Oct. 6, 1959 J. F. McCAFFREY 2,907,089

ROAD FORM

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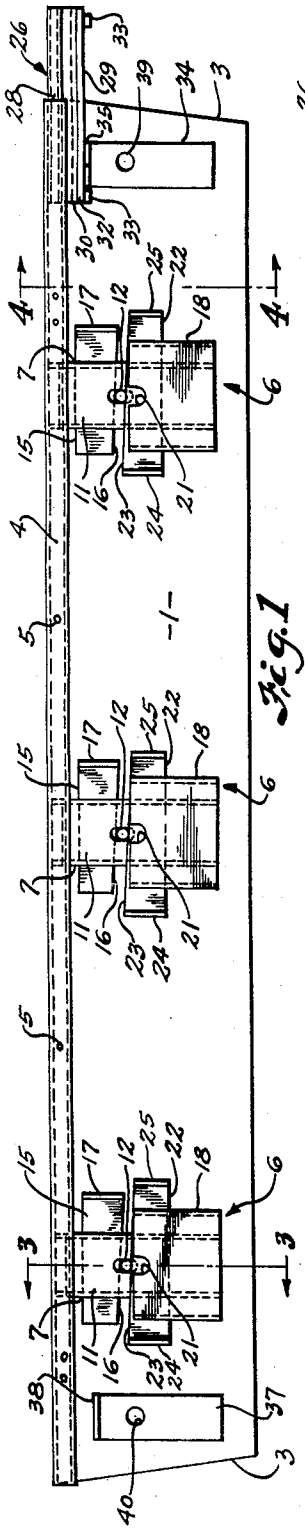


Fig. 1

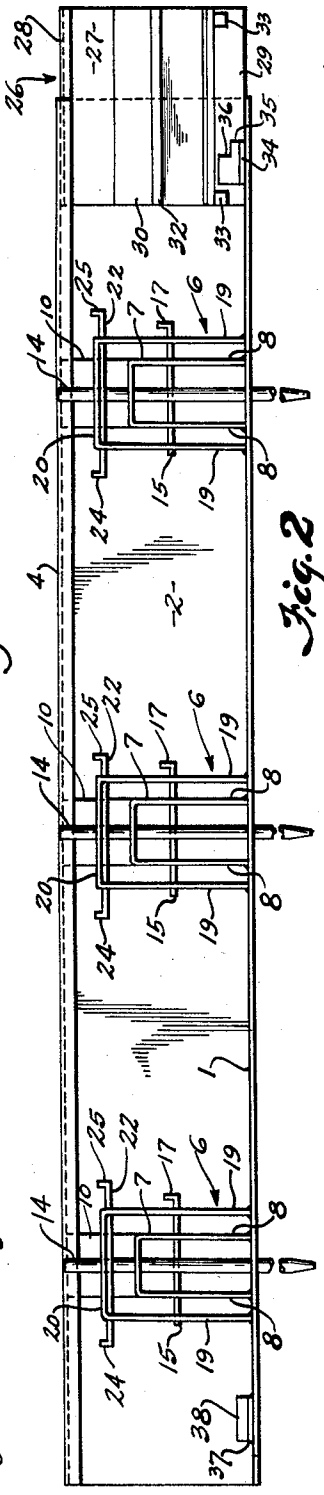


Fig. 2

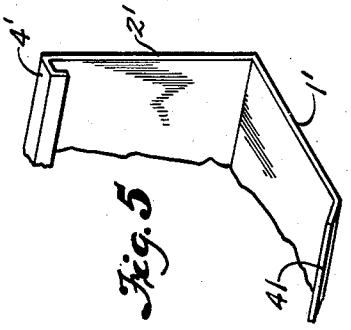


Fig. 5

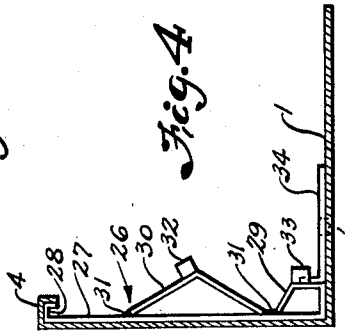


Fig. 4

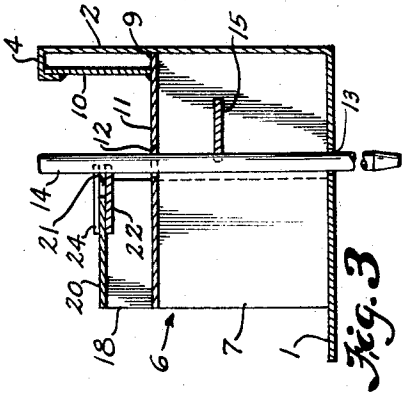


Fig. 3

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ROAD FORM

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1 Claim. (Cl. 25—118)

This invention relates as indicated to an improved form for use in the construction of streets, highways, airports and the like. As is well-known, forms of this nature are customarily made of steel in lengths such to permit them to be handled by workmen, generally on the order of ten feet, and are designed to be secured in the place of use by stakes driven through openings provided in the forms into the subgrade.

Each form is usually anchored in place by a number of such stakes located at spaced points along the length of the same and, since the stakes may become deflected by encountering rocks and other matter in the earth, it is highly desirable to provide some means for correcting any misalignment which may result. It is a principal object of the present invention to provide a road form having improved stake locking devices incorporated therein which afford such means for ensuring alignment of the form in use. The operation moreover is readily accomplished and affords more flexibility than heretofore available in conventional forms.

The need for holding the forms firmly and accurately to the line desired also requires that adjoining forms laid end-to-end be positioned and held properly in relation to one another, preferably in interlocked relation. Another object of my invention is to provide an improved joint lock for this purpose in a road form.

It is a further object to provide a joint lock normally carried at one end of the form of a novel construction which, at the same time, provides adequate strength at the joint and also freedom from interference in handling the end of the form at which the lock is carried.

It is an additional object of the invention to provide a road form having the above-noted characteristics which is further improved with respect to the strength and rigidity of the unit.

Other objects and advantages will become apparent as the following description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described and particularly pointed out in the claim, the following description and the annexed drawing setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawing:

Fig. 1 is a top plan view of my new form;

Fig. 2 is a side elevational view thereof;

Fig. 3 is a vertical sectional view taken on the plane of the line 3—3 in Fig. 1;

Fig. 4 is a further vertical sectional view taken on the plane of the line 4—4 in Fig. 1; and

Fig. 5 is a fragmentary perspective view illustrating a slight modification of the body of the form.

Referring now to the drawing more in detail, the form proper is of general L-shape, comprising a base 1 and an upstanding portion or web 2 both dimensioned so as to fit and serve the particular intended use of the form.

As illustrated, the form is elongated, having a length of about ten feet, and the ends 3 of the base 1 are bevelled inwardly for setting inside curves. Such ends may, of course, be left straight or otherwise shaped as desired.

This body of the form is made of steel plate, and the upper edge of the web 2 is turned back upon itself to form the usual tread 4. A number of holes 5 are provided at suitable spaced points along the tread for the attachment of steel curb forms and the like.

Three staking assemblies designated generally by reference numeral 6 are secured to the form at spaced locations along the length of the same and within the area included between the base and the web. Since these are all of identical construction, it will be sufficient and more convenient to discuss only one in specific detail. Such staking assembly comprises a main stake box 7 in the form of an inverted steel channel which is welded at the lower edges of its two sides 8 to the base 1 of the form and to the adjoining inner surface of the web 2 at and about its inner end 9. The box is further secured by means of a plate 10 arranged vertically to extend from the top wall 11 of the box to the underside of the tread 4, overlying the downturned flange of the latter and welded at both top and bottom. Such plate serves to support and thus reinforce the outer or free side of the tread.

The main stake box 7 extends at right angles with respect to the web 2 of the form and is provided with a slot 12 in its top wall 11. Beneath such slot a hole or opening 13 is provided in the base of the form, so that a steel stake 14 may be passed downwardly through the stake box and base and into the subgrade. The length of the slot is approximately twice the diameter of the stake to provide clearance between the two.

Passing through the side walls 8 of the box inwardly of the stake 14 when arranged therewith is a first flat wedge 15 having a tapered outer edge 16 and an upturned flange 17 at one end. Slots are formed in the side walls to accommodate the wedge, which is normally held in a horizontal condition. The varying width of this inner wedge 15 and its location relative to the stake box slot 12 is such that the wedge surface 16 may be engaged with the stake to force and lock the same firmly against the outer end of the slot. The wedge is driven by a sledge hammer, the upturned flange at the end enhancing the rigidity and ability of such end to withstand the hammering, and it will be appreciated that by continued driving of the stake against the outer end of the slot, there results a force tending to push the form outwardly at the location of the staking device.

Disposed about the outer end of the main stake box 7 is a channel member 18 likewise inverted and welded at the lower edges of its sides 19 to the base 1 of the form. The member 18 is of less longitudinal extent than the main stake box and of greater height and width, so as to be spaced about the outer end portion of the main box in the illustrated manner. Top wall 20 of this member extends slightly over the box slot 12 and is formed with a recess 21 in alignment therewith, such recess continuing outwardly beyond the outer end of the slot.

A second wedge 22 of a construction similar to the first wedge 15 is received and guided within slots formed in the side walls 19 of the member 18 near the top and at the inner end of the same. Such second wedge thus also comprises a tapered side edge 23 and upturned end flanges 24 and 25. The second wedge is, however, arranged in reversed relation to the first so that its tapered edge or side is disposed oppositely to that of the first wedge.

The second wedge is dimensioned likewise to be engageable with the stake 14 and, in this case, to be capable of forcing the stake against the inner end of the main stake

box slot. Thus, the second wedge may be actuated to drive the upper end portion of the stake forwardly and exert an inward force on the road form. It will further be apparent that the two stakes may cooperably be engaged with the stake firmly to lock the same in a position intermediate the ends of the slot 11 in the main stake box.

At each of the locations of the stake locking devices, it is, therefore, possible readily to correct any misalignment through actuation of either or both of the wedges of the particular device. Considerable flexibility is thereby provided while the main stake box construction serves additionally to enhance the rigidity of the form in an obvious manner. In this latter connection, it is to be noted that box 7 uniformly engages and is secured to both the base and web of the form in the angle therebetween, that is, the engagement of the box with the two sections of the form is continuous. It will be further seen that member 18 and the outer wedge 22 carried by the same constitute a separately formed auxiliary stake locking device.

At the right end of the form illustrated, as viewed in Figs. 1 and 2, I provide a joint lock 26 adapted to be engaged in the end of a further form laid adjacent the one shown. This lock is formed of a steel plate having a main section 27 disposed and of a height such to extend between the opposed inner surfaces of the base 1 and the tread 4 while overlying the inner surface of the web 2. At its upper edge, the plate is turned inwardly and then downwardly to form a flanged edge 28 which fits closely within the tread 4. At its lower edge, the plate is turned back completely upon itself as illustrated to provide a hollow projection 29 along the length of the same.

A V-shaped member 30 is arranged against the inner face of the lock body or main section 27 just above the upper side of the bottom projection 29 and is welded to the body along its edges as indicated at 31. This member extends from one end to the other of the lock, and a bar 32 is welded thereto near the outer corner to serve as a pounding bar for driving the joint lock into an adjacent form with a sledge hammer.

The member 30 provides increased strength of the lock and, as will be obvious, also affords a convenient and durable hammering portion for the lock. The turned back lower edge not only makes the unit more rigid, but further precludes concrete or other paving material from getting behind and under the joint lock. An additional advantage results from the fact that the lock is open at the road form tread to allow workmen setting and handling the form to grip it under the tread at the extreme end. The form may thus be gripped even with the lock back flush with the form end, which would not be possible if the top of the lock were closed and extended downwardly, for example to the region of the member 30.

Two stops 33 are secured to the face of the bottom projection 29 of the lock, spaced above the extreme lower edge of this face, for cooperation with a guide lug 34 welded to the base 1. Guide 34 has an upturned flange 35 at its inner end which abuts the lock projection 29 and functions to guide endwise driving of the lock. An extension 36 of the flange projects into the path of movement of the stops 33, between the same, and thereby precludes the lock from being either completely withdrawn or pushed inwardly beyond the end of the form. At the other end of the form, a second guide 37 is similarly provided, this guide having a flange 38 of a height such that the stops 33 of a joint lock carried by an adjoining form will pass over the same.

Holes 39 and 40 are provided in the guides 34 and 37 respectively and the overlain portions of the base to permit additional staking at such end points. The joint lock may obviously be carried by the form at either end of the same.

In Fig. 5, I have shown a modification which comprises turning up the outer or free edge of the base 1' to form an edge portion 41 at an acute angle. This feature strengthens the base edge without, however, making it difficult to clean the base, the angle being designedly small for such latter purpose.

It will accordingly be seen that my new form is very durable and resistant to deformation. The particular construction of the stake boxes very effectively keeps out concrete, braces the web of the form to maximum extent, and affords positive support for the outside edge of the top rail or tread. Those surfaces designed to be hammered in use, the ends of the wedges and the pounding section of the joint lock, are reinforced for added hammering resistance and consequently prolonged useful life. The other material advantages with respect to the ease of handling and use have already been noted and will, moreover, be clearly evident to workers in the art.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in the following claim, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:

In combination with a road form having an elongated base and an upstanding web extending along a longitudinal edge of said base, the upper longitudinal edge of said web being flanged outwardly and then downwardly to form a rail portion of general hook-shape in cross-section; a guide lug projecting rigidly upwardly from said base in outwardly spaced relation to the web and near an end of the form; a joint lock having an end section telescoped within such end of said form with its other end section projecting therefrom for telescoping in like manner within the end of a similarly constructed adjacent road form, said joint lock comprising a body plate disposed flat against the outer face of said web and extending from the base to the underside of the rail portion, the top edge of said body plate being flanged outwardly and then downwardly to fit in close telescoped relation within the rail portion, the bottom edge of the body plate being turned outwardly and then back in upwardly spaced relation against the body plate to which it is secured, the body plate thereby having a hollow bottom projection, such projection overlying the base of the form and being engaged at its outer face by said guide lug, an elongated frame member of general V-shape in cross-section secured lengthwise at its longitudinal edges to the outer face of said body plate, said frame member being disposed between the bottom projection and top flanged edge of the plate and extending from one end to the other of such plate, and stops secured to and projecting from the outer face of such bottom projection near the ends thereof for contact with said guide lug to limit endwise movement of the joint lock relative to the form.

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