Jan. 15, 1924. 1,481,149

W. J. QUINN

REPAIRING OR ASSEMBLING METAL POLES

Filed May 12, 1922

Fig. 1.

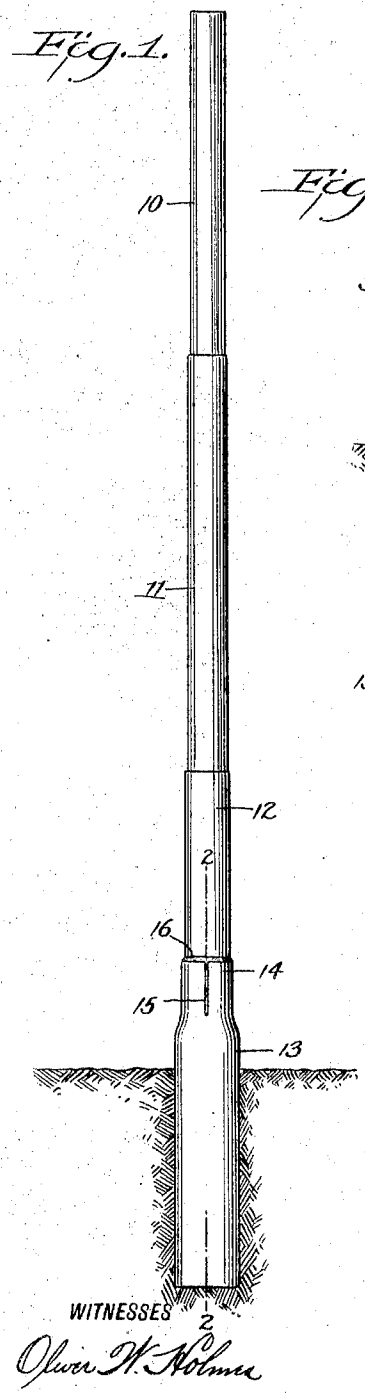


Fig. 2.

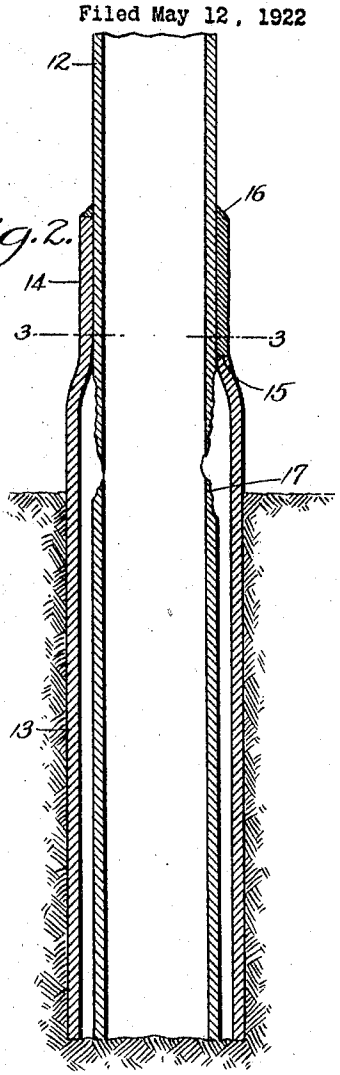


Fig. 3.

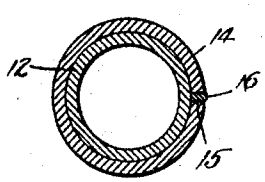


Fig. 4.

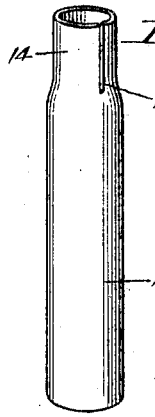
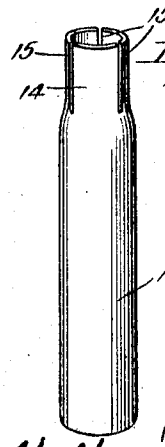


Fig. 5.



Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

WALTER J. QUINN, OF NEW YORK, N. Y.

REPAIRING OR ASSEMBLING METAL POLES.

Application filed May 12, 1922. Serial No. 560,418.

To all whom it may concern:

Be it known that I, WALTER J. QUINN, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Repairing or Assembling Metal Poles, of which the following is a specification.

My invention relates in general to the construction of hollow metal poles, and more particularly to the provision of a repair section which can be readily applied to reinforce or replace a worn or weakened portion of the pole. It will, however, be apparent from the description of the invention that its features are adapted to be used in assembling hollow metal poles in the original construction of same or when they are being installed for service.

The broad principle involved in the invention resides in the provision of a section or unit adapted to slip over the part to which it is to be connected, such section or unit having a more or less closely fitting neck portion which is slotted lengthwise to provide for slight variation in diameter but integral with or united to a base portion so that the entire unit is, in effect, a one-piece unit. After this unit has been slipped over the part to which it is to be united, the two are welded together along the slot whereby the neck portion shrinks slightly in cooling and the two parts are rigidly secured together.

To clearly illustrate my invention, I shall describe the same with reference to the accompanying drawing in which—

Figure 1 represents a tubular steel pole set in the ground, with the repair unit applied thereto.

Figure 2 is a vertical section of a portion thereof on the line 2—2 of Figure 1.

Figure 3 is a transverse section thereof on the line 3—3 of Figure 2, and

Figures 4, 5 and 6 are detail perspective views of three alternative constructions of the repair unit differing, however, only in the number of slots formed in the neck portion.

Referring in detail to said drawing, the pole illustrated in Figure 1 is such as commonly employed, for example, in supporting the over-head conductors of electric street railway systems and I have illustrated this pole as comprising sections 10, 11 and 12 united together in the ordinary way and provided with the repair unit 13 which has the neck portion 14 somewhat reduced in diameter from the main base portion of the repair unit and slotted at 15. The neck portion 14 fits snugly but yieldingly over the tubular unit 12 and after it has been placed thereon its slot 15 is filled with welding metal which has the effect of drawing the neck portion tightly against the tubular unit 12 and uniting the two members together. A line of welding metal 16 may be applied over the top of the neck 14 to exclude moisture, which would be detrimental.

Referring to Figure 2, the repair unit is shown applied over what I may refer to as a typical example of a deteriorated pole such as occurs in the supports for the overhead wires of street railway systems. Here the lowermost section 17 of the original pole is illustrated as having been eroded or worn away just above the ground level until it is ready to fall. This occurrence is quite common and special devices have been gotten up for making repairs in such situations. According to my invention, this repair is readily made "in the field" or, in other words, without the necessity of transporting the pole to the home shop for repair. The lower portion of the worn-out section may be sawed off and the repair unit 14 slipped over the remaining lower end of the pole by excavating or by raising the pole, or the wires may be temporarily supported and the end of the pole swung out to permit the repair unit to be slipped over the lower end of the pole without the necessity of removing the part below the worn place. It is also possible to apply the repair unit by disconnecting the cross arms at the top of the pole and slipping the repair unit over the pole from above until it has been brought down to the position in which it is to be secured.

It is obviously permissible to construct the repair unit with one or a plurality of longitudinal slots such as 15. Figures 4, 5 and 6 show respectively one, two and three slots and it will be understood that each of these will be filled with welding metal after the repair unit has been placed in position on the pole. The base portion by which the slotted neck is maintained integral in the examples shown is of somewhat larger diameter so as to provide clearance and render unnecessary the slotting of the base portion to prevent sticking or jamming which

might otherwise occur in applying the repair unit to the pole. The invention, however, is not limited in its broader aspects to the base portion being of greater diameter than the neck portion although I do prefer, as a specific feature of the invention, to employ this construction. The invention is, however, limited to the repair unit being so constructed as to be in effect a unitary structure so as to render unnecessary the use of assembling and clamping means for the repair unit itself when the latter is being applied to the pole.

I have specifically referred in the above description to the application of my invention in the repair of trolley poles or the like. It has, however, been already pointed out that the principles of the invention are likewise applicable to the assembling of metal poles in their original construction or when they are being installed for service. This last mentioned application of the invention becomes particularly important where poles of relatively great, ultimate lengths have to be transported by conveyances unsuitable to carry the completed pole conveniently. In such cases, the pole may be conveyed in convenient lengths and when being installed, these lengths can be readily joined by use of the unit which forms the subject of this invention. The base section of the unit may, for example, be constructed so as to serve as the ultimate base of the pole or it may fit within or over a lower section and be united thereto. Where it fits over a lower section its construction may obviously be similar to that of the neck portion where slots are provided to enable it to vary somewhat in diameter to properly conform with the diameter of the part over which it is fitted. Welding may then be applied as already described.

I claim:—

1. The method of assembling hollow metallic poles comprising the steps of applying a slotted external tubular member over an internal tubular member and welding the two together along the slotted portion to contract the outer member upon the inner member and integrally unite the same.

2. The method of assembling hollow metallic poles comprising the steps of applying an outer pole section which has a necked in end provided with longitudinal terminal slots over an inner pole member and welding the two together along the slotted portion to contract the necked in portion upon the inner member and integrally unite the same.

3. The method of assembling hollow metallic poles comprising the steps of slotting an outer pole section for a part of its length and forcing the same over an inner pole section and subsequently welding the two sections together along the slotted portions of the outer section.

4. The method of assembling hollow metallic poles comprising the steps of slotting an outer pole section for a part of its length and forcing the same over an inner pole section and subsequently welding the outer section to the inner section along the slotted portions of the outer section and also around the neck of the same.

5. The method of assembling hollow metallic poles comprising the steps of necking in one end of an outer pole section, slotting the necked in portion, forcing the said section over an inner pole member and subsequently welding the sections together along the slots of the necked in portion.

6. The method of assembling hollow metallic poles comprising the steps of necking in one end of an outer pole section, slotting the necked in portion, forcing the same over an inner pole section and subsequently welding two sections together along the slots of the necked in portion and also around the upper edge of the necked in portion.

7. A pole construction unit comprising an inner section and an outer section, the latter having a slotted portion of a diameter enabling it to slip over the inner section to which it is to be applied, the two sections being welded together along the lines of said slots.

8. A pole construction unit comprising a generally tubular metallic unit having an inner pole member and a slotted necked pole member of a diameter enabling it to slip over the inner pole member, said necked member being welded along the slots to the inner member.

9. A pole construction unit comprising a generally tubular metallic unit having an inner pole member and a slotted neck outer pole member of a diameter enabling it to slip over the inner pole to which it is to be applied, said necked member being welded along the slots to the inner member and also around the top of the neck.

WALTER J. QUINN.