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C. W. RHEA

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HINGED POLE CONSTRUCTION

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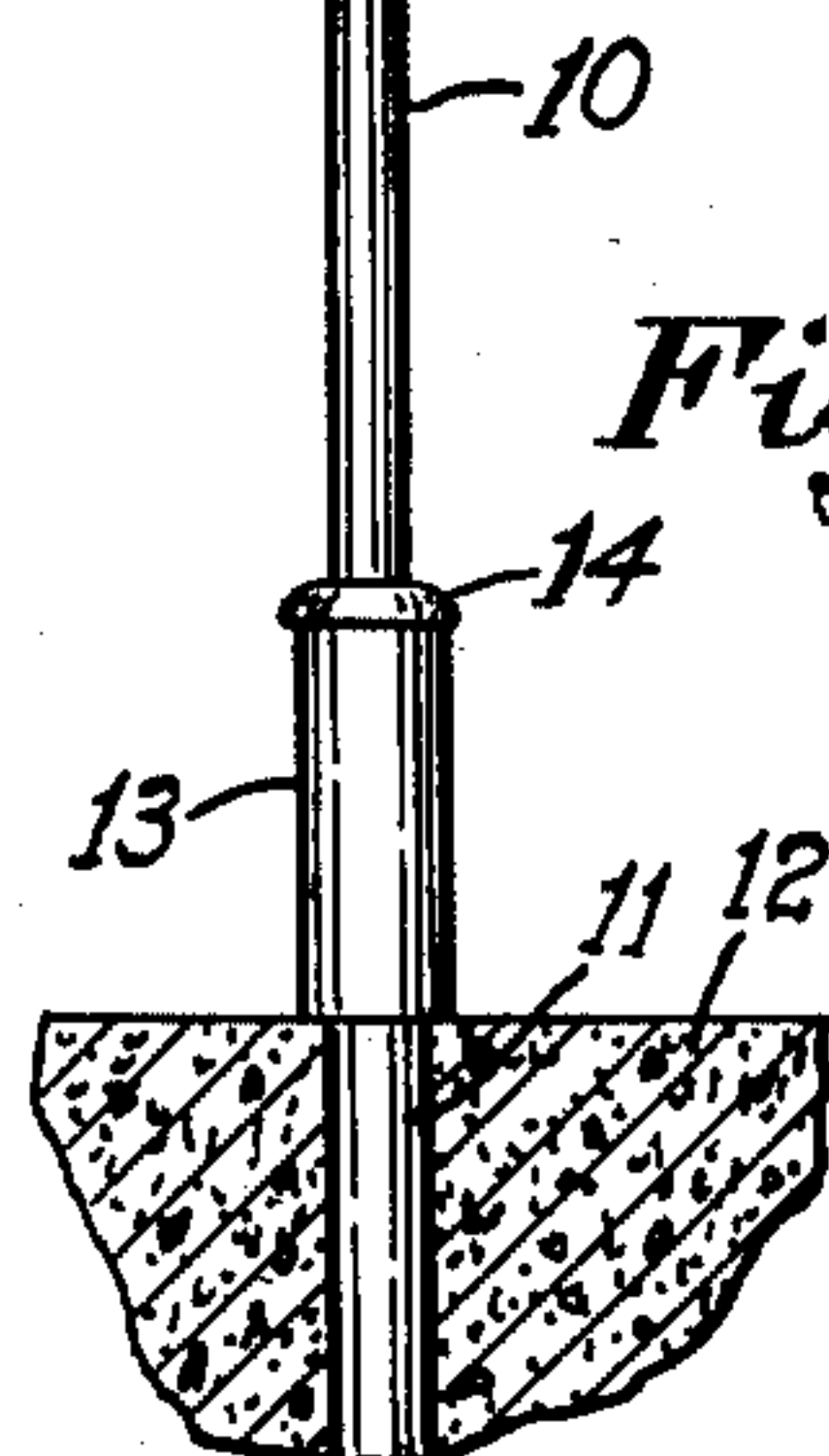
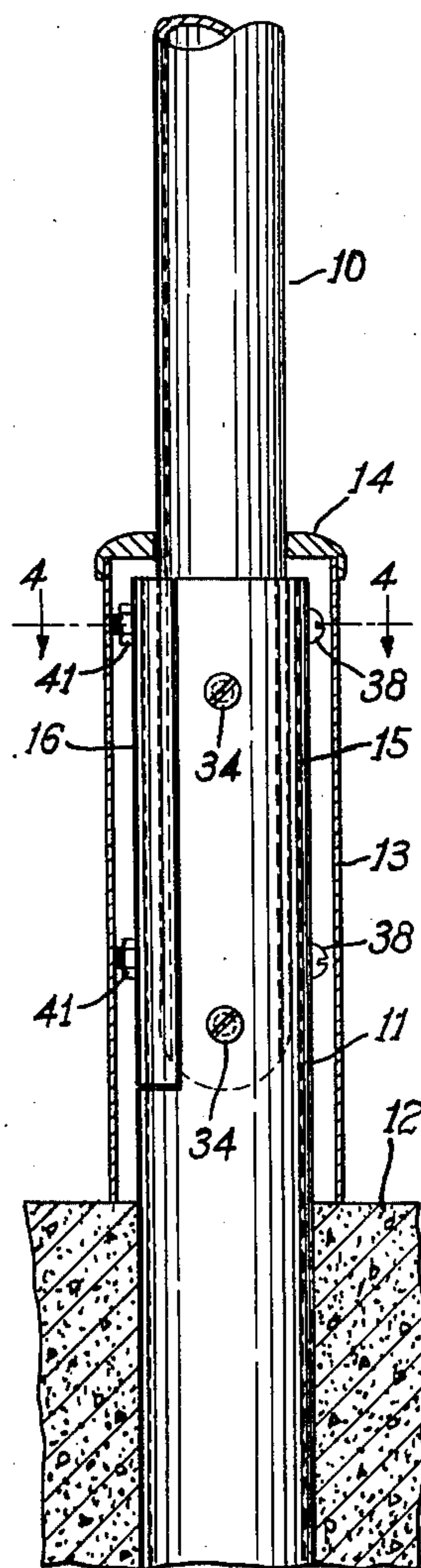
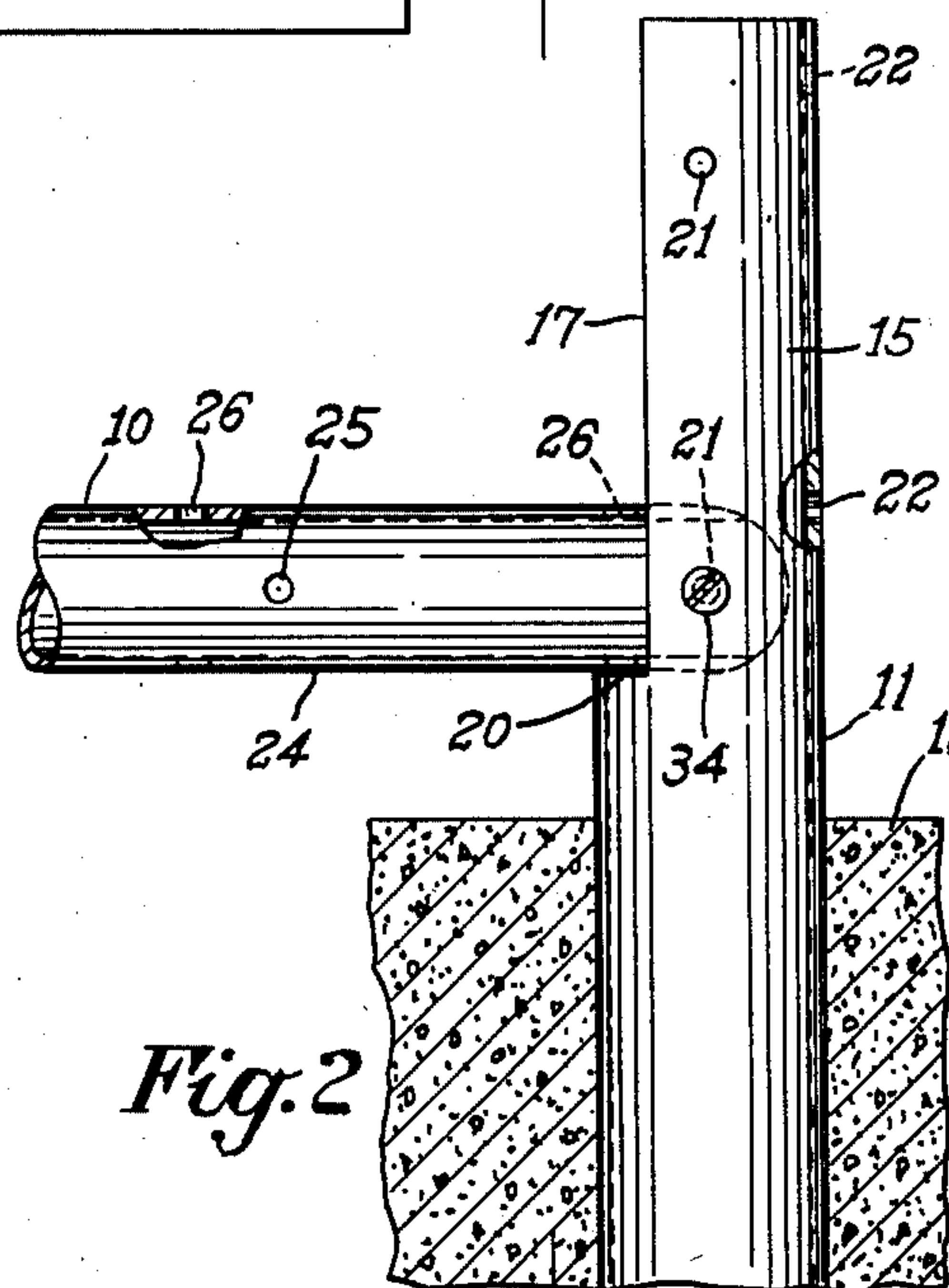
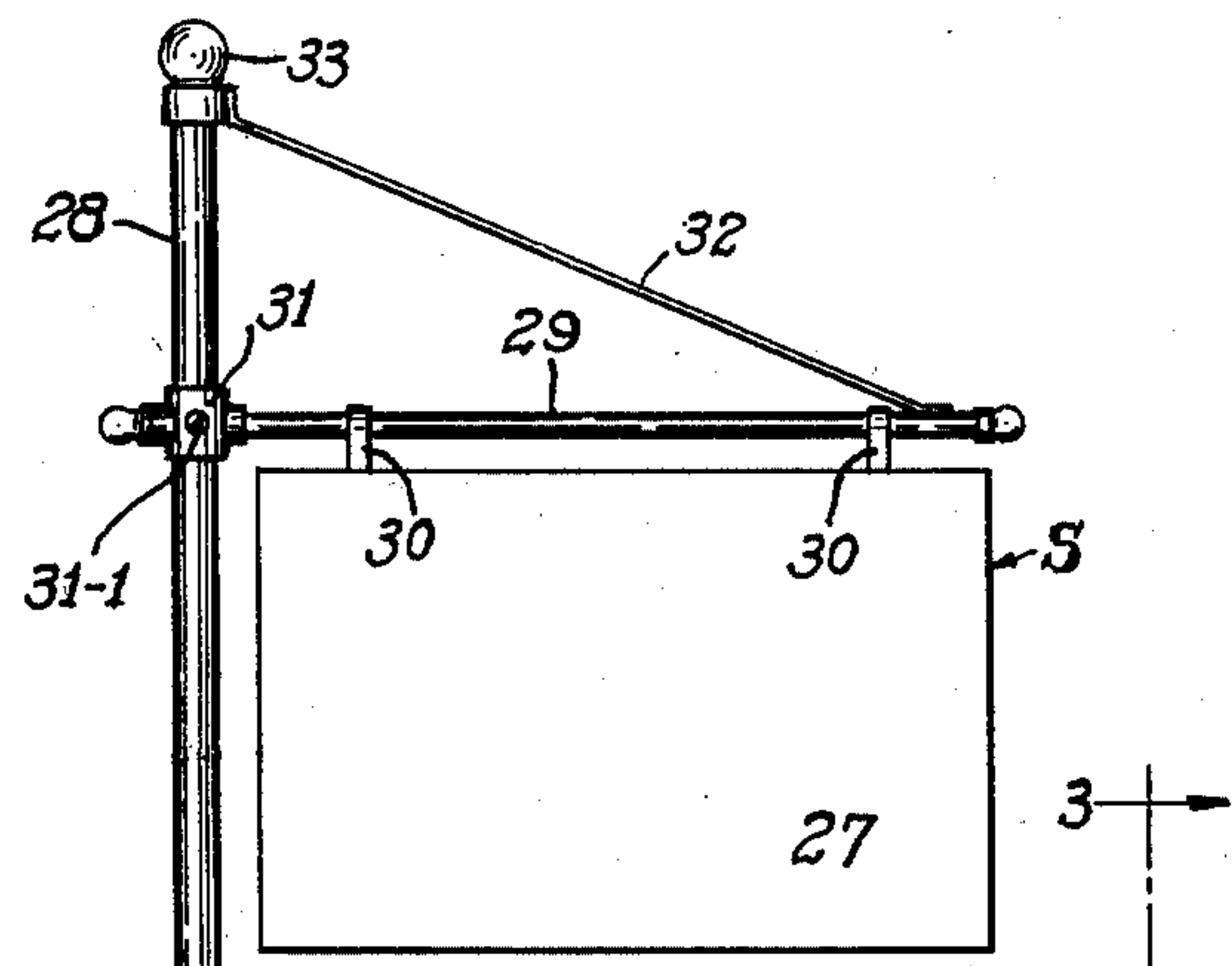


Fig. 1

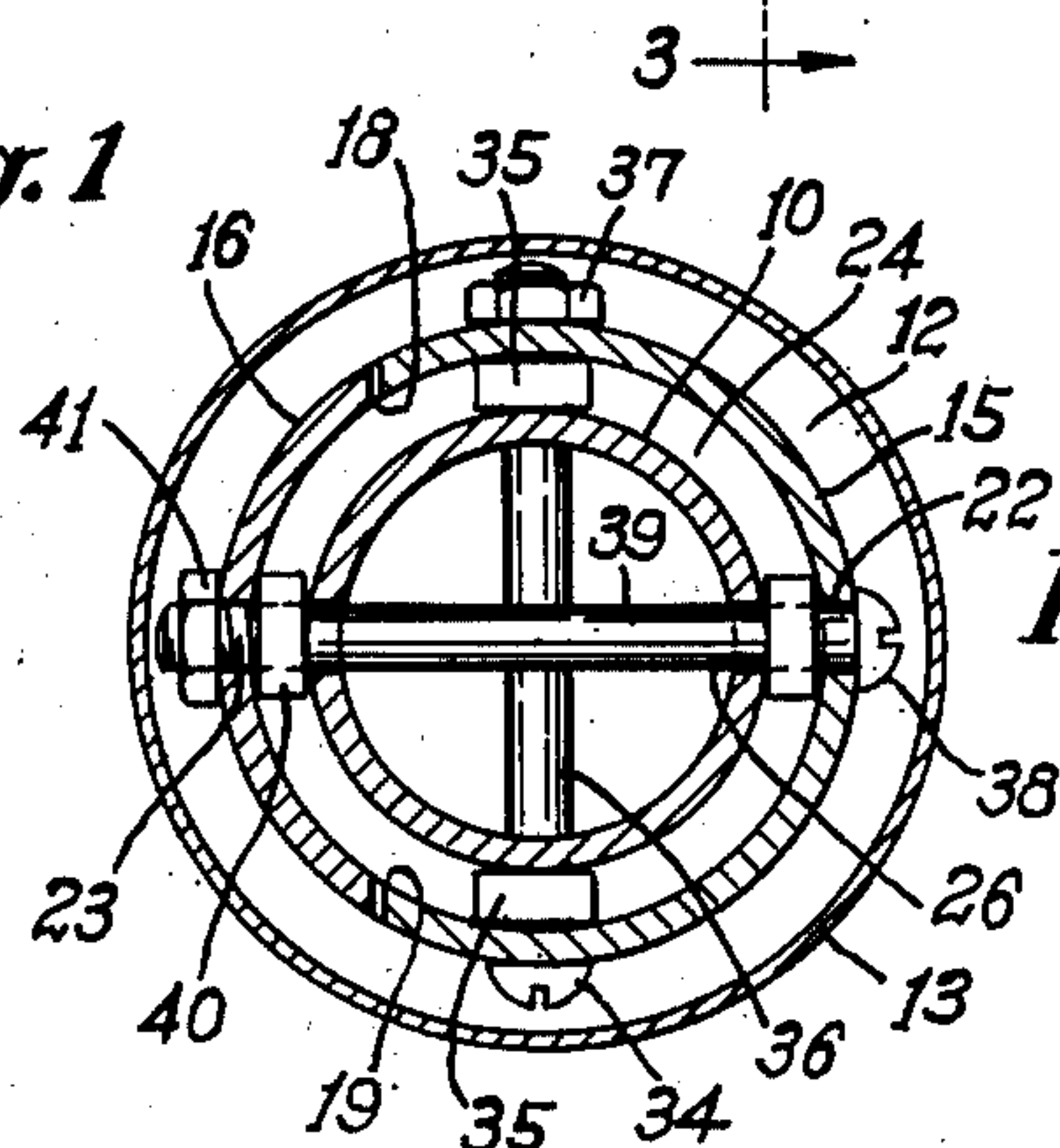


Fig. 4

Fig. 3

INVENTOR.
Claude W. Rhea
 BY
Frears and Bishop
 ATTORNEYS

UNITED STATES PATENT OFFICE

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HINGED POLE CONSTRUCTION

Claude W. Rhea, Sligo, Pa.

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My invention or discovery relates to pole construction in which a pole supporting at its upper end a heavy object such as a neon tube lettered gasoline advertising sign, has its lower end mounted in a concrete foundation.

Prior to the present invention or discovery, in erecting a pole with such a heavy object mounted at its upper end, it has been necessary to use a crane, or to build scaffolding. After the pole and heavy object on its upper end have been elevated, it is furthermore necessary that the pole shall be positioned so that its longitudinal axis is vertical or plumb.

Prior to the present invention or discovery, there have been proposed hinged pole constructions including a base member which has been embedded in a foundation such as concrete, the base member extending a limited distance above the top of the concrete foundation. The lower end of the pole has been hinge connected with the upper end of the base member above the concrete foundation, by various means which have required a multiplicity of parts which have been of complicated construction.

The object of the present invention or discovery includes the provision of an improved hinged pole construction including a simplified base member and a pole having a hinge connection with the base member, the base member being of simplified form, and the hinge connection being constructed by connecting the lower end of the pole with the upper end of the base member without necessitating the use of special complicated parts.

Further objects of the present invention or discovery include the provision of such an improved hinged pole construction which is adapted for rapid plumbing of the pole with respect to the base member and concrete foundation by the use of simplified parts.

The foregoing and other objects are attained by the hinged pole construction, improvements, members, parts, combinations, and subcombinations, which comprise the present invention or discovery, the nature of which is set forth in the following general statement, and preferred embodiments of which together with their mode of use are set forth by way of example in the following description, and which are particularly and distinctly pointed out and set forth in the appended claims forming part hereof.

The nature of the improved hinged pole construction of the present invention or discovery may be stated in general terms as including a tubular base member which is adapted for being imbedded in a concrete foundation, and which

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extends a limited distance above the top of the concrete foundation. The tubular base member has a hinge member upper end portion above the concrete foundation, and the hinge member portion has a longitudinally extending opening at one side of the longitudinal axis of the tubular base member, the longitudinal axis being vertical when the tubular base member is imbedded in the concrete foundation. The tubular base member is preferably cylindrical and the side opening hinge member upper end portion preferably is formed by cutting out a segmental length or section of the cylindrical tubular wall at one side of the longitudinal axis of the tubular base member. A pole on the upper end of which is mounted a heavy object such as a sign which may include neon tube letters, according to the present improvements, is first laid at one side of the base member. Then the lower hinge member end of the pole which is dimensioned so as to fit with clearance in the hinge member upper end portion of the base member, is fitted in the hinge member upper end portion of the tubular base member, and is hinge connected therewith by a hinge bolt, shim or spacer means being located on the shank of the bolt and being interposed between the side opening hinge member upper end portion of the tubular base member and the hinge member lower end of the pole.

The pole and the object carried on its upper end is then swung upwardly. Adjacent the extremity of the hinge member upper end portion of the tubular base member, there is inserted and secured a second bolt with shims or spacer members located on the shank of the second bolt between the wall of the side opening hinge member upper end portion of the tubular base member and the hinge member lower end of the pole. The cutout segmental section of the upper end portion of the tubular base member is then connected by a pair of bolts to the lower end of the pole and the side opening upper end portion of the tubular base member, shim and spacer means being mounted on the bolt shanks, and the second pair of bolts having their shanks extending at right angles to the shanks of the first pair of bolts.

By way of example, preferred embodiments of the improved hinged pole construction and parts thereof are illustrated in the accompanying drawing forming part hereof in which:

Figure 1 is a side elevational view showing a preferred embodiment of the hinged pole construction after erection;

Fig. 2 is a fragmentary side elevational view

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with portions in section showing the tubular base member mounted in a concrete foundation, and the lower end of the pole after hinge connection with the base member by the lower bolt of the first set;

Fig. 3 is a fragmentary elevational view thereof looking in the direction of the arrows 3—3, Fig. 2, after the pole has been swung to the vertical position and has been bolted to the tubular base member; and

Fig. 4 is a transverse sectional view of the erected hinged pole construction as on line 4—4, Fig. 3.

Similar numerals refer to similar parts throughout the drawing.

The improved pole construction includes a pole 10 after erection supporting at its upper end a heavy object such as a sign indicated generally by S. As shown in Fig. 1, after erection the pole 10 is mounted on a base member 11 which is imbedded in a concrete foundation 12. The base member 11 is connected with the lower end of the pole 10 by means of the improvements of the present invention or discovery as shown in Figs. 2, 3 and 4. After erection the upper end of the base member above the foundation 12 is preferably covered by a sleeve 13 having a flange 14 at its upper end, the pole 10 extending through the flange 14 and the sleeve 13.

Some days before the erection of the pole 10 and sign S or other heavy object carried on the upper end of the pole 10, the improved tubular base member 11 is imbedded in the concrete foundation 12. The tubular base member 11 is preferably formed as shown of a length of cylindrical pipe and includes a hinge member upper end portion 15 which is formed by cutting out from the wall of the cylindrical tubular member 11 a segmental length or section 16 whose transverse curvature is less in arcuate length than the semi-circumference of the cylindrical tubular member 11, as best shown in Fig. 4.

After cutting out the segmental section 16, there is thus formed in one end of the cylindrical tubular base member 11 a notch 17 best shown in Fig. 2, and the hinge member upper end portion 15 of the cylindrical base member 11, thus has a side opening bordered by side faces 18 and 19, and the width of the side opening is equal to or greater than the diameter of the pole 10. As shown, and preferably, the pole 10 is also in the form of a cylindrical tubular pipe.

The longitudinal side faces 18 and 19 of the notch 17 extend upwardly from a lower horizontal face 20 after the tubular base member 11 has been imbedded in the concrete foundation 12, and the side opening of the hinge member upper end portion 15 of the tubular base member 11 between the faces 18 and 19 is directed as may be most convenient at the site where the pole 10 is to be erected, such as at one corner of a gasoline filling station.

The segmental wall of the hinge member upper end portion 15 has formed therein above the lower end face 20 of the notch 17 two sets of diametrically opposite apertures 21, the centers of each set of which are on a horizontal axis passing through the longitudinal axis of the tubular base member 11.

There is also formed in the hinge member upper end portion 15 of the tubular base member 11 a pair of apertures 22 whose centers lie in a vertical plane passing through the longitudinal axis of the tubular member 11 and at right angles to the plane containing the centers of the apertures

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21. Each of the apertures 22 is spaced longitudinally above one set of the apertures 21.

The segmental cutout section 16 which fits the notch 17 and by the removal of which the notch 17 is formed, similarly has formed therein a pair of apertures 23 which have their centers longitudinally aligned in the median axis of the segmental section 16, and which also have their centers spaced longitudinally from each other the same distance as the longitudinal spacing of the centers of the apertures 22.

Each of the apertures 21, 22, and 23 are preferably circular and have equal diameters.

After the tubular member 11 has been imbedded in the concrete foundation 12 and has set, preferably for several days, the pole 10 inserted through the flange 14 and sleeve 13 is laid at one side of the tubular base member 11 with the lower end 24 of the pole 10 adjacent the notch 17. The lower end 24 of the pole 10 has formed therein two sets of circular apertures 25, each of which has its center on a diameter at right angles to the longitudinal axis of the pole 10 and is diametrically opposite one of the other apertures 25. Also, the apertures 25 at each side of the longitudinal axis of the pole 10 are spaced longitudinally from each other so as to be registerable and alignable with the spaced apertures 21 at one side of the longitudinal axis of the tubular member 11, after the lower end 24 of the pole 10 has been inserted in the upper end portion 15 of the tubular base member 11.

The lower end 24 of the tubular pole 10 has also formed therein two sets of circular apertures 26, each of the circular apertures 26 in each set being diametrically opposite the other, and at each side of the longitudinal axis of the pole 10, the apertures 26 are spaced from each other longitudinally the same distance as the longitudinal spacing of the apertures 22 in the upper end portion 15 of the tubular base member 11.

After the pole 10 has been thus laid down with its lower end 24 opposite the opening of the notch 17, the sign indicated generally by S, and which may consist of a heavy rectangular metal box housing on outer rectangular faces 27 of which may be mounted neon tube letters not shown, is connected with the upper end 28 of the pole 10 by pivotally adjustable means, which may include as shown a bar 29 extending at right angles to the pole 10. The sign S is suspended on the bar 29 as by a pair of bar loops 30. The end of the bar 29 adjacent the upper end 28 of the pole 10 is connected as shown with a swivel or pivot fitting 31 which may be adjustably secured on the upper end 28 of the pole 10 by means of a screw 31—1. From the outer end of the bar 29 there extends a tie-rod 32 the upper end of which is connected preferably by a swivel or pivot fitting 33 with the upper extremity of the upper end 28 of the pole 10.

The sign S may thus be laid flat on the ground adjacent the upper end 28 of the pole 10, and adjustably and pivotally connected therewith. Either before or after the connection of the sign S to the upper end 28 of the pole 10, as may be most convenient, the lower end 24 of the pole 10 is inserted into the opening of the notch 17 so that the lower set of apertures 25 in the pole 10 lower end 24 are aligned with the lower set of apertures 21 in the tubular base member 11. A bolt 34 is then inserted through the aligned lower apertures 21 and 25 and preferably shim or spacer washers 35 are inserted on the shank 36 of the bolt 34 the segmental upper end portion

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15 of the tubular base member 11 and the lower end 24 of the pole 10 for plumbing and spacing the pole 10 in the direction of the shank 36 of the lower hinge bolt 34.

After the insertion of the lower bolt 34 through the lower aligned apertures 21 and 25 and the shim or spacer washers 35, a nut 37 may be screwed on the outer end of the lower bolt shank 36, or other securing means such as a cotter-pin may be used for maintaining the lower bolt 34 in assembled position as shown in Fig. 2 hinge connecting the lower end 24 of the pole 10 to the hinge member upper end portion 15 of the tubular base member 11.

The pole 10 and attached sign S may then be swung upwardly on the lower hinge bolt 34, and after alignment of the upper apertures 21 and 25 with each other, an upper connecting bolt 34 may be inserted through the upper aligned apertures 21 and 25 and preferably through an upper pair of shim or spacer washers 35.

The segmental section 16 may then be located in the opening of the notch 17 between the side faces 18 and 19 as best shown in Fig. 4, the apertures 23 of the segmental section 16 being aligned with the apertures 26 in the lower end 24 of the pole 10 and with the apertures 22 in the upper end portion 15 of the tubular base member 11. In each of the lower and upper sets of aligned apertures 23, 26 and 22, a bolt 38 may be inserted, and there may be preferably interposed on the shank 39 of each bolt 38, shim or spacer washers 40 between the lower end 24 of the pole 10, and the upper end portion 15 of the tubular base member 11, and also between the pole lower end 24 and the segmental section 16, whereby the pole 10 may be plumbed in the direction of the longitudinal axes of the bolts 38, each of which has a nut 41 screwed on its outer end. After the pole 10 is thus erected, and, its lower end 24 is thus connected to the upper end 15 of the tubular member 11, the sleeve 13 is slid down on the pole 10 so as to cover the connected parts of the pole 10 and the tubular base member 11 as shown in Figs. 1, 3, and 4.

The hinge member upper end portion 15 of the cylindrical base member 11 may be otherwise termed a longitudinally extending tongue or segmental wall which is curved about the longitudinal axis of the base member, and which has a transverse cross section perpendicular to the longitudinal axis of the base member, and the transverse cross section being preferably a segment of a circle which has a central portion at one side of a diameter of the circle and has end portions extending beyond the other side. The tongue or segmental wall 15 has an open outer end and the side faces 18 and 19 spaced from each other and forming a side opening extending lengthwise of the base member 11 from the open outer end of the tongue or segmental wall 15.

In the foregoing description, certain terms have been used for brevity, clearness, and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved construction illustrated and described herein are by way of example, and the scope of the present invention is not limited to the exact details of construction.

Having now described the invention or discov-

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ery, the construction, the operation, and use of preferred embodiments thereof, and the advantageous new and useful results obtained thereby; the new and useful constructions, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

I claim:

1. In hinged pole construction including a base member, a pole, and means hinge connecting one end portion of the pole with one end portion of the base member, and the pole and base member each having a longitudinal axis; the combination including an upper segmental wall on the connected end portion of the base member, the segmental wall extending about the longitudinal axis of the base member and the segmental wall having a transverse cross section perpendicular to the longitudinal axis of the base member, and the transverse cross section having a central portion at one side of a diameter of a circle lying in the plane of the cross section and end portions extending beyond the other side, and the segmental wall having an open outer end and side faces spaced from each other and forming a side opening extending lengthwise of the base member from the open outer end of the segmental wall and the segmental wall of the base member having formed therein a set of apertures each on an opposite side of the longitudinal axis from the other and each aligned with the other on the diameter, the connected end portion of the pole having a transverse width less than the distance between the side faces of the segmental wall, the connected end portion of the pole having formed therein a set of diametrically opposite apertures aligned with the apertures of the base member segmental wall, and a hinge shank extending through the aligned sets of apertures, and separable means securing the hinge shank in the aligned sets of apertures.

2. In hinged pole construction as set forth in claim 1, and in which plumbing spacer means are interposed between the segmental wall and the connected end portion of the pole.

3. In hinged pole construction as set forth in claim 2, and in which separable connecting means are spaced from the hinge shank in the direction of the longitudinal axes of the base member and pole, the separable connecting means connecting the segmental wall and the hinge connected end portion of the pole.

4. In hinged pole construction as set forth in claim 3, and in which the separable connecting means include a plurality of bolt shanks, the segmental wall and the hinge connected end portion of the pole having formed therein a set of aligned apertures for each bolt shank, each bolt shank extending through a set at the aligned apertures, and separable means securing each bolt shank in its set of aligned apertures.

5. In hinged pole construction as set forth in claim 4, and in which the plumbing spacer means include shims located on the hinge shank and the bolt shanks between the segmental wall of the base member and the connected end portion of the pole.

6. In hinged pole construction as set forth in claim 1, and in which a segmental wall section is located in the side opening of the segmental wall, and means securing the segmental wall and the connected end portion of the pole and the segmental wall section to each other.

7. In hinged pole construction as set forth in

claim 6, and in which one set of plumbing spacer means are interposed between the segmental wall and the connected end portion of the pole and another set of plumbing spacer means are interposed between the segmental wall section and the connected end portion of the pole.

8. In hinged pole construction as set forth in claim 2, and in which the segmental wall and the connected end portion of the pole are each cylindrical.

9. In hinged pole construction as set forth in claim 7, and in which the segmental wall and the connected end portion of the pole and the segmental wall section are each cylindrical.

CLAUDE W. RHEA. 15

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