Aug. 3, 1943. T. R. RIDEOUT 2,326,065

TROLLEY POLE HEAD

Filed July 24, 1941 2 Sheets-Sheet 1

Fig. 1.

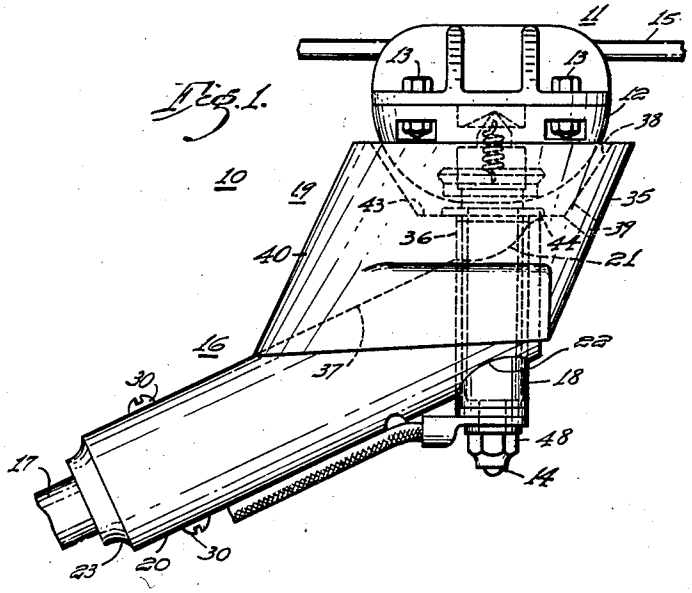


Fig. 2.

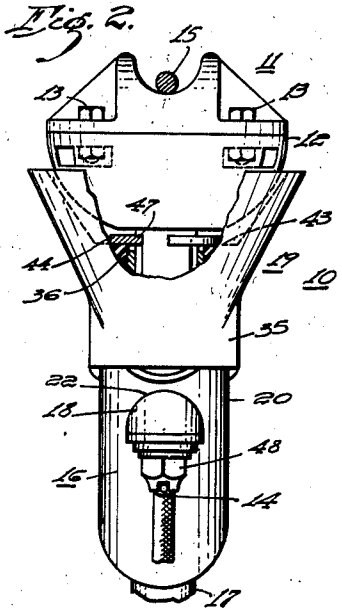
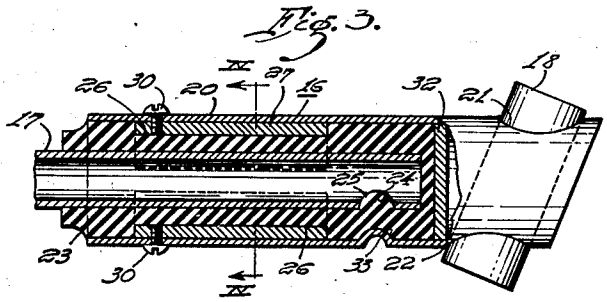


Fig. 3.



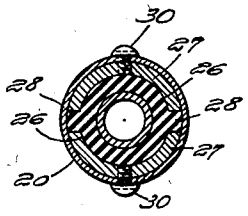


Fig. 4.

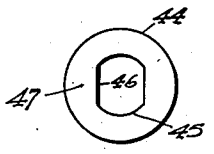


Fig. 5.

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Filed July 24, 1941 2 Sheets-Sheet 2

Fig. 6.

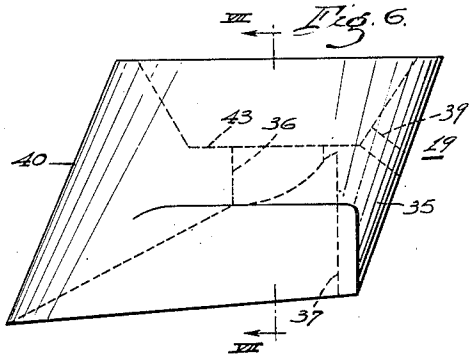


Fig. 7.

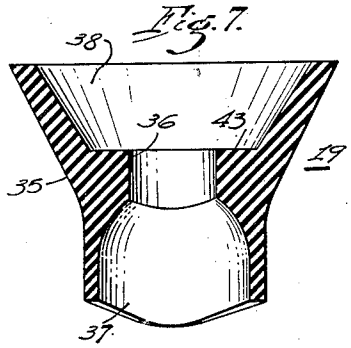


Fig. 8.

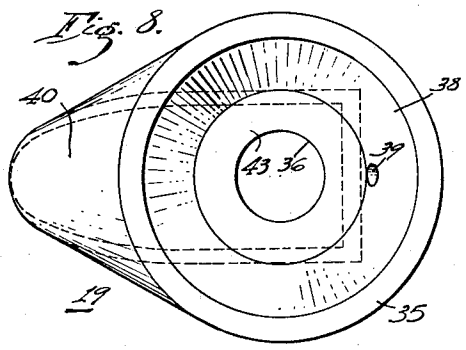


Fig. 9.

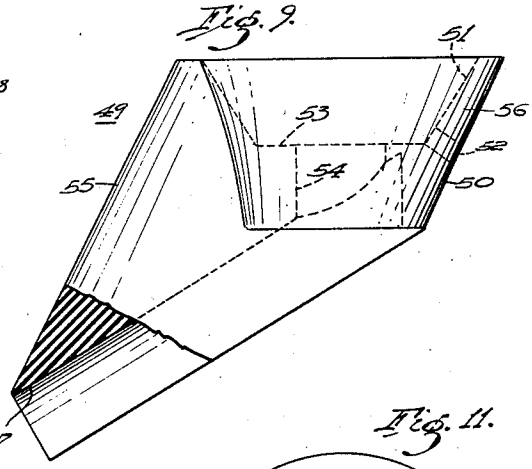


Fig. 10.

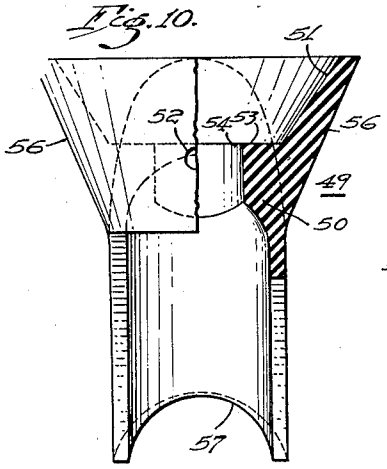
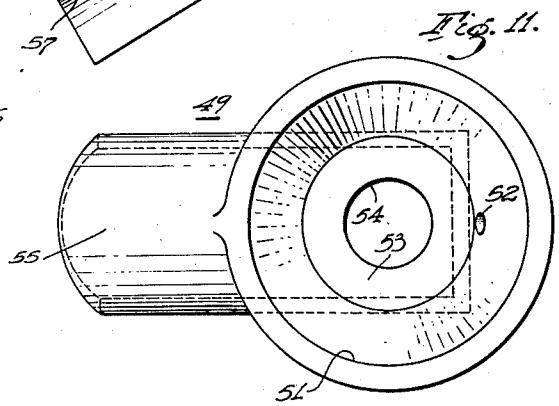


Fig. 11.



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Patented Aug. 3, 1943 2,326,065

UNITED STATES PATENT OFFICE

2,326,065

TROLLEY POLE HEAD

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Application July 24, 1941, Serial No. 403,801

12 Claims. (Cl. 191—59)

My invention relates, generally, to current collectors and has reference, in particular, to a trolley pole head for use on trolley buses or other vehicles for collecting current from an overhead conductor.

Generally stated, it is an object of my invention to provide a simple and inexpensive trolley pole head having a guard member which is inexpensive to manufacture and easy to install.

More specifically, it is an object of my invention to provide a trolley pole head having an improved body member for supporting a pivotally mounted slider shoe and also having a resilient guard member for preventing the slider shoe from becoming entangled with overhead support wires when dewired and minimizing shocks when the current collector strikes a support wire or other obstruction.

Another object of my invention is to provide a renewable guard member which may be positioned between the slider shoe and the body member of the pole head.

Still another object of my invention is to provide a renewable resilient guard member for use on pole heads which imparts resiliency to the mounting of a current collector shoe.

Yet another object of my invention is to provide for detachably connecting a trolley pole head to a resilient member on a trolley pole member.

A still further object of the invention is to provide for securing a resilient guard member to a pole head body member by means of a slider shoe support.

It is also an object of my invention to provide an inexpensive pole head structure having a detachable guard member which is easy to manufacture and which may be readily renewed.

Other objects will in part be obvious, and will in part appear hereinafter.

In practicing my invention a simple and inexpensive pole head body structure for supporting a slider shoe or other current collector device on a trolley pole may comprise a tubular member to receive an elongated trolley pole support member and having a socket for receiving a slider shoe support member. A resilient guard member having an inclined front guard surface is interposed between the body member and the slider shoe, and is secured thereto by means of the slider shoe support. A resilient bushing may be inteposed between the body portion of the pole head and the trolley pole support member having metallic securing means formed therein to which the pole head body member may be detachably secured.

For a more complete understanding of the nature and scope of my invention reference may be had to the following detailed description, which may be read in connection with the accompanying drawings in which;

Figure 1 is a side elevational view of a trolley pole head emodying the principal features of the invention;

Fig. 2 is a rear elevational view partly broken out and partly in section of the pole head of Fig. 1;

Fig. 3 is a partly sectioned side elevational view of the pole head of Fig. 1 with the slider shoe and guard member removed;

Fig. 4 is a sectional view taken along the line IV—IV of Fig. 3;

Fig. 5 is a plan view of the washer used to secure the guard member to the pole head member;

Fig. 6 is an enlarged side elevational view of the guard member;

Fig. 7 is a cross sectional view of the guard member taken along the line VII—VII of Fig. 6;

Fig. 8 is a plan view of the guard member;

Fig. 9 is a side elevational view of a modified form of guard member;

Fig. 10 is a partly sectioned rear elevational view of the guard member of Fig. 9; and

Fig. 11 is a plan view of the guard member of Fig. 9.

Referring to Figs. 1 and 2, the reference numeral 10 may denote generally a trolley pole head having a slider shoe 11 detachably secured to a swivel 12 by bolts 13 and pivotally mounted on a substantially vertical support member 14 for engaging a trolley conductor 15. The support member 14 may be mounted on a trolley pole (not shown) by means of a body member 16, which may be secured to the trolley pole by means of an elongated trolley pole extension or support member 17 which is adapted to fit within the end of the trolley pole in a well known manner. The body member 16 may be provided with a socket member 18 for receiving the support member 14. A suitable guard member 19 may be positioned between the slider shoe and the body member 16 to prevent the slider shoe from becoming entangled in support wires and the like.

As shown in Figs. 1 and 3, the pole head body member 16 may comprise an elongated tubular member 20 having openings 21 and 22 therein so positioned on opposite sides adjacent one end to receive the tubular socket member 18 which

may be secured thereto in inclined relation, in any suitable manner such as by welding.

In order to provide a resilient connection between the pole head body member 16 and trolley pole extension or support member 17 and insulate them from each other, a bushing 23 of a suitable resilient material such as, for example, rubber, neoprene, or any other such material, may be interposed between the tubular body member 20 and the support member 17. The support member 17 may be provided with a recess or notch 24 on one side and the bushing 23 may be provided with a corresponding protuberance 25 positioned in the recess to assist in locking the bushing to the support member.

In order to detachably secure the body member 16 to the bushing 23, the outer surface of the bushing may be provided with recessed portions 26 as shown in Figs. 3 and 4 for receiving connecting means such as the metal plates 27. The recesses 26 may be so positioned relative to one another as to leave ribs 28 of the resilient material therebetween which resist movement of the plates 27 peripherally on the bushing. Screws 30 may be utilized to secure the body member 16 to the plates 27, thereby detachably securing the pole head body member 16 to the trolley pole support or extension 17 and affording a yielding connection therewith. A back up plate 32 may be provided within the tubular member 20, if desired, to prevent undue deformation of the resilient material 23 and thus increase the resistance of the resilient material against the shear stresses set up when forces are applied to the body member 16 tending to separate it from the trolley pole extension or support member 17. In order to provide an additional connection between the tubular member 20 and the resilient material 23, the tubular member 20 may be deformed at one or more places to provide protuberances 33 on the inner side which interlock with the resilient material and assist in securing the member 23 thereto.

In order to prevent the slider shoe 11 from becoming entangled with the support wires or other parts of the overhead trolley system when the slider shoe becomes dewired, means such as the guard member 19 may be interposed between the slider shoe and the body member 16 of the pole head. As shown in Figs. 1, 2 and 6 through 8, the guard member 19 may comprise a body member 35 of a resilient material such as rubber, synthetic rubber, neoprene, or any one of the other substitutes therefor, having a substantially vertical opening 36 therein for receiving the support member 14 of the slider shoe. The body member may be provided with a recess 37 on the lower side to receive the upper portion of the tubular body member 20 and a recess 38 on the upper side to receive the lower portion of the swivel 12. A drain hole 39 may be provided from the recess 38 to the rear of the body member to prevent water accumulating in the recess.

The body member 35 may also be provided with an upwardly inclined front surface 40 which extends between the tubular body member 20 and the swivel 12 or slider shoe 11. This surface is adapted to form a substantially smooth guard surface to prevent any support wire or the like from becoming wedged between the trolley shoe and the body member 16 should the slider shoe be dewired. As shown in Figs. 2 and 7, the sides of the body member may flare outwardly, extending beyond the swivel, so as to provide relatively smooth guard surfaces on the sides of the current collector to deflect a support wire or other obstacle from the slider shoe.

As shown in Figs. 1, 2, 6, 7 and 8 the upper recess 38 may be provided with a relatively flat shoulder portion 43 surrounding the opening 36. As shown in Figs. 1 and 2, the shoulder portion 43 is adapted to extend slightly above the upper end of the tubular socket 18 when the guard member 19 is positioned on the pole head body member. A washer 44 shown in Fig. 5, may be provided, having an opening 45 with flattened side portions 46 and positioned on the support member 14 against the shoulder portions 47 thereof. When the nut 48 on the support member is tightened, the washer 44 is drawn downwardly against the shoulder portion 43 thus securing the guard member 19 to the body member 16. By locating the shoulder portion 43 a suitable distance above the upper end of the tubular socket member 18, the nut 48 may be tightened to secure the support member 14 to the pole head body member 16 without drawing the washer 44 tightly against the end of the tubular socket member 18. Thus the shoulder portion 43 of the guard member actually supports the support member 14 yieldingly, relative to the pole head body member 16.

Referring to Figs. 9, 10 and 11, the reference numeral 49 may denote generally a modified form of guard member generally similar to the guard member 19. The body member 50 of the guard member 49 may also be provided with a recess 51 in the upper side having a drain hole 52, and relatively flat shoulder portions 53 may be provided adjacent the opening 54 which is adapted to receive the upper end of the tubular socket member 18. The front surface 55 of the guard member 49 may be upwardly inclined so as to provide a relatively smooth guard surface extending between the body member of the pole head and the slider shoe and the sides 56 may be outwardly flared to provide guard surfaces on each side of the slider shoe. The lower side of the guard member 49 may slope downwardly toward the front at an angle substantially equal to the normally operating angle of the trolley pole head with the horizontal, and may be provided with a substantially semi-circular groove 57 therein to receive the upper portion of the pole head body member 14. The guard member 49 may be secured to the pole head body member in a manner similar to that described in connection with the guard member 19, by being interposed between the pole head body member and the slider shoe.

From the above description and accompanying drawings, it will be apparent that I have provided a simplified pole head or current collector which is inexpensive to manufacture and is easy to install. The tubular construction of the body member readily lends itself to production manufacturing. The renewable guard member is formed separately and may be designed to the best advantage to provide smooth uninterrupted guard surfaces in all directions about the slider shoe so as to prevent a support wire or other obstruction from becoming entangled with the current collector. By making the guard member of a resilient material, not only is the shock of a dewired current collector striking a support wire minimized, but the resiliency of the guard member assists in throwing the current collector downwardly whenever it strikes a support, so that the retriever or trolley catcher may retain

it in the lowered position and prevent further entanglements with the overhead supports.

Since certain changes may be made in the above description, and different embodiments of the invention may be made without departing from the spirit thereof, it is intended that all of the matter contained in the above description or shown in the accompanying drawings shall be considered as illustrative and not in a limiting sense.

I claim as my invention:

1. The combination in a current collector, of a support for pivotally mounting a slider shoe, a socket for said support, and a resilient guard member positioned about the socket.

2. A current collector pole head for a slider shoe pivotally supported on a stem comprising, an elongated sleeve, a socket secured to the sleeve for receiving the stem, and a resilient guard member positioned about the stem having a recess on the lower side to receive a portion of the sleeve and socket.

3. A trolley pole head comprising, having a slider shoe mounted on a support stem, a tubular sleeve member having a socket to receive the support stem, and a moulded guard member of a resilient material interposed between the slider shoe and the sleeve member to provide a resilient surface portion adjacent the front end of the current collector.

4. The combination with a slider shoe pivotally mounted on a support adapted to be secured to a pole head member, of a renewable guard member of a resilient material positioned between the slider shoe and the pole head member having an opening therethrough to receive the support, said guard member having a portion surrounding the opening compressed between the pole head member and the support, whereby the support is yieldingly supported on the pole head member.

5. A current collector comprising, a slider shoe mounted on a support, a pole head member having a socket to receive the support, and a guard member having an upwardly inclined frontal portion between the pole head member and the slider shoe secured to the pole head member by the support.

6. A current collector comprising, a pole head member, a support secured to the pole head member for supporting a current collecting device, and a guard member of resilient material interposed between the pole head member and the shoe having an upwardly inclined frontal portion extending between the pole head member and the shoe.

7. The combination in a current collector having a pole head body member with a current collector device mounted thereon by means of a support member, of means having an inclined resilient frontal guard portion extending between the pole head body member and the current collector device and a resilient portion interposed between the support member and the pole head body member.

8. A current collector comprising, a pole head body member, a current collector device mounted thereon by a support member, a guard member having a resilient frontal portion extending between the pole head body member and the current collector device and a resilient portion interposed between the support member and the pole head body member to yieldingly mount the support member, a trolley pole extension member having metallic securing means with resilient means interposed therebetween, and means to secure the pole head body member to the securing means.

9. A current collector comprising, a tubular pole head member, a slider shoe pivotally mounted on a support member for universal movement relative thereto, a tubular socket member secured to the pole head member to receive the support member, and a stationary guard member having a portion secured between the support member and the pole head member whereby the guard member is detachably secured to the pole head member by the support member.

10. A guard member for a current collector having a slider shoe mounted on a pole head member comprising, a body member of a resilient material having an upwardly inclined frontal portion, a recess on the lower side to receive a portion of the pole head member, a recess on the upper side to receive the lower portion of the slider shoe, and outwardly flaring side portions to prevent an obstruction from striking the lower portion of the slider shoe.

11. A guard member for a current collector having a slider shoe supported on a pole head member by means of a support member comprising, a resilient body member having an inclined frontal portion extending between the pole head member and the slider shoe, and an opening therethrough to receive the support member.

12. A guard for a current collector having a slider shoe mounted on a swivel on a substantially vertical support secured to a pole head member comprising, a body member of resilient material having an opening therethrough to receive the support with a recess on the lower side thereof to receive a portion of the pole head member and a recess at the upper end to receive the lower portion of the slider shoe, an upwardly inclined front portion extending between the pole head member and the slider shoe, and outwardly flaring side portions extending to each side substantially as far as the swivel.

THEODORE R. RIDEOUT.