

F. F. WAGNER & N. W. McDONALD.
CUT-OUT AND SHUNT SWITCH FOR ELECTRIC LAMPS.
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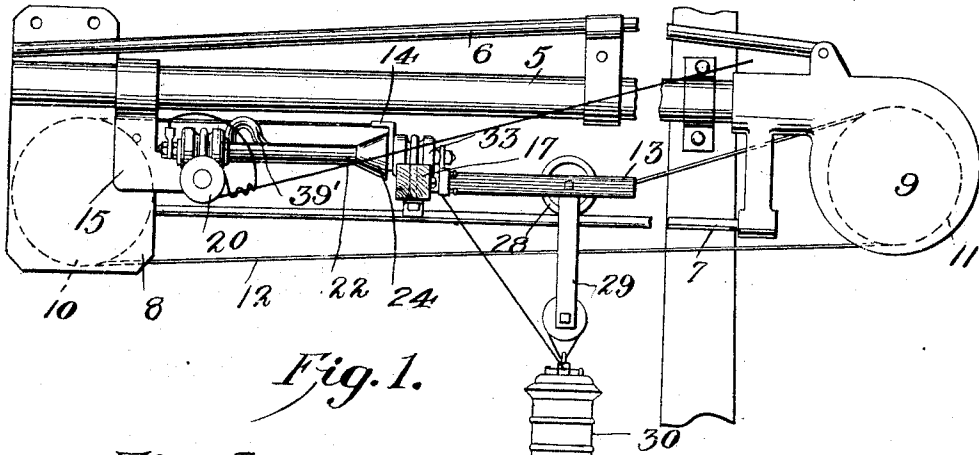


Fig. 1.

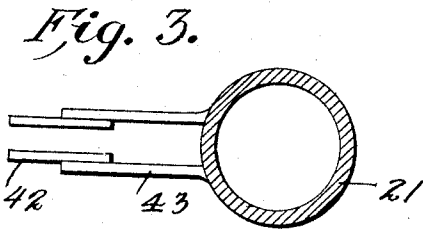


Fig. 3.

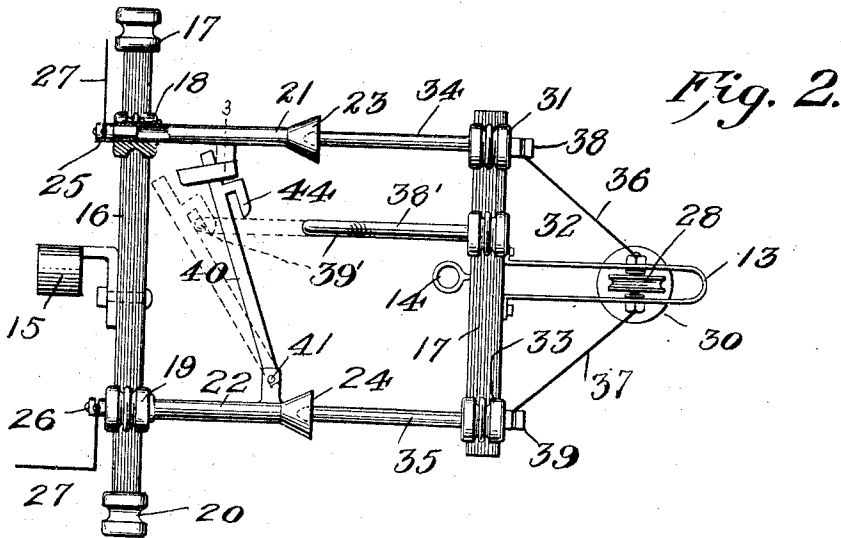


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

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CUT-OUT AND SHUNT SWITCH FOR ELECTRIC LAMPS.

975,484.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, FRANK F. WAGNER and NATHAN W. McDONALD, citizens of Great Britain and the United States of America, respectively, residing at Elizabeth, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Cut-Out and Shunt Switches for Electric Lamps, of which the following is a specification.

This invention relates to a combined cut out and shunt switch for electric arc lamps.

It is a well known fact that the men employed in trimming arc lamps are exposed to considerable danger by reason of the fact that where poles of the kind herein shown are employed and the lamp is pulled toward the upright pole along the horizontal cross arm thereof, the current conducting wires droop about the trimmer, rendering him liable to severe electric shocks if the insulation happens to be defective upon said wire.

It is therefore an object of the present invention to provide means located at the outer end of the cross arm of a pole of this type for automatically cutting the lamp out of circuit as said lamp is drawn toward the main pole and at the same time forming a shunt across the disconnected terminals, for since these arc lamps are ordinarily connected in series, it is apparent that the cutting out of one lamp would extinguish all other lamps upon the circuit if such shunt were not provided.

Further objects and advantages of the invention will be set forth in the detailed description which now follows:

In the accompanying drawing, Figure 1 is a side elevation of the cross arm of a lamp supporting pole of the kind herein shown, having our improvements applied thereto. Fig. 2 is a plan view of the parts comprising the present invention, and Fig. 3 is a transverse section upon line 3 of Fig. 2.

Like numerals designate corresponding parts in all of the figures of the drawing.

Referring to the drawing, the numeral 5 designates the cross or horizontal arm of a lamp supporting pole having the usual brace rod 6, and the usual pulley supporting rod 7, which extends between pulley supporting members 8 and 9 located respectively at the outer and inner ends of the horizontal arm. Pulleys 10 and 11 indicated only in dotted lines support a cable

12, one end of which is connected to a yoke 13, and the other end of which is connected to an eye-bolt 14.

The parts so far described are all of the usual and well known construction, the invention residing particularly in the parts now to be described.

A bracket 15 carried by rod 5 supports a spacing bar 16, said spacing bar in turn carrying porcelain or other insulating members 17, 18, 19, and 20. Passing through the porcelain insulators 18 and 19 are tubes 21 and 22 having flaring or bell mouths 23 and 24. These tubes are provided with binding posts 25 and 26 to which the main line wire 27 is connected. A pulley 28 is mounted in the yoke 13 and travels upon the rod 7. Downwardly extending members 29 support a lamp 30 in the usual manner. The yoke 13 is connected to a spacing bar 17 which carries the eye-bolt 14. This cross bar carries porcelain or other insulating members 31, 32 and 33. Mounted in the insulating members 31 and 33 are plug rods 34 and 35 adapted, as the bar 16 is moved toward the bar 16, to enter the tubes 21 and 22. Electrical conductors 36 and 37 connect the lamp with binding posts 38 and 39 of the plug rods 34 and 35. The switch actuating member 38 having its outer end bent as at 39, see Figs. 1 and 2, is adapted to engage a switch bar 40. This switch bar is pivotally connected at 41 to tube 22 and its free end enters between contact plates 42, these contact plates in turn being carried by arms 43 of tube 21. The switch bar 40 is provided with an L shaped extension 44.

It being understood that the bar 16 is fixed and that the bar 17 moves in or out upon the rod 7 as the operator pulls upon the cable 12, the operation of the device is as follows: When the operator pulls upon the cable to draw the lamp toward him or to draw the bar 17 away from the bar 16, the bent end 39 of rod 38 which at this time lies behind the L shaped extension 44 of switch rod 40, engages said extension and pulls said rod up between the contacting plates 42, or to the position illustrated in Fig. 2. This, it will be seen establishes electrical communication between the tube 21 and the tube 22, and forms a shunt, so that the current passes direct from binding post 25 to binding post 26 and out through the

line without passing through the lamp. Continued movement of bar 17 away from bar 16 entirely disengages plug rods 34 and 35 from the tubes and consequently cuts the
5 lamp out of electrical communication with the main line. After the lamp has been trimmed however, and the operator pulls upon the cable 12 to draw bar 17 toward the bar 16, the plugs 34 and 35 first enter tubes
10 21 and 22, after which the bent end 39' of rod 38 contacts with the switch rod 40 to force its upper end out of engagement with the contact plates. This opens the shunt switch and current must then flow through
15 the tube 21, rod 34, binding post 38, lamp 30, binding post 39, plug rod 35, and tube 22, to binding post 26 and the main line. It is to be noted that the plug rods 34 and 35 do not leave tubes 31 and 22 until after the shunt
20 switch is closed and that they enter said tubes before the shunt switch is opened. This prevents sparking at the ends of the tubes as the plugs leave them.

From the foregoing description, it will be
25 seen that simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are
30 intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its

purview such changes as may be made within the scope of the appended claim.

Having described our invention, what we 35 claim is:

In a device of the character described, the combination with a horizontal supporting arm, of a horizontal rod carried thereby, a
40 lamp carrying yoke, a pulley mounted there- in and traveling upon said rod, a transverse spacing bar connected to said yoke, a pair of plug rods mounted upon said spacing bar, a fixed spacing bar supported at the outer
45 end of the horizontal arm, conductive tubes supported by the fixed spacing bar and adapted to receive the plug rods, contact members carried by one of said tubes, a switch arm pivotally connected to the other
50 of said tubes, an L shaped extension carried by said switch arm and a member having a vertical extension carried by the movable spacing bar, said L-shaped extension moving in the arc of a circle and into en-
55 gagement with said vertical extension as the plug rods enter said conductive tube.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK F. WAGNER.
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Witnesses:

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