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O. S. FLATH

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SIGNAL FOUNDATION

Filed Sept. 11, 1926

Fig. 1.

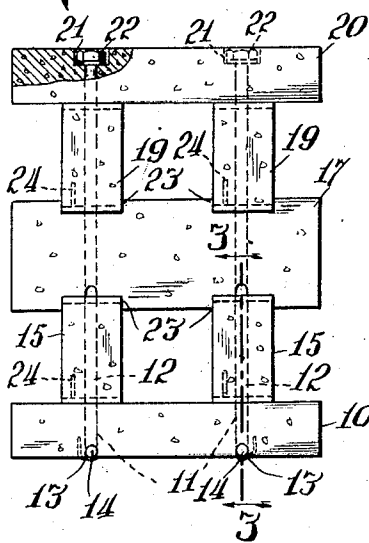


Fig. 2.

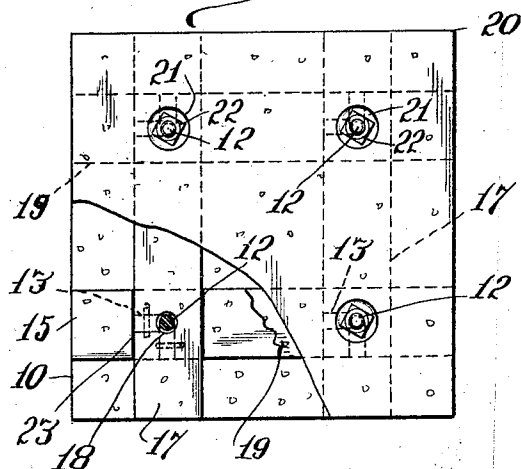


Fig. 3.

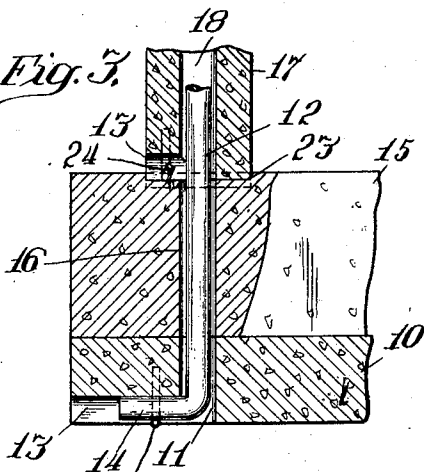


Fig. 4.

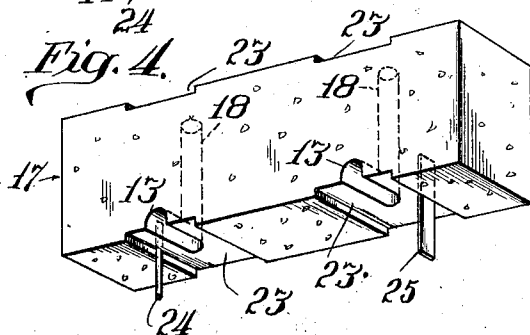
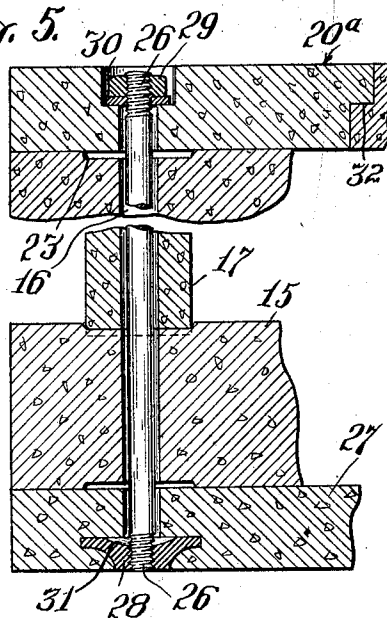


Fig. 5.



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UNITED STATES PATENT OFFICE

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SIGNAL FOUNDATION

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My invention relates to foundations, composed of portable sections, for railroad signals and the like of substantial area and at the same time adapted to provide firmness; the various sections when properly assembled being firmly locked together.

My invention has for its object the provision of a sectional foundation composed of pre-cast reenforced concrete units which may be easily transported to the place where the foundation is to be erected; the respective sections being of such formation that they will not only provide interlocking relation with each other, but at the same time be interchangeable, thus enabling easy assembly of the respective units.

The invention also involves means whereby the assembled units may be firmly locked together; the locking means being so arranged that accidental removal thereof is impossible.

The above enumerated objects as well as the advantages inherent in the construction will all be fully comprehended from the following detailed description of the accompanying drawing, wherein—

Figure 1 is an elevation of my improved foundation.

Figure 2 is a plan view thereof, with a portion broken away.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1 looking in the direction of the arrows.

Figure 4 is a perspective view of one unit of the foundation.

Figure 5 is a vertical sectional view showing a modified form of foundation, with intermediate portions broken away.

In the exemplification of my invention as disclosed in the drawing, the foundation is composed of a plurality of precast reenforced concrete units of suitable size and dimensions in order that the respective sections may be portable and therefore easily handled and assembled. The foundation involves a bottom unit or slab indicated at 10 which is shown in Figure 2 as being substantially square and of size in keeping with the size of the foundation so far as width is concerned. The slab at suitable points, prefer-

ably in proximity to the corners, is provided with openings extending therethrough as at 11 intended to receive a suitable rod 12 of length commensurate with the height of the foundation to be erected so as to extend from the top unit or member of the foundation through to the bottom of the base slab or unit 10 in order that the respective sections may be securely bolted together when properly assembled.

In the particular exemplification of the invention as disclosed in the first figure of the drawing, each aperture 11 in the bottom unit or slab terminates on the lower face of the unit 10 in a horizontally or right angularly disposed socket 13 adapted to receive the bent end 14 of the rod 11; the socket 13 being of depth sufficient to permit the bent end 14 of the rod to extend in a horizontal plane above the plane of the bottom of the slab in order that the latter may lie flush, as indicated in Figure 3.

Superposed on the bottom unit or slab 10 and in spaced relation are a pair of precast reenforced concrete units 15, 15. The units 15 are each provided with an aperture 16 disposed therethrough, to register with the apertures 11 in the bottom unit, for the passage of the rods 12. Superposed on the units 15, 15 in spaced relation with each other and disposed at right angles to units 15, 15 are the additional units 17, 17 each of which is likewise provided with a pair of apertures 18 for the passage of the rods 12; and these units 17 have the two spaced units 19, 19 superposed thereon provided with apertures similar to the ones previously described and adapted to register with the apertures of the units therebeneath to receive the rods 12. The units 19 are arranged at right angles to the units 17; while the top of the foundation in the particular exemplification is shown consisting of a slab 20 of dimensions equal to those of the base member or unit 10.

The slab 20 is also provided with suitable apertures therethrough adapted to be brought into register with the previously aligned apertures in the sub-structures for the passage of the tie-bolts or rods 12. The top of the top unit or slab 20 about the aperture is

countersunk as shown at 21 to receive the nuts 22 which screw onto the upper ends of the rods 12; the countersunk portion 21 being of depth sufficient to permit the nuts to lie beneath the upper surface of the top slab, as shown more clearly in Figure 1.

In the specific disclosure in Figure 1, the intermediate units, namely units 15, 17 and 19 are each provided with transversely disposed channels or grooves, as more clearly shown at 23 in Figure 4, of width corresponding with the width of the adjacent units in order that an interlocking engagement between the superposed units may be provided.

Instead of employing large bottom and top slabs as shown in Figures 1 and 2, they may be sectional or may each consist of a pair of units identical with the intermediate units; that is to say all of the units of the foundation may be of the construction disclosed in Figure 4,—which latter may be considered to represent the units 15, 17 and 19 in Figure 1,—of rectangular configuration provided adjacent the ends with the openings 18 extending from top to bottom therethrough for the reception of the rods or bolts 12; the apertures or openings 18 being arranged in the channels or grooves 23, 23, formed in both the top and bottom surfaces of the units.

In order to make the units interchangeable and thus permit the same to constitute either bottom, intermediate or top units, each unit may be provided with the laterally disposed socket or groove 13 which connects with either the rod-receiving apertures 16 or 18 for the purpose of receiving the angularly disposed lower end 14 of the tie-rods and thus permit any one of the units to constitute the bottom or base portion of the foundation.

In order to properly maintain the hook-bolts in place, the bottom sides of the units where they have the sockets or grooves 13 are provided with means partially embedded in the concrete with one end protruding therefrom so as to permit the protruding end to be bent over and across the bent ends 14 of the rods. In Figure 4 at the left hand end I disclose this means in the nature of a wire as shown at 24, while at the right hand end this tie means is shown in the nature of a flat bendable strip of metal 25; either form of said means may be employed. It is apparent that after the rods 12 have been passed upwardly through the bottom unit or units with the bent ends 14 of the rods inserted in the sockets 13, the rods can be locked in place by bending the wire 24, or the flat strip 25, as the case may be, across the bent ends and thus prevent the rods from dropping down and out of the grooves 13. With the rods thus held in place, namely with the bent ends 14 held in the sockets or grooves 13, rotation

of the rods while screwing on the nuts 22 at the upper ends will be prevented.

It is evident that where the foundation is composed of units like that disclosed in Figure 4, thus permitting interchangeability, the channels 23 on the upper surface will take the place of the countersunk portions 21, as these channels are of sufficient depth to permit the nuts 22 at the upper ends of the rods to lie flush with the upper surface of the uppermost unit; and it is also apparent that the foundation may be built to any desired height by employing a sufficient number of units arranged in the criss-cross manner heretofore described; lateral movement of the respective units being prevented not only by the rods or bolts but also by the interlocking surfaces provided by the channels 23.

In Figure 5 I show a slight modification of the invention wherein the tie-rods 26 are shown threaded at both ends and the lower or bottom unit 27 is provided with a flanged member or nut 28 which is embedded in the concrete slab 27; the flanged portion of the nut being at the upper or inner end thereof. Like in the previously described construction, the top and bottom units or members of the construction shown in Figure 5 may be identical with the intermediate units which are similar to the intermediate units shown in the previous figures, namely with the opposite ends provided with the transversely disposed cut-away portions or channels 23 in order to permit interlocking relation between the respective units; the cut-away portions or channels being provided at the points where the units are cast with the bolt-receiving openings 16 in order to receive the tie-rods. By reason of this construction, it is apparent that the nuts 29 at the upper ends of the rods 26 will be countersunk or located beneath the top surface of the upper unit 20^a; or where the top unit is in the nature of a slab, the rod receiving opening 16 is provided with the countersunk orifice as at 30 in Figure 5. The embedded member or nut 28 in the lower unit or slab 27 on its upper or inner face is dished as shown at 31; the dishing inducing or assisting a centering of the rod especially where the rods are inserted into place after the respective units have been put in superposed relation.

In order that the top and bottom members of the foundation may be easily handled while still desiring these members to extend through the width of the foundation in the nature of slabs, these members may be made in two or more sections as shown at 20^a in Figure 5. Where the top member is composed of separate slab sections, I prefer to kerf the abutting edges so as to provide the lapping portions as shown for example at 32 in Figure 5. Of course, it will be understood that the bottom unit may also be of sectional slab formation; or all units may

be identical and of the construction shown in Figure 4 as previously described where no complete base or top covering slab is desired.

5 I have shown what I believe are the simplest embodiments of my invention and have described the same in terms employed merely as terms of description and not as terms of limitation, as structural modifications may
10 be made without, however, departing from the spirit of my invention.

What I claim is:

1. A foundation of the character described, comprising a plurality of precast reinforced
15 units adapted to be arranged in transversely disposed superposed relation, all of said units being provided with openings therethrough, the openings in the respective units being adapted to register with each other, the sur-
20 faces of said units about said openings being countersunk, tie-rods passing through the registering openings in the superposed units, and means embedded in the lower surfaces of the bottom unit for locking said rods in place.

25 2. A foundation of the character described, composed of a plurality of precast reinforced units of uniform dimensions, adapted to be arranged in transversely disposed superposed relation, the upper and lower faces of said
30 units being each provided with a pair of transverse cut-away portions or channels of width corresponding with the width of the respective units, each of the units at points registering with the cut-away or channel portions being
35 provided with openings disposed vertically therethrough, tie-rods disposed through the registering openings of the respective units, and means embedded in the lower face of said units whereby the tie-rods may be
40 locked in place.

3. A foundation of the character described, composed of a plurality of precast reinforced units, the upper and lower faces of each unit being provided with a pair of transversely
45 disposed channels or cut-away portions of width equal to the respective units, each unit at points registering with said cut-away portions or channels being provided with a pair of vertically disposed openings extending
50 therethrough, with the openings in the lower faces of the units communicating with a transversely disposed groove, tie-rods provided with laterally disposed heads or hook-ends adapted to seat in the laterally disposed
55 grooves of the bottom unit, and means at the upper ends of the rods for locking the same in place.

4. A foundation of the character described, comprising a plurality of precast reinforced
60 units of uniform dimensions, each unit on its upper and lower face being channeled transversely with the width of the channels corresponding with the width of the units to permit interlocking relation between the respec-
65 tive units when the latter are arranged in

transversely disposed superposed relation, each unit at points corresponding with said channels being provided with openings extending vertically therethrough, the openings on the lower face of said units terminating in
70 laterally disposed grooves, tie-rods passing through the registering openings of the superposed units and provided with angularly bent lower ends with the bent ends located in the laterally disposed grooves, and means em-
75 bedded in the lower face of the units whereby the bent ends of the rods may be locked in place.

5. A foundation of the character described, comprising a plurality of precast reinforced
80 units adapted to be arranged in superposed relation, all of said units being provided with openings extending therethrough, the openings in the lower face of the bottom unit terminating in laterally disposed grooves, hook-
85 bolts adapted to pass through the registering openings of the superposed units with the hook-ends of said bolts seated in said laterally disposed grooves, and means embedded in the lower unit adapted to be bent across
90 the hook-ends of said bolts.

6. A foundation of the character described comprising a plurality of precast units adapted to be arranged in transversely disposed
95 superposed relation, all of said units being provided with openings disposed vertically therethrough and adapted to register with each other, tie-rods passing through the registering opening, and strips of bendable material partially embedded in the bottoms of
100 said units with the lower ends of the strips exposed beneath the units and adapted to be bent across the lower ends of the tie-rods to hold the latter in place.

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