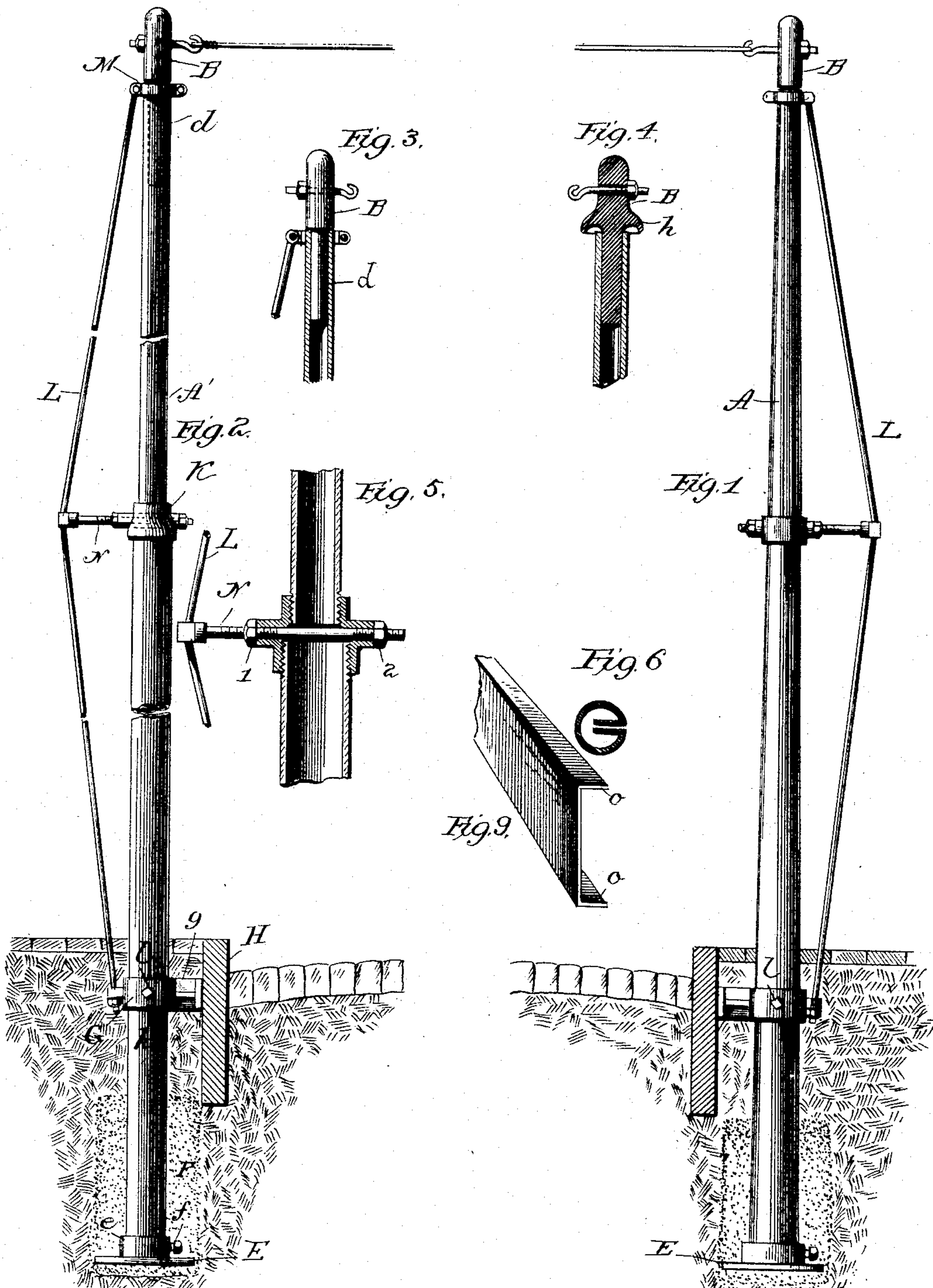


S. H. SHORT.

POLE FOR SUPPORTING ELECTRIC CONDUCTORS.

No. 411,204.

Patented Sept. 17, 1889.



Attest
Walter P. Keene.

Inventor
Sidney H. Short
by Ellis Spear
Atty.

(No Model.)

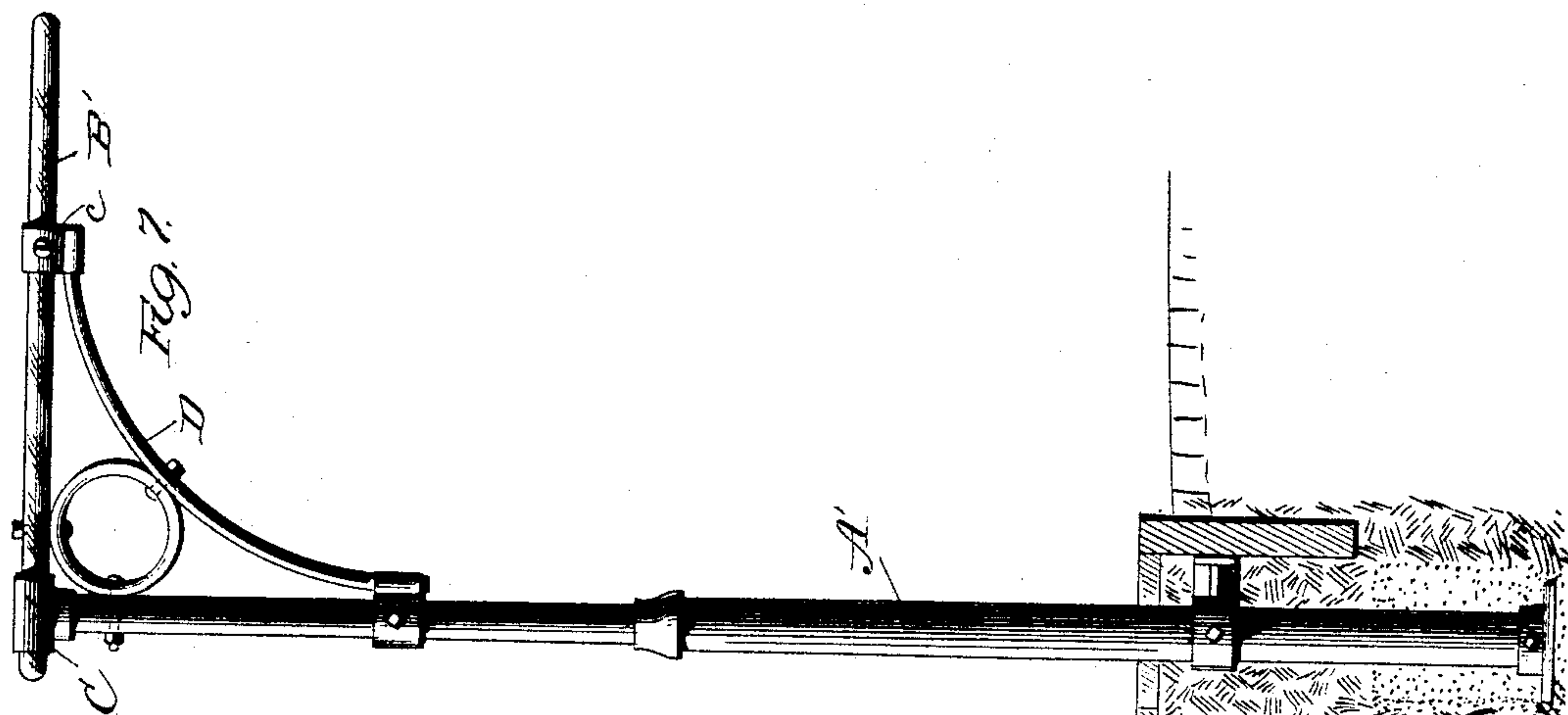
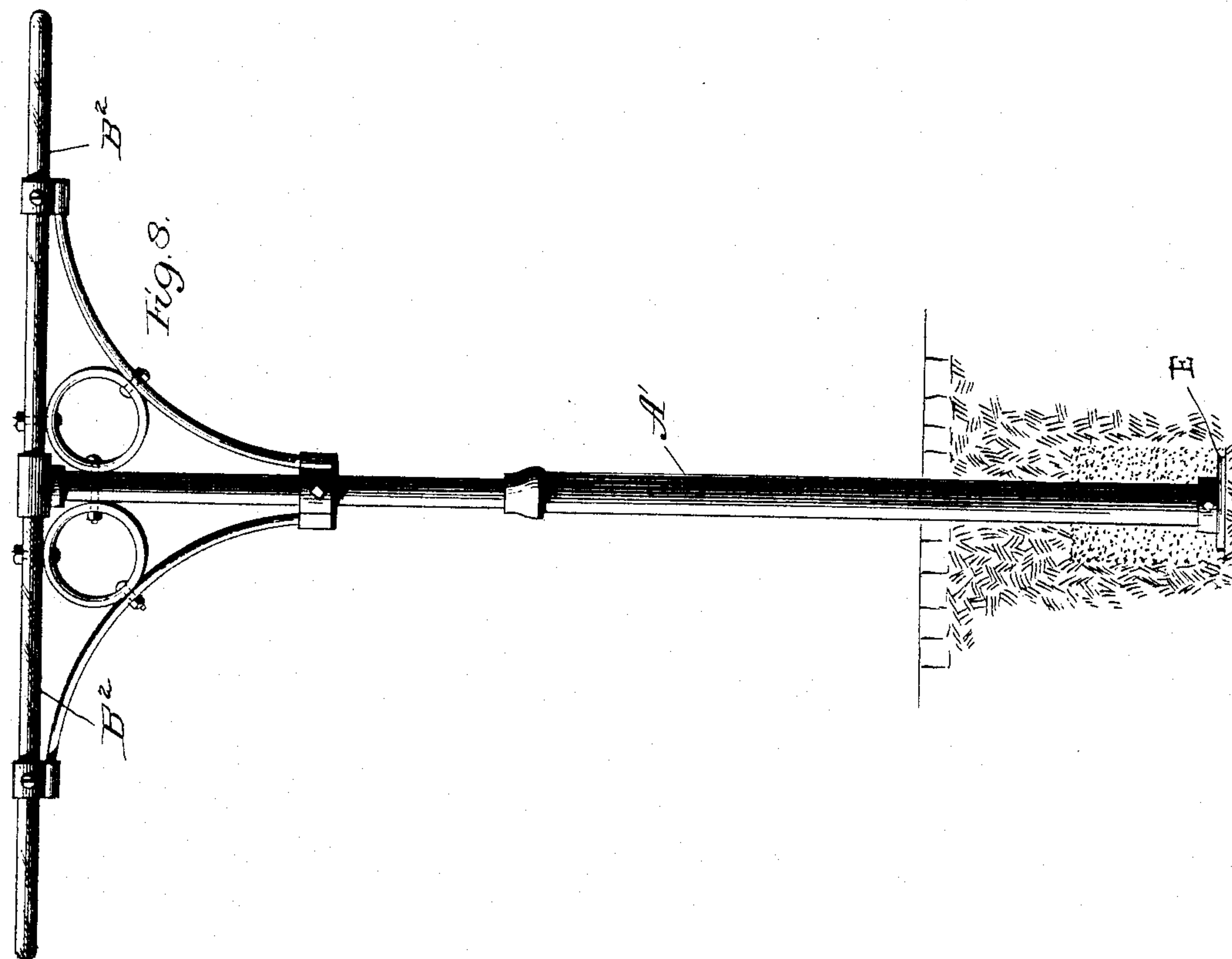
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

SIDNEY H. SHORT, OF COLUMBUS, OHIO.

POLE FOR SUPPORTING ELECTRIC CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 411,204, dated September 17, 1889.

Application filed November 6, 1888. Serial No. 290,118. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY H. SHORT, of Columbus, in the county of Franklin and State of Ohio, have invented a new and useful Improvement in Poles for Supporting Electric Conductors; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to the construction of poles used to support electric wires, being more particularly designed for the support of wires used as conductors on electric railways; but it is not limited to this particular use.

The object of the invention, first, is to provide a construction which shall afford better and more secure insulation in connection with metallic poles; and the second object in order is to provide for more secure support for the bottom of the poles in the earth.

The third object is to improve the construction of the poles.

The particular form of the means used to accomplish these ends and the details of construction are all explained hereinafter, and are illustrated in the accompanying drawings, in which—

Figure 1 represents an elevation of a pole made in accordance with my invention. Fig. 2 is a modification of the same. Figs. 3, 4, and 5 are vertical sections of details, and Fig. 6 is a cross-section of Fig. 1. Figs. 7 and 8 show modifications of the insulating-extension of the pole. Fig. 9 is a detail view of the metal of the pole shown in Fig. 1 before it is bent.

In these drawings, A A' represent metallic poles substantially tubular in construction and in general form like those heretofore used, the specific difference of the pole A being hereinafter explained. In the use of these metallic poles the difficulty heretofore experienced has existed in respect to the insulation of the wires supported upon these poles.

To provide for the perfect and secure insulation which is required without materially increasing the cost, I have devised prepared water-proof, wooden, or other suitable extensions of these poles. Those shown in Figs. 1 to 4 are marked B, and they consist, substantially, of a piece of prepared wood or other insulating material of cylindrical or other

convenient shape adapted to form an upper extension of the pole. In these figures the extension is in line with the pole itself, the piece being turned down or reduced to fit the bore of the hollow pole and being driven therein. The reduced portion is shown at *d*, and it is made to leave a shoulder, which bears upon the upper end of the metal pole. In the form shown in these two figures just mentioned the wire on which the conductor is supported is shown as attached to the insulating-extension, and thus the insulating-extension is made to serve as an insulator for the conductor. These extensions are made of any suitable kind of wood or equivalent material, wood being the cheapest and most convenient for the purpose. After they have been reduced to the proper form they are saturated with paraffine, which is best applied by immersing the wood in paraffine heated sufficiently to expel the moisture from the wood, and then allowing the wood to remain in the paraffine until the latter is driven or absorbed into the pores, taking the place of the water which has been expelled. These insulating-extensions may be driven down into the poles with sufficient force to retain them firmly in place.

In Figs. 7 and 8 I have shown these insulating extension-pieces in horizontal position. Fig. 7 shows a pole of a single line on one side of the road, with the extension B' upon one side only. In this form the insulating-extension is supported at the outer end in the tubular part of the "T," which is secured upon the top of the pole. A bracket D, preferably of gas-pipe, is provided with a sleeve *c*, which embraces the insulating-extension and affords it additional support. The lower end of the tube is fixed to the post by means of a similar sleeve. These sleeves have a side extension, into which the ends of the pipe are fixed. The bracket is supported near the center by means of a ring to which it is fixed, the ring being also bolted to the pole and to the extension.

In Fig. 8 is shown a pole adapted to be placed between two tracks, with insulating-extensions B² extending in opposite directions over each track, with the same construction of supporting-bracket and supporting-ring.

The brackets may be modified in form; or, in case of short extensions, may be dispensed with altogether.

Figs. 1, 2, 7, and 8 show the improvements devised by me for supporting the poles more securely in the ground. On the lower end of the pole is a plate E, which rests upon the ground in the bottom of the hole. This plate has a collar e, into which the bottom of the pole fits and to which it is held by a set-screw f. The plate is made of a diameter fitted to set in a hole formed by an ordinary post-hole auger. After the pole has been set in the hole in the manner described the hole is filled up part way with any suitable form of concrete, (indicated at F.) This surrounds the pole at its lower end and rests upon the plate E. It may extend to the surface of the ground; but preferably I fill the hole about one-half full with the concrete and the remainder with earth. When the concrete has hardened, it forms, in connection with the plate E, a strong foot for the pole. For further security, I set upon the pole above the concrete and a little way below the surface of the ground or pavement, a collar G, having a foot g extending laterally to bear against the curbstone H. The collar is held upon the pole in place by means of a set-screw l. The collar and foot press the pole against the curb, and, together with the base formed of the concrete and plate, give it a very secure support against any strain toward the center of the road.

The pole A' is of the construction heretofore known, in which pieces of iron pipe of different diameter are joined by reduced coupling, as at K. I have provided, in order to give greater security against lateral strain, a truss for this form of pole, consisting of a rod L, connected at one end to the collar G and at the other to the collar M, with a straining-post N in the middle. This straining-post, as shown in Fig. 5, is threaded and passes through the reduced coupling between the ends of the sections, having nuts 1 and 2 for the purpose of applying the strain on the rod.

The form of my improved pole is shown in Figs. 1 and 6. It is made of a sheet of metal, (shown in Fig. 9,) this sheet being cut wider

at one end and gradually narrowing toward the other. The edges are then turned up on each side to form flanges o. By means of a suitable tapering, grooved mandrel the sheet is rolled in the form shown in cross-section in Fig. 6, the flanges being turned to project inward side by side, while the body of the sheet is in circular form. This very cheaply forms a tapering continuous pole of great strength without a large amount of metal. It is adapted to receive the insulating-extension supported in the same manner as heretofore described, and may be supported in the ground and trussed in the same way.

In Fig. 4 I have shown the insulating-extension B as formed with a hood or grooved flange turned thereon, as shown at h. This when the extension is driven into the tubular part of the pole forms a cover, so that the water is turned off from the flange or hood and is prevented from entering the pole.

I claim as my invention—

1. In combination with the pole, the insulating-extension and bracket, substantially as described.

2. The sleeve G, fixed to the pole and having a foot arranged to bear against the curbstone, substantially as described.

3. In combination with a metallic pole, a collar secured to the upper end, and a sleeve at its lower end, with a truss-rod L between the two, and an adjustable straining-post for the truss-rod between it and the pole, substantially as described.

4. In combination with a metallic pole made in two parts and connected by a coupling, a collar secured at the upper end thereof, and a sleeve at its lower end, a truss-rod L between the two, and an adjustable straining post or strut supported in the coupling between the two parts of the post and in connection with the rod L, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SIDNEY H. SHORT.

Witnesses:

F. L. MIDDLETON,

WALTER DONALDSON.