

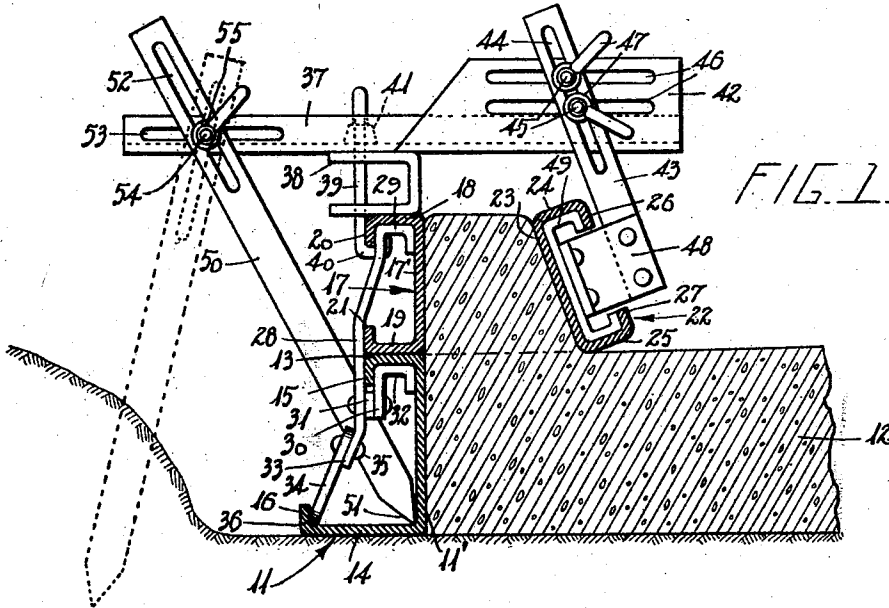
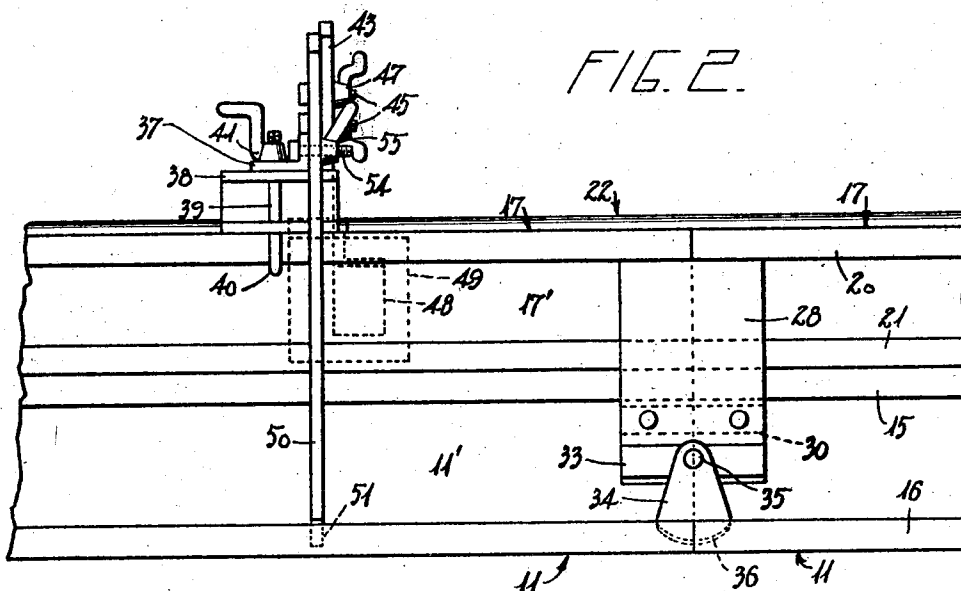
May 10, 1927.

1,628,316

J. N. HELTZEL

CONCRETE FORM

Filed Dec. 8, 1925



Inventor:

John N. Helzel
By Monroe E. Miller

Attorney.

Patented May 10, 1927.

1,628,316

UNITED STATES PATENT OFFICE.

JOHN N. HELTZEL, OF WARREN, OHIO.

CONCRETE FORM.

Application filed December 8, 1925. Serial No. 74,018.

The present invention relates to concrete forms, and more especially curb forms or molds, it being the object of the invention to provide a novel and improved concrete form for building a concrete road or slab with an integral curb.

Another object is the provision of novel means for mounting or supporting one rail or form member on another rail or form member, such as when placing a curb defining rail or form member on a rail or form member used to define the side of the road or slab.

A further object is the provision of novel means for adjustably supporting and bracing the face rail or form member that is used to define the face of the curb, in order that such rail or form member may be adjusted to produce curbs of different widths and with faces either vertical or inclined.

With the foregoing and other objects in view, which will be apparent as the description proceeds, the invention resides in the construction and arrangement of parts, as hereinafter described and claimed, it being understood that changes can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a cross section of the rails or form members showing the improved devices applied thereto.

Fig. 2 is an outside view of the form.

In accordance with the usual practice when building a concrete road or similar surfacing structure, the concrete is poured, struck-off, tamped and finished between side form members or rails which define the sides of the slab. The rails at one side are indicated at 11 which define the side of the concrete slab 12. Each rail has the vertical web 11', and the outturned tread and base flanges 13 and 14 provided with the secondary depending and upturned flanges 15 and 16, respectively. These rails are mounted on the ground or sub-base in the usual manner and may support finishing machines thereon during the building of the slab 12.

After the slab 12 has been finished, and before it has hardened, additional rails or form members are mounted on and supported from the main rails 11 for producing the curb on the slab 12 along the side thereof. Thus, outer or back curb rails or form

members 17 are seated on the rails 11, and each rail 17 has the vertical web 17' and the upper and lower outturned flanges 18 and 19 provided with the downturned and upturned secondary flanges 20 and 21, respectively. Inner or face curb rails or form members complement the rails 17 and, like the rails 17, are of C-shaped cross section, each rail 22 having the web 23 and the upper and lower flanges 24 and 25 provided with the secondary flanges 26 and 27, respectively. The rails are disposed end to end as usual, being rolled or otherwise formed from heavy sheet metal.

In order to support and hold the upper rails 17 in place on the lower rails 11 supporting devices are used at suitable intervals along the form, one of which is shown in Figs. 1 and 2. This supporting device comprises a plate or other suitable member 28 extending vertically across the flanges 15 and 21 of the rails 11 and 17, and formed at its upper end with a head 29 to bear upwardly against the flange 18 between the flange 20 and web 17' of the rail 17, the upper terminal of the plate 28 being bent inwardly and downwardly as seen in Fig. 1. A secondary plate 30 is secured to the plate 28 near the lower end thereof and at the inner side of said plate 28, with a spacer 31 between the plates 28 and 30, and the plate 30 has an inwardly and downwardly bent portion 32, similar to the portion 29, to engage under the flange 13 between the flange 15 and web 11' of the rail 11. The spacer 31 spaces the plate 30 inwardly from the plate 28 so as to accommodate the flange 15. The lower end portion of the plate 28 is bent outwardly at an obtuse angle, as at 33, and a cam plate 34 is pivoted, as at 35, on the portion 33 and its lower or free end is formed with a curved or cam edge 36 to seat in the corner between the base flange 14 and secondary flange 16 of the rail 11.

In applying the supporting device, the plate or member 30 is readily inserted under the tread flange 13 of the rail 11, when the plate 34 is swung upwardly, and said cam plate 34 is then readily swung downwardly so as to seat on the base flange 14 by cam action, and said plate 34 may be driven tightly into place, thereby clamping the plate or member 30 tightly up against the tread flange 13, and securely holding the plate 28 in upstanding position. The rail 17 not only seats on the rail 11 but is par-

tially suspended from the plate or member 28, the upper portion of the rail 17 engaging over the head 29 of the plate 28 so as to hold the upper portion of the rail 17 in place, while the lower portion of the rail 17 bears outwardly against the plate 28. The rail 17 is therefore prevented from being displaced during the building of the curb. The plates or members 28 and 30 may also serve as joint members for the rails. Thus, the supporting device may be used at the ends of the rails, as seen in Fig. 2, with the plate 28 engaging in the end portions of two adjoining rails 17, and the plate 30 engaging in the end portions of two adjoining rails 11. These supporting devices, however, may be used at suitable intervals along the form, either at or between the ends of the rails. By means of these supporting devices the rails 17 are readily secured in position on the rails 11 while the concrete of the slab 12 is still green.

Other supporting devices are used at suitable longitudinal intervals along the form for supporting or suspending the face rails 22. Each of these devices comprises a transverse bar 37, preferably an angle iron, extending across the rails and seating on a spacer 38 which seats on the rail 17, to space the bar 37 above the rails 17 and 22 in order that a finishing tool or implement may be used below the bar 37 in finishing the curb. As shown, the spacer 38 comprises a sheet metal member of U-shaped cross section, with one flange seating on the flange 18 of the rail 17 and the bar 37 seating on the other flange of said spacer 38. A bolt 39 extends down through apertures in the bar 37 and spacer 38, and has a hook 40 at its lower end to engage under and behind the flange 20 of the rail 17, and a tail nut 41 is threaded on the upper terminal of the bolt 39 and seats on the bar 37, so that when the nut is tightened the spacer 38 is clamped securely on the rail 17 and the bar 37 is clamped on the spacer, thereby holding said spacer and bar in the position in which they are placed on the rail 17.

A plate 42 is welded or otherwise secured to one side of the bar 37, such as the upstanding flange of the angle iron of which said bar is composed, and said plate 42 extends upwardly from the bar. A hanger bar 43 extends across the plate 42 and has a longitudinal slot 44 in which a pair of clamping bolts 45 is disposed, and said bolts extend through horizontal longitudinal slots 46 in the plate 42. The slots 46 are spaced vertically and tail nuts 47 are threaded on the bolts 45 to clamp the bar 43 against the plate 42. An angle member or piece 48 is secured to the lower terminal of the hanger bar 43 to extend between the flanges of the rail 22, and has secured thereto a sheet metal member 49 of a cross section similar to that

of the rail 22, but of smaller size so that the member 49 may be slid into the rail 22, in order to support and suspend said rail from the hanger bar 43. The member 49 may serve as a joint member for the rails 22 by extending into the end portions of two adjoining rails 22, similar to the plates 28 and 30. By loosening the bolts 45 it is possible to adjust the rail 22 vertically, inwardly and outwardly, and angularly. The rail 22 may therefore be adjusted closer to or farther away from the rail 17, may be raised and lowered, and may be disposed either vertically or in a transversely inclined position. This enables curbs of different widths to be formed, and the curb may have either a vertical face or an inclined face.

A brace bar 50 is used at the outer side of form to prevent the supporting bar 37 from being tilted on the rail 17. The bar 50 extends across the outer terminal portion of the bar 37, and has a lower pointed end 51 to seat in the corner between the web 11' and base flange 14 of the rail 11 or to be driven into the ground. The bar 50 has a longitudinal slot 52, while the bar 37 has a longitudinal slot 53 through which a clamping bolt 54 extends, said bolt having a tail nut 55 thereon in order that the bars 50 and 37 may be clamped together after the bar 50 is adjusted. The bar 50 is inclined outwardly and will prevent the rail 22 from being displaced during the forming of the curb. Thus, the bar 50 seating on the flange 14 will prevent the rail 22 and inner end of the bar 37 from being raised upwardly, such as when the concrete is tamped between the rails 17 and 22 inasmuch as the outer end of the bar 37 cannot move downwardly. The bar 50 will also assist in preventing the downward movement of the rail 22 by preventing the bar 37 from tilting in either direction.

With the use of the present supporting devices, the rails 17 are readily mounted and secured on the rails 11, after the slab 12 has been completed and while said slab is still green, and the rails 22 are then readily mounted on and supported from the rails 11 and 17, and the rails 22 may be adjusted to the desired position and secured in place. The concrete for the curb is then poured between the rails 17 and 22 and will unite with the slab 12, so as to produce a curb integral with the slab. The top of the curb is readily finished off, and while the curb is still green, the rails 22 may be removed in order to finish the face of the curb.

The bar 50 may also be used as a stake to be driven into the ground, either vertically or in an inclined position, and will brace the bar 37 from the ground.

Having thus described the invention, what is claimed as new is:—

1. In a concrete form, a device adapted to be disposed at the exterior of a form having means for clamping it between and against the flanges of a lower form rail and having
5 a portion for holding in place an upper form rail.

2. In a concrete form, a device adapted to be disposed at the exterior of a form having clamping means to be disposed between and
10 bear against the flanges of a lower form rail and having a portion to engage within an upper form rail.

3. In a concrete form, a device having clamping portions to bear upwardly and
15 downwardly against upper and lower flanges, respectively, of a lower form rail, and having a portion to engage an upper form rail.

4. In a concrete form, a device having clamping means to engage between and
20 against flanges of a lower form rail, and having a portion to engage under the upper flange of an upper form rail.

5. In a concrete form, a device having clamping means with portions to bear upwardly and downwardly against the upper
25 and lower flanges of a lower form rail, and having a portion to engage under the upper flange of an upper form rail.

6. A supporting member for a concrete form having portions to engage flanges of upper and lower form rails, and clamping
30 means connected to said member to engage the lower rail for clamping said member to the flange of said lower rail.

7. A supporting member for a concrete form having portions to engage under the upper flanges of upper and lower form rails, and means connected to said member to bear
40 on the lower flange of the lower rail.

8. A supporting member for a concrete form having portions to engage upwardly under the upper flanges of upper and lower form rails, and a cam member pivoted to
45 said supporting member and adapted to bear on the lower flange of the lower rail.

9. A concrete form comprising upper and lower form rails, and a supporting device having clamping means engaging the flanges
50 of lower rail and supporting means engaging the upper rail.

10. A concrete form comprising upper and lower form rails, the lower rail having upper and lower flanges, and a supporting
55 device having clamping means between and engaging said flanges, and having supporting means engaging the upper rail.

11. A concrete form comprising upper and lower rails each having upper and lower flanges, and a supporting device having
60 clamping means between and engaging the flanges of the lower rail, and having supporting means engaging under the upper flange of the upper rail.

12. A concrete form comprising upper and

lower flanged rails, a member having portions to engage flanges of both rails, and means connected to said member and engageable with one rail to clamp the corresponding portion of said member against
70 the flange of said rail.

13. A concrete form comprising upper and lower rails each having upper and lower flanges, a member having portions to engage
under the upper flanges of both rails, and
75 clamping means connected with said member for clamping it to the flange of the lower rail.

14. A concrete form comprising upper and lower rails each having upper and lower flanges, a member having portions to engage under the upper flanges of both rails, and clamping means connected to said member and adapted to bear on the lower flange
80 of the lower rail.

15. A concrete form comprising upper and lower rails each having upper and lower flanges, a member having portions to engage under the upper flanges of both rails, and a clamping member pivoted to the aforesaid
85 member and adapted to bear on the lower flange of the lower rail.

16. A concrete form comprising upper and lower form rails, the lower rail having upper and lower flanges, a member having a
90 portion to engage under the upper flange of the lower rail and a portion extending upwardly from the lower rail to hold the upper rail in place, and means connected to said member and engageable with the lower rail to clamp the firstnamed portion
100 against said upper flange.

17. A concrete form comprising upper and lower form rails, the lower rail having upper and lower flanges, a member having
105 a portion to bear upwardly against the upper flange of the lower rail and an upwardly extending portion for holding the upper rail in place, and clamping means connected to said member and arranged to bear on the lower flange of the lower rail to clamp said firstnamed portion up against
110 said upper flange.

18. A supporting member for a concrete form having a portion to engage upwardly
115 against the upper flange of a lower form rail and having an upwardly extending portion for holding in place an upper rail, and clamping means connected to said member to engage the lower rail and clamp said firstnamed portion against said upper flange.
120

19. A supporting member for a concrete form having a portion to engage upwardly against the upper flange of a lower form rail and having an upwardly extending
125 portion for holding in place an upper rail, and a cam member pivoted to said member and adapted to bear on the lower flange of said lower rail.

20. In a concrete form, a supporting de- 130

vice having portions to bear upwardly and downwardly against upper and lower flanges, respectively, of a lower form rail, and a portion to engage flanges of an upper form rail.

21. In a concrete form, a supporting device having portions to bear upwardly and downwardly against upper and lower flanges, respectively, of a lower form rail, and having an upwardly extending portion to engage the upper flange of an upper form rail.

22. A concrete form comprising upper and lower flanged form rails and a supporting device having portions to bear upwardly against the upper flanges of both rails, and downwardly on the lower flange of one rail.

23. A concrete form comprising upper and lower flanged form rails, and a supporting device having portions to bear upwardly and downwardly against the upper and lower flanges of the lower rail, and an upwardly extending portion to engage the upper flange of the upper rail.

24. In a concrete form, a supporting member having vertically spaced horizontal slots, a hanger bar extending across said member and having a longitudinal slot, clamping means extending through the firstnamed and secondnamed slots, and means carried by said bar for supporting a form member.

25. In a concrete form, a horizontal bar, means for mounting said bar on a form rail, a plate carried by said bar having vertically spaced horizontal slots, a hanger bar extending across said plate and having a longitudinal slot, clamping means in the firstnamed and secondnamed slots, and means carried by the hanger bar for supporting another form rail.

26. A supporting device for a concrete form comprising a supporting bar, means for mounting said bar between its ends on a form member, means carried by one portion of said bar for supporting another form member, and bracing means connected to the opposite portion of said bar.

27. A supporting device for a concrete

form comprising a supporting bar, means for mounting said bar on a form member between the ends of said bar, a hanger carried by said bar near one end thereof, and having means for supporting another form member, and bracing means connected to said bar near the opposite end thereof.

28. A supporting device for a concrete form comprising a supporting bar for a form member adapted to be mounted on another form member, and a brace adjustably connected with said bar to prevent same from tilting.

29. A supporting device for a concrete form comprising a supporting bar for a form member adapted to be mounted on another form member, and a brace adjustably connected with said bar and adapted to contact with a form member to prevent the bar from tilting.

30. A supporting device for a concrete form comprising a supporting bar adapted to support one form member and to be mounted on another form member, a brace bar crossing said supporting bar, said bars having slots, and a clamping bolt in said slots.

31. A supporting device for a concrete form comprising a supporting bar, means for mounting same between the ends thereof on a form member, means carried by one portion of said bar for supporting another form member, and a brace adjustably connected with the opposite portion of said bar to prevent the bar from tilting on the firstnamed form member.

32. A supporting device for a concrete form comprising a supporting bar, means for mounting same between the ends thereof on a form member, means carried by one portion of said bar for supporting another form member, a brace bar crossing the opposite portion of the supporting bar, said bars having slots, and a clamping bolt extending through said slots.

In testimony whereof I hereunto affix my signature.

JOHN N. HELTZEL.