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E. M. JOHNSON.

COMPOSITE POLE FOR ELECTRIC WIRES AND OTHER PURPOSES.

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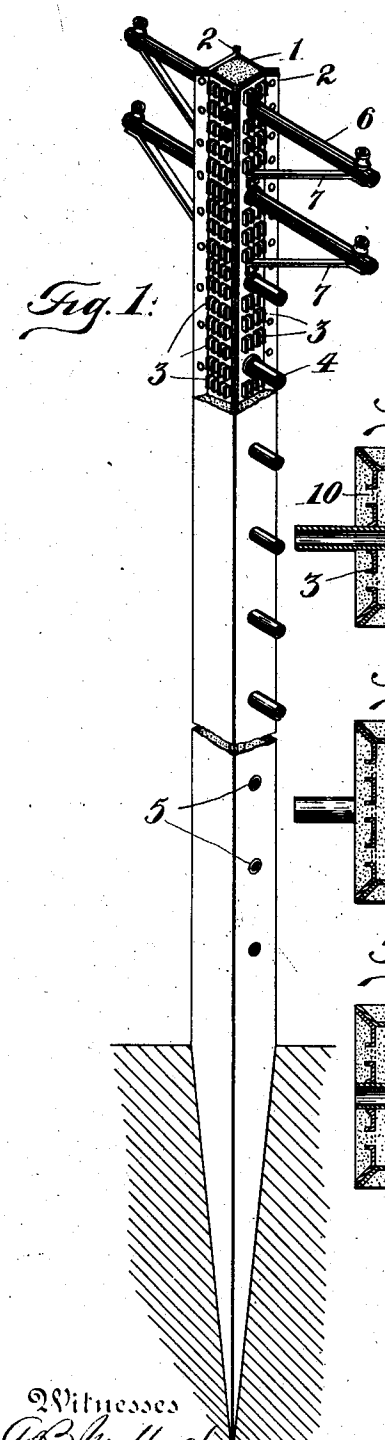


Fig. 1.

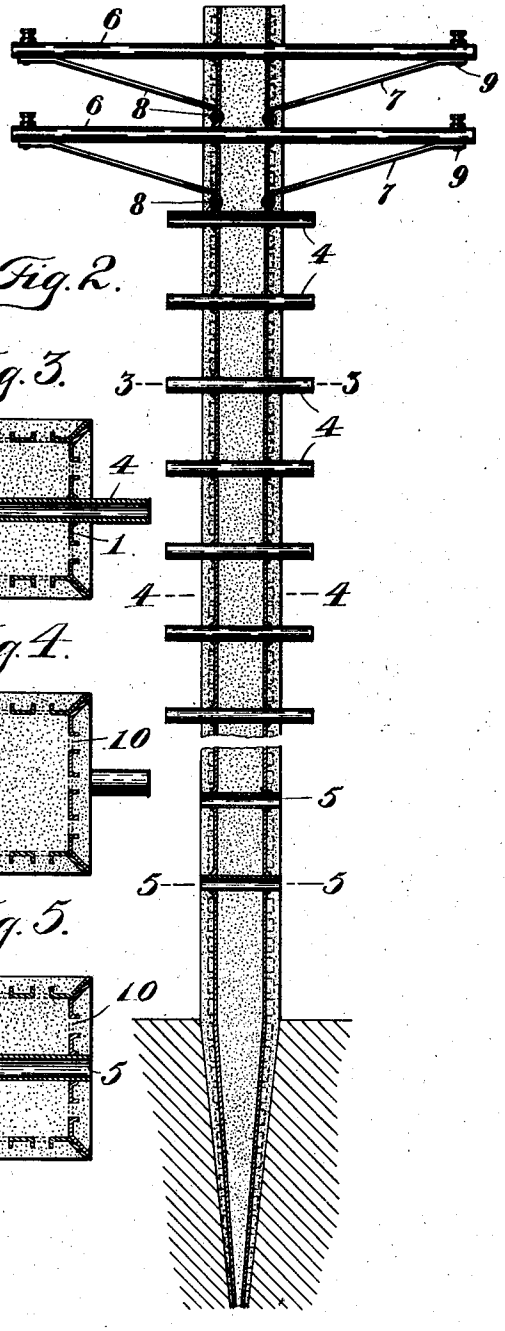


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Witnesses
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EUGENE MALCOLM JOHNSON, OF ALLSTON, MASSACHUSETTS.

COMPOSITE POLE FOR ELECTRIC WIRES AND OTHER PURPOSES.

No. 839,151. Specification of Letters Patent. Patented Dec. 25, 1906.

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To all whom it may concern:

Be it known that I, EUGENE MALCOLM JOHNSON, a citizen of the United States, residing at Allston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Composite Poles for Electric Wires and other Purposes, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to produce a durable composite pole for telegraph, telephone, electric-light wires, and other purposes for use as a substitute for metal poles and for wood poles now commonly in use.

Figure 1 is a perspective view, partly in section, of an erected pole containing my invention. Fig. 2 is a vertical cross-section at a line corresponding to line 2 2 of Fig. 1. Figs. 3, 4, and 5 are horizontal cross-sections at lines corresponding, respectively, to lines 3 3, 4 4, and 5 5 of Fig. 1.

In the drawings, 1 is a hollow sheet-metal framework of perforated plates fastened together at 2, which shows the edges of the plates bent angularly and lapped together to form lengthwise-extending and outwardly-projecting ribs of the metal frame. These ribs constitute lengthwise-extending reinforces for the outer plastic covering and also facilitate the driving of the composite poles, piles, or structures into the earth. These lengthwise-extending metallic ribs, preferably extend to the lower end of the structure, which is preferably pointed. The plates also preferably have lateral integral projections 3 and are thick and strong enough to support the foot-pins or treads 4, that extend through the pole and are borne in holes in opposite walls thereof. Treads 4 may be of metal tubing. They project on both sides of the pole, at the lower portion of which tubular tread-receiving plugs 5 are located, being mounted on holes through opposite side walls of the pole. The ends of these plugs are about flush with the outer sides of the pole—at least they should not project beyond the sides to such an extent as to be used for treads. The object of the tubular plugs 5 is to receive a portable tread-forming pin which the wire or lamp inspector may carry and insert in the open ends of the plugs so as to climb to treads 4, the lowest of which are desirably far enough above the ground to prevent easy access to the treads by persons not having right thereon.

At the upper part of the pole frame 1 has its opposite sides perforated for passage therethrough of a projecting cross-beam 6 for supporting wires, lamps, &c. The outer ends of the cross-beam are connected with braces 7, the lower end of each of which is fast at 8 to a side wall of frame 1. The upper ends of the braces are fast to the cross-beam at 9. Thus a comparatively light-weight sheet-metal frame is readily produced which yet has strength and rigidity enough to support any suitable number of cross-beams and their load.

To secure the metal framework 1 from oxidation and also to make it strong enough to withstand the strains of winds and all loads to which it may be subjected, the framework is exteriorly coated with cement, concrete, or other suitable plastic composition, which passes through the holes 10 and is anchored on and around the projections 3. The chamber of the pole is best completely filled with concrete, tamped in place to eliminate air-chambers contiguous to the metal, whereby oxidation would result. By this construction the interior and exterior composition is united through the perforations and a strong and solid pole capable of sustaining lateral strains and vertical loads obtained.

The hollow frame 1 is shown of rectangular cross-sectional form, but may be of any desired cross-sectional form or area. The inner plastic filling and outer plastic covering unite through the holes and are anchored on and about the projections. The filling gives additional support to cross-beam, treads, and tread-receiving plugs and keeps the frame from becoming bent.

Preferably the projections extend on the outer sides of the frame. They not only support the plastic covering, but tend to keep it from cracking.

The pole referred to may be used as a pile and be made of any desired cross-sectional shape. For such uses it is desirable to fill up the lengthwise chamber of the metal part of the pole with concrete or the like. The piles may be erected *in situ* or previously constructed and driven after the plastic material has solidified.

What I claim is—

1. A structure comprising a hollow, sheet-metal frame the walls of which are perforated and provided with lateral, integral projections combined with an interior filling; an outer covering of plastic material anchored

to the frame through said holes and about said projections; said frame having lengthwise-extending, projecting ribs on its outer side.

2. A structure comprising a hollow, sheet-metal frame the walls of which are perforated and combined with an interior coating; an outer covering of plastic material anchored to the frame through said holes; the frame having lengthwise-extending and outwardly-projecting ribs.

3. A hollow, sheet-metal structure the walls whereof are perforated, in combination with a cross-beam mounted in holes through said structure and projecting therefrom; said structure having lengthwise-extending and outwardly-projecting ribs.

4. A hollow sheet-metal structure, the walls whereof are perforated and formed with lateral, integral projections; in combination with a cross-beam mounted in holes through said structure and projecting therefrom and braces from the outer ends of the cross-bar to the frame said structure having lengthwise-extending and outwardly-projecting ribs.

5. A hollow sheet-metal structure, the walls whereof are perforated and formed with lateral, integral projections; in combination with a cross-beam mounted in holes through said structure and projecting therefrom, and a filling of plastic material said structure having lengthwise-extending and outwardly-projecting ribs.

6. A hollow sheet-metal structure, the walls whereof are perforated and formed with lateral, integral projections; in combination with a cross-beam mounted in holes through said structure and projecting therefrom; a filling of plastic material, and an outer covering of plastic material said structure having lengthwise-extending and outwardly-projecting ribs.

7. The combination of a hollow sheet-metal frame; and treads mounted in holes through the frame and projecting therefrom said frame having lengthwise-extending and outwardly-projecting ribs.

8. The combination of a hollow sheet-metal frame and chambered tread, pin-receiving plugs mounted in holes therethrough, said frame having lengthwise-extending and outwardly-projecting ribs.

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

EUGENE MALCOLM JOHNSON.

Witnesses:
EDWARD S. BEACH,
E. A. ALLEN.