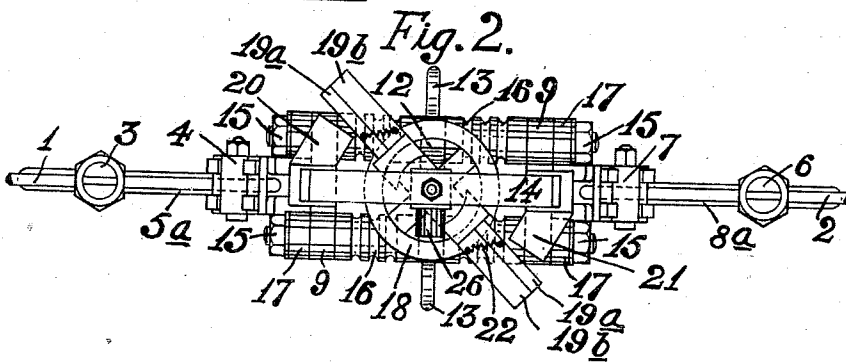
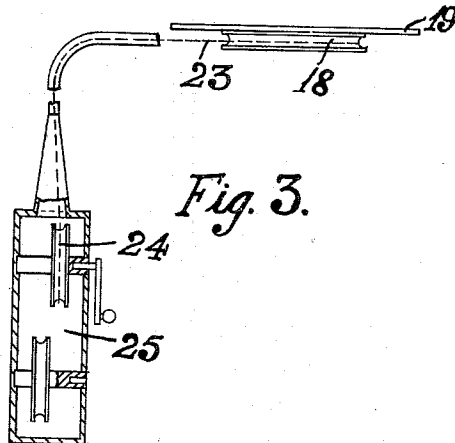
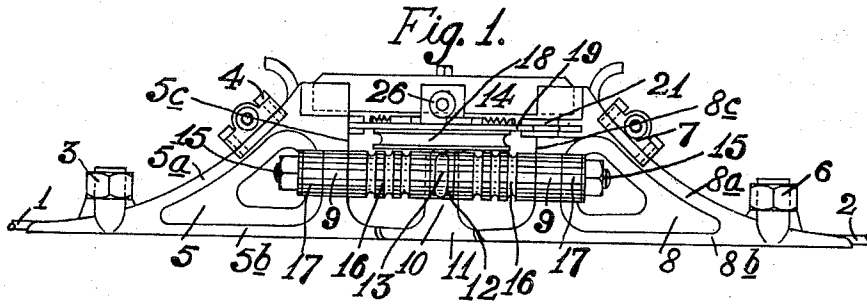


W. G. HAMILTON.
SECTION INSULATOR FOR ELECTRIC CONDUCTORS.
APPLICATION FILED MAY 6, 1910.

995,133.

Patented June 13, 1911.



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WILLIAM GEORGE HAMILTON, OF TWICKENHAM, ENGLAND.

SECTION-INSULATOR FOR ELECTRIC CONDUCTORS.

995,133.

Specification of Letters Patent. Patented June 13, 1911.

Application filed May 6, 1910. Serial No. 559,697.

To all whom it may concern:

Be it known that I, WILLIAM GEORGE HAMILTON, a subject of the King of Great Britain and Ireland, residing at Twickenham, in the county of Surrey, England, have invented a new and useful Improvement in Section-Insulators for Electric Conductors, of which the following is a specification.

In electric railways and tramways it is usual to divide the supply conductor from which the electric current for the propelling motors on the vehicles is derived, into sections. The sections are normally in electrical connection with one another, but by means of switches it is possible to cut any one section out of electrical connection with the other sections and by means of section-insulators, which connect mechanically the adjacent ends of the supply conductors of adjoining sections, such cut out or disconnected section is insulated from the other sections of the supply conductor.

This invention has reference to section-insulators and to section insulators of the kind used for dividing up the overhead conductor or trolley wire of an electric railway or tramway into sections.

The improvement will now be described with reference to and by the aid of the accompanying drawings, in which—

Figure 1 is a side elevation, and Fig. 2 is a plan view of a section insulator. Fig. 3 illustrates, to some extent diagrammatically, means for operating the switch that makes or breaks electrical connection between the adjacent ends of the trolley wire of adjoining sections.

Referring now to Figs. 1 and 2, 1, 2 are pieces of trolley wire. The piece 1 forms a part of one section and the piece 2 is a part of the adjacent section into which the trolley wire is divided. The end of the piece of trolley wire 1 is connected and secured by clamps 3, 4 to the end member 5 of the section insulator and the end of the piece of trolley wire 2 is connected and secured by clamps 6, 7 to the end member 8 of the section insulator. The end members 5, 8 of the section insulator are each approximately of triangular shape as seen in side view, and the clamps 3, 4 and 6, 7 are formed on, or attached to, a side of the member that slopes or inclines upwardly with respect to the trolley wire. These sides are lettered 5^a, 8^a. Of the other two sides of each end member, one, 5^b or 8^b, is in line with and forms, when

the end of the trolley wire is secured and clamped in position, a continuation of the running surface for the trolley wheel, and the other, 5^c or 8^c, is normal to the side 5^b or 8^b.

9, 9 are lugs that are formed on the end members 5, 8, adjacent the sides 5^c, 8^c. There are two lugs 9 on each end member, one on each face. The lugs thus extend laterally.

10 is a member which, when the several parts of the section insulator are assembled, is situated between and is separate from the end members 5, 8. This member 10 has a portion 11 which is arranged to come in line with the sides 5^b, 8^b of the end members 5, 8 and to form a running surface for the trolley wheel. The ends of the portion 11 and of the sides 5^c, 8^c are separated by air gaps. The member 10 also has two laterally extending lugs 12, 12, one on each side, and each lug is formed at its outer end, with or as an eye 13 to which the end of a suspension wire is attached. The upper end of the member 10 and the junction of the sides 5^a, 5^c and 8^a, 8^c are formed with jaws or recesses to receive an insulating distance piece 14. This insulating distance piece 14 is bolted to the member 10 and is or may be bolted to the end members 5, 8.

15 are bolts. There are two of these bolts. 16 are insulating distance sleeves and 17 are insulating bushes. There are four sleeves 16 and four bushes 17. In assembling the parts of the insulator so far described, the bolts 15 are passed through the lugs 9 on, say, the end member 5, an insulating bush 17 being interposed between the end of each bolt and the lug through which it passes. An insulating distance piece 16 is then passed on to each bolt and then the member 10 is passed on to the bolts. The member 10 is separated from the end member 8 by two other insulating distance sleeves 16 and the nuts on the ends of the bolts 15 are also separated from the end member by insulating bushes 17. The insulating distance piece 14 is also at this time mounted in the jaws formed to receive it in the end members 5, 8 and the member 10. The member 10 is thus mounted and arranged between the end members 5, 8. The bolts 15 where they pass through the holes in the lugs 8, 12 are insulated and if the insulators 14, 16 have been made of proper length, the ends of the portion 11 of the member 10 are separated

from the ends of the sides 5^b, 5^c, 8^b, 8^c of the end members by air gaps. The end members are thus insulated from each other and from the member 10.

5 18 is a wheel that is mounted on the member 10 and is arranged to come above the lugs 12 and below the insulating distance piece 14. This wheel is capable of rotation and carries a switch blade or blades 19 which
10 extends or extend diametrically thereof.

20, 21 are switch jaws. The jaws 20 are formed on or are attached to one face of the side 5^c of the end member 5 and the switch jaws 21 are formed on or attached to
15 the face of the side 8^c of the end member 8 but on the one that is remote from that on which the jaws 20 are positioned. In one position of the wheel 18, the blades 19 are in engagement with the switch jaws 20, 21
20 and the two end members 5, 8 are thus electrically connected. In another position of the wheel 18, the blades 19 are not in engagement with the jaws 20, 21 and there is therefore no electrical connection between
25 the end members 5, 8. As shown in Fig. 2, the blades 19 are made in two parts, 19^a, 19^b, one of which, 19^a, is pivotally mounted and is connected by a spring 22 with the part 19^b. The arrangement is such that when
30 the blades leave the jaws the parts 19^a will form a quick break arrangement.

23 is a flexible connector that is passed around and is fastened at one point to the rim of the wheel 18. This connector is led
35 from the section insulator to and passes down a post, to which the suspension wires of the section insulator are fastened, to and around a pulley 24 contained within a locked box 25. The connector 23 is also fastened
40 to the pulley 24 and the arrangement is such that when the pulley 24 is given a rotary motion a similar motion is imparted to the wheel 18 and the switch is either opened or

closed. In Fig. 3 two pulleys 24 are shown, one for each trolley wire.

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What I claim is:—

1. In a section insulator for suspended trolley wires the combination, of two end members insulated from each other, a central member between the end members, a
50 switch blade, a blade support rotatably mounted on the central member, and a flexible element fastened to the blade support for operating the same from a distance.

2. In a section insulator for suspended
55 trolley wires the combination, of two end members insulated from each other, switch jaws on said end members, a central member between the end members, a blade support rotatably mounted on the central member,
60 a switch blade on said support and a flexible element fastened to said support for operating the same from a distance.

3. In a section insulator the combination of end members insulated from each other,
65 a central member between said end members, in alinement therewith, an air gap between each of said end members and said central member, lugs on each side of said members, bolts extending through said lugs, bushings
70 for insulating said bolts from said members, switch jaws one on one side of each of said end members, a wheel pivotally mounted on said central member, quick-break switch blades attached to said wheel, an insulating
75 distance piece secured to the end members and central member, and means attached to said wheel actuatable from a distance for throwing said switch blades into and out of
80 contact with said switch jaws.

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Dated this 18th day of April, 1910.

WILLIAM GEORGE HAMILTON.

Witnesses:

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