W. D. GHERKY.

POLE SLEEVE.

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913,376.

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Fig. 1.

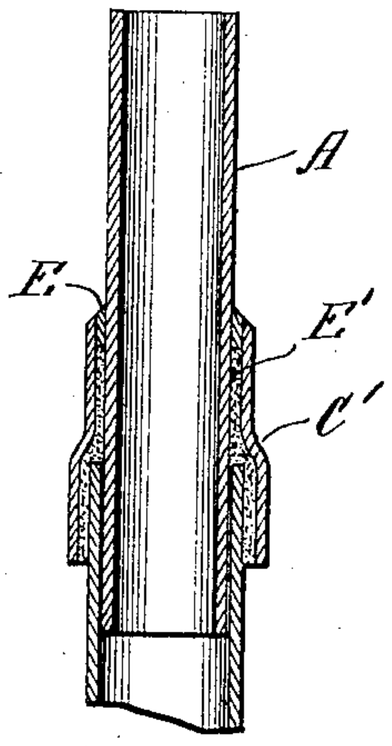


Fig. 2.

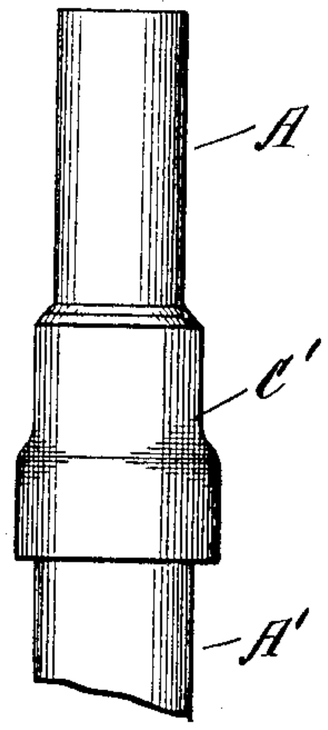
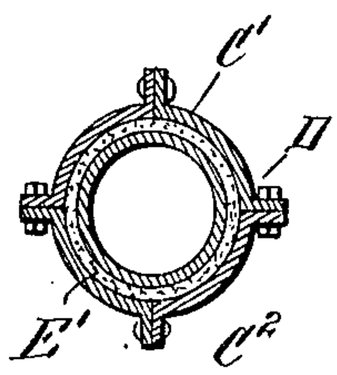
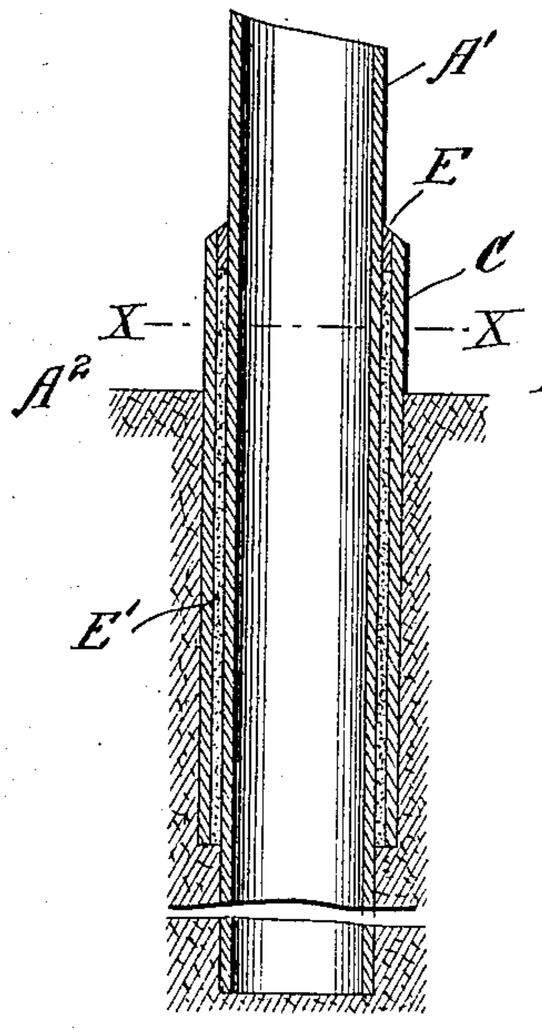


Fig. 3.





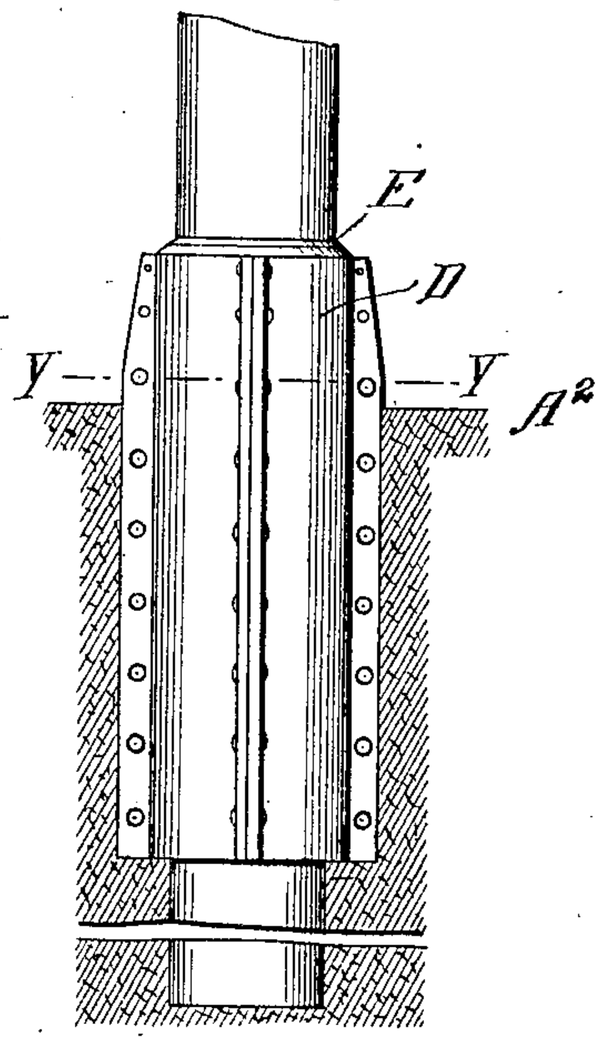
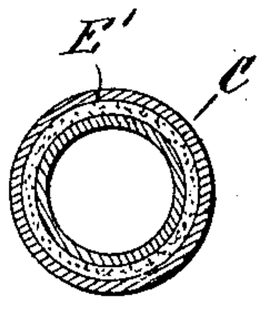


Fig. 4.



Witnesses.

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POLE-SLEEVE.

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Application filed February 19, 1906. Serial No. 301,934.

To all whom it may concern:

Be it known that I, WILLIAM D. GHERKY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Pole-Sleeves, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to poles or posts, and especially such as are made of iron and other metals, although not necessarily limited thereto.

The object of the invention is to protect and strengthen poles at points where they are exposed or liable to break. Such poles as are used in supporting electric wires and the like, and are therefore especially exposed to electrolytic action at the surface of the ground, I protect by incasing them in suitable sleeves. Where a pole is exposed to some particular strain, at a particular point, as, for example, where it is a telescopic pole and liable to deterioration and a break-down at the joints, I apply sleeves at such places, thereby reinforcing or strengthening them.

My sleeves may be applied either at the time of manufacture of the pole or after it has been used.

Broadly speaking, I am aware that strengthening-sleeves are not novel at this time. It has been proposed to place sleeves around a pole, and even to insulate them from the pole. The structures so far produced, however, have been unsatisfactory, in that they have fallen somewhat short in meeting the severe conditions necessarily imposed in practice. One form of device heretofore proposed consisted of a sleeve filled with sulfur, tamped in around the pole. Such a device is not entirely practicable, although the sulfur when hard is an insulator, and under ordinary conditions makes a fairly stable packing. There are, however, grave defects inherent in the sulfur. It is brittle and breaks away where it is exposed, at top and bottom, forming pockets in which moisture gathers, so as to rust the pole and thereby actually weaken it progressively, instead of reinforcing it. The sulfur is also combustible, and the passage of an atmospheric discharge to ground over the damp surface of the pole is sometimes sufficient to ignite it. In addition to this somewhat infrequent danger, the combustible nature of the material makes it a dangerous plaything for mischievous boys and malicious persons who may deliberately set fire to it. In any case, the slow combustion of the packed sulfur will produce the fall of the pole if under strain, inevitably.

According to my present invention, I preferably employ a sulfur compound, although other equivalent compounds may be substituted if desired. The gist of my invention lies in the combination of a filling of this character tamped into the space between the strengthening sleeve and the pole, and covered at the top, and also, if desired, at the bottom, by a terminal or cap filling of lead, cement or other weather-proof and fire-proof material. The effect is at once apparent. The defects heretofore noticeable disappear, and the full benefit of sleeving the pole is realized.

I contemplate Portland cement as one of the materials for my cap filling, and I also contemplate using hard metal caps, such as iron or brass stamped or spun up, but I wish to call attention to the fact that Portland cement cannot well be employed for the entire filling, as it shrinks in drying or hardening. A sulfur body and a cement cap for filling, however, serve all purposes admirably especially where I particularly desire to have the sleeve entirely insulated from the pole. In other cases where the insulation is immaterial, I have found an excellent construction to be produced by pouring molten metals, such as lead, and tamping it down with a plumber's calking tool.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a portion of a pole having my invention applied thereto; Fig. 2 is a side elevation having a slightly modified ring; Fig. 3 is a section on line *y*—*y*, Fig. 2; and Fig. 4 is a section on line *x*—*x*, Fig. 1.

Referring to the drawings, A, A′ indicate telescoping sections of a metallic pole or post of the type commonly employed for supporting trolley wires. This post is shown set in the ground in operative position, the ground level being indicated at A^2. It has been found in practice that such poles usually fail at certain localized points, viz., at or near the ground level, and at the points where the sections pass into or are joined to one another. The corrosion or electrolytic effect is, of course, the greatest at the ground level, and as it happens, this is also the point of

greatest bending moment. In my invention a loose sleeve is fitted upon the pole at each of these critical points, so that it shall extend on both sides of each point. After slipping a sleeve in position, I preferably place between it and the body of the pole liquid or molten material having a fusing point below that of the material composing the pole and the sleeve. For this purpose, as already stated, I may use sulfur, which is an insulator, but there are several other materials which I also employ under various conditions. Thus the filling may be of cement, or equivalent material, the principal requirement being that it shall be easily introduced into the narrow space which is to contain it, and very difficult to remove therefrom. Of course, this is peculiarly true of the sulfur or cement, because they are poured in while in a liquid state, and afterward hardened. The filling is made up to a point near the top of the sleeve, leaving a small space around the edge of the latter, into which the cap material is then introduced. If of lead it is run in molten and tamped down with a calking tool. If of cement it is suitably pressed into the space. When I employ sulfur or similar material I find that in order to secure the best results it is advisable to heat the sleeve so that as it cools it will shrink, whereby the filling material is forced into all the irregularities of pole and sleeve surfaces, making a tight and water-proof joint.

In Fig. 1 a ground sleeve is indicated at C, with a filling E′ between it and the pole, and a cap E around the upper edge of the sleeve, to protect the filling. For such ground sleeves I preferably employ insulating material for both filling and cap, such as sulfur and cement. At C′, on the other hand, is shown a sleeve around the joint between two telescopic sections A, A′. This sleeve has a filling E′, which also may be of sulfur, but not necessarily so, and a cap E which I may make of lead or other metal, as well as of cement, since the pole sections are in metallic contact anyhow, and insulation is not therefore required at this point.

In Fig. 2 a modified form of ground sleeve is shown at D, this being made in sections divided on vertical lines, the different pieces being rolled-shapes, and known together as a "phenix" section. They are riveted together in pairs, and the pairs connected, as shown, by bolts, so that they are detachable without sliding over the end of the pole. The method of attaching such a sleeve is substantially the same as that of applying a solid ring sleeve. The pieces are first bolted together and then the space between the sleeve and pole is filled and capped, as before. Fig. 3 shows a cross-section of the sleeve D, while Fig. 4 shows a section of the solid sleeve and pole of Fig. 1.

It will be apparent without specific explanation that my invention may be applied to poles in use, as well as when they are manufactured. In practice it is found that metallic poles are almost invariably corroded near the ground level, after a very short period of use, and this corrosion also follows, as I have stated, at the section joints. A pole in which such corrosion has proceeded to a limited extent can be sufficiently strengthened by applying my sleeves to lengthen its life in a very marked degree; but it is obvious that an ordinary sleeve with liability to further corrosion or combustion would only temporarily remedy the defect, and would increase the liability to rapid deterioration.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A pole having a loose sleeve around a portion thereof, said sleeve being independent of the pole structure, packing between the sleeve and the pole, said packing having a low fusing point, and a waterproof and non-combustible cap for the packing introduced between the pole and sleeve and having a fusing point substantially equal to that of the pole and sleeve.

2. A pole having a loose sleeve around a portion thereof, said sleeve consisting of a piece independent of the pole structure, an insulating fusible packing between the pole and the sleeve, and a metallic cap resting on the packing, also between the pole and sleeve, said cap extending up to the edge of the sleeve and beveled so as to be flush therewith, said metallic cap having a fusing point substantially equal to that of the pole and sleeve.

3. The combination of a metallic pole and a metallic sleeve surrounding the same, with a filling material having a low fusing character tightly packed into the space between the pole and sleeve, and a protecting cap therefor, of water-proof and non-combustible material, introduced between the pole and sleeve at the upper end of the sleeve.

In testimony whereof I have affixed my signature in presence of two witnesses.

WM. D. GHERKY.

Witnesses:

JAS. S. CLIFFORD,

JOHN I. MCDUFFEE.