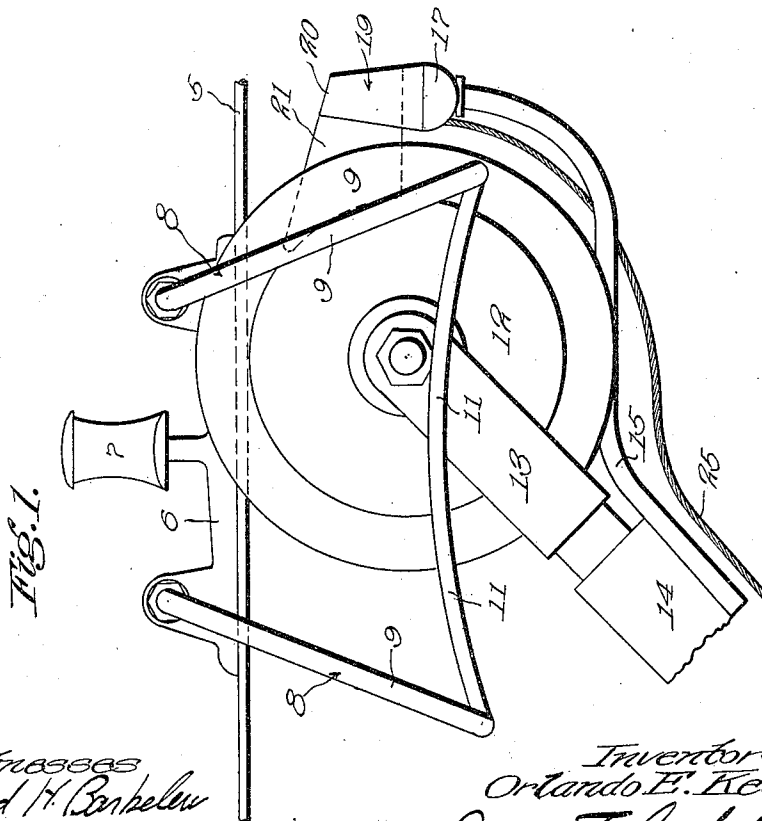


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W. S. H.



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UNITED STATES PATENT OFFICE.

ORLANDO E. KELLUM, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO NATIONAL STREET AND STATION INDICATOR COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

TROLLEY-SWITCH FOR STATION-INDICATORS AND THE LIKE.

999,312.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed November 23, 1910. Serial No. 593,832.

To all whom it may concern:

Be it known that I, ORLANDO E. KELLUM, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Trolley-Switches for Station-Indicators and the Like, of which the following is a specification.

Among the prime objects of this invention are these; to provide an arrangement which, when the contact is made, does not tend to throw the trolley wheel off the trolley wire, and to provide the mechanism in such shape as to protect it from injury when the trolley leaves the wire.

In most of the devices of which I am now aware the contacts are so arranged that there is always a tendency to push the trolley off the wire, and at high speed this tendency is often considerable. I have reversed the arrangement and have placed the stationary contact member, which is suspended from the trolley wire so that the moving contact member on the trolley pole will push down on the stationary contact member, the moving contact member and the trolley being pushed up toward the wire. In this manner all tendency for the trolley to leave the wire is completely obviated. The moving contact has its engaging surface on its under side and is protected above by a sloping insulating piece which prevents the contact plate from coming into engagement with the trolley or cross wires should the trolley leave the wire. Also this sloping protective piece enables the trolley contact member to slip by the wire without being injured.

From the foregoing broad description it will be seen that my invention consists primarily in the reversal of the ordinary position of the two contacts, this reversal allowing the protection of the trolley contact from injury by the trolley wire or cross wires and preventing an undesired electrical connection with the trolley wire, and also providing means for holding the trolley in engagement with the wire rather than tending to push it off the wire at each contact.

In the accompanying drawings I have illustrated a preferred form of my invention, in which drawings:

Figure 1 is a side elevation of my invention. Fig. 2 is an end elevation of the same.

In the drawings 5 designates a trolley wire supported by a member 6 from an insulator 7. Member 6 affords convenient means for attaching the stationary contact members 8 of my device, these members being formed preferably of wire and being secured to member 6 in any desired manner. Members 8 project outwardly and downwardly from the trolley wire, as at 9 and then project inwardly at 10 and have an upwardly curved member 11 on their inner ends, this curved member affording the contact surface. I preferably employ two stationary contacts as the operation is thus equalized and there is no tendency to twist the contact members on the trolley wire, but it is not absolutely necessary that two be employed.

Trolley wheel 12 engages with wire 5 in the usual manner, harp 13 supporting the trolley wheel from trolley pole 14. Mounted on trolley pole 14 is a bracket 15 which extends rearwardly and upwardly to a point behind the wheel. At its upper end the bracket is squared as at 16 and a contact plate 17 fits over the squared portion, being insulated therefrom by sleeve 18, and adapted to preferably slide vertically on the squared portion. Above the contact plate an insulating protective member 19 is placed, this member being provided with a curved sloping upper surface 20 and having a projection 21 which extends into the groove of the trolley wheel. By means of the curved upper surface and the sloping upper surface of the extension it is provided that the insulating protective piece will slide by any wire or bracket with which it may come into contact when the trolley leaves the wire.

Contact plate 17 is so mounted that its lower surface will engage with the upper surfaces of curved members 11, the curved members either springing down or the contact plate 17 rising against the action of a spring 22 placed around the upper end of bracket 15 and underneath a nut 23. This spring will allow the contact plate to move upwardly when it is forced by curved members 11, but it is not absolutely essential that this provision be made, there being sufficient resiliency in the stationary contact members and in bracket 15 to allow the two contacts to engage and slip over each other without a large amount of friction.

Contact plate 17 is insulated from all the

metallic parts of the trolley, a wire 25 leading from the contact plate down the trolley pole and being connected wherever desired. Being insulated in this manner, it will be
 5 seen that an accidental contact of the trolley pole or any of the metallic parts of the trolley with the trolley wire will not cause a closure of the circuit leading to wire 25.

As shown in Fig. 2, one of contacts 8 may
 10 be insulated by means of sleeve 8^a and only one half of plate 17 may be connected to wire 25. By this arrangement, a circuit will only be established when the parts are in the relative positions shown. If the trolley be
 15 reversed, there will be no circuit established. In this manner, on a single track, the contacts may be arranged so that certain ones make a circuit closure with cars passing in one direction, while others do the same for
 20 the opposite direction. This is desirable for many reasons, chief among which is the fact that a station indicator is preferably operated just after passing a station in either direction.

25 Having described my invention, I claim:

1. In combination with a trolley wire and a member engaging therewith for longitudinal movement thereon, and a support for said member, a contact member suspended
 30 from the wire and having an upwardly facing contact surface thereon, and a contact member mounted on said support and adapted to pass over and engage with the contact surface on the first mentioned contact member.
 35 ber.

2. In combination with a trolley wire, a trolley wheel engaging therewith for longitudinal movement thereon, and a member supporting the wheel, a contact member suspended
 40 from the trolley wire and extending outwardly and downwardly from the wire and then inwardly, and having an upwardly facing contact surface, and a contact member mounted on the wheel supporting member
 45 and adapted to ride over the contact surface of the first mentioned contact member.

3. In combination with a trolley wire, a trolley wheel engaging therewith for longitudinal movement thereon, and a member
 50 supporting the wheel, a pair of contact members suspended from the trolley wire one on each side thereof and each extending outwardly and downwardly therefrom and then inwardly, and having an upwardly facing
 55 contact surface on its inward extension, and a contact member mounted on the wheel supporting member and adapted to ride over the contact surfaces on the inward extensions of the first mentioned contact members.
 60 bers.

4. In combination with a trolley wire, a trolley wheel engaging therewith for longitudinal

movement thereon, and a member supporting the wheel, a contact member suspended from the trolley wire and extending
 65 outwardly and downwardly from the wire and then inwardly, and a contact member mounted on the wheel supporting member and adapted to ride over the inward extension of the first mentioned contact member,
 70 the second mentioned contact member comprising a lower conducting piece and an upper protective insulating piece.

5. In combination with a trolley wire, a trolley wheel engaging therewith for longitudinal movement thereon, and a wheel supporting member, a pair of contact members
 75 suspended from the trolley wire one on each side thereof and extending outwardly and downwardly therefrom and then inwardly, and a contact member mounted on the wheel supporting member and adapted to ride
 80 over the inward extensions of the first mentioned contact members, the second mentioned contact member comprising a lower
 85 conducting piece and an upper protective insulating device.

6. In combination with a trolley wire and a trolley pole and a wheel carried thereby and engaging with the wire for longitudinal
 90 movement thereon, a pair of contact members suspended from the wire on opposite sides and extending oppositely outwardly and downwardly and then inwardly and having
 95 on their inward extensions upwardly facing surfaces curved in a plane parallel to that of the trolley wire, a supporting member on the trolley pole, and a contact member mounted on the support, said member comprising
 100 a lower conducting piece adapted to ride over and engage with the curved surface of the first mentioned contact members, and an upper protective insulating piece extending over the conducting piece and extending
 105 into proximity with the trolley wheel.

7. In combination with a trolley wire, a member engaging therewith for longitudinal movement thereon, and a support for said member, a stationary contact member
 110 projecting to a position adjacent and below the wire, and having an upwardly facing contact thereon, and a contact member mounted on said support and adapted to pass over and engage with the contact surface
 115 on the first mentioned contact member.

In witness that I claim the foregoing, I have hereunto subscribed my name this 17th day of November 1910.

ORLANDO E. KELLUM.

Witnesses:

JAMES T. BARKELEW,
 ELWOOD H. BARKELEW.