(No Model.)

J. W. DAVY.

INSULATOR.

No. 421,819. Patented Feb. 18, 1890.

Fig. 1.

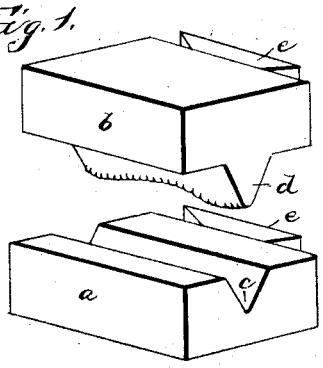


Fig. 2.

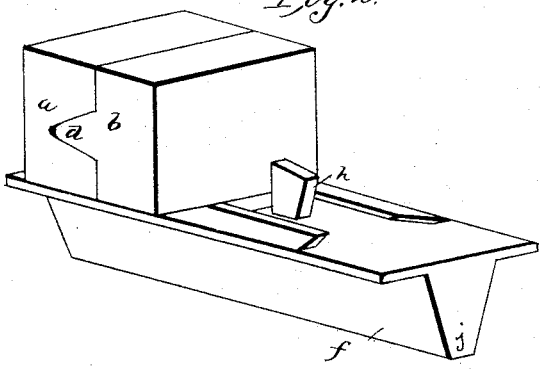


Fig. 3.

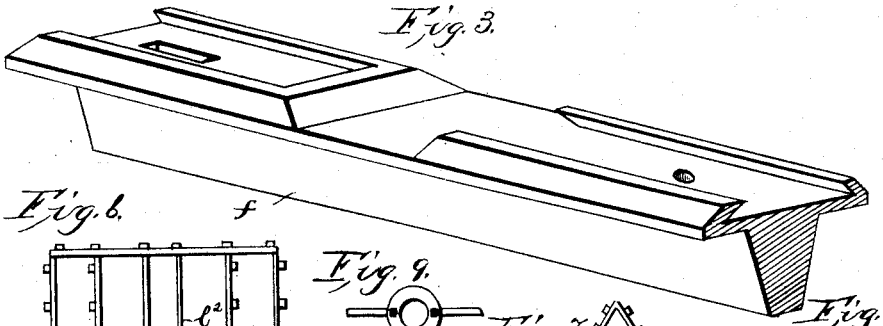


Fig. 6.

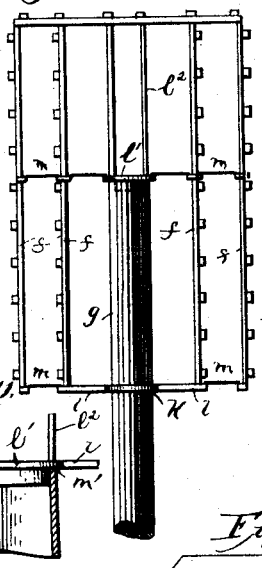


Fig. 9.

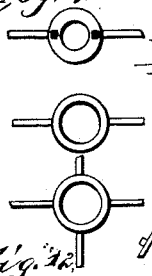


Fig. 7.

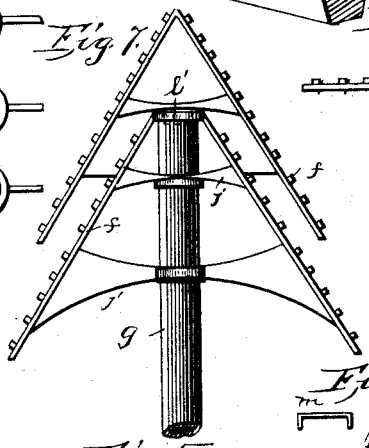


Fig. 8.

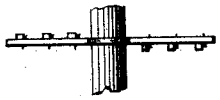


Fig. 12.

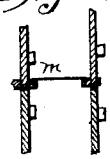


Fig. 11.

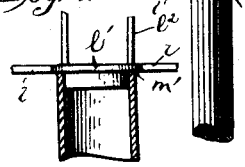


Fig. 10.

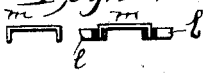


Fig. 4.

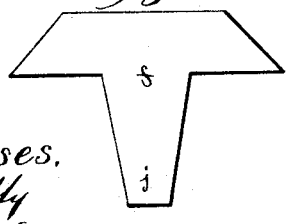
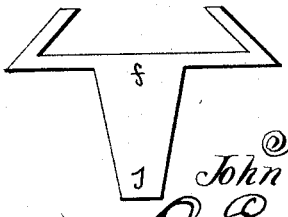


Fig. 5.



Witnesses.
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Chas. M. Wertz

Inventor:
John W. Davy
per C. C. Duffy
Attorney

UNITED STATES PATENT OFFICE.

JOHN W. DAVY, OF PITTSBURG, PENNSYLVANIA.

INSULATOR.

SPECIFICATION forming part of Letters Patent No. 421,819, dated February 18, 1890.

Application filed June 26, 1889. Serial No. 315,601. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. DAVY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Insulators and Supports therefor; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to certain improvements in telegraph-poles and insulators therefor; and the invention consists in certain novel features of construction and in combinations of parts more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a detail perspective view showing the members of the insulator separated. Fig. 2 shows the same secured to its support. Fig. 3 is a detail perspective view of a portion of the insulator-support, the end shown in elevation in Fig. 4 being broken away. Figs. 4 and 5 are end views of opposite ends, respectively, of an insulator-supporting beam. Figs. 6 and 7 are elevations of supports arranged in an improved manner on a telegraph-pole. Fig. 8 is an elevation of a portion of a pole, showing supporting-beam secured thereto, with the insulators on the under side of the same; and Figs. 9 and 10 are details of the manner of securing the supports to the pole and securing the supports of Fig. 6 together. Fig. 11 is a detail view showing the supporting-ring of the insulator-beams. Fig. 12 is a sectional view showing the manner of uniting the vertical insulator-beams of Fig. 12.

The insulator consists of two separate members or blocks *a b*. The block or member *a* is provided with a deep substantially V-shaped groove *c*, extending across one side and formed of various depths. The other and opposite member *b* of the insulator at its inner side face is provided with a tongue *d*, corresponding in shape with and adapted to enter the V-groove *c*, and this tongue is of varying depth and preferably corrugated or serrated along its outer edge. The wire or conductor is placed in said groove of the member *a*, and then the member *b* is moved toward the same, so that its tongue will enter the groove and tightly clamp the wire therein, and by reason of the varying depth of the groove and the serration of the tongue the wire is held against longitudinal movement or strain. Each member of the insulator is provided with a dovetailed portion *e* on its under side, adapted to fit and slide in dovetailed or undercut ways or grooves on the supports or beams *f* of a telegraph-pole *g* or the like, so that the members of each insulator can be moved toward or from each other and clamped together by means of a pin extending through one of the members into the support and a wedge *h*, driven through an opening in the support with its edge bearing against and forcing the opposite member tightly against the first-mentioned one. Of course the foregoing is a description of one method only by which the parts of the insulator can be clamped together.

The telegraph-poles *g* shown are preferably metallic tubes, and the insulator supports or beams *f* are secured to the pole in upright positions, either vertical or inclined. Each beam is preferably cast or otherwise formed integral with the web *j* on one side to insure strength and with the dovetailed way on its other side. This way can be made in sections, (see Fig. 3,) each section being closed by a rigid wall at one end and open at the other end, each section being adapted to receive an insulator, the members of which can be inserted at the open end of the same, and the rigid end wall will form a stop for the grooved member, while the other member will be clamped against the same by the wedge.

In Fig. 6 the insulator supports or beams are arranged in vertical positions parallel with the pole, and these supports are upheld and secured to the pole by cross-pieces carried by rings. The lower ring *k* embraces the pole, and if desirable is clamped thereto by a suitable wedge. A pair of horizontal arms *l* are preferably formed with and extend from said ring, and are secured to and support the lower ends of the innermost vertical insulator-

beams. The lower ends of the outermost vertical beams are secured to the ends of the arm *l* by horizontal links *m*. (See Fig. 10.) The upper supporting-ring *l'*, (shown in Figs. 6 and 11,) is supported by the pole, as hereinafter set forth, and is shown provided with a pair of upwardly-extending parallel arms *l²*, carrying a cross-bar, to which the upper ends of the vertical insulator-beams are secured, and the beams are secured to said upper ring by the links *m*. If four series of vertical beams are used, a ring provided with arms, as shown by the lower view of Fig. 9, is used.

The parallel insulator-beams of Fig. 7 are shown secured so as to be in inclined positions by means of rings and arms.

In Fig. 8 the insulators are shown secured to the under side of the beams, so that they will be protected from the weather and elements.

The insulator and holder are formed of suitable insulating material.

By reason of the peculiar construction of the ways for the insulators one insulator can be removed without disturbing any other, as each insulator has its own groove and can be removed or inserted at the open end of the same, and hence any insulator can be removed and a new one substituted or an old one removed and replaced at will without removing the remaining insulators.

By reason of the peculiar construction of the insulator-frame it is not necessary that the poles be as high as heretofore necessary, for, as shown in Fig. 6, the frame can be extended upwardly above the pole or provided with an upper removable section, the upper ends of the insulator-beams being secured to a cross-beam, while the lower ends of these insulator-beams fit in depressions in the upper ends of the lower sections of the beams, and this upper section is secured to the pole by means of the bolts or arms *l*, secured to the cross-arm and at their lower ends to the upper ring *l'*, which ring is provided with an annular downwardly-extending flange *m'*, fitting in the upper open end of the pole, so that the entire weight of the insulator-frame will be supported by said ring, and hence by the longitudinal center of the pole. This is a great improvement, for the pole is not rendered top-heavy, the insulator-beams are located as near the pole as possible, and the weight of the insulator-frame bears directly down on the center of the same.

The old manner of securing the cross-beams to the poles in a horizontal position extended out considerably from the same rendered the pole top-heavy and exceedingly apt to break, and the cross-beams would sag at one end or the other and strain the poles; but these difficulties are overcome by the present manner of securing the insulator-beams in a vertical or inclined position and supporting the same from the top or center of the pole.

In Fig. 7 the frame is hung from the center of the pole and is formed in sections.

Other means than the wedge can be employed to clamp the members rigidly and yet removably together, and of course the supports for the insulators need not necessarily form telegraph-pole beams, and of course the number of insulator-beams for each pole can be varied at will.

It is also evident that various changes might be made in the form and arrangements of the parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself to the precise construction herein set forth.

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

1. An electric insulator consisting of two separate members adapted to be clamped together, each having a base or a dovetailed portion on its lower side, and one member having a groove in its side to receive the conductor, and the other member having a corresponding tongue on its inner side to fit in said groove and clamp the conductor therein, substantially as described.

2. The combination, with an insulator consisting of two separate members adapted to be clamped together and having a corresponding tongue and groove to receive and hold the wire, of a support for the iusulator, having a dovetailed or undercut way in which the insulator is confined, substantially as described.

3. An insulator consisting of two separate sliding members adapted to be clamped together, one member having a V-shaped groove in its side of varying depth to receive the wire, and the other member having a correspondingly-shaped tongue across its inner side to fit in the groove and lock the wire therein against longitudinal movement, substantially as described.

4. An insulator consisting of two separate members adapted to be clamped together, one member having a V-shaped groove of varying depth extending across its side face, and the other member having a correspondingly-shaped tongue extending across its inner face and serrated on its outer edge, substantially as described.

5. An insulator consisting of two members having a corresponding groove and tongue in their adjoining faces to receive and hold the wire and dovetailed portions on their under side, in combination with a support for the insulator, provided with a dovetailed way in which said portions of the insulator are confined and slide, and means for clamping the insulator in the groove and the members thereof together, substantially as described.

6. An insulator consisting of two separate sliding members between which the wire is adapted to be clamped, in combination with a support for the insulator, having a way to receive the same, and a wedge to clamp the insulators in the way and the sections thereof together, substantially as described.

7. A metal insulator-supporting beam having a dovetailed way to receive the insulators, substantially as described.

8. An integral metal insulator-supporting beam having a series of dovetailed ways on one side to receive the insulators, each way being closed at one end and open at the other, substantially as described.

9. A metal insulator-beam having a dovetailed way on one side to receive an insulator and a strengthening-web on its opposite side, substantially as described.

10. A telegraph-pole, in combination with a series of upright insulator-beams supported by the upper portion thereof, and rings and arms supporting said beams and securing them to the pole, substantially as described.

11. The combination of an insulator-supporting beam having a way on its under side, with insulators confined in said way and located on the under side of the beam, substantially as described.

12. A telegraph-pole, in combination with the insulator and wire-supporting frame, consisting of a series of insulator-beams secured together and suspended from the top of the pole, for the purpose set forth.

13. A telegraph-pole, in combination with an insulator and wire-supporting frame extending above and below the top end of the pole and suspended from said top end, for the purpose set forth.

14. A telegraph-pole, in combination with a series of upright insulator-beams and a supporting-ring on the upper end of the pole to which said beams are secured and by which they are held suspended, substantially as described.

15. A telegraph-pole, in combination with a series of upright insulator-beams extending above and below the upper end of the pole, the beams on each side thereof being parallel and secured together, and a supporting-ring on the upper end of the pole to which said beams are secured and by which they are supported, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN W. DAVY.

Witnesses:
CHAS. M. WERLE,
H. E. PECK.