(No Model.) 2 Sheets—Sheet 1.

L. D. HAMILTON.

Sectional Wire for Telegraphs, &c.

No. 241,650. **Patented May 17, 1881.**

FIG. 1.

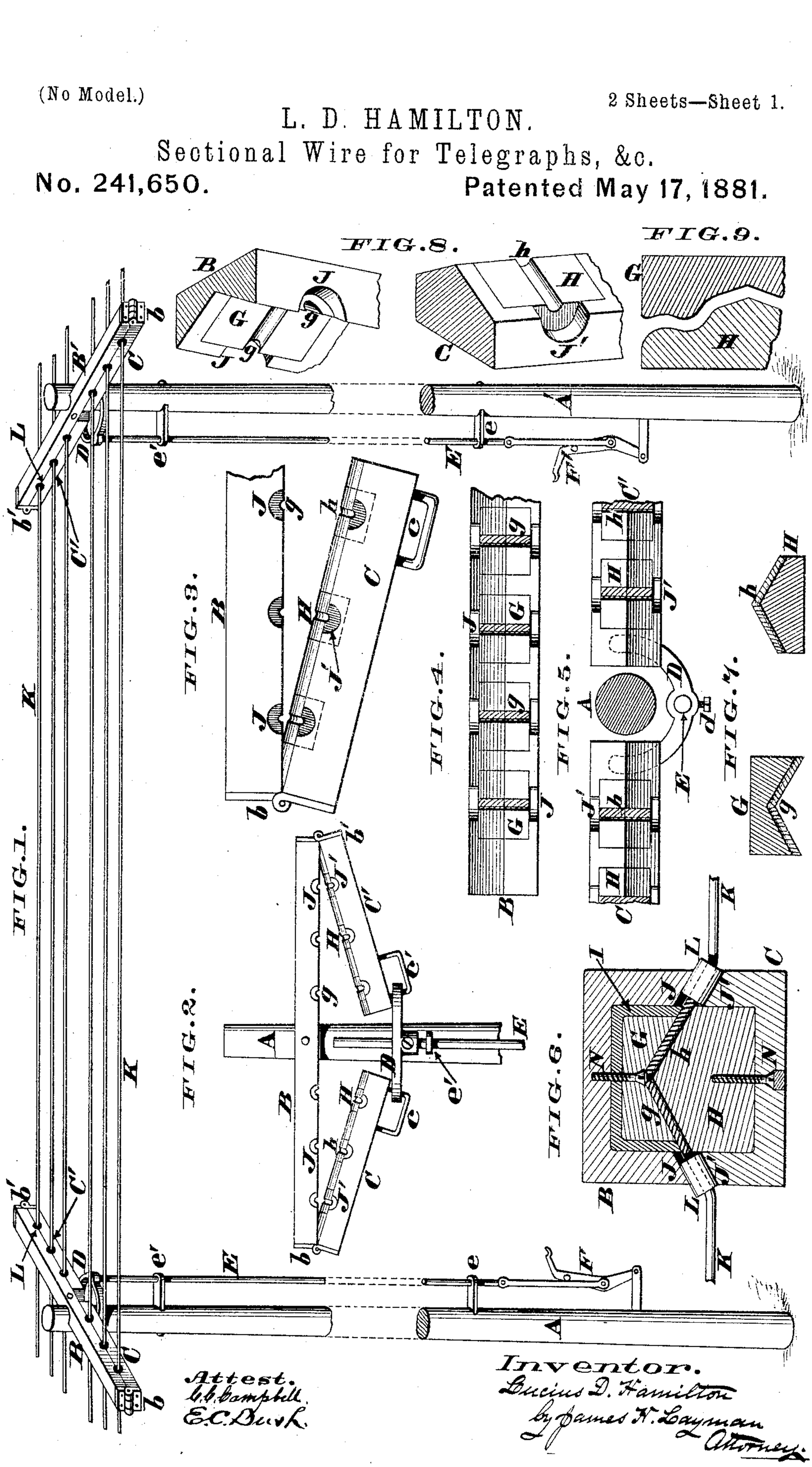

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

FIG. 8.

FIG. 9.

Attest.
C. C. Campbell.
E. C. Bush.

Inventor.
Lucius D. Hamilton
by James F. Layman
Attorney.

(No Model.) 2 Sheets—Sheet 2.

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FIG. 10.

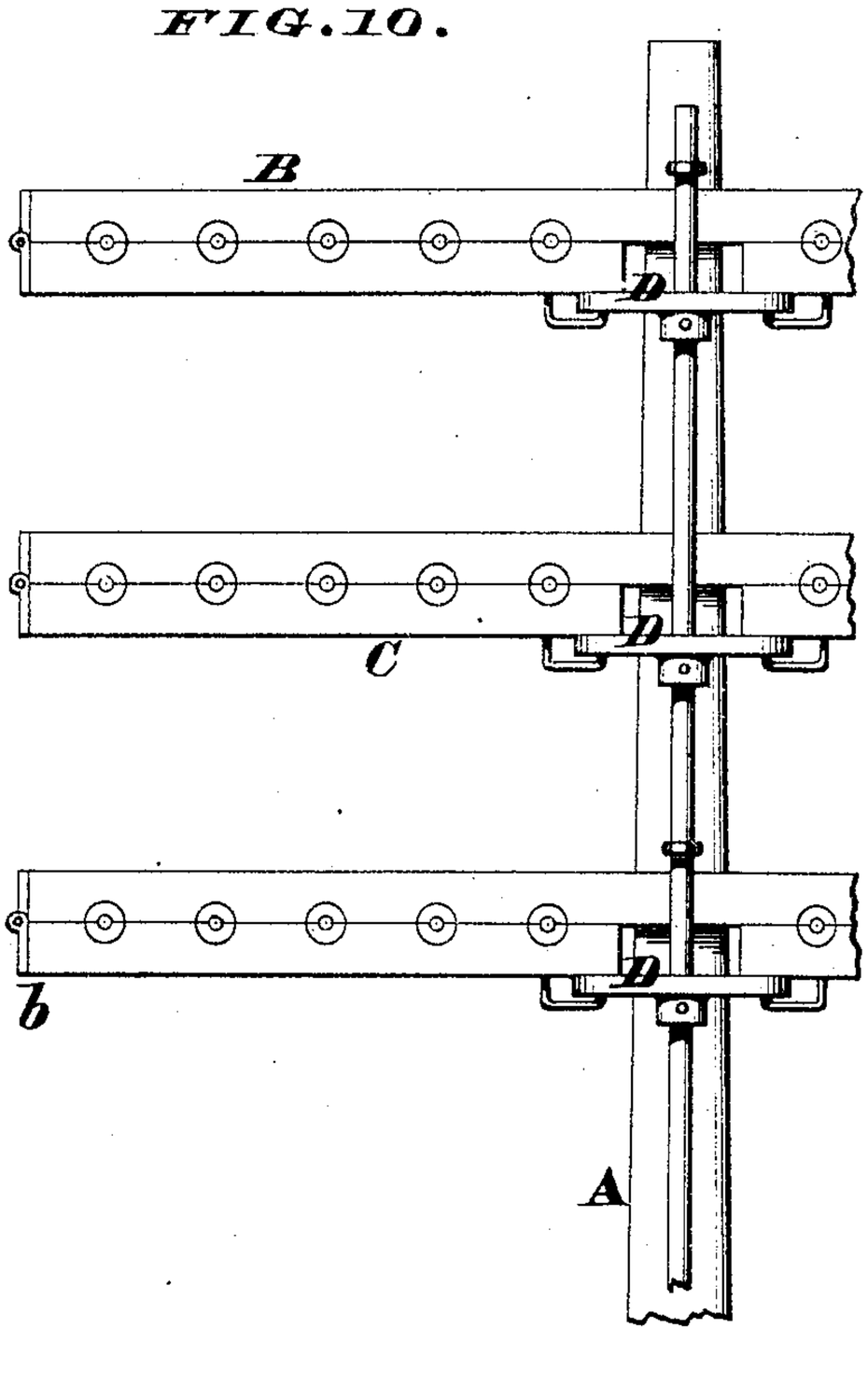


FIG. 11.

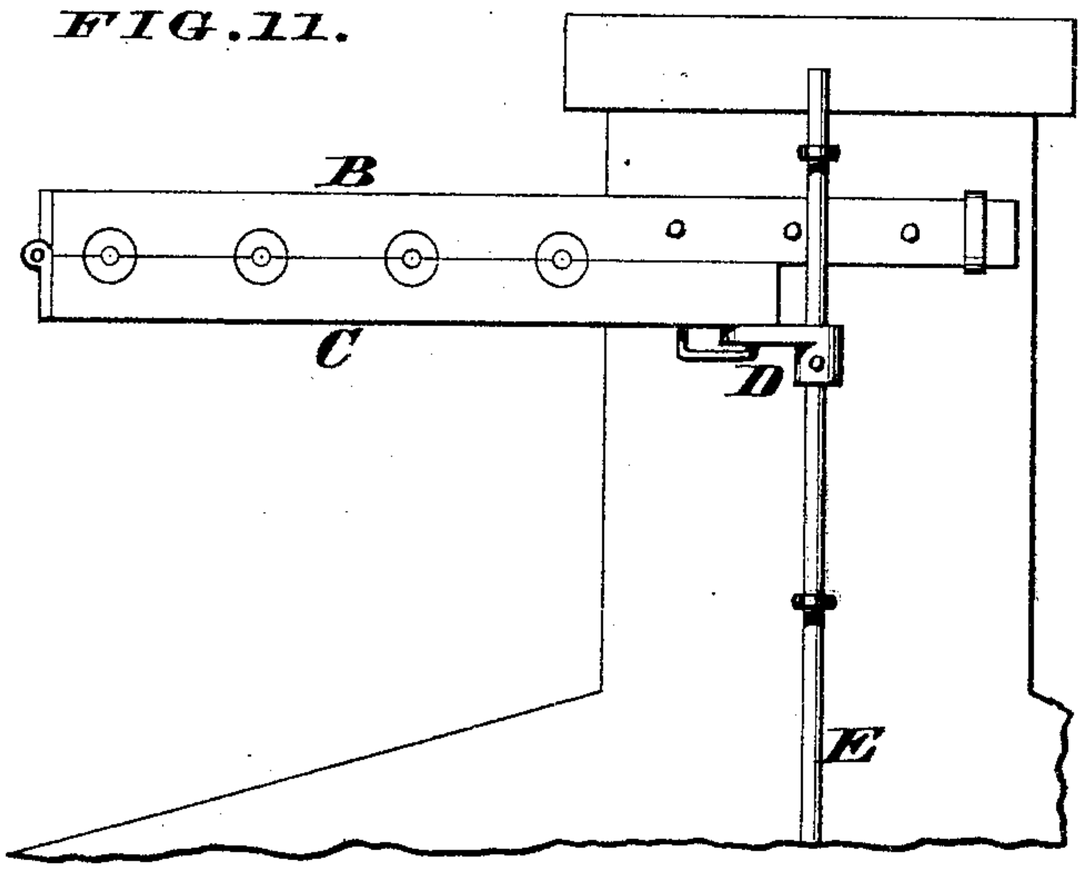


FIG. 12.

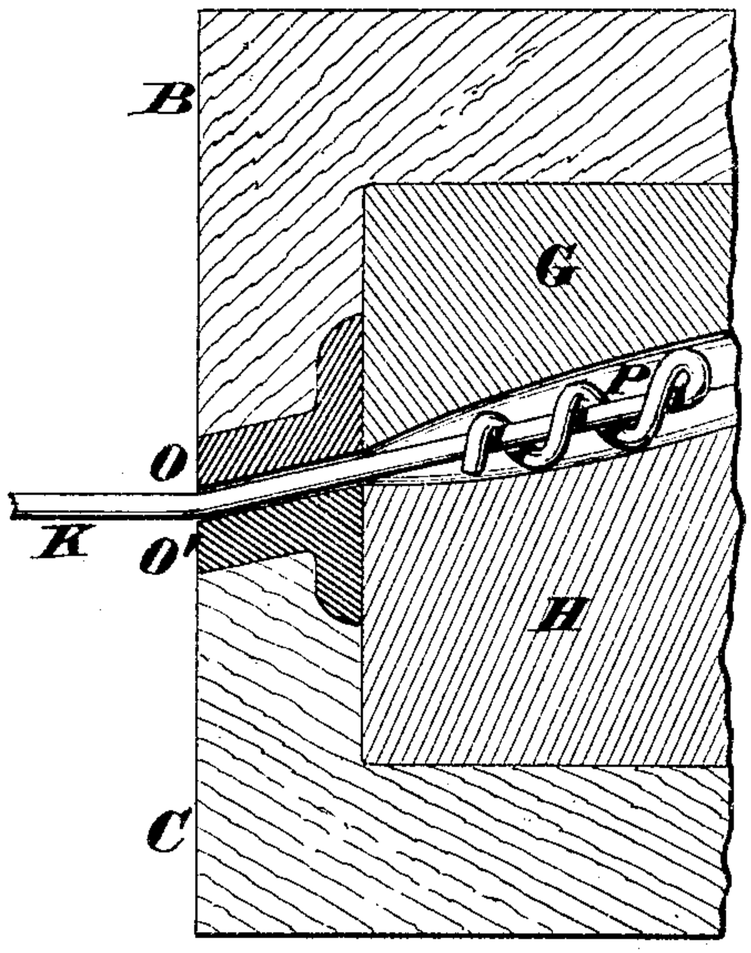


FIG. 13.

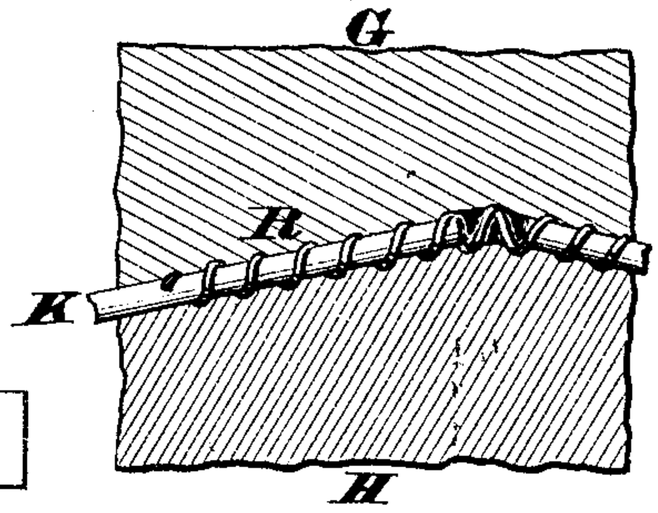
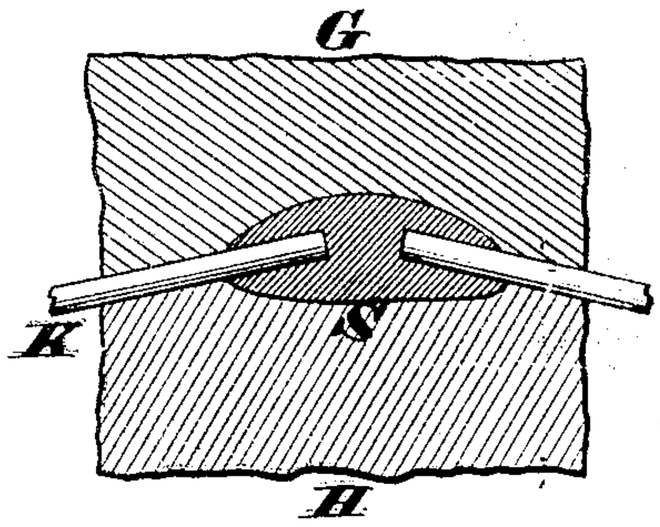


FIG. 14.



Attest.
Edwin C. Burk
W. J. Quarry

Inventor.
Lucius D. Hamilton.
by James N. Layman
his Attorney.

UNITED STATES PATENT OFFICE.

LUCIUS D. HAMILTON, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO CHARLES C. CAMPBELL AND EDWIN C. BUSH, OF SAME PLACE.

SECTIONAL WIRE FOR TELEGRAPHS, &c.

SPECIFICATION forming part of Letters Patent No. 241,650, dated May 17, 1881.

Application filed March 29, 1881. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS D. HAMILTON, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Sectional Wires for Telegraphs, Telephones, and other electrical systems, of which invention the following is a specification.

The ordinary method of supporting continuous telegraph-wires by attaching them to cross-arms secured to poles is an evil that is daily becoming more and more apparent in towns and cities on account of such fixed wires preventing ladders being readily raised to the windows and roofs of houses in case of fires and other emergencies. To overcome this difficulty it is customary to send firemen up the poles and have them cut the fixed wires; but this expedient occasions considerable delay, and is frequently attended with more or less destruction of property, and at times with loss of life and limb.

The object of my invention, therefore, is to save this fatal loss of time and consequent destruction of life and property, and to allow all the wires between any two adjacent telegraph-poles to be dropped instantly by a person on the ground, thereby affording free and unobstructed access to the windows or roof of a burning building. This desirable result is accomplished by making the wires in sections, that extend, preferably, only from one pole to another, where said sections are applied to jointed or hinged cross-arms capable of being opened by any simple mechanism, so as to liberate all the wires and allow them to fall. Furthermore, these jointed cross-arms are provided with peculiar clamping-blocks, that afford an uninterrupted electrical circuit throughout the entire line when the sectional wires are in their normal positions, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a perspective view of a pair of poles carrying my jointed cross-arms and sectional wires, said arms and wires being shown in their normal positions. Fig. 2 is an elevation, showing said jointed cross-arms opened and relieved of the wires. Fig. 3 is an enlarged elevation of a portion of the cross-arm detached from the pole. Fig. 4 is a plan of the upper or fixed member of the cross-arm. Fig. 5 is a plan of the inner ends of the lower or hinged members of said arm, the telegraph-pole being sectioned. Fig. 6 is an enlarged transverse section of the two-part cross-arm, taken in the plane of the wires. Fig. 7 is a transverse section of the upper and lower clamping-blocks detached from the arm. Fig. 8 is a perspective view of portions of the upper and lower members of the cross-arm. Fig. 9 is a section of one modification of the clamping-blocks. Fig. 10 represents a series of the fixed and swinging arms applied to a telegraph-pole and adapted to be operated by a common rod. Fig. 11 represents a fixed arm secured to a chimney and provided with only one swinging arm. Fig. 12 is an enlarged transverse section of the pole-arms provided with glass insulators, the wire being represented as terminating with a coiled enlargement occupying a suitable cavity in the conducting-blocks. Fig. 13 represents the ends of the sectional wires coupled with a coil of light wire; and Fig. 14 represents the ends of the sectional wires temporarily united by a soft-solder joint.

Referring to Fig. 1, A A′ represent two adjacent telegraph-poles of any suitable length, which poles carry, respectively, fixed cross-arms B B′, adapted to support as many wires as can be conveniently hung thereon.

Hinged or otherwise jointed to one end of the arm B at *b* is a swinging arm, C, whose free end clears the pole, as seen in Figs. 2 and 5. Hinged to the opposite end of arm B at *b′* is another swinging arm, C′, which arms C C′ would depend freely from their hinges *b b′* if they were not sustained by a ring or curved bar or other support, D, adjustably secured with the set-screw *d* to an operating-rod, E, the latter being confined to a proper path by guides *e e′*, driven into the pole A. The lower end of this sliding rod is coupled to a toggle-lever, F, or to any other device capable of raising and lowering the rod E, as may be desired. Furthermore, this toggle-lever, or its equivalent, must be secured with a padlock or otherwise to prevent the apparatus being tampered with.

c c′ are staples or loops that couple the swinging arms C C′ to their supporting device D.

The under side of the fixed arm B is concaved, as seen in Fig. 8, for the purpose of admitting the ridge of the swinging arms C C′.

G and H are clamping-blocks, whose meeting faces correspond with the inclined surfaces of the arms to which said blocks are respectively secured. These blocks are composed of any suitable metal or conducting material, and the blocks G, applied to the fixed arm B, are grooved on their under or concave surface at *g*, which grooves are preferably screw-threaded to afford a more secure gripe on the ends of the telegraph-wires. The blocks H of the swinging arms C C′ are similarly grooved and threaded on their upper surfaces, as at *h*, thereby affording a complete nut when said ridged blocks H are forced up into the concave blocks G *g*. All of said blocks G and H may be fitted in a glass or hard-rubber or other non-conducting bearing or filling, as shown at I in Fig. 6.

The sides of the fixed arm B are chambered or reamed out at J, which semicircular cavities extend in as far as the blocks G and are in line with the grooves *g* of the same. J′ are similar semicircular cavities in the sides of the swinging arms C C′, which chambered portions are in line with the grooves *h* of the blocks H seated in said arms.

K represents ordinary telegraph or telephone wires, of such length as to reach from the center of cross-arm B to the center of the next cross-arm, B′, the extremities of each wire being furnished with non-conducting thimbles or collars L, that fit snugly within the chambers formed by the concavities J J′, as seen in Fig. 6. Furthermore, the extremities of the wires have threads chased on them for engagement with the threaded grooves *g h* of the clamping-blocks G H.

N are screws or other retaining devices for securing said blocks in position, these screws being so applied as not to project through the arms B or C C′.

In putting up either a telegraph or telephone line according to my improved system the various wires K are first cut in appropriate sections and their ends are suitably screw-threaded. The non-conducting collars, thimbles, or insulators L are then applied to the wires, and the latter are at once attached to the arms in the following manner: The set-screw *d* of ring D is slackened, and said ring is allowed to slide down until the swinging arms C C′ open the desired distance, the toggle-lever F being first turned down, and after the wires have been fitted in position the arms are closed, toggle-lever F elevated, and the ring at once secured to the rod E with said set-screw. As soon as the hinged arms C C′ are thus closed it is apparent the extremities of the wires K are securely clamped in the grooves *g h* of the blocks G H, the insulators L being tightly compressed within the cavities J J′, which locked condition of said arms will continue as long as the toggle-lever F is maintained in its elevated position. This engagement of the threaded ends of the wires effectually prevents said wires being pulled out of the cross-arms, while an uninterrupted electrical circuit is afforded throughout the entire line on account of said blocks being conductors. It is also apparent that as the ridged arms C C′ fold up into the concave arm B, no opportunity is afforded for moisture or rain to enter between said arms and impair the insulation, which penetration of moisture is still further guarded against by the compressible collars L being tightly clamped in the concavities or chambers J J′, thereby completely sealing the entrances to the grooves *g h*. Consequently the insulation is as perfect and the circuit as complete as though the wires were fixed and stretched continuously in the usual manner. If, now, a fire should occur in the immediate neighborhood of the pole A, any authorized person could at once unlock the toggle-lever F and turn it down, thereby depressing the sliding rod E and causing its fixed ring D to pull open both of the swinging arms C C′, as seen in Fig. 2. As a result of this opening of said arms the ends of all the wires proceeding from the cross-arm B of pole A instantly fall to the ground, and thus give the firemen unobstructed access to the windows and roof of the burning building; but if the fire should occur at any point between the two poles A A′ both toggles F F′ can be operated so as to drop all of the wires extending from the cross-arm B to the one B′. When the fire is extinguished the wires can be replaced in much less time than can be done when they are cut and hacked to pieces, and stretched by ladders being reared against them, in the usual manner.

The thimbles or collars L may be omitted from the wires K, and the chambers J J′ may be lined with glass or rubber or other appropriate insulating mediums, as seen at O O′ in Fig. 12; but in some cases the insulation of the wires can be dispensed with.

The cross-arm B may have hinged to it a single swinging arm, C, and said fixed member B may be attached either to chimneys or brackets on the house-tops, or otherwise, so as to allow firemen to have a clear passage over the roofs as soon as the wires are unclamped. (See Fig. 11.)

The blocks G H, instead of being screw-threaded, may be corrugated, as seen in Fig. 9, the ends of the wires being crimped to fit snugly in said corrugations. Or the end of the wire may be bent back and coiled around itself, so as to form a twisted enlargement or head capable of entering a suitable recess at the mid-length of the grooves *g h*, as seen at P in Fig. 12. In some cases the sectional wires can be coupled with a short coil of interposed wire, R, which coil should release its hold of said sections and allow them to drop as soon as the clamping-arms C C′ are swung open. (See Fig. 13.) Or the contiguous ends of two wires could be temporarily united with solder S, which joint would break as soon as all the strain was thrown upon it by the opening of the clamping devices C C′. (See Fig. 14.) Finally, the sectional wires, instead of being arranged to separate at every pole, may be adapted to part at every alternate pole, or only

at every street-corner or other definite locality, and each pole may carry as many fixed and swinging arms as can be conveniently applied thereto, said swinging arms being operated with a common rod, as seen in Fig. 10.

I claim as my invention—

1. The sectional telegraph-wires K, clamped between a fixed arm, B, and a swinging one, C, said members being provided with suitable conducting-surfaces, and the arm C being arranged to open at will, and thereby liberate said sectional wires, for the purpose described.

2. The combination of fixed arm B, swinging arms C C′, couplings *c c′*, support D, and shiftable rod E, said arms B C C′ being provided with suitable conducting-surfaces to produce a circuit between the sectional wires K, for the object stated.

3. The fixed arm B, concave on its under side, and the swinging arm C, ridged on its upper surface to fit into said concavity, these members B and C being provided, respectively, with conducting-blocks G H to receive the ends of the sectional wires K, for the purpose stated.

4. The clamping conducting-blocks G H, having screw-threaded grooves *g h* to receive the threaded ends of the sectional wires K, as set forth.

5. The fixed arm B, having grooved conducting-blocks G *g* and concavities J, and the clamping-arm C, having similar conducting-blocks H *h* and pits J′, in combination with the sectional wires K and suitable insulators, L, for the purpose explained.

6. The combination of pole A, fixed arm B, jointed arms C C′, couplings *c c′*, support D, shiftable rod E, and toggle-lever F, or the equivalent of said lever, for the purpose specified.

7. A swinging cross-arm coupled to a fixed member, and arranged to be opened to liberate a sectional telegraph or telephone wire, as and for the purpose described.

In testimony of which invention I hereunto set my hand.

LUCIUS D. HAMILTON.

Witnesses:

JAMES H. LAYMAN,

SAML. S. CARPENTER.