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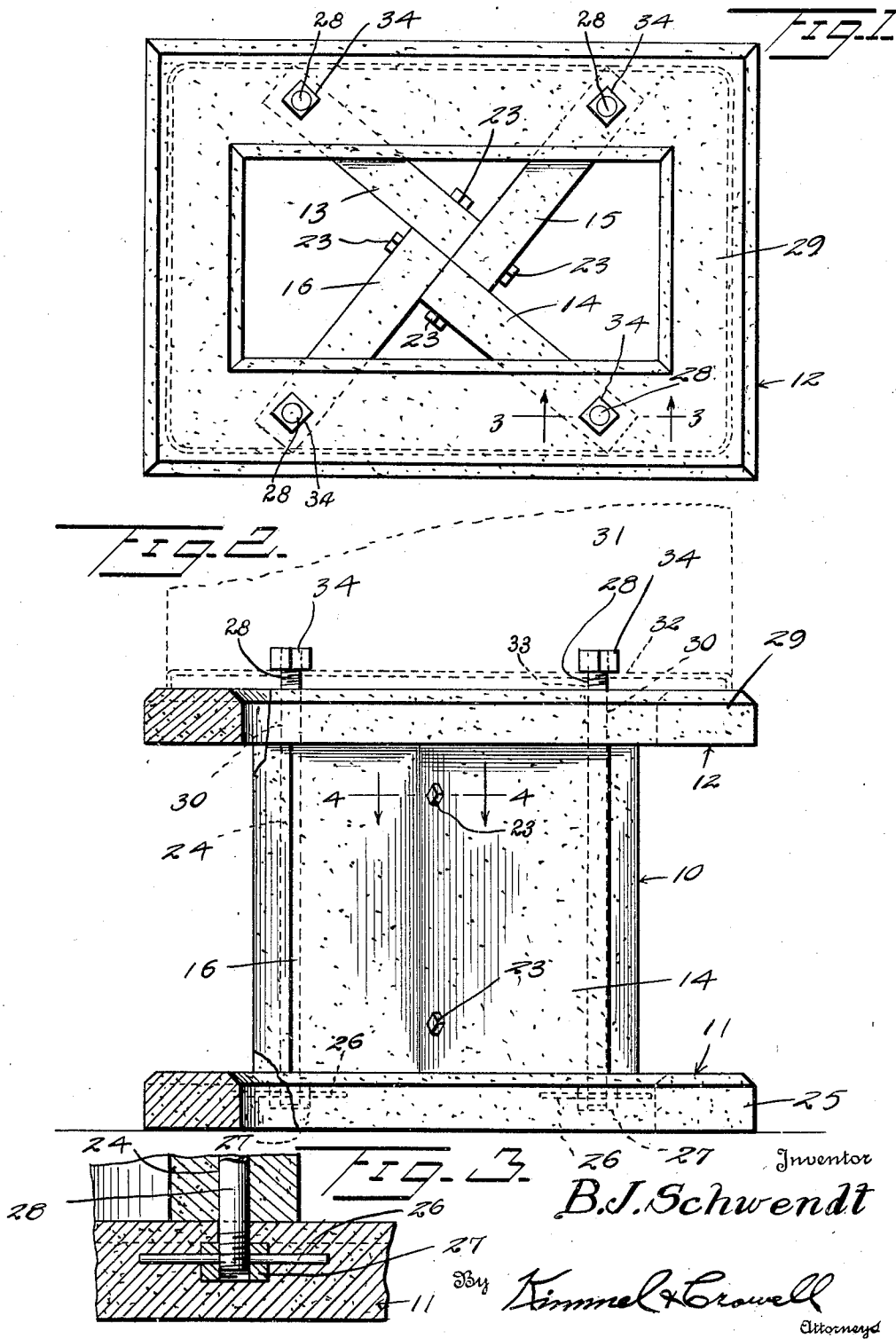
B. J. SCHWENDT

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PRECAST REINFORCED FOUNDATION FOR SIGNAL MASTS

Filed Sept. 18, 1940

2 Sheets-Sheet 1



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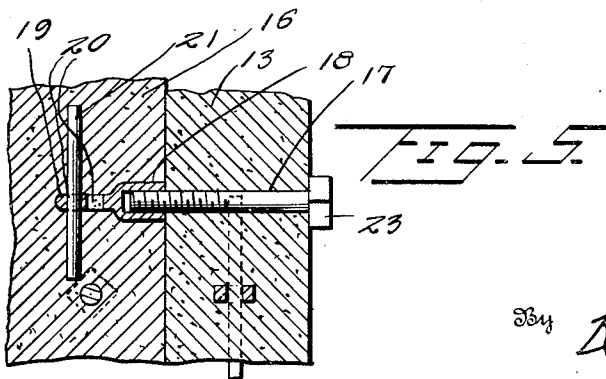
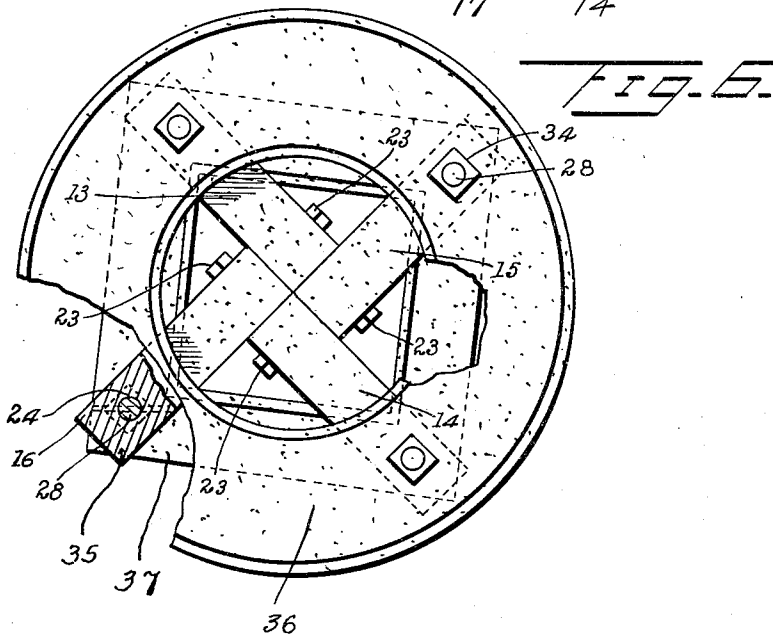
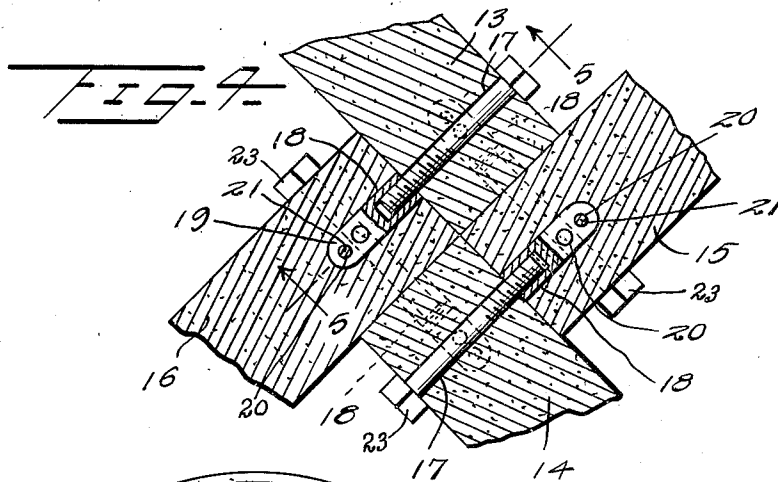
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PRECAST REINFORCED FOUNDATION FOR SIGNAL MASTS

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2 Sheets-Sheet 2



Inventor

*B. J. Schwendt*

By

*Kimmel & Crowell*

Attorneys

## UNITED STATES PATENT OFFICE

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PRECAST REINFORCED FOUNDATION FOR  
SIGNAL MASTS

Bernard J. Schwendt, Fort Thomas, Ky.

Application September 18, 1940, Serial No. 357,312

9 Claims. (Cl. 189—23)

This invention relates to signal or standard foundations, and more particularly to a precast concrete foundation for supporting a mast such as a signal mast or the like.

An object of this invention is to provide a foundation for signal masts or standards wherein the component parts thereof are formed of precast concrete slabs or blocks which may be assembled at the point of use.

Another object of this invention is to provide a foundation for signal masts, bridges or standards including upper and lower members, which is so constructed as to permit the ground to be intimately packed about and between the said upper and lower members or frames so that the foundation may be firmly embedded and held in the ground.

A further object of this invention is to provide a precast foundation which may be constructed of material of lighter weight than that employed in foundations poured in the ground, but which is strong enough to properly support and withstand the stresses to which the foundation is subjected.

A still further object of this invention is to provide a precast foundation assembly, which can be readily adapted to different types of standards or signals.

A further object of this invention is to provide a foundation wherein an anchor member is formed as a part of the assembly for anchoring the foundation in the ground.

A further object of this invention is to provide a foundation for the purpose set forth formed of a series of precast elements capable of being expeditiously assembled, but also provides for economic handling as it is done with minimum force as compared with the present fabric.

A further object of the invention is to provide a foundation for the purpose referred to including complementary head and base members to simplify manufacture, and with said members of frame-like form which makes it easy to level up a foundation as there is less surface on the base member in contact with the ground that must be level. The surface remaining is still sufficient to carry all of the vertical load.

A further object of the invention resides in overcoming the difficulty in the present practice of pouring monolithic foundations in the field, after making proper excavation and setting the necessary forms by the utilizing of precast elements forming the foundation, and each element capable of being handled by two workmen without difficulty.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a foundation for the purpose referred to which is simple in its construction and arrangement, strong, durable, compact, thoroughly efficient in its use, formed of a series of precast elements each conveniently handled and capable of being readily assembled to complete the foundation, withstanding loading and overturning, unnecessary to renew foundation, due to rust weakened bolts, having wire and cable entrances universal for inside or outside of mast connections, and comparatively inexpensive to manufacture.

Embodying the objects aforesaid and others which may hereinafter appear, the invention consists of the novel combination, arrangement and construction of parts as will be more specifically referred to and illustrated in the accompanying drawings wherein are shown embodiments of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawings:

Figure 1 is a top plan view of a foundation in accordance with this invention.

Figure 2 is a side elevation partly in section supporting a mast, the latter being shown in dotted lines.

Figure 3 is a section on line 3—3, Figure 1.

Figure 4 is a section on line 4—4, Figure 2.

Figure 5 is a section on line 5—5, Figure 4.

Figure 6 is a top plan view, broken away of a modified form showing a round top formation.

Each of the forms of foundations as shown includes a body part of like construction and arrangement, and the description of the body part with respect to Figures 1 to 5 will apply to the body part as shown by Figure 6.

With reference to Figures 1 to 5, the foundation includes a body part 10, a base or plate 11 and a head or plate 12. The body part or filler 10 is interposed between the base 11 and head 12, and it consists of four precast concrete precision formed elements 13, 14, 15 and 16 in the form of upstanding rectangular slabs each of like construction and disposed on its lower end. The inner side terminals of the said elements are disposed in abutting relation. The elements 13 and 14 are disposed in parallel vertical planes. The elements 15 and 16 are disposed in parallel vertical planes and are disposed at an angle of approximately 90 degrees to the elements 13 and 14. The elements 13, 14, 15, and 16 are so disposed whereby the inner side edge of element 13 will

abut one face of element 15 and extend at an angle thereto; the inner side edge of element 14 will abut one face of element 16 and extend at an angle thereto; the inner side edge of element 15 will abut one face of element 14 and extend at an angle thereto; and the inner side edge of element 16 will abut one face of element 13 and extend at an angle thereto. The elements 13, 14, 15 and 16 are of equal dimensions throughout. Each of said elements in proximity to its upper and lower ends and its inner side edge is formed with a pair of aligned spaced superposed transversely extending openings 17 disposed parallel to its inner side edge. Only the upper one of the openings 17 is shown. Each of the said elements has embedded therein and anchored thereto a pair of aligned spaced threaded socket forming members 18 of which only the upper one is shown. The members 18 open at the inner side edge of the elements. Each member 18 is formed at its inner end with a flat extension 19 provided with a pair of spaced openings 20. Through one of the openings 20 extends an anchor 21 and through the other a portion of the concrete from which the body of such element is formed. The said other opening 20 may have a second reinforcing rod inserted therethrough to increase the holding power where required. The members 18 have their open outer ends flush with the inner side edges of said elements. The socket members 18 and the openings 17 are so disposed that the inner ends of the openings 17 in the element 13 are to register with the open ends of the members 18 in the element 16; the inner ends of the openings 17 of the element 15 are to register with the open ends of the members 18 in the element 13; the inner ends of the openings 17 of the element 14 are to register with the members 18 in the element 15; and the inner ends of the openings 17 of the element 16 are to register with the members 18 in the element 14. The elements 13, 14, 15, 16 are connected together and detachably clamped in abutting relation in a manner as shown by Figure 4 by a set of headed clamping bolts 23 extending through the openings 17 into and threadedly engaging with the members 18. If desired the said elements may be recessed to countersink the heads of bolts 23. The members 18 of the elements 13, 14 are arranged below and disposed at right angles to the members 18 of the elements 15, 16. The bolts 23 of the elements 13, 14 are arranged below and disposed at right angles to the bolts 23 of the elements 15, 16. Each of the elements 13, 14, 15, 16 is formed with a lengthwise extending opening 24 disposed in proximity to its outer side or lengthwise edge. The openings 24 extend from the top to the bottom edges of the said elements. These latter may or may not be reinforced. The construction of the body part or filler 10 forms it of what may be termed oppositely extending arms disposed in angular relation with respect to each and with the outer end of each arm provided with a vertical opening. The base 11, which is also an anchor, is in the form of a flat rectangular frame 25 having anchored within each side portion thereof, as at 26, nuts 27 threadedly engaged by the lower ends of upstanding bolts 28 of a length to extend above the head or support 12. The anchoring means 26 are welded to the nuts 27 and do not extend through the lower ends of the bolts 28. The bolts 28, when the foundation is assembled extend upwardly through and project above the openings 24 in the elements 13, 14, 15, 16. When

assembling the foundation the body part 10 is mounted upon the upper face of the base or anchor 11, and the latter is extended laterally in all directions with respect to the lower end of the body part 10. The base 10 or anchor 11 is of precast concrete precision form and it may be or may not be reinforced.

The head or support 12 is in the form of a rectangular frame 29 having its sides provided with openings 30 for registry with the openings 24 in the elements 13, 14, 15 and 16 and for the passage upwardly therethrough of the bolts 28. The head 12 corresponds in form and dimensions to that of base 11 and is of precast concrete precision formed and reinforced if desired.

The signal mast or bridge leg indicated at 31 includes a base 32 which is mounted on the head 12. The base 32 is provided with openings 33 for registry with the openings 30 and for the passage upwardly therethrough of the bolts 28.

Carried by the upper ends of the bolts 28 are clamping nuts 34 which when screwed home to engage the base of the mast 31 to clamp the latter to the head 12, and further in connection with the anchored lower ends of the bolts 28 clamp the body part 10, base 11 and head 12 together.

The foundation is mounted in a hole in the ground and in this connection it may be assembled first, then positioned in the hole and the dirt tamped around body part 10 between the base 11 and head 12, or the base 11 first positioned in the hole, the body part 10 then mounted on the base 11 and about bolts 28, after which the head 12 is mounted on the body part 10 and about the bolts 28. The dirt is then tamped about body part 10. After tamping, the mast is secured upon head 12. The mast, head 12, body part 10 and base 11 are then clamped together by screwing the nuts 34 home on the bolts 28.

With reference to Figure 6, the modified form of foundation shown thereby includes a body part 35 of the same construction as body part 17, a head member 36 in the form of an annulus. The form shown by Figure 6 will include a base member 37 of the same form as the base member 11. Otherwise than that as stated, the form shown by Figure 6 will be the same as the foundation shown by Figures 1 to 5.

What I claim is:

1. A mast foundation comprising precast head and base members of frame-like form disposed in superposed relation, pairs of upstanding right angularly disposed precast slabs interposed between said members, the outer side portions of said slabs bearing against spaced aligned points of the opposed faces of the bodies of said members, means for detachably securing together the slabs of each pair, means detachably securing said pairs of slabs together, and means detachably securing said slabs to said members, the said means for detachably securing the slabs together being disposed in superposed relation in the slabs and extending from the side of a slab and engaging in the inner side edge of an adjacent slab.

2. A mast foundation comprising precast head and base members disposed in superposed relation, a plurality of abutting vertically disposed precast slabs disposed in angular relation interposed between and abutting spaced aligned points of the opposed faces of said members, means for detachably securing said slabs together to form substantially an X in plan, and spaced means anchored within said base member and

extending through said slabs and head member for detachably securing said slabs to said members, the said means for detachably securing the slabs together being disposed in superposed relation in the slabs and extending from the side of a slab and engaging in the inner side edge of an adjacent slab.

3. A mast foundation formed of a precast head, a precast base, said head and base each being of frame-like form, a body part formed of a plurality of upstanding abutting precast slabs disposed between said head and base, means for detachably securing said slabs together, and means for detachably clamping said base, body part and head together, said slabs having the outer portions of their upper ends abutting spaced points of the lower face of said head and the outer portions of their lower ends abutting spaced points of the upper face of said base, said slab being so disposed relatively to each other to provide said body part of substantially X-form in plan, the said means for detachably securing the slabs together being disposed in superposed relation in the slabs and extending from the side of a slab and engaging in the inner side edge of an adjacent slab.

4. A mast foundation formed of a precast head, a precast base, said head and base being in the form of rectangular frames disposed in superposed relation, a body part formed of a plurality of upstanding precast slabs disposed between and having their outer side portions bearing against the side portions of said head and base, means for detachably securing said slabs together in angular relation, and means for detachably clamping the side portions of said base, the outer side portions of said body part and the side portions of said head together, said head and base extending laterally in all directions with respect to said body part, the said means for detachably securing the slabs together being disposed in superposed relation in the slabs and extending from the side of a slab and engaging in the inner side edge of an adjacent slab.

5. A mast foundation comprising a precast base, a precast head disposed in superposed relation with respect to the base, said base and head being of frame-like form, said head being formed with spaced openings, a plurality of upstanding outwardly directed precast slabs disposed in angular relation, said slabs having their outer side portions bearing against the said head and base, each slab being formed with a lengthwise opening adjacent its outer side edge for registry with an opening in said head, each slab having embedded therein a pair of threaded sockets opening at its inner side edge, each slab being formed with transverse openings extending from one of its side faces to its other side face, means extending through said transverse openings and engaging with said sockets for detachably securing said slabs in abutting and in angular relation, and means anchored within said base and extending through said registering openings for detachably clamping said base, slabs and head together.

6. A mast foundation comprising a precast base, a precast head disposed in superposed relation with respect to the base, said base and head being of frame-like form, said head being formed with spaced openings, a plurality of upstanding outwardly directed precast slabs disposed in

angular relation, said slabs having their outer side portions bearing against the said head and base, each slab being formed with a lengthwise opening for registry with an opening in said head, each slab having embedded therein a pair of threaded sockets opening at its inner side edge, each slab being formed with transverse openings extending from one of its side faces to its other side face, means extending through said transverse openings and engaging with said sockets for detachably securing said slabs in abutting and in angular relation, means anchored within said base and extending through said registering openings for detachably clamping said base, slabs and head together, and each of said slabs provided therein with means for anchoring said sockets thereto.

7. A mast foundation comprising a pair of upstanding oppositely extending precast slabs disposed in parallel vertical planes, a second pair of upstanding oppositely extending precast slabs disposed in parallel vertical planes, the slabs of one pair being disposed at right angles and co-acting with the slabs of the other pair to provide a substantially X-shaped body, superposed inter-engageable means carried by the slabs of said pairs for detachably securing the inner side portions of the slabs of said pairs in abutting relation, an apertured base mounted against the lower ends of and extending laterally from the outer side portions of said slabs, an apertured head mounted upon the upper ends of and extending laterally from said slabs, and spaced means engaging with the base and extending through the outer side portions of said slabs and through said head for detachably securing said head, body and base together.

8. A mast foundation comprising precast horizontally disposed head and base members of frame-like form, two pairs of upstanding right-angularly disposed precast rectangular slabs interposed between said members, the inner side edge of the slab of one pair abutting the inner portion of a side face of the other slab of the pair, means for securing the slabs of a pair together, means for securing the slabs of one pair to the slabs of the other pair, and means anchored within said base member and extending through the outer side portions of said slabs and extending through said head member for anchoring said slabs and said members together.

9. A mast foundation comprising precast horizontally disposed head and base members of frame-like form disposed in superposed relation, two pairs of upstanding right-angularly disposed precast rectangular slabs interposed between and abutting said members, the inner side edge of a slab of one pair abutting the inner portion of a side face of the other slab of a pair, threaded sockets anchored in said slabs and opening at the inner side edges thereof, means extending transversely through said slabs and correlated with said sockets for securing the slabs of a pair together and for securing the slabs of the one pair to the slabs of the other pair, and spaced means anchored in said base member and extending upwardly through said slabs in proximity to their outer side edges and extending through said head member for detachably clamping said members and slabs together.

BERNARD J. SCHWENDT.