

E. H. ANDERSON.
OVERHEAD TROLLEY SWITCH.
APPLICATION FILED JUNE 2, 1911.

1,021,857.

Patented Apr. 2, 1912.

2 SHEETS-SHEET 1.

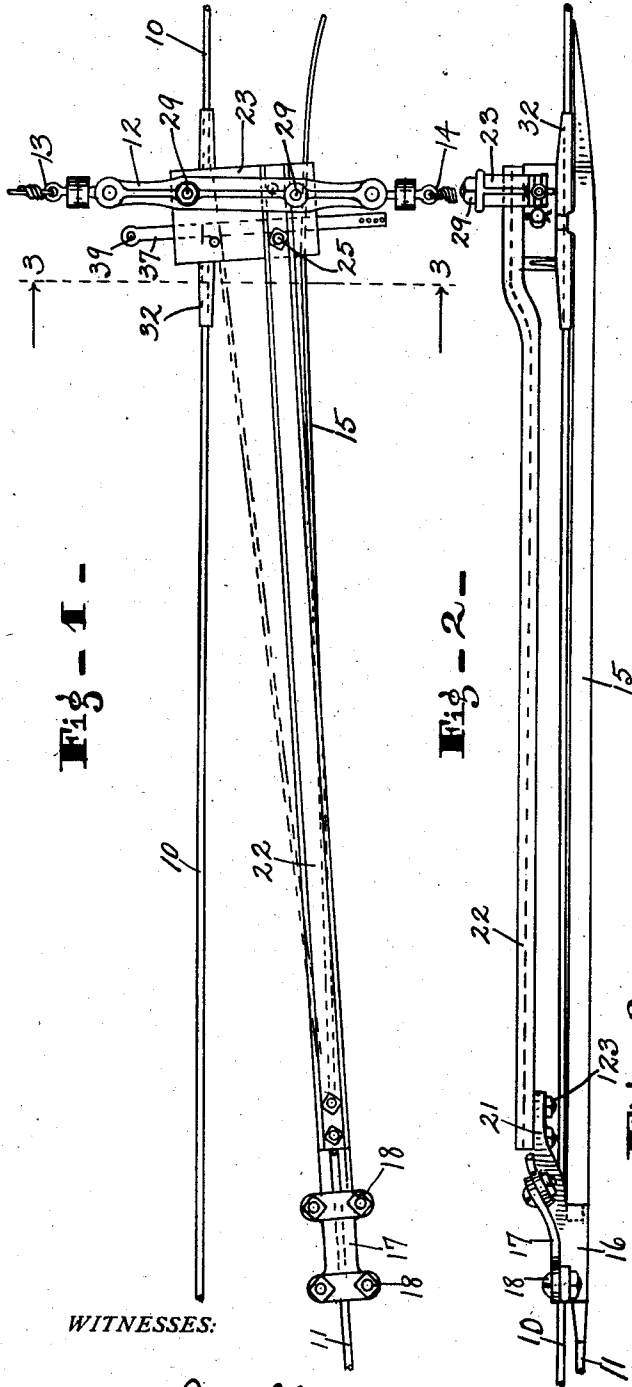


Fig. 1 -

Fig. 2 -

WITNESSES:

O. M. McLaughlin
E. S. Mayo.

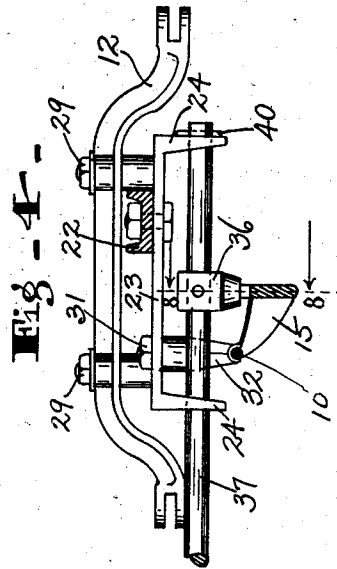


Fig. 4 -

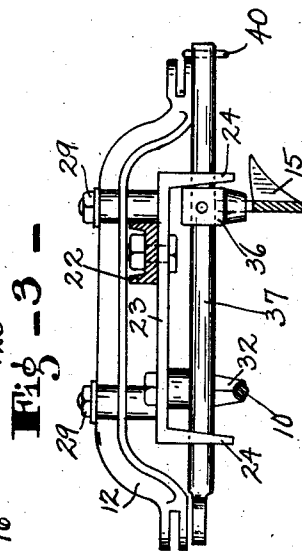


Fig. 3 -

INVENTOR.

Emil H. Anderson

BY

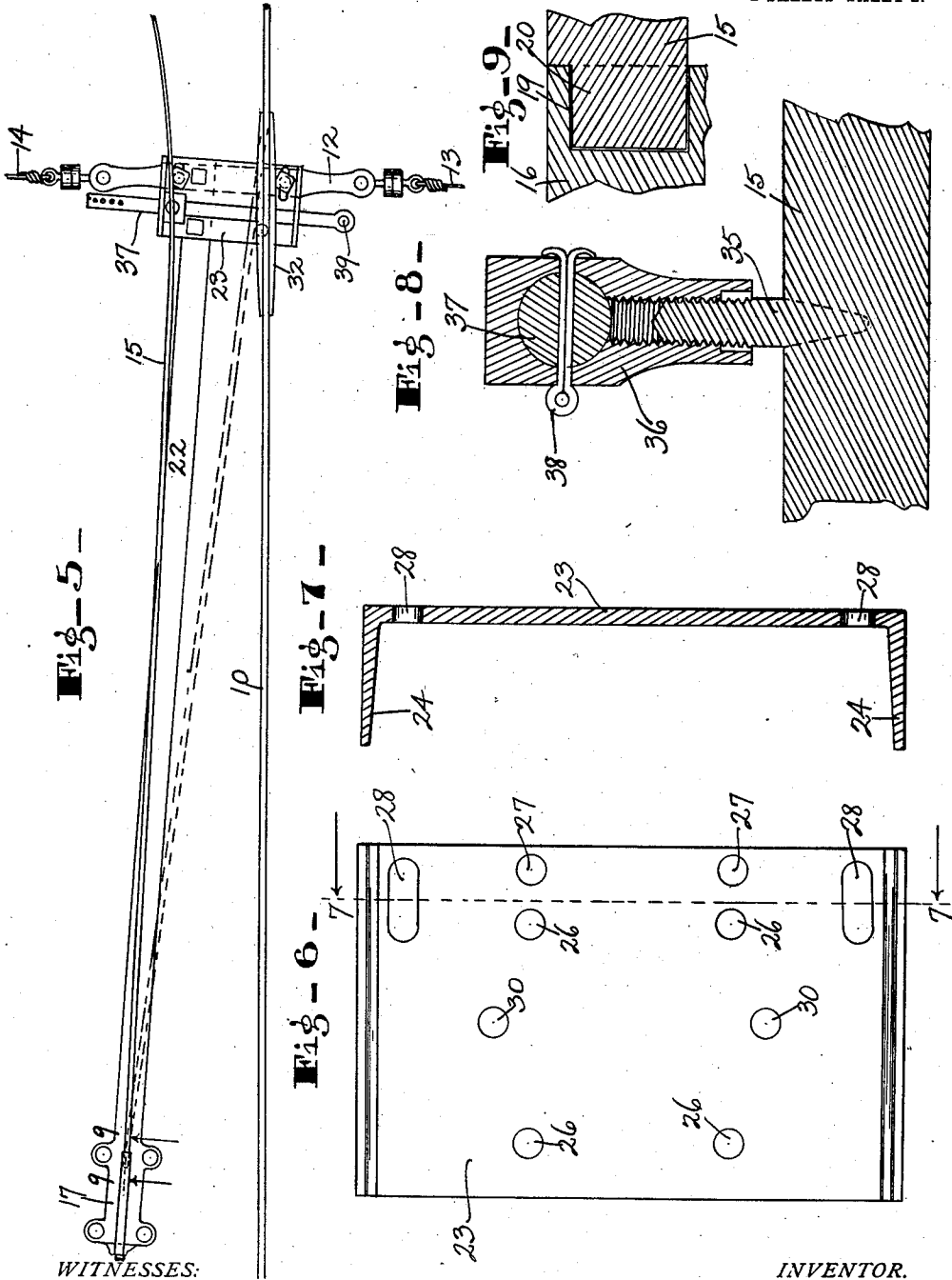
W. H. Lockwood
ATTORNEY.

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2 SHEETS—SHEET 2.



O. M. M. Laughlin
E. H. Mayo

INVENTOR.
Emil H. Anderson.

BY
V. H. Lockwood
ATTORNEY.

UNITED STATES PATENT OFFICE.

EMIL H. ANDERSON, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO
FORREST M. TIMMINS, OF INDIANAPOLIS, INDIANA.

OVERHEAD-TROLLEY SWITCH.

1,021,857.

Specification of Letters Patent.

Patented Apr. 2, 1912.

Application filed June 2, 1911. Serial No. 630,769.

To all whom it may concern:

Be it known that I, EMIL H. ANDERSON, a citizen of the United States, and resident of Indianapolis, county of Marion, and State of Indiana, have invented a certain useful Overhead-Trolley Switch; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

The object of this invention is to provide an improved construction of trolley switch arranged so as to materially reduce and practically avoid the blow of the trolley wheel against the trolley wire and frame of the switch in connection with which the trolley wire and switch member are mounted. To this end the construction is such as to practically eliminate the blow, as the switch point is of very gradual taper and extends appreciably beyond the point of connection with the frame and engages the trolley wire only at its extreme point. That tends to take the blow off the trolley wire. By the time the trolley wheel has passed two inches on the switch it is bearing against the portion of the switch which is one inch away from the trolley wire.

Another object is to prevent the jumping of the trolley wheel, and this is accomplished largely by making the switch member so that it has slight lateral flexibility.

Another object is to make the construction universal so that the same device can be used in any situation, the switch member being merely reversed end for end to make the right or left switch. Along with this is the idea of mounting the frame adjustably to the pull-over so that the device is readily installed in various situations where the angles of the siding vary. Also, effort has been made to simplify and lighten the device.

The nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a plan view of the switch with the switch member shown closed by dotted lines. Fig. 2 is a side elevation of the device. Fig. 3 is a transverse section on the line 3—3 of Fig. 2 showing the switch open. Fig. 4 is the same showing the switch closed. Fig. 5 is a bottom view of the device with the switch member shown closed by dotted lines. Fig. 6 is a bottom

view of the main frame plate on a large scale. Fig. 7 is a section on the line 7—7 of Fig. 6. Fig. 8 is a section on the line 8—8 of Fig. 4. Fig. 9 is a section on the line 9—9 of Fig. 5.

In detail, the drawings herein show the main trolley wire 10, a siding trolley wire 11, a double pull-over 12 and span wires 13. These parts so far enumerated are old and of common use.

The switch member 15 is formed preferably of steel and of such thickness and control as to be somewhat flexible laterally and capable of being bent to suit the insulation. The point gradually tapers in width, the taper being on the underside of the point so that the point is of the same thickness as the rest of the switch member but merely varies in width. At its other end said switch member is secured to or in line with the siding wire 11 by the clamping member 16. The wire 11 is secured to the member 16 by the plate 17 and screws 18, and the member 16 has a recess at 19, see Fig. 9, into which a reduced end 20 of the switch member 15 projects loosely. The clamping member 16 has an extension 21 to which the long frame member 22 is secured at one end by the bolts 123.

The frame consists of the long member 22, which is merely a bar, and a plate 23, shown here rectangular in form and of small size, substantially five by eight inches. It is in the nature of channel iron having at each lateral edge a downwardly extending flange 24, see Figs. 6 and 7. The bar 22 and plate 23 are rigidly secured together by a pair of bolts 25 passing through the holes 26. There are two sets of these holes 26, see Fig. 6, so as to permit the reversing of the frame for different sidings, that is, the location of the switch member on different sides of the trolley wire or with the switch member extending in either direction. There are also two holes 27 in the plate 23 to connect a strain wire for counterbalancing the pull of the siding wire 11. The plate has near each end a slot 28 extending longitudinally of the trolley wire for mounting the plate in connection with the double pull-over by bolts 29. The slots enable the switch frame to be horizontally adjusted to suit different sidings, for the pull-over is expected to extend across the trolley wire at exact right-angles. But the sidings may extend at varying an-

gles from the trolley wire, and with this connection between the pull-over and frame, the latter can be readily adjusted to any reasonable angle of the siding. The plate 23 also has a pair of holes 30 for attaching the main trolley wire. This attachment is effected by means of the bolt 31 of the ear 32 extending through one of the holes 30. Two holes 30 are provided in order that the frame may be suitably mounted for any sort of siding. This also renders the frame laterally adjustable with reference to the main trolley wire and ear.

The pointed end of the switch member 15 is connected at a point rather remote from the extreme end by a bolt 35 on the switch member and extending upwardly, as shown in Fig. 8, and which screws into a pivot block 36 mounted on a laterally slidable rod 37 and held by a cotter pin 38. Said rod 37 is slidably mounted in the flanges 24 of the frame plate 23, as shown in Figs. 4 and 5. One end of the rod 37 is flattened and has a hole 39 in it for the attachment of means for reciprocating said rod and opening or closing the switch. The opening movement of the switch, as shown in Fig. 3, is limited by the pivoted block 36 coming in contact with the flange 24 in the plate 23, and the closing movement is limited by the pin 40 in said rod engaging the outer surface of the flange 24, see Fig. 4. There is a plurality of holes in the rod 37, see Figs. 1 and 5, for the pin 40, whereby one can readily adjust the limit of movement of the rod, and, therefore, the tongue of the switch member 15. This adjustment must be such that when the switch is closed, the extreme end of the tongue of the switch member 15, as shown in Fig. 4, will move directly under and in line with the main trolley wire 10, so that the trolley wheel will freely run from the trolley wire onto the switch member. As shown in Fig. 2, the tongue of the switch member 15 extends a considerable distance, ordinarily about twelve inches, beyond its pivotal connection with the frame, and, therefore, the blow of the trolley wheel against the tongue as the trolley wheel strikes the tongue is not appreciably transmitted to the frame. When the connection between the frame and the switch tongue is close to the end, the blow given to the frame by the trolley wheel is very considerable and often causes the trolley to jump. The switch is not connected with the trolley wire, and, therefore, the blow of the trolley wheel is not felt appreciably by the trolley wire. The very gradual taper of the tongue enables the trolley wheel to run in under the tongue without causing any appreciable blow to any of the parts, and if there be any such action in this device, it would be taken up by the tongue of the switch member, as it is made of material which would enable it to be slightly yielding

in proportion to the blow. The lateral flexibility of the tongue and switch member also prevents the trolley wheel from jumping when it is not straight with the car, for as the flange of the trolley wheel strikes the side of the switch member the latter will slightly yield and accommodate itself to the situation. When the switch is open, the main trolley wire is clear and continuous so far as this switch is concerned. In other words, this construction does not require the separation of the main trolley wire but is merely added to it.

For reversing the position of the switch for different sidings, the tongue of the switch member 15 can be bent to suit a position on the opposite side of the trolley wire. Thus the tongue of the switch member is given a certain curvature in Fig. 5. If the switch member were placed on the other side of the trolley wire, the tongue of the switch member would be given a reverse curvature and this can be done by an ordinary workman and with ordinary tools. This, coupled with the adjustable connection of the frame with the pull-over and also with the main trolley wire makes the device universal so that it can be installed at any siding without any special skill, tools or treatment. While the tongue or point of the switch member is tapered on the underside, the top is flat. This enables the point of the switch member to be moved in immediately under the main trolley wire and to lie close thereto. Also, when there is ice on the trolley wire, the closing of the switch will shave off all the ice, so that the ice would not interfere with the operation of the switch.

The switch member may be operated in or out of position with the main wire by means of an insulating rod extending to an adjacent pole, with the usual means employed for reciprocating the same from the ground switch.

I claim as my invention:

1. An overhead trolley switch including the combination with a continuous main trolley wire, a siding wire and a pull-over, of a frame consisting of one member with which the main wire and pull-over are secured and another member horizontally adjustable with relation to the first member and to which the siding wire is secured, and a switch member flexibly connected with said last-mentioned frame member, whereby the same switch construction is adapted for various sidings.

2. An overhead trolley switch including the combination with a continuous main trolley wire, a siding wire and a pull-over, of a frame consisting of one member with which the main wire and pull-over are secured and another member horizontally adjustable with relation to the first member and to which the siding wire is secured, and

a switch member flexibly connected with said last-mentioned frame member and having a tongue which is laterally flexible, substantially as set forth.

5 3. An overhead trolley switch including the combination with a continuous main trolley wire, siding wire and pull-over, of a frame to which said wires and pull overs are secured and a switch member flexibly
10 connected with said frame remote from its free end so as to be laterally slidable, said projecting end being tapered on its under- side and flat on its top side and the extreme point of which is adapted when the switch
15 is closed to lie immediately under the main trolley wire.

4. An overhead trolley switch including the combination with a continuous main trolley wire, siding wire and pull-over, of
20 a frame to which said wires and pull overs are secured, and a switch member flexibly connected with said frame remote from its free end so as to be laterally slidable, said projecting end being tapered on its under-
25 side and flat on its top side and the extreme point of which is adapted when the switch is closed to lie immediately under the main trolley wire, the portion of said switch projecting beyond its connection with the frame
30 being laterally flexible, substantially as set forth.

5. An overhead trolley switch including the combination with a continuous main trolley wire, siding wire and pull-over, of a
35 frame to which said wires and pull overs are secured, a switch member flexibly connected at one end to said frame in line with the siding wire, a transversely extending rod mounted in the frame so as to be slid-
40 able laterally of the device, and means for pivotally connecting said switch member to said rod at a point remote from the end of the switch member, the parts being arranged so that when the switch is closed the point
45 of the switch member will lie immediately under the trolley wire.

6. An overhead trolley switch including the combination with a continuous main trolley wire, siding wire and pull-over, of a
50 frame mounted in connection therewith, a switch member flexibly connected at one end to said frame in line with the siding wire, a transversely extending rod mounted in the frame so as to be slidable laterally of the
55 device, means for pivotally connecting said switch member to said rod at a point remote from the end of the switch member, the parts being arranged so that when the switch is closed the point of the switch member will

lie immediately under the trolley wire, and 60 means for limiting the extent of reciprocation of said rod.

7. An overhead trolley switch including the combination with a continuous main trolley wire, siding wire and pull-over, of a 65 frame consisting of a transversely extending plate and a longitudinally extending bar secured to said plate, means for securing the end of said bar to the siding wire and pull-over, means for securing said frame plate to 70 said main trolley wire and pull-over so that the same is horizontally adjustable, and a switch member with which said wires and pull over are secured with said bar.

8. An overhead trolley switch including 75 the combination with a continuous main trolley wire, and siding wire, of a frame consisting of a transversely disposed plate and a longitudinally extending bar secured to said plate, said plate having downwardly 80 extending flanges at the ends thereof and a slot near each end of said plate extending longitudinally of the main trolley wire, a pull-over with bolts extending therefrom through said slots, whereby the frame is 85 horizontally adjustable with reference to the pull-over and main trolley wire, means for securing the remote end of said frame bar to the siding wire, a rod mounted in the flanges of said plate so as to be reciprocable 90 laterally of the device, and a switch member flexibly connected with said bar at one end in line with the siding wire and at a point remote from the other end to said rod, where- by the point of the switch member may be 95 moved immediately under the main trolley wire or away therefrom.

9. An overhead trolley switch including the combination with a continuous main trolley wire, siding wire and a pull-over, of 100 a frame consisting of a transversely disposed plate and a longitudinally extending bar secured to said plate by bolts, said plate having a double set of holes whereby the relation of said plate and bar may be changed, 105 holes for the attachment of the main trolley wire to said plate, and a switch member flexibly connected with the bar, whereby the same construction may be installed for a siding at either side of the main trolley wire. 110

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

EMIL H. ANDERSON.

Witnesses:

G. H. BOINK,
O. M. McLAUGHLIN.