United States Patent [19]

Meisberger

[11] **3,838,547**

[45] **Oct. 1, 1974**

[54] **BASE CONNECTION FOR UTILITY POLES**

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[22] Filed: **Apr. 25, 1973**

[21] Appl. No.: **354,162**

[52] **U.S. Cl.** **52/295,** 52/296, 52/726

[51] **Int. Cl.** **E04b 1/41**

[58] **Field of Search** ..... 52/295, 296, 726, 126, 52/292, 297, 301, 300, 432, 582, 731, 98, 758 B; 248/188.4, 346; 240/84

[56] **References Cited**

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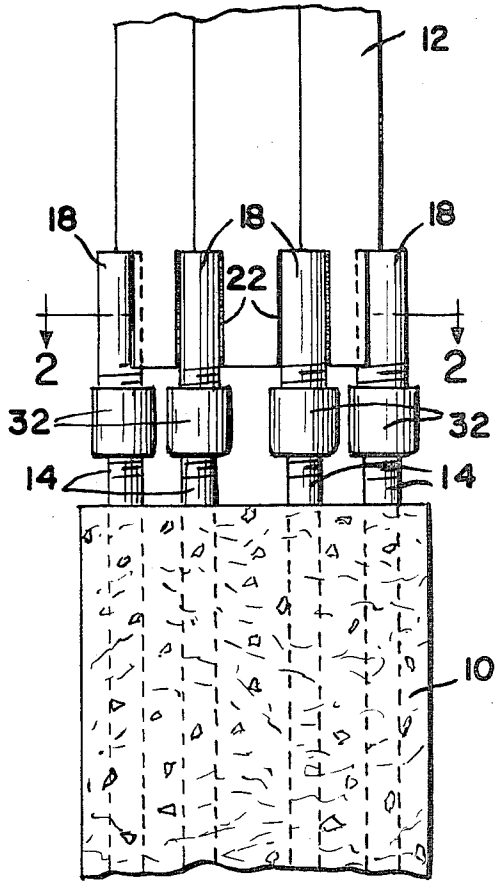
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[57] **ABSTRACT**

A base connection for metal utility poles in which a plurality of anchor bolts extend upwardly from a concrete foundation each having a levelling collar adjustably mounted thereon. Pole connecting tubes are received in cutout portions in the lower end of the pole and are secured to the pole by welds extending along the contiguous regions between the connecting tube and the cutout portions of the pole. The pole is supported on the anchor bolts with each pole connecting tube supported on a levelling collar on each anchor bolt and connected thereto by means of a locking cap.

10 Claims, 3 Drawing Figures



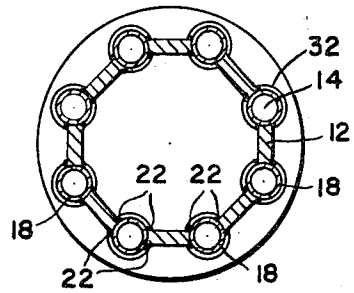


FIG. 2.

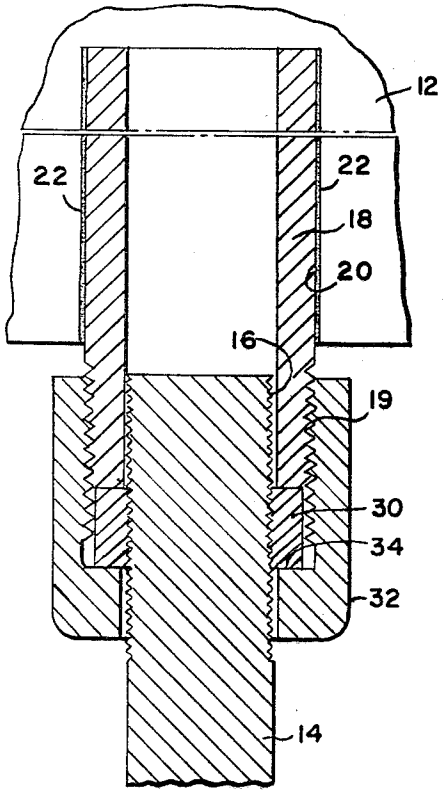


FIG. 3.

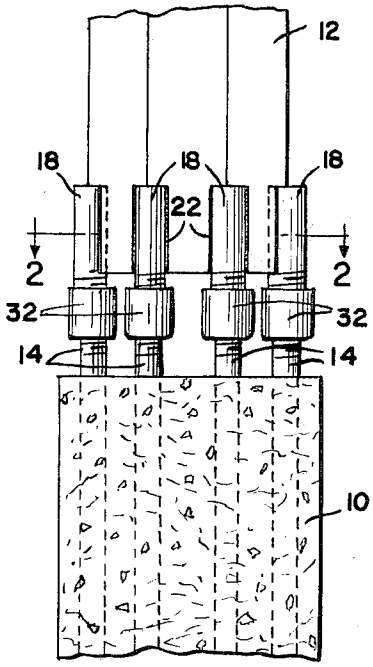


FIG. 1.

BASE CONNECTION FOR UTILITY POLES

BACKGROUND OF THE INVENTION

This invention relates generally to a base connection for utility poles or the like. More particularly, the invention relates to a base connection for a tubular metal pole such as would be used for supporting power lines that transmit high voltage electricity. The base connection of the invention is more broadly applicable to use in supporting other pole-like members, such as electric light poles, traffic signal poles, cooling towers or the like.

Poles of the indicated type may be higher than 200 feet and have, in the past, been provided with base connections in which the poles are welded to a flat base plate. However, these prior base connections have proved unsatisfactory because of failures that occur at the weld. In the case of high voltage transmission lines, the falling of one of the poles may cause some or all of the other poles in the line to fall, possibly causing injury or damage. At the least, major supplies of power will be lost for an indefinite time. Utility companies have in the past preferred lattice work towers over pole towers for supporting high voltage transmission lines, because of their inherent low cost. However, the lattice work towers require considerably more room because of their base dimension and are unsightly. These two negative features have made use of transmission poles more and more desirable in this space and esthetic conscious time.

SUMMARY OF THE INVENTION

In accordance with the invention there is provided a base connection for a utility pole which involves a strong weld arrangement for safely supporting the pole. The base connection is constructed so that a connecting tube or member is welded to the pole in a manner providing a weld area which is spread over a very large area and is subject to less stress than the previous base plate type of weld. Another feature of the base connection in accordance with the invention is that it includes means for plumbing the pole during the erection procedure.

Briefly stated, the base connection in accordance with the invention comprises a plurality of anchor bolts embedded in the foundation and extending upwardly therefrom. The pole has a plurality of axially extending cutout portions in its lower end and a plurality of connecting members received in the cutout portions and secured to the pole by welds located in axially extending regions whereat the cutout portions and the connecting members are contiguous. Means are provided for securing each of the connecting members to an associated anchor bolt.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary view in elevation of a base connection in accordance with the invention;

FIG. 2 is a sectional view taken on line 2—2 of FIG. 1; and

FIG. 3 is a detail view of a portion of the base connection in accordance with the invention.

DETAILED DESCRIPTION OF THE INVENTION

In accordance with the preferred embodiment of the invention shown in FIGS. 1 to 3, there is provided a

concrete foundation **10** on which there is supported a utility pole **12** at its lower end. The pole **12** is made of a conventional tapered eight-sided tubular steel construction and, by way of example, may be higher than 200 feet.

The base connection in accordance with the invention comprises eight anchor bolts **14** embedded in the foundation **10** and arranged in a cluster with each anchor bolt **14** extending vertically upwardly from the top of the foundation **10** as is shown in FIG. **1**. Each anchor bolt **14** is threaded at its upper end as indicated at **16**.

There are provided eight members for connecting the pole **12** to the eight anchor bolts **14**, such members taking the form of connecting tubes **18**. Each of the connecting tubes **18** fits into a rectangular cutout portion **20** provided in the lower end of the wall of the pole **12**. Cutout portions **20** are circumferentially equally spaced at the corners of the pole **12**. The connecting tubes **18** are secured to the pole wall by welding along the contiguous regions between the connecting tubes **18** and the axially extending edges of the cutout portions **20**. These weld regions are best shown in FIG. **3**. Preferably, the welding comprises fillet welds **22** on the inside and the outside of the pole wall extending axially the full length of the cutouts **20** in the regions whereat the cutouts **20** and the connecting tubes **18** are contiguous. It will be apparent that since these welds **22** extend along the pole axis and are spread over a substantial area, they are capable of withstanding considerable stress.

Means are provided for mounting the connecting tubes **18** securely onto the anchor bolts **14** which are arranged in a cluster so as to receive the same. To this end, an annular levelling collar **30** is threadedly mounted onto the threaded portions **16** of the anchor bolts and is constructed and arranged to support the lower end of an associated connecting member **18** as is shown in FIG. **3**. A tubular locking cap **32** is associated with each anchor bolt **14** and serves to lock the associated connecting tube **18** and levelling collar **30** together in a secure manner as is shown in FIG. **3**. Thus, each locking cap **32** has a threaded portion adapted to engage external threads **19** on the connecting tube **18** and an abutment portion **34** adapted to abut against the lower end of the levelling collar **30**. As will be apparent from FIG. **3**, the internal diameter of the tubular locking cap **32** is such that it is freely movable relative to the anchor bolt **14** associated therewith.

The mounting of a pole **12** onto the anchor bolt **14** in the concrete foundation **10** comprises the preliminary steps of sliding a locking cap **32** onto each of the anchor bolts **14** and then threading levelling collars **30** onto each of the anchor bolts **14**. The levelling collars are adjusted to a level condition. The pole **12** is preliminarily prepared by having the pole connecting tubes **18** welded thereon at the cutout portions **20**. The pole **12** is then placed onto the anchor bolts **14** with each connecting tube **18** being supported on a leveling collar **30** of an associated anchor bolt **14**. The locking caps **32** are then brought into threaded engagement with the threaded portions **19** at the lower end of each connecting tube **18** and are adjusted to lock each of the connecting tubes **18** onto the anchor bolt **14** in the position shown in FIG. **3**. Each of the anchor bolts **14** is then checked to be certain that all of the levelling collars **30** are flush with the lower end of an associated connect-

ing tube **18.** If not, suitable adjustment of the levelling collar **30,** and the locking cap **32,** are made to achieve the flush condition shown in FIG. 3.

It will be noted, if desired, the levelling collars can be adjusted to a condition which provides a slight lean to the pole **12.** This condition is desirable in some applications.

It will be apparent that various changes may be made in the construction and arrangement of parts without departing from the scope of the invention. For example, the size and number of the anchor bolts will vary according to the load to be supported. Also, the distance that the connecting tubes extend into the pole wall and the size of these connecting tubes is determined by the load conditions.

I claim:

1. A base connection for a pole-like member supported on a foundation comprising a plurality of vertically extending anchor bolts embedded in the foundation and extending upwardly therefrom, said pole-like member having a plurality of axially extending cutout portions in the lower end thereof, a plurality of members for connecting said pole-like member to said anchor bolts, each of said connecting members being received in an associated cutout portion in contiguous relation and being secured to said pole-like member by welds located in axially extending regions whereat said cutout portions and said connecting members are contiguous, each of said connecting members having a lower portion extending downwardly from the lower end of said pole-like member, and means interconnected between said lower portion of each connecting member and an associated anchor bolt for securing each of said connecting members to an associated anchor bolt.

2. A base connection according to claim **1** wherein said means for securing said connecting members to said anchor bolts comprises a leveling collar adjustably mounted on each of said anchor bolts and locking means associated with each anchor bolt and engageable with said lower portion of an associated connecting member for holding the same fixedly on an associated leveling collar.

3. A base connection according to claim **2** wherein each locking means associated with each anchor bolt includes a collar adjustably engaging said lower portion of an associated connecting member and having an abutment portion arranged to contact an associated leveling collar to lock said connecting member in position on said anchor bolt.

4. A base connection according to claim **1** wherein said pole-like member comprises an elongated tubular pole and said cutout portions are spaced circumferentially around said pole.

5. A base connection according to claim **4** wherein each of said connecting members has a tubular configuration and said cutout portions in said pole form rectangular cutouts in the lower end of the pole wall adapted to receive an upper portion of said connecting member to provide a pair of axially extending contiguous portions, said welds being located along said pair of contiguous portions.

6. A base connection according to claim **5** wherein said means for securing said connecting members to said anchor bolts comprises a leveling collar adjustably mounted on each of said anchor bolts and locking means associated with each anchor bolt and engaged with said lower portion of an associated connecting member for holding the same with its lower end supported on said leveling collar associated therewith.

7. A base connection according to claim **6** wherein each locking means associated with each anchor bolt includes a collar adjustably engaging said lower portion of an associated connecting member and having an abutment portion arranged to contact an associated leveling collar to lock said connecting member in position on said anchor bolt.

8. A base connection according to claim **6** wherein said tubular pole is eight sided, said cutout portions being located at the corners of the pole wall.

9. A base connection according to claim **7** wherein said tubular pole is eight sided, said cutout portions being located at the corners of the pole wall.

10. A base connection according to claim **5** wherein each of said welds comprises a fillet weld on the inside and on the outside of the pole wall.

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