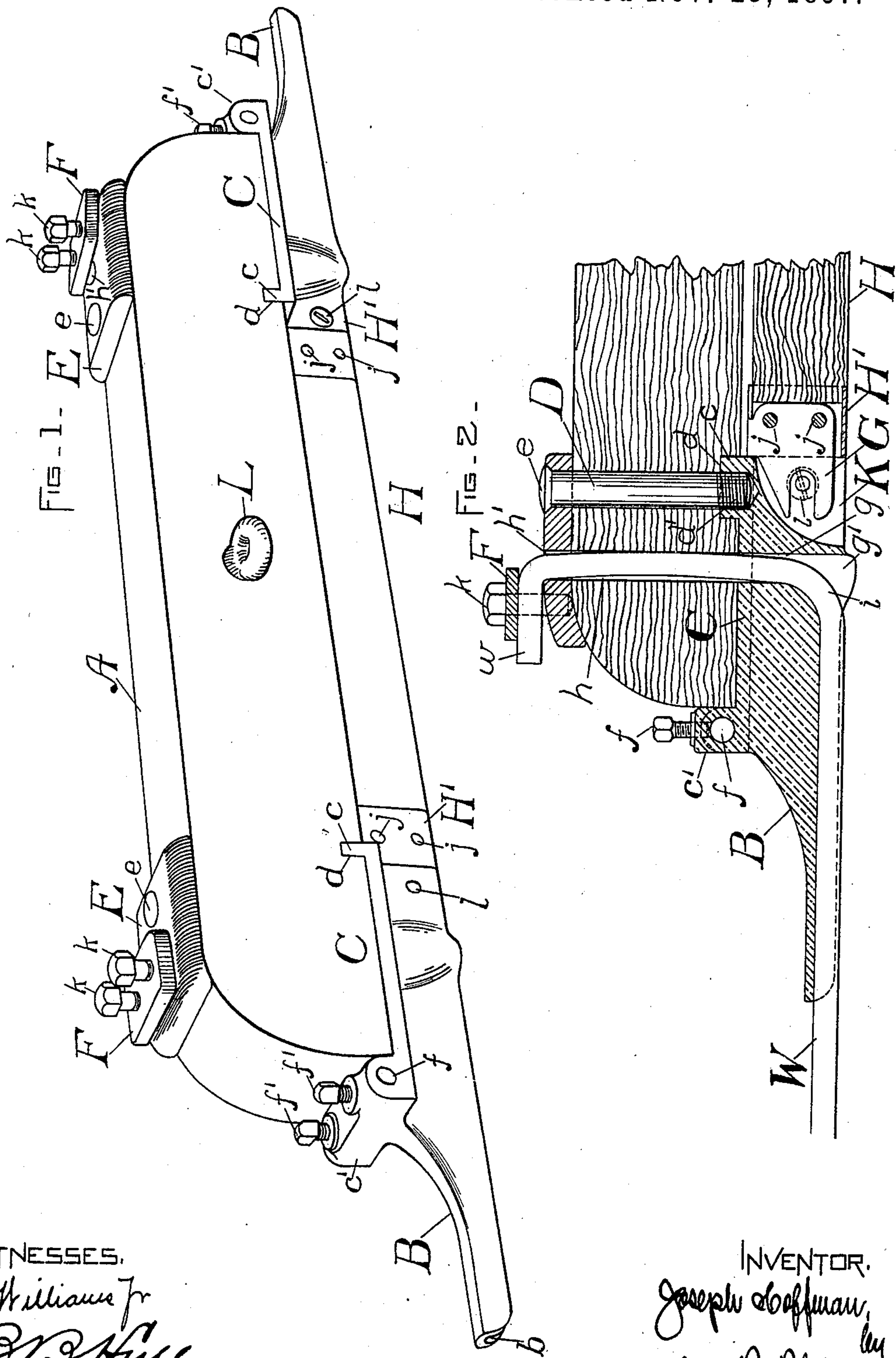


J. HOFFMAN.
SECTION INSULATOR.

Patented Nov. 23, 1897.



WITNESSES,
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UNITED STATES PATENT OFFICE.

JOSEPH HOFFMAN, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE
GENERAL ELECTRIC COMPANY, OF NEW YORK.

SECTION-INSULATOR.

SPECIFICATION forming part of Letters Patent No. 594,155, dated November 23, 1897.

Application filed August 7, 1897. Serial No. 647,419. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HOFFMAN, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Section-Insulators, (Case No. 615,) of which the following is a specification.

This invention relates to trolley-breakers or line-section insulators, and has for its object to provide an improved section-insulator with a straight underrun for the traveling contact of the trolley which will be efficient and so constructed as to stand the longitudinal pull of the trolley-wire.

The invention consists in an improved section-insulator constructed and arranged as hereinafter set forth and claimed.

Referring to the accompanying drawings, Figure 1 is a perspective view of a section-insulator constructed in accordance with this invention. Fig. 2 is a detail view, in longitudinal section, of one end of the insulator, showing trolley-wire secured thereto.

A is the main portion or body of the insulator, made of wood or other suitable insulating material. Each end of the main portion A is provided with a metallic end piece B, having its top formed with a flat portion C and a transverse flange or rib *c* at its inner end and a transverse raised portion or rib *c'* at its outer end. A transverse slot *d* is formed in the under side of the main portion A, in which is located the flange *c*, one end of the main portion A resting on the flat portion C and abutting against the raised portion *c'*. The metallic end piece B is held to the main portion A by a bolt D, which passes through a hole in a plate E on the top of the main portion A, and has a screw-threaded lower end *d'*, engaging a threaded hole or socket in the flange *c*. The upper end of bolt D may be upset or riveted, as shown at *e*. In the enlargement *c'* is a transverse hole *f*, in which is held by set-screws *f'* the feeder-wire.

W is the trolley-wire, which is secured to the end of the section-insulator by bending up the end of the wire, as shown in Fig. 2, and extending the bent end through a verti-

cal hole or passage-way *g* in the end of the piece B, a hole *h* in the main portion A of the insulator, and a hole *h'* in the plate E. The passage-way *g* is enlarged at *g'* to afford room for the bent portion *i* of the wire W. The extreme end *w* of the wire W is bent horizontally and is secured by means of a plate F and set-screws *k*, passing through plate F and into plate E, the latter clamping the end *w* of wire W and firmly holding it in place. The wire W rests in a groove *b* in the end piece B.

H is the underrunning bar, which has its under surface in line with the end pieces B, as shown in Fig. 1.

The bar H is secured in place as follows: On each end of bar H is mounted a metallic envelop H', forming a socket, and in said socket is located the rear end of a forked or U-shaped clip or plate G, secured to envelop H' by transverse pins *j*. The inner end of each end piece B is formed with a socket K, provided with a transverse screw bolt or pin *l*. The bar H being placed in alinement with the end pieces B, with each forked clip projecting into its respective socket K in end piece B, the transverse pin *l* is passed into place across the socket K, engaging the clip G and thereby securing the bar H in place.

L is an eyebolt, one being secured on each side of the main portion A, to which is secured the end of a transverse bracing-wire.

The advantages of the foregoing construction are as follows: The transverse slot *d* being shallow does not weaken the main portion A, and with end piece B, having transverse rib *c*, affords a strong hold against longitudinal pull of the trolley-wire. In conjunction with this construction the bolt D aids in resisting the endwise strain. Furthermore, the end of the trolley-wire passing up through the end piece B and main portion A also adds to the strength and power to resist the longitudinal pull of the trolley-wire. The plate E aids to strengthen and protect the connection of the wire W and bolt D to main portion A. The end of the portion A being located between flange *c* and raised portion *c'* and the wire W and bolt D extending through portion A and engaging end piece B

and plate E afford a compact connection not only to resist endwise strain, but also any strain produced by sagging.

The entire construction and arrangement of parts herein set forth afford a strong and efficient structure which will stand up against endwise strain and which has no weak parts having a tendency to disrupt or tear away.

I claim—

10 1. In a section-insulator, a main portion or body of insulating material, and metallic end pieces secured to the main portion and having a transverse flange or rib engaging the main portion, substantially as set forth.

15 2. In a section-insulator, a main portion or body of insulating material, and metallic end pieces secured to the main portion and having a transverse flange or rib engaging the main portion, and an elevated portion or rib abutting against an end of the main portion, substantially as set forth.

20 3. In a section-insulator, a main portion or body of insulating material having a transverse groove on its under side adjacent to each end, and metallic end pieces secured to the main portion and having a transverse flange or rib engaging the transverse groove in the main portion, substantially as set forth.

25 4. In a section-insulator, a main portion or body of insulating material having a transverse groove on its under side adjacent to each end, and metallic end pieces secured to the main portion, and having a transverse rib or flange engaging the transverse groove in the main portion, and an elevated portion or rib abutting against an end of the main portion, substantially as set forth.

30 5. A metallic end piece for section-insulators, formed with a flat top having a shallow transverse flange or rib at its inner end, as and for the purpose set forth.

35 6. A metallic end piece for section-insulators, formed with a flat top, having a shallow transverse flange or rib at its inner end, and a transverse elevated portion or rib at its outer end, as and for the purpose set forth.

40 7. As a new article of manufacture, a metallic end piece for section-insulators, formed with a flat top having a shallow transverse flange or rib at its inner end, an enlarged portion or rib at its outer end, a vertical passage for the trolley-wire with an enlargement at its lower end communicating with the trolley-wire groove in its bottom, and a recess at its forward end, as and for the purpose set forth.

45 8. A section-insulator, consisting of a main portion or body of insulating material having a transverse groove on its under side and a vertical hole for the passage of the trolley-wire, and a second hole for the passage of a bolt adjacent to each end, metallic end plates formed with a flat top, having a transverse flange or rib engaging the transverse groove in the main portion, and an elevated portion or rib at its outer end against which an end

of the main portion abuts, a passage-way for the trolley-wire, and a recess at its forward end with a removable transverse pin; in combination with a connecting-bar of insulating material in the plane of the bottom line of the end pieces, and engaging the inner ends of the end pieces, a bolt adjacent to each end of the main portion and engaging the inner end of the end plate, in combination with the trolley-wire passing through the end piece and main portion and secured thereto, as set forth.

70 9. A section-insulator comprising a main portion of insulating material having a transverse groove on its under side adjacent to each end, metallic end pieces formed with a flat top having a transverse rib at its inner end engaging said transverse groove, and a transverse rib at its outer end abutting against one end of the main portion, a vertical hole in the main portion and adjacent to each end thereof, for the passage of an end of the trolley-wire, and a bolt passing through the inner portion at each end and engaging the inner rib of the end plate, and an under-running connecting-bar of insulating material in line with the end pieces and connected thereto; in combination with the connecting ends of the trolley-wire secured to the end pieces and to the main portion, substantially as set forth.

85 10. A section-insulator consisting of a main portion or body of insulating material having a transverse groove in its under side adjacent to each end, and a vertical hole adjacent to each end for the passage of one end of the trolley-wire, and a second vertical hole connecting with said transverse groove, a plate on top of and at each end of the main portion with a hole for the passage of the end of the trolley-wire, and means for clamping the latter thereto, a bolt passing through said plate and the main portion and engaging the inner end of the end plate, and end plates formed with a flat top having a transverse rib at its inner end engaging the transverse groove in the main portion, and a rib at its outer end against which an end of the main portion abuts, a vertical passage-way for the trolley-wire connecting with the hole in the main portion, a recess at the inner end of the end plate having a removable transverse pin, and a connecting-bar of insulating material in the plane of the bottom line of the end pieces and having its ends engaging the recess and transverse pin in the inner end of the end pieces, substantially as set forth.

90 11. A section-insulator consisting of a main portion of insulating material having a transverse slot on its under side adjacent to each end, end plates formed with a flat top having a transverse rib at its inner end engaging said transverse slot and a rib at its outer end against which the end of the main portion abuts, a vertical bolt adjacent to each end of the main portion and extending through the

same and engaging the end piece, and a connecting-bar secured to and in the same plane with the under part of the end pieces; in combination with the connecting ends of the trolley-wire passing vertically through the end pieces and the ends of the main portion and secured thereto, substantially as set forth.

In witness whereof I have hereunto set my hand this 5th day of August, 1897.

JOSEPH HOFFMAN.

Witnesses:

B. B. HULL,

E. WILLIAMS, Jr.