Oct. 23, 1923. 1,472,018

F. O. HELTZEL

HOLD TIGHT RAIL CONNECTION

Filed March 5, 1921 2 Sheets-Sheet 1

FIG. 1.

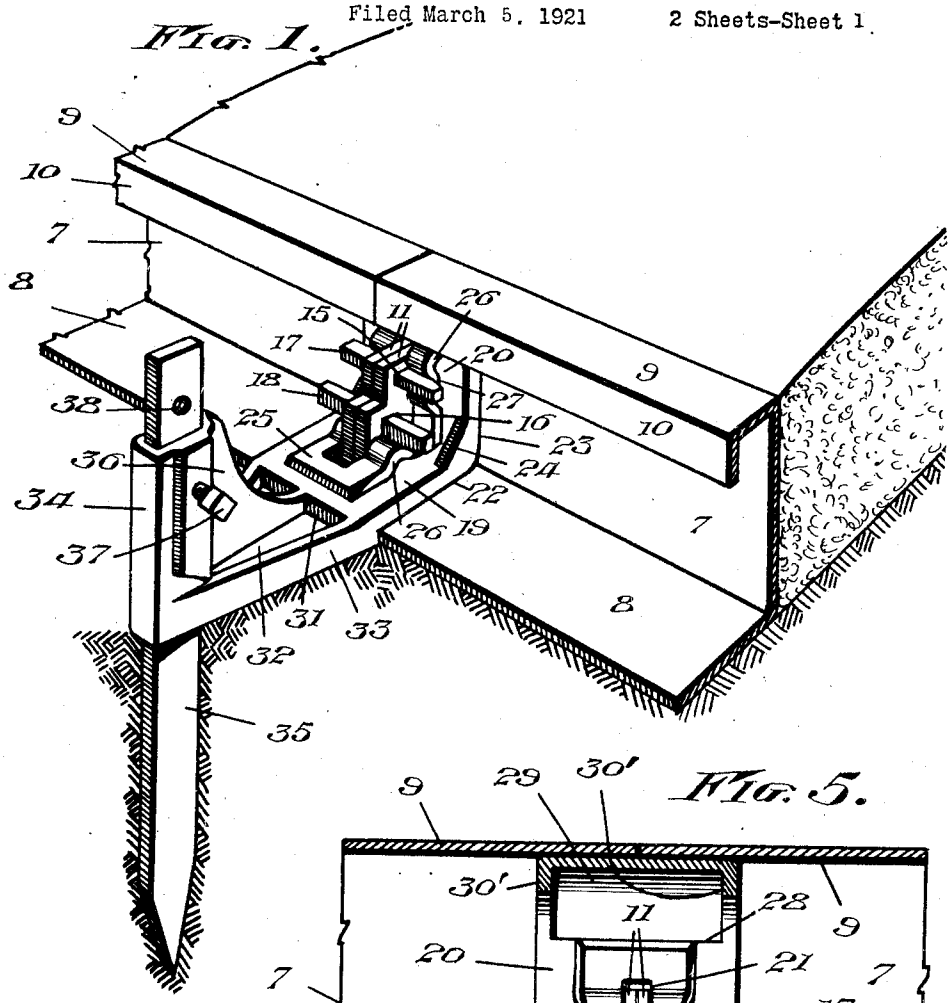


FIG. 5.

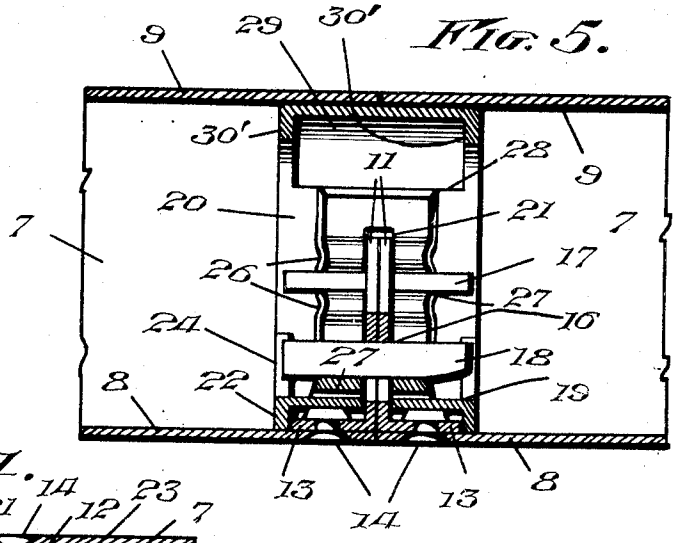
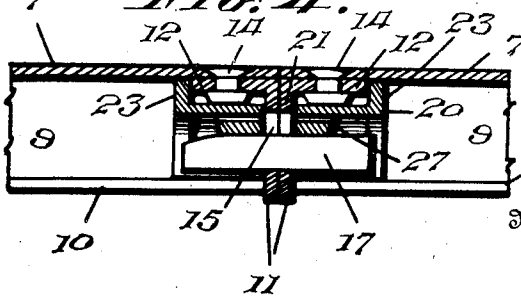


FIG. 4.



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FIG. 3.

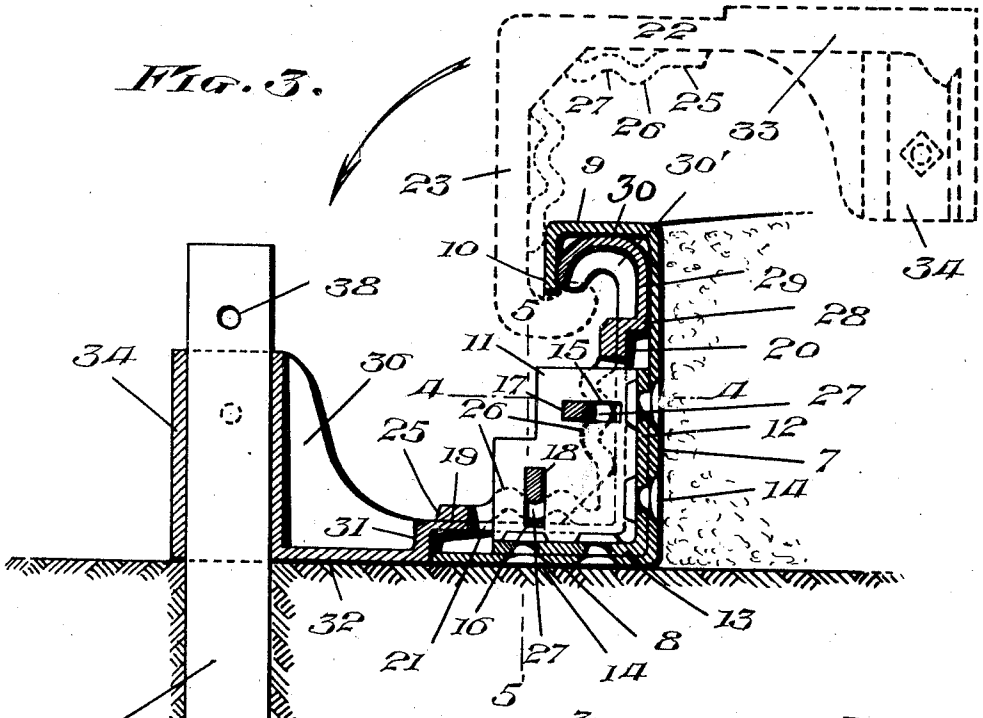
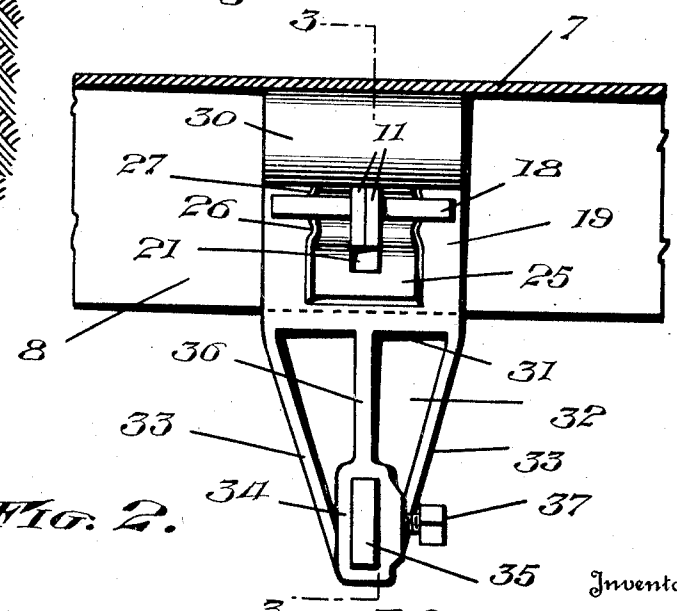


FIG. 2.



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UNITED STATES PATENT OFFICE.

FRANCIS O. HELTZEL, OF WARREN, OHIO.

HOLD-TIGHT RAIL CONNECTION.

Application filed March 5, 1921. Serial No. 449,917.

To all whom it may concern:

Be it known that I, FRANCIS O. HELTZEL, citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Hold-Tight Rail Connections, of which the following is a specification, reference being had therein to the accompanying drawing.

The present invention relates to concrete forms, and more particularly to road forms using rails for defining the edges of a concrete road, sidewalk, or the like.

The primary object of the invention is the provision of a novel and improved devise for holding in place the adjacent ends of the rails, whereby to maintain such rails in alinement and to support the ends thereof against depression under the weight of a road finishing machine or other apparatus run on the rails.

Another object is the provision of such a device of novel and improved construction for obtaining a secure and rigid joint between the rails ends, whereby to prevent the separation of the rails, as well as the lateral or vertical displacement thereof.

A still further object is the provision of such a device having a base to bear on the ground or road bed and to be anchored thereto, in order to hold the rails in position and assist in supporting the ends thereof against depression.

Another object is the provision of such a device including a member of novel construction to fit the adjacent end portions of the rails, and to be clamped or secured to the rails, the rail ends and said member having portions to inter-engage for obtaining a rigid and tight joint.

A further object is the provision of such a device which is comparatively simple and inexpensive in construction, and which is convenient, practical and efficient in use, as well as being quickly applied to and removed from the rails.

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 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 drawings, wherein:—

Figure 1 is a perspective view of the device as applied.

Fig. 2 is a plan view of the device, showing the rails in section.

Fig. 3 is a vertical section on the line 3—3 of Fig. 2, showing the joint member swung upwardly in dotted lines to the position to be applied to or removed from the rails.

Fig. 4 is a horizontal section on the line 4—4 of Fig. 3 looking upward.

Fig. 5 is a vertical section on the line 5—5 of Fig. 3.

The rails, such as are used in the construction of concrete roads, and the like, as shown, are bent from sheet metal and have the upright portions or webs 7, with outturned base flanges 8 at their lower edges to bear on the ground or road bed and said webs 7 have outturned tops or tread portions 9, at their upper edges. The tread portions 9 have depending flanges 10 to stiffen them. These rails are laid end to end and the rod is built up by pouring the concrete between the opposite rails, which serve to define the edges of the road, while the tread or top portions 9 define the surface of the road, at the opposite edges. In surfacing the road, it is the practice to run a finishing machine or device on the tread portions 9 of the rails, thereby imposing more or less weight on the rails, and the base flanges 8 are therefore of sufficient width to support the rails on the ground or road bed.

In carrying out the present invention, the rail ends are secured rigidly together, and, for this purpose, outstanding abutment plates 11 are secured to the ends of the rails at right angles therewith and substantially flush with such ends of the rails. The plates 11 are disposed in transverse vertical planes to abut one another when the rails are disposed end to end, and said plates have the lower horizontal flanges 13 and the vertical flanges 12 extending away from the ends of the rails and secured to the base flanges 8 and webs 7 of the rails by means of rivets 14 or the like. These abutment plates 11 have the horizontal slots 15 and the vertical slots 16 to register with one another, for the reception of clamping keys 17 and 18, respectively.

A joint member, constructed of suitable metal, is provided to fit the adjacent ends of the rails over the plates 11, and is of angular form. Said member has the lower horizontal outstanding base portion 19 and the upstanding pedestal portion 20 arranged at right angles with the portion 19, to fit within the angle between the webs 7 and base flanges 8 of the rails. Said portions 19 and 20 have a slot 21 extending across the corner between them, for receiving the abutment plates 11, whereby the joint member when applied to the rails over said plates, will thereby prevent the separation of the rails. The portion 19 has downturned flanges 22 along its side edges, while the portion 20 has flanges 23 bent or turned toward the webs 7 of the rails. The flanges 22 seat on the base flanges 8 of the rails, while the flanges 23 bear against the outer sides of the web 7, and said flanges 22 and 23 can fit snugly against the edges of the flanges 13 and 12, respectively, of the plates 11, as seen in Figs. 4 and 5, whereby to assist in holding the rail ends together. As shown, the portions 19 and 20 have corner webs 24 between them adjacent to the flanges 22 and 23 for bracing the pedestal portion 20.

An angular slotted pad 25 of suitable sheet metal is welded or otherwise secured to the portions 19 and 20 within the angle between them, and its slot registers with the slot 21 for the passage of the plates 11. The horizontal and vertical portions of the pad 25 are provided with pairs of convexed corrugations or ribs 26 transversely thereof at the opposite sides of the slot 21 and in transverse alinement, with a grooved seat or portion 27 between each pair of corrugations 26. The seats 27 register with the slots 15 and 16 of the plates 11 for the engagement of the keys 17 and 18, when they are driven through the plates 11, and said seats 27 are spaced from the portions 19 and 20, so as to be resilient or yieldable when the keys are driven into place, to provide for a tight clamping of the joint, even though the portions of the rails may vary slightly, due to the fact that it is, in practice, difficult to form the rails to exact measurements between the angles thereof.

The pedestal portion 20 has an offset 28 above the slot 21 extending to the webs 7 from which the portion 29 extends upwardly to bear against said webs, and the portion 29 is bent or curved forwardly and downwardly, to provide a convexed or rounded head 30 to fit snugly within the tread or top portion of the rails, as seen in Fig. 3. The head 30 is convexed or rounded transversely of the rails to bear upwardly against the tread portions 9, and to bear outwardly against the flanges 10. The portion 29 has outstanding flanges 30′ extending along the side edges thereof from the offset 28 to the end of the head 30, to brace said head.

The joint member has a downwardly extending offset 31 at the outer end of the portion 19 to extend down across or abut the edges of the base flanges 8, and a base 32 extends horizontally outward from the offset 31, to be disposed substantially flush with the lower surfaces of the flanges 8 and to bear on the ground or road bed, and thereby assist in supporting the rail ends. The base 32 has upturned flanges 33 along its side edges extending from the ends of the offset 31 and converging outwardly to a vertical stake socket 34 rising from the outer end of the base 32. The socket 34 is for the purpose of the passage of a metal stake 35 driven downwardly through said socket into the ground, as seen in Figs. 1 and 3, after the rails have been properly positioned, whereby to anchor the joint in place, and prevent horizontal displacement. A vertical web 36 connects the base 32, offset 31 and socket 34 to brace said socket, and the socket 34 carries a set screw 37 for clamping the stake 35 within said socket. The stake 37 has an aperture 38 near its upper end for convenience in withdrawing or pulling the stake from the ground, by the aid of a pick or other implement.

In using the device, after the rail ends are properly positioned in alinement, the joint member is placed in a substantially inverted position, as seen in dotted lines in Fig. 3, with the head 30 hooked under the flanges 10 of the rails, and said member is then swung outwardly and downwardly, as shown by the arrow in Fig. 3, so that the head 30 moves up under the tread portions 9 of the rails, while the base 32 swings downwardly onto the ground at the outer side of the rails. The joint member moves over the plates 11, which pass through the slot 21, thereby bringing the portions 19 and 20 adjacent to the base flanges 8 and webs 7 of the rails with the head 30 fitted snugly within the pocket of the top portions of the rails. The keys 17 and 18 are then inserted through the slots 15 and 16, and are driven tightly into place. Said keys seat in the yieldable seats 27, which are sprung, whereby to tightly clamp the flanges 23 and portion 29 against the webs of the rails, and to also tightly clamp the flanges 22 on the base flanges 8 of the rails. The rail ends are therefore secured tightly together, by being clamped against the joint member. Furthermore, the rail ends are thus supported against depression, and the base flanges 8 are prevented from separating under the pressure or weight imposed on the rail ends, because the flanges 13 of the plates 11 in abutting the flanges 22 of the joint member and the plates 11 in being disposed within the slot 21, as well as the clamping action of the

key 18, will resist the separation of said base flanges. This overcomes the tendency for the rails to spread apart at the bottom when the finishing machine passes over the joint. After the road has been finished and the concrete set, the rails are readily disconnected, by first driving the keys 17 and 18 out of the slots in the plates 11, and withdrawing the stake 35, which permits the joint member to be swung upwardly over the rails, to the position shown in dotted lines in Fig. 3, whereby said member can be readily removed by the withdrawal of the head 30 from between the flanges 10 and plates 11.

The present connection not only rigidly and tightly secures the rail ends in abutment, but also supports said rail ends against sagging movement, by preventing the spreading of the base flanges 8, as well as supporting the rail ends from the base 32.

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

1. A holding member for concrete form rails comprising a base to rest on the ground or road bed, a pedestal portion connected to the base and formed to bear on the base flange of a rail, against the web of the rail and upwardly against the tread portion of the rail, means for clamping said pedestal portion on the base flange, and means for clamping the pedestal portion against the web.

2. A holding member for concrete form rails comprising a base to rest on the ground or road bed, a portion connected to the base and shaped to fit the outer side of a rail, and means for clamping said portion and rail together, said base having an upstanding socket for a stake.

3. A holding member for concrete form rails comprising a base to rest on the ground or road bed, a pedestal portion connected to the base and formed to bear on the base flange of a rail, against the web of the rail and upwardly against the tread portion of the rail, means for clamping the pedestal portion against the web, and means for clamping the pedestal portion on the base flange, said base having a stake socket.

4. A holding member for concrete form rails comprising a base and a portion extending from the base to fit the end portions of such rails over the base flanges thereof, said base having a stake socket rising therefrom.

5. A holding member for concrete form rails comprising a base, and a pedestal portion extending upwardly from the base to fit against the web of the rail above the base flange, said portion having a head at its upper end extending outwardly to bear upwardly against the tread of the rail.

6. A holding member for concrete form rails comprising a base, a pedestal portion extending upwardly from the base to fit against the web of a rail above the base flange, said portion having a head at its upper end extending outwardly to bear upwardly against the tread of the rail, and means for clamping the pedestal portion against the rail.

7. A concrete form comprising rails having upright webs, outwardly-extending base flanges and outwardly-extending tread portions, said tread portions having depending flanges, a joint member having a head to engage between said webs and depending flanges for the swinging movement of the lower portion of said member toward said webs over the base flanges, portions carried by said rails to project through said member when said member is swung against said webs, for preventing longitudinal separation of the rails, and means for securing said member and rails together.

8. A concrete form comprising rails provided with outstanding portions in proximity to their adjacent ends, a joint member to fit against said rails over said portions, and means engageable with said portions for clamping said member and rails together.

9. A concrete form comprising a rail having an upright web, an outwardly-extending base flange and an outwardly-extending tread portion, said tread portion having a depending flange, a pedestal constructed to seat on said base flange and having a head to engage between the web and said depending flange, and means for holding the lower portion of the pedestal on said base flange to prevent the movement of the lower portion of the pedestal away from the web.

10. A concrete form comprising rails disposed end to end and including webs, outwardly-extending base flanges and outwardly-extending tread portions, said tread portions having depending flanges, a joint member constructed to fit the end portions of the webs at the outer side thereof and to bear on said base flanges, said member having a head to fit between the webs and depending flanges, said member and rails having portions to fit together and interengage for preventing longitudinal separation of the rails, and means for clamping said member and rails together.

11. A concrete form comprising rails disposed end to end and having outstanding portions in proximity to their adjacent ends, a joint member to fit the adjacent end portions of said rails over said portions, said rails having upright webs and base flanges, and means engageable with said portions for clamping said member against said webs and base flanges.

12. A concrete form comprising rails disposed end to end, outstanding plates carried by said rails at the ends thereof, a joint member to fit the rails over said plates, and

a key to be driven through said plates for clamping said member and rails together.

13. A concrete form comprising rails disposed end to end, outstanding plates secured to said rails at the adjacent ends thereof and having slots to register with one another, said rails having upright webs and base flanges, an angular joint member to fit said webs and base flanges of the rails and having a slot for the passage of said plates, and keys insertable through said slots for clamping said member to the webs and base flanges of said rails.

14. A concrete form comprising rails disposed end to end, and having outstanding portions, a joint member to fit against said rails over said portions, a key to be driven through said portions, and a yieldable resilient seat for the key carried by said member.

15. A concrete form comprising rails disposed end to end and having outstanding plates at their adjacent ends provided with key slots to register with one another, said rails having webs and base flanges, an angular joint member to fit against said webs and base flanges and having a slot to receive said plates, keys to be driven through said key slots, and yieldable resilient seats for the keys carried by said member, said slots and seats being arranged for clamping said member to the webs and base flanges of the rails when the keys are driven through said slots.

16. A joint member for concrete form rails comprising a base portion, a pedestal portion extending upwardly therefrom and having a head to fit under the tread portions of such rails, said portions having a slot for receiving outstanding portions of such rails.

17. A joint member for concrete form rails comprising a base portion and a pedestal portion rising therefrom, said portions having a slot for receiving outstanding portions of such rails, and the pedestal having a rounded head to fit under the tread portions of such rails for the downward swinging movement of said member into place over said rail portions.

18. A joint member for concrete form rails comprising a base to bear on the ground or road bed, a portion extending from said base to bear on the base flanges of such rails, a pedestal portion rising from said portion to bear against the web of said rails, said portions having a slot for receiving outstanding portions of such rails, and the pedestal portion having an outturned rounded head to fit under the tread portions of said rails and to provide for the downward swinging movement of said member into place against the rails over said portions thereof.

19. A concrete form comprising rails disposed end to end and having outstanding plates at their adjacent ends, a joint member having a portion to bear on the flanges of said rails, a pedestal portion to bear against the webs of said rails, a base extending from the first named portion to bear on the ground or road bed, said portions having a slot to receive said plates, a pedestal having a head to move under and fit the tread portions of said rails, and means engageable with said plates for clamping said member and rails together.

20. A concrete form comprising rails disposed end to end, outstanding abutment plates at the ends of the rails having flanges extending away from such rail ends and secured to the rails, a joint member to fit the rails having a slot to receive said plates and having flanges to extend toward the rails and bear against same at the edges of the aforesaid flanges, and means engageable with said plates for clamping said member and rails together.

21. A concrete form comprising rails disposed end to end and having base flanges, upright webs, outturned tread portions, and flanges depending from said tread portions, outstanding abutment plates flush with the ends of said rails having flanges extending away from said ends and secured to said base flanges and webs of the rails, said plates having slots to register with one another, a joint member having a base to bear on the ground or road bed at the outer side of the rails and formed for the downward passage of a stake therethrough, a portion extending from said base to be disposed over the base flanges of the rails, and a pedestal portion rising from said portion, said portion having flanges at their edges extending toward the base flanges and webs of the rails to be disposed at the edges of the flanges of said plates, the pedestal having an outturned rounded head to move under and fit said tread portions and depending flanges of said rails by the downward swinging movement of said joint member, and keys to be driven through said slots for clamping said member against the base flanges and webs of said rails.

22. A concrete form comprising a rail having an upright web, an outwardly-extending base flange and an outwardly-extending tread portion, a pedestal to seat on said base flange and having a head to bear upwardly against said tread portion, and means at the outer side of said web for retaining the pedestal on said base flange against movement away from the web.

23. A concrete form comprising a rail having an upright web, an outwardly-extending base flange and an outwardly-extending tread portion, a pedestal to seat on said base flange and having a head to bear upwardly against said tread portion, means

at the outer side of said web for retaining the pedestal on said base flange against movement away from the web, and a portion rigid with said pedestal and having a stake socket beyond the edge of said base flange.

24. A concrete form comprising a rail having an upright web, an outwardly extending base flange and an outwardly extending tread portion, and a device for bracing the rail including a portion to seat on said base flange, a portion to bear upwardly against said tread portion and means for exerting pressure to hold the last named portions in tight engagement with the rail.

25. A concrete form comprising a rail having an upright web, an outwardly-extending base flange and an outwardly-extending tread portion, and a bracing device including a base portion to bear on said base flange, a head to bear upwardly against the tread portion, and means for securing said device in place with the base portion and head portion tightly against the base flange and tread portion, respectively.

26. A concrete form comprising a rail having an upright web, an outwardly-extending base flange and an outwardly-extending tread portion, and a device for bracing the rail including a portion to seat on the base flange, a portion to bear upwardly against the tread portion, and wedge means operable for securely holding the last named portion against the base flange and tread portion.

In testimony whereof I hereunto affix my signature.

FRANCIS O. HELTZEL.