(No Model.)

2 Sheets—Sheet 1.

J. E. LIPPINCOTT.

TELEGRAPH POLE.

No. 349,049. Patented Sept. 14, 1886.

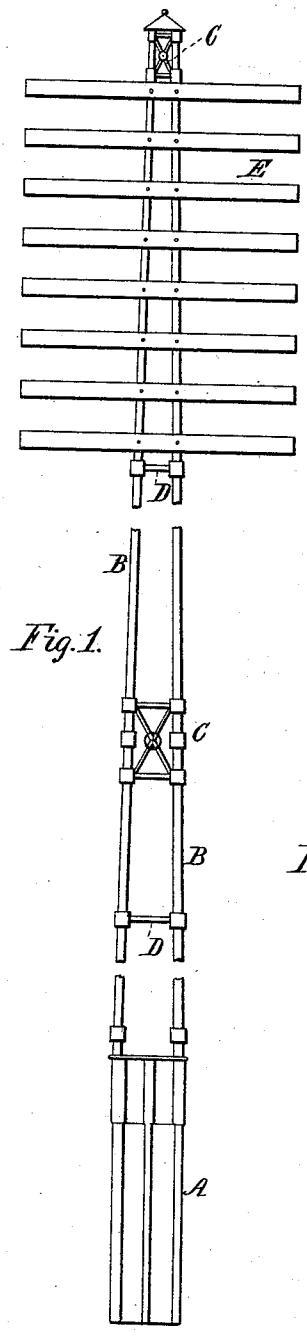


Fig. 1.

Fig. 2.

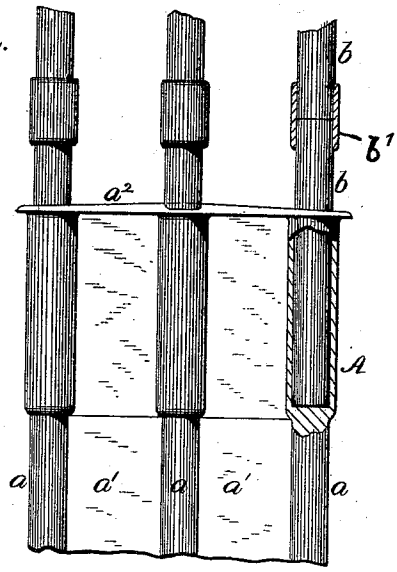
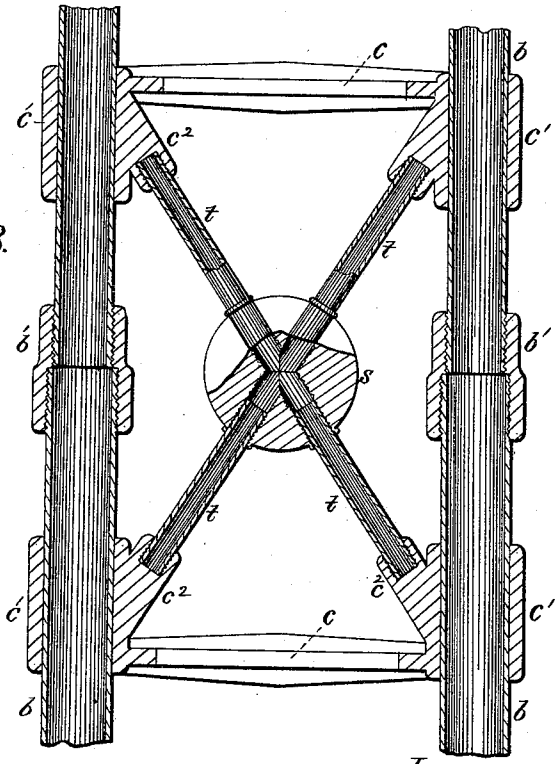


Fig. 3.



Witnesses:
W. C. Jirdinston.
C. D. Kent.

Inventor:
Jason Evans Lippincott
by Lull & Hosea
Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

2 Sheets—Sheet 2.

J. E. LIPPINCOTT.

TELEGRAPH POLE.

No. 349,049. Patented Sept. 14, 1886.

Fig. 4.

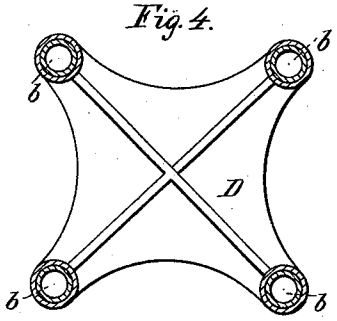


Fig. 5.

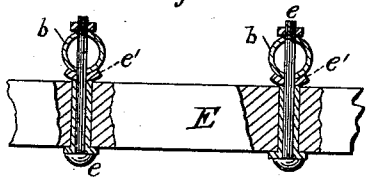
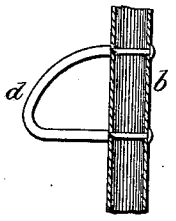


Fig. 6.



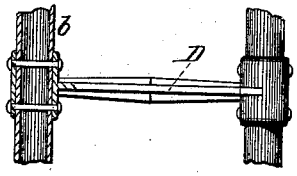


Fig. 8.

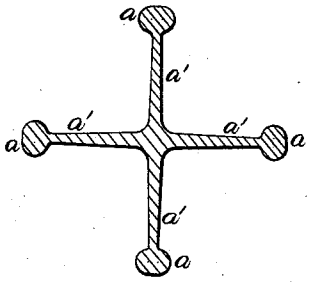


Fig. 7.

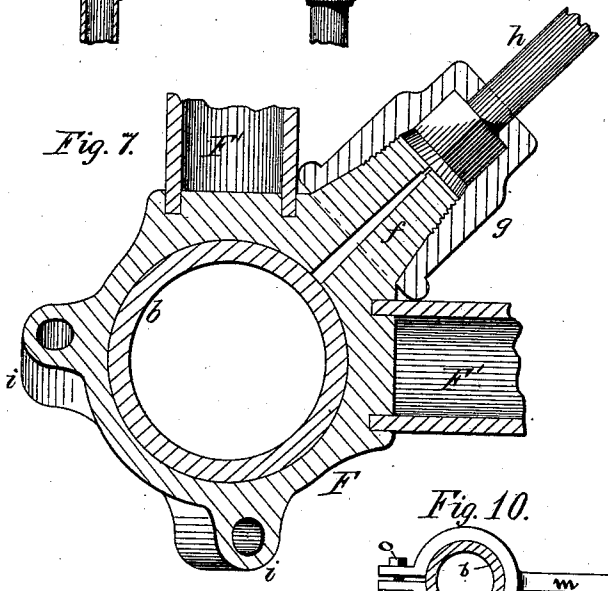


Fig. 9.

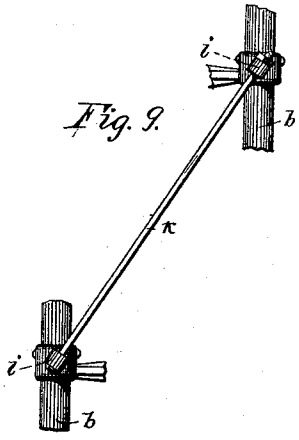
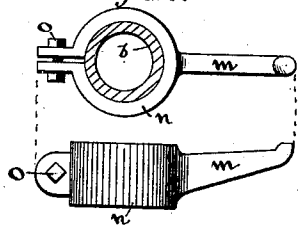


Fig. 10.



Witnesses:
W. C. Tirdinston.
C. D. Kirn.

Inventor:
Jason Evans Lippincott
by Lull & Lull,
Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JASON E. LIPPINCOTT, OF CINCINNATI, OHIO.

TELEGRAPH-POLE.

SPECIFICATION forming part of Letters Patent No. 349,049, dated September 14, 1886.

Application filed February 8, 1886. Serial No. 191,134. (No model.)

To all whom it may concern:

Be it known that I, JASON E. LIPPINCOTT, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Telegraph-Poles, of which the following is a specification.

My invention relates to telegraph-poles and similar structures which have heretofore usually been constructed of wood, and are therefore subject to many objections on account of weight, bulk, and cost, besides the deterioration of the quality of the material through exposure to weather.

The object of my invention is to produce a structure of iron for this purpose which shall be strong, durable, light, and economical in cost, and by its form and construction be less exposed to lateral strains due to winds, and which, by the nature of its constructive materials and mode of bracing between its integral parts, can be made at the shop in sections and readily transported to and put together at the desired locality.

To these ends my invention consists in the structure hereinafter more fully described and illustrated.

In the drawings herewith, Figure 1 is a general elevation of my improved telegraph-pole complete; Fig. 2, a partially-sectional elevation, on an enlarged scale, of the cast-iron base, showing the mode of socketing the upper part to the base; Fig. 3, a sectional elevation of one of the bracing-joints, showing the construction in detail; Fig. 4, a plan view of one of the intermediate horizontal braces, with corresponding vertical section of same. Fig. 5 is a detail view in horizontal section, showing the attachment of the line-wire supports; Fig. 6, a detail view in vertical section, showing the mode of attaching the mounting-cleats; Fig. 7, a horizontal section showing a modified construction of the horizontal bracing; Fig. 8, a horizontal cross-section of the cast-iron foot; Fig. 9, a detail side elevation showing constructive modifications of the vertical bracing. Fig. 10 is a detail plan and side elevation of a modification in the construction and mode of applying the foot-rests.

Referring now to the drawings, Fig. 1, the general features of the structure are, first, a preferably cast-iron foot or base, A, to be firmly embedded in the earth as a support for the entire structure; second, a system of, preferably, four uprights, B, consisting of wrought-iron tubing, slightly converging toward the top; third, systems of bracing C, combining horizontally and vertically diagonal braces at the joints of successive sections of tubing; fourth, systems of horizontal bracing D at intermediate points between the main braces, and, fifth, the cleats E, for suspending line-wires. These features I will describe in the order named, and, incidentally, the mode of joining separate sections to constitute the completed structure.

First. The cast-iron base A, Figs. 1, 2, 8, proportioned in size and strength to the height and weight of the ultimate structure, consists of three or more vertical flanges, a', united centrally and terminating above in a covering-plate, a^2, extending over a horizontal area embracing the flanges. The latter are bounded by or terminate outwardly in thickened fillets a, extending vertically the entire length of the flanges. In the fillets a, at their upper ends and extending through the covering-plate a^2, are cast short sections of wrought-iron tubing, b, extending into the fillets axially far enough to give a perfectly firm and rigid seat, and sufficiently above the covering-plate to permit the tubes to be extended by sections of tubing, b, united thereto by the usual "union" collars, b', threaded upon the exterior surfaces of the abutting tubes. Before being placed in the ground in actual use the entire base A may be suitably coated with preservative material to prevent rusting or deterioration.

Second. The systems of uprights B may consist of three, four, or more tubes arranged vertically in corresponding radial positions. I prefer to use four as a medium number. These sections are formed of the ordinary wrought-iron or "drawn" tubes, in length as commonly produced—say ten, sixteen, or twenty feet, preferring the latter for poles of fifty to sixty feet in height, as required in cities, and shorter lengths for use in the country. The braces in such case may be arranged at approximate intervals of ten feet. It should also be noted that lighter and smaller pipe can be employed for the upper sections of the pole than is used

at the bottom. The mode of joining abutting sections of tubing is by means of the unions before referred to.

Third. The system of bracing C, Figs. 1, 3, is constructed as follows: Two horizontal plates, *c c*, are located at a convenient distance above and below the meeting-joint of consecutive sections B, said plates terminating at the corners in sleeves *c'*, which embrace the pipes *b*, and are secured thereto by rivets or otherwise. The plates *c* may be of cast-iron, ribbed diagonally upon the upper and lower surfaces, and, together with the intermediate brace, D, may be secured permanently to each section of tubing B at the place of manufacture, so that sections B may be brought complete to the place of erection and united by the unions *b'*. The sleeves *c'* have diagonal sockets c^2 formed upon them, threaded for the engagement, when in final position, of short tie-braces *t*, which are centrally threaded into and secured by a socket-piece, S. The ties *t* are given sufficient play in the socket-piece to enter beyond the position of normal engagement, so that the structure S *t* can be inserted and the ties *t* run outward to engage into the sockets c^2 after the sections B are in position. The relative pitch of the engaging threads at opposite ends of the ties *t* is preferably made to differ, so that in setting out the ties a tension is brought upon the same throughout the series. A bracing structure, S *t*, is interposed between each two adjacent tubes *b*, which, with the upper and lower plates, *c*, constitutes the system C. A modification of this construction will be described later.

Fourth. The horizontal braces D, Figs. 1 and 4, are similar, to all intents, to the plates *c*, already described, and require no further description here.

Fifth. The cleats E, for suspending line-wires, Figs. 1 and 5, are of the ordinary description, and are held upon contiguous pipes *b* by bolts *e*, suitably insulated by gutta-percha coverings *e'*, and the usual foot-rests, *d*, Fig. 6, are secured upon the pipes *b* at proper intervals at opposite sides of the general structure.

In Figs. 7 and 9 I have shown a modified construction, intended, primarily, to be substituted for the cast-iron plates *c* D, and also as a principle of construction to avoid the necessity of perforating the pipes *b*, as for the attachment of foot-rests *d*. In this I employ a split clamp or sleeve, F, extended at the split side into a conical lug, *f*, flanked at either side by annular sockets for the reception of the ends of tubular struts F', the sockets being (where the quadruple system of tubes B is used) separated by an angle of forty-five degrees with the lug *f* intervening in the same horizontal plane. The exterior conical surface of the split lug *f* is threaded for the reception of a correspondingly-formed union or cap, *g*, engaging said lug, with a tie-rod, *h*, extending diagonally across to a corresponding clamp. The construction and engagement of the cap is such as to close the clamp firmly around the tube *b*, and at the same time draw the tie *h* into tension and compress the struts F'. As thus described, this construction can be used as a substitute for the plates D. It can also be embodied in the main braces C by adding lugs *i* upon the outside of the clamp, and inserting the diagonal tie-rods *k* exteriorly to the structure, Fig. 9.

Where the split clamp is used for the foot-rests, the construction is as indicated in Fig. 10, having a bracket, *m*, extending laterally from a split sleeve, *n*, provided with lugs at the rear for the engagement of a fastening-bolt, *o*. Foot-rests thus constructed may be applied and adjusted or readjusted to any position vertically or radially by manipulating the set-screw *o*.

I am aware that signal-posts, telegraph-posts, skeleton towers, and like structures have heretofore been made of iron bars and pipes braced in various ways other than I have shown, and I do not therefore claim such structure, broadly.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. A telegraph-pole or similar structure embodying in combination a base, A, to rest in the earth, and a superstructure, B, composed of three or more sets of substantially continuous wrought-iron tubes bound together at section joints by a system of horizontal and vertical braces, C, and at intermediate points by a system of horizontal braces, D, substantially as set forth.

2. In a telegraph-pole or similar structure composed of a system of vertical tubes, the brace system C, embodying horizontal and vertical diagonal braces arranged at and covering the meeting-joint between consecutive sections of the structure, substantially as set forth.

3. The combination, in a tubular structure of the character described, of the tubes *b*, abutted together and secured by unions *b'*, the horizontal braces *c*, and the diagonally-arranged tie-rods *t*, centered in a socket-piece, S, substantially as and for the purpose set forth.

4. In a tubular structure of the character described, the split clamps F, tie-rods *h*, screw-caps *g*, and strut-braces F', combined and arranged substantially as and for the purpose set forth.

5. In a tubular structure of the character described, the adjustable clamp F, provided with the split lug *f*, with conical threaded outer surfaces for the engagement of the cap *g*, securing also the union tie-rods, and the exterior lugs, *i i*, for the engagement of the outer tie-rods, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JASON E. LIPPINCOTT.

Witnesses:
C. D. KERR,
L. M. HOSEA.