion joints at intervals along the length of the curb.

It will be apparent from the foregoing description that the concrete forms of the present invention are extremely convenient and efficient. Since the rails **20**, **21**, and **22** are provided with interfitting blocks at their ends, the forms may conveniently be extended as desired. The assembled forms are rigid, are easily assembled to construct the concrete mold, and may be rapidly stripped from the concrete after it has set. Because of their channel construction, the rails are durable and are resistant to bending and warping. As will be seen, the ties **78**, being provided with a plurality of holes **79**, may be employed with division and spacing plates of various widths where it is desired to construct curbs of different thicknesses. The rails and form sections constructed therefrom may be of any convenient length. In many cases form sections of various lengths will be combined to provide the necessary length of curb between driveways and the like.

It will be understood that the construction described and illustrated in the accompanying drawings represents only a single embodiment of the invention and that numerous modifications and variations in the construction may be made without departing from the spirit of the invention. It will also be understood that, although the foregoing description has made reference to the use of the novel forms of the invention only in connection with the construction of curbs, the forms may be used in molding concrete for other similar purposes. It is accordingly to be understood that the invention is not to be considered limited to the embodiment described and illustrated, but is to be construed broadly and limited only as made necessary by the appended claims.

I claim:

1. In a form section for concrete curbs and the like having a back rail, a lower front rail, and an upper front rail, a plurality of spacing plates transversely arranged between said back rail and said front rails, the upper front edge of each of said plates being bevelled, means holding said lower front rail and said back rail in contact with opposite edges of said plates, stakes engaging said back rail and adapted to be driven into the ground, each of said rails being channel shaped and having an elongated web and an outwardly extending longitudinal flange on each side of said web, the free edges of said flanges on each rail being turned inwardly in spaced facing relation, the combination therewith of means for locking a substantially identical form section thereto in end-abutting relation, means for anchoring said lower front rail to the ground, and means for holding said upper front rail inclined against the bevelled upper front edges of said transverse spacing plates, said locking means comprising a plurality of end blocks, one of said blocks being secured in the channel of each of said rails and having a portion projecting longitudinally from the end thereof, said blocks having the side edges of said longitudinally extending portions bevelled at their ends, said anchoring means comprising a channel-shaped stake holder bracket comprising a web, a vertical flange extending rearwardly on each side of said web, and an elongated, vertically disposed loop extending outwardly from the front of said web and carrying a stake, each of said vertical flanges being provided with a transverse notch in the top and in the bottom thereof, said notches being slidably engaged with the inwardly turned edges of the flanges of said lower front rail, and said holding means comprising a U-clamp having a horizontal base, a vertically depending leg engaging the outer portion of said back rail, an inclined depending leg arranged at an obtuse angle to said base, and a resilient block engaging the channel in the outer face of said upper front rail and the free end of said inclined leg of said clamp.

2. In a form section for concrete curbs and the like having a back rail, a lower front rail and an upper front rail, a plurality of spacing plates transversely arranged between said back rail and said front rails, the upper front edge of each of said plates being bevelled, means holding said lower front rail and said back rail in contact with opposite edges of said plates, stakes engaging said back rail and adapted to be driven into the ground, said lower front rail being channel shaped and having an elongated web and a forwardly extending longitudinal flange on each side of said web, the free edges of said flanges

being turned inwardly in spaced facing relation, the combination therewith of means for anchoring said lower front rail to the ground and means for holding said upper front rail against the bevelled upper front edges of said transverse spacing plates, said anchoring means comprising a channel-shaped stake holder bracket comprising a web, a vertical flange extending rearwardly on each side of said web, and an elongated, vertically disposed loop extending outwardly from the front of said web and carrying a stake, each of said vertical flanges being provided with a transverse notch in the top and in the bottom thereof, said notches being slidably engaged with the inwardly turned edges of the flanges of said lower front rail, and said holding means comprising a U-clamp having a horizontal base, a vertically depending leg engaging the outer portion of said back rail, an inclined depending leg arranged at an obtuse angle to said base, and a resilient block engaging the outer face of said upper front rail and the free end of said inclined leg of said clamp.

3. In a form for concrete curbs and the like having a back rail, a plurality of stakes engaged with said back rail and adapted to be driven into the ground, a front rail spaced laterally from said back rail, said front rail being a channel member having a web and a laterally extending longitudinal flange on each side of said web, each of said flanges having an inwardly turned edge, and a bar passing through said rails and provided with retaining members engaging said rails, the combination therewith of means for anchoring said front rail, said anchoring means comprising a channel-like stake holder bracket having a loop adapted to receive a stake and a plurality of upper and lower spaced slots slidably engaging said inwardly turned edges of said flanges.

4. The combination with a form member for constructing concrete curbs and the like, said

member being channel-shaped and having an elongated web and a laterally extending longitudinal flange on each side of said web, the free edges of said flanges being turned inwardly in spaced facing relation, of a channel-shaped stake holder bracket comprising a web, a vertically disposed loop projecting outwardly from the front of the web of said bracket and adapted to receive a stake, and a vertical flange extending rearwardly on each side of said bracket web, each of said bracket flanges being provided with a transverse notch in the top and in the bottom thereof, said notches receiving the inwardly turned edges of said first mentioned flanges whereby said bracket slidably engages said form member.

5. A stake holder bracket adapted to be used with a channelled concrete form member, said bracket comprising a web, a vertical flange extending rearwardly on each side of said web, and an elongated, vertically disposed rigid loop projecting outwardly from the front of said web, each of said flanges being provided with a transverse notch in the top and in the bottom thereof, said notches being located in the same plane and being adapted for engagement with said concrete form member to permit slidable mounting of said bracket thereon.

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