Nov. 17, 1925.

1,561,923

F. O. HELTZEL

CONCRETE FORM

Filed Feb. 20, 1925

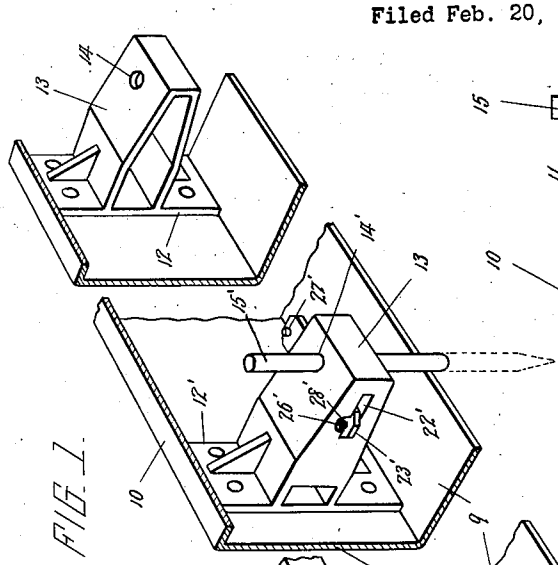


FIG. 1.

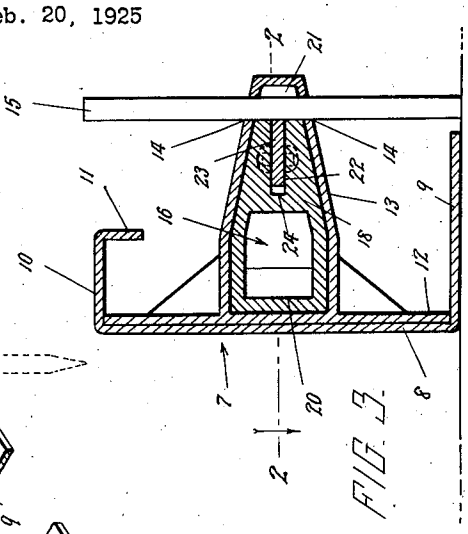


FIG. 3.

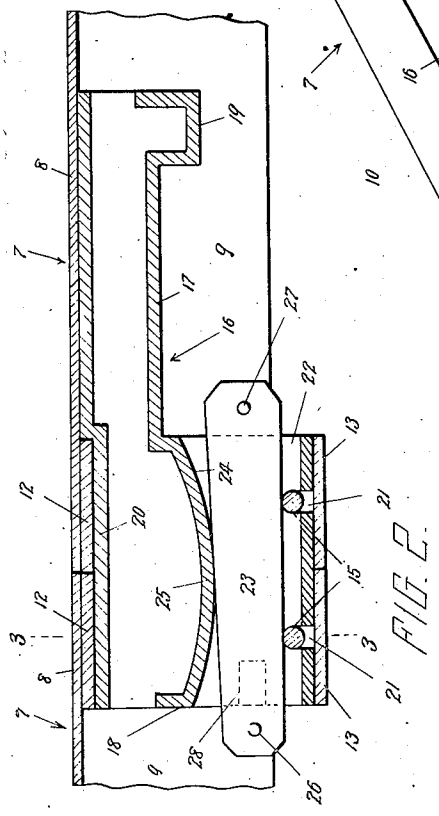
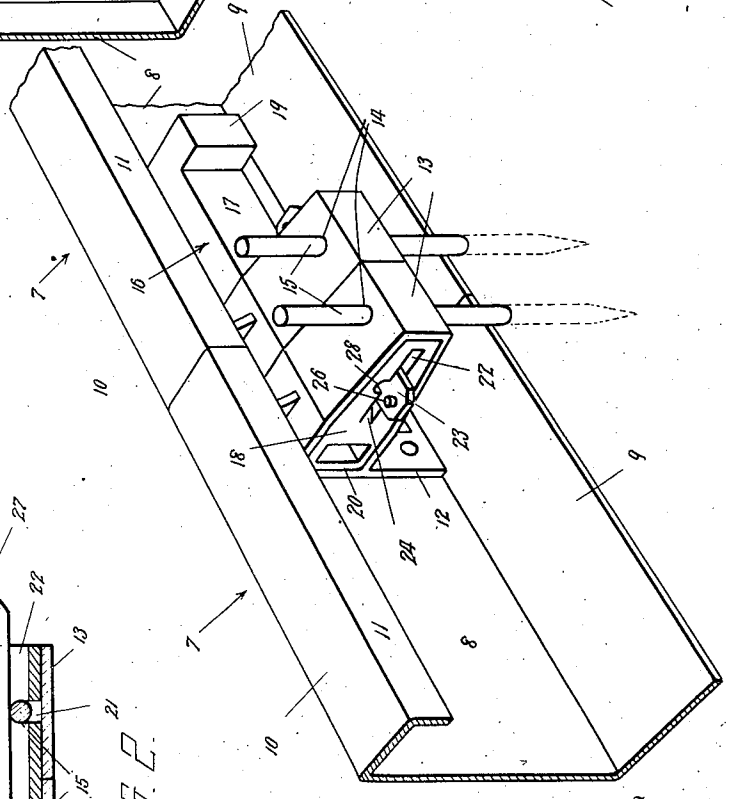


FIG. 2.



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Patented Nov. 17, 1925. 1,561,923

UNITED STATES PATENT OFFICE.

FRANCIS OSCAR HELTZEL, OF YORK, PENNSYLVANIA, ASSIGNOR TO TRUSCON STEEL COMPANY, OF YOUNGSTOWN, OHIO, A CORPORATION OF MICHIGAN.

CONCRETE FORM.

Application filed February 20, 1925. Serial No. 10,624.

To all whom it may concern:

Be it known that I, FRANCIS O. HELTZEL, a citizen of United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Concrete Forms, 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, side-walk, or the like, this invention being an improvement over the concrete form disclosed in my Patent No. 1,523,961, granted Jan. 20, 1925.

One of the objects of the invention is the provision of a stake receiving member carried by the rail or side member of the form and having a wedge slidable therein for clamping the stake, in order to conveniently and efficiently secure said rail to the stake.

Another object is to improve the means for joining and securing the rail ends together, using a stake for each rail end, and a simple and convenient device for simultaneously clamping the two stakes of the joint.

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 perspective view of a concrete form showing the improvements, portions being broken away.

Fig. 2 is a horizontal section through a rail joint, taken on the line 2—2 of Fig. 3.

Fig. 3 is a cross section on the line 3—3 of Fig. 2.

The rails or side members 7, such as are used in the construction of concrete roads, side-walks, and the like, have the upright webs 8, outturned base flanges 9 at their lower edges, outturned tread flanges 10 at their upper edges, and secondary flanges or lips 11 depending from the tread flanges 10. These rails are laid end to end, and the road or concrete structure is built up between opposite rails, which serve to define the edges of the road, while the flanges 10 define the surface of the road at the opposite edges.

Secured to each end portion of each rail at the outer side of the web thereof is a back plate 12, same being riveted, welded or otherwise secured to the web of the rail adjacent to the corresponding end thereof. Each plate 12 has an outstanding socket member 13 of loop form which projects outwardly between the top and bottom flanges, and the socket members 13 have upper and lower apertures 14 to receive stakes 15 which are driven down through the socket members into the ground, and said stakes may be arranged to contact with the edges of the base flanges 9 to assist in preventing outward displacement of the rails by the pressure of the concrete against them. The socket members 13 at the adjacent ends of two rails are flush with the ends of the rails so as to abut one another, with the sockets or openings of said members 13 registering to receive a latch 16.

The latch 16, which is preferably a casting or forging, and which is also preferably cored out to lighten the weight thereof, comprises a shank 17 slidable longitudinally along the outer side of the web 8 of one rail, and the latch has a head or enlargement 18 adapted to slide snugly into the registering socket members 13. The latch has an outstanding lug 19 at that end of the shank 17 opposite to the head 18 to receive the blows of a hammer or other implement for sliding the latch in either direction. The latch is also offset, as at 20, at the web side of the head 18 to accommodate the plates 12 when the latch is slid into the socket members, with the shank 17 bearing against the web of one rail. The outer edge portion of the head has notches 21 to register with the apertures 14 in the top and bottom portions of the socket members, to receive the stakes, whereby the engagement of the stakes in said notches will result in the two rails being secured tightly together end to end.

As described to this point, the structure is substantially the same as that disclosed in the aforesaid patent, and in lieu of set screws for clamping the stakes, a single securing or clamping element is used, as will presently appear.

The head or enlargement 18 of the latch has a longitudinal slot 22 extending therethrough in which a wedge 23 is disposed for longitudinal sliding movement therein. The wedge is longer than the head 18 so as to project from the opposite ends of the head, and the outer edge of the wedge is adapted to contact with both stakes 15, the outer portion of the slot 22 intersecting the notches 21. The inner edge or wall 24 of the slot 22 is convexed longitudinally, so as to have a rounded point of contact or fulcrum 25 against which the inner edge of the wedge 23 bears at a longitudinal point intermediate the stakes 15. This provides a three-point contact, in order that the pressure will be distributed substantially evenly to both stakes by using a single wedge or securing element. The wedge 23 has pins or studs 26 and 27 at its smaller and larger ends, respectively, to provide stops for limiting the sliding movement of the wedge in the latch, and to prevent the accidental withdrawal or loss of the wedge. The wedge thus remains assembled with the latch, with the narrower end of the wedge at the forward end of the latch. The head 18 of the latch has recesses 28 at the forward end of the slot 22 to receive the pin or stop 26 when the wedge is retracted, in order that the forward end of the wedge may be drawn completely into the slot 22, in order to facilitate separation of the rails, as well as the setting up of the form.

The retraction of the latch may be limited so as to permit the latch head 18 to be retracted from the socket member 13 of the companion rail but not from the socket member of the rail with which the latch is assembled. With the latches of the several rails retracted, and the corresponding stakes removed, the rails may be readily moved transversely or vertically to assemble or separate the rails, so that it is unnecessary to move the rails lengthwise in bringing them together or removing one or more rails. When a latch is retracted, the wedge 23 may also be retracted to bring its forward end within the slot 22, so that said wedge will not interfere with the relative transverse or vertical movement of the adjacent rails.

When the rails are positioned end to end and the latch is projected so as to fit snugly in the two socket members 13, the stakes 15 may be readily driven down through the apertures 14 and notches 21, thereby preventing relative longitudinal movement of the latch and socket members, and holding the rails tightly in abutment, as well as preventing the rails from shifting longitudinally or transversely. By striking the larger end of the wedge, the wedge is driven forwardly between the stakes 15 and contact point or fulcrum 25, thereby clamping the stakes, latch and socket members tightly together, the latch being clamped against the webs 8 and plates 12, and the stakes 15 being clamped against the outer edges of the apertures 14. The wedge may have a rocking movement against the contact point 25 so that the pressure will be distributed substantially evenly between the two stakes, in order that both stakes will be securely clamped. The wedge 23 may be conveniently operated, being struck at the wider end to clamp the stakes, and being struck at the smaller end to loosen the stakes, and said wedge eliminates the objections incident to the use of set screws for clamping the stakes as disclosed in the aforesaid patent. Set screws require screw-threads which are apt to become worn, and the set screws are also apt to be lost, as well as requiring rotation of the two set screws for tightening and loosening the stakes, whereas the operation of the wedge is more simple and efficient.

Fig. 1 also shows a modification to be used on a rail between the ends thereof, when it is desired to secure the intermediate portion of the rail to the ground. A plate 12′ is riveted, welded or otherwise secured to the outer side of the rail web, and has an outstanding portion or arm 13′ provided with a vertical aperture 14′ to receive the stake 15′ which is driven down through the aperture into the ground. The arm or portion 13′ has a longitudinal slot 22′ in which a wedge 23′ is slidable longitudinally, and said wedge has the stop lugs or pins 26′ and 27′ at its opposite ends. The portion 13′ may also have recesses 28′ at one end of the slot 22′ to receive the lug or pin 26′. When the wedge is driven through the aperture 14′, the wedge 23′ can be driven in the slot 22′ so as to clamp the stake 15′.

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

1. A concrete form having means for receiving two stakes, and a single element arranged to simultaneously clamp both stakes.

2. A concrete form comprising rails, two stakes, means for connecting said stakes and rails, and a single element carried by said means arranged to simultaneously clamp both stakes.

3. A concrete form comprising rails, two stakes, means for connecting said stakes and rails and having a slot, and a wedge slidable in said slot to simultaneously clamp both stakes.

4. In a concrete form, a member having means to receive two stakes, and means carried by said member operable with a single operation to simultaneously clamp both stakes.

5. In a concrete form, a member having means for receiving two stakes, and a wedge

carried by said member arranged to simultaneously clamp both stakes.

6. In a concrete form, a member having means for receiving two stakes, and a wedge to engage both of said stakes, said member having a portion for the contact of the wedge and so arranged as to distribute the pressure to both stakes.

7. A concrete form comprising rails, socket members secured to the rails, a latch to fit in said socket members, said members and latch having stake-receiving means for two stakes, and means operable with a single operation to simultaneously clamp both stakes.

8. A concrete form comprising rails, socket members secured to the rails, a latch to fit in said socket members, said members and latch having stake-receiving means for two stakes, and means carried by the latch and arranged to simultaneously clamp both stakes.

9. A concrete form comprising rails, socket members secured to the rails, a latch to fit in said socket members, said members and latch having stake-receiving means for two stakes, and a wedge carried by the latch to simultaneously clamp both stakes.

10. A concrete form comprising rails, socket members secured to the rails, a latch to fit in said socket members, said members and latch having stake-receiving means for two stakes, and a wedge carried by the latch to engage both stakes, the latch having a portion for the contact of the wedge so arranged as to distribute the pressure to both stakes.

11. A concrete form comprising rails, socket members secured to the rails, a latch to fit in said socket members and having a slot, said latch and members having means for receiving two stakes, and a wedge slidable in said slot to simultaneously clamp both stakes.

12. A concrete form comprising rails, socket members secured to the rails, a latch to fit in said socket members and having a slot, said latch and members having means for receiving two stakes, and a wedge slidable in said slot to engage both stakes, said slot having a convexed wall opposite to the stakes and providing a contact portion for the wedge intermediate the stakes to distribute the pressure to both stakes.

In testimony whereof I hereunto affix my signature.

FRANCIS OSCAR HELTZEL.