

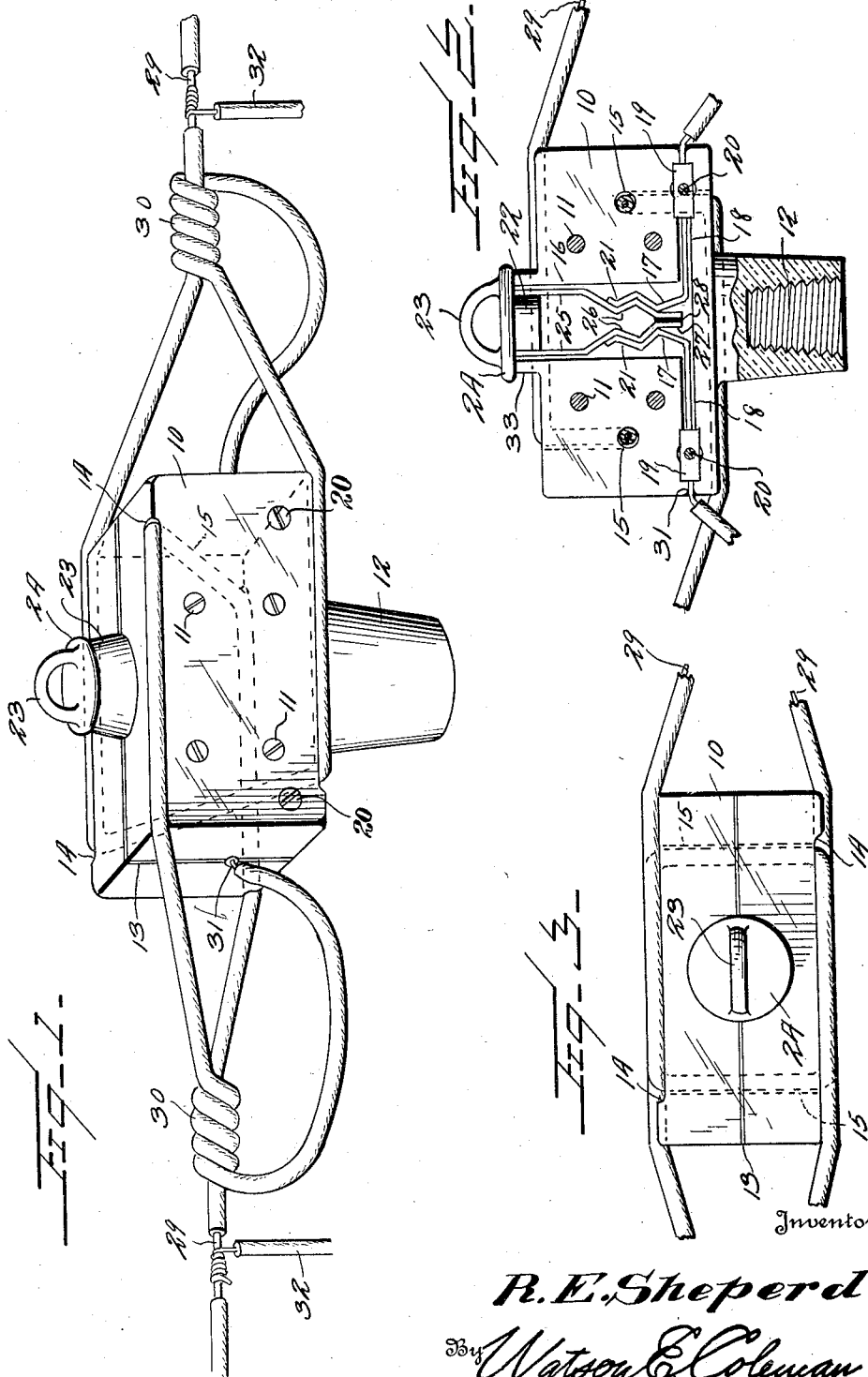
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COMBINED INSULATOR AND SHUNT CIRCUIT CLOSER

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COMBINED INSULATOR AND SHUNT CIRCUIT CLOSER

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This invention relates to a combined insulator and fuse for lighting circuits and particularly to street lighting circuits. In the lighting circuits which include street lamps and a street light fixture, there is oftentimes an open circuit or ground caused in the fixture due to overloading of the circuit, dampness, defective insulation of the cable or like causes, and an open or grounded circuit is quite liable to set fire to the pole, kill a man changing the lamp and open the circuit, which is usually a series circuit, and when this is the case, employes of the company spend many hours and take big chances with their lives in finding the open circuit.

The general object of the present invention is to provide a strain insulator for use under these circumstances so constructed that, if the local circuit is open or grounded, the circuit will be closed.

A further object is to provide a device of this character which is so constructed that the low voltage insulating member which breaks down when the circuit is open at the lamp may be readily removed or readily inserted without danger.

Another object is to provide an insulator of this character adapted to carry high tension wires if necessary and which will afford a thoroughly good engagement between the main line wires and the insulator and which is further so constructed that the wires may easily be connected up to the circuit breaking devices mounted within the insulator.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a perspective view of an insulator constructed in accordance with my invention;

Figure 2 is an elevation partly in section looking at one of the sections of the insulator, the other section being removed;

Figure 3 is a top plan view;

Referring to these drawings, 10 designates an insulator, which is preferably made in two opposed sections held together by the

screws 11 and separated by a gasket 13. I do not wish to be limited to any particular material for the insulator. The insulator body is formed at its middle with a downwardly projecting pole-engaging portion 12 having standard screw-threads whereby it may be mounted on the usual pin on a pole cross arm. The insulator is formed with grooves 14 extending along its corners parallel to the longitudinal axis of the insulator and is also provided with the transversely extending inclined passages 15 which extend entirely through the insulator, one of these passages 15 being disposed at an angle to the other passage 15 so that they cross each other. The middle of the insulator is formed with a centrally disposed bore or chamber 16 and disposed at the lower end of this chamber are the oppositely disposed metallic contact members 17. These at their lower ends are angularly bent so as to extend laterally through passages 18 and into the brass binding posts 19 provided with the binding screws 20 which extend through one wall of the insulating body. The contacts 17 extend upward into the chamber 16 and are angularly bent at 21 so as to provide re-entrant portions.

Insertable into the chamber 16 is a holder for the dielectric element composed of the insulating head 22 having a handle 23 and a cap 24. This head carries the two laterally disposed tongs 25. These extend straight downward from the head, then are extended inward, then re-entrantly bent as at 26, and then are extended downward in a more or less close adjacency to each other, as at 27. A dielectric element 28 is adapted to be normally supported between the lower ends of these tongs to hold the tongs apart against the resiliency of the tongs themselves and of the contacts 17.

The use of this device is as follows: It is mounted upon the pin of the cross arm of the pole as usual and the main line wires which are, of course, insulated are carried along the grooves 14, then laterally out through the transverse passage 15, then extended back along grooves 14, and is wrapped around the main line wire, as at

30, and then extended to the aperture 31 which leads to the corresponding binding sleeve 19. The main line wire is then bared and inserted in this sleeve so that an electrical connection is formed between the main line wire 29 and the corresponding contact 19. A local circuit wire 32 is tapped onto the wire 29 and extended downward to a pole and then through the pole to the lamp. The head 24 constitutes a cap which fits tightly upon the upwardly projecting wall 33 which defines the chamber 16 and projects beyond this wall so as to form a water-tight closure, preventing water from seeping down into the chamber 16.

With the device mounted as described, if a short circuit or ground occurs in the local circuit, the dielectric element 28 will burn out and the resilience of the member 17 will cause the two arms to be shifted into contact with each other so that the two ends of the main line wire are electrically connected, closing the circuit through the main line which cuts out one light. Under these circumstances, there is no danger of the pole being set on fire nor any danger of an employe being shocked. Of course, the open circuit can be readily found on account of the light at that particular post being out. After the open circuit has been fixed, during the day when the circuit is closed, the safety plug formed by the parts 22, 23, 24 and 25 can be removed and a new dielectric element inserted between the prongs 27. When the safety plug is withdrawn from the insulator, the contacts 17 will close against each other so as to automatically close the circuit without any fluctuation whatever. It will be noted that the upper ends of the contacts 17 are divergently inclined and that above the fuse holding portions 27, the angular portions 26 provide inwardly extending portions. Thus, the insertion of the contracted lower ends of the tongs 25 will act to spread the contacts 17 apart from each other so that the plug may be readily inserted between these contacts and that when it is so inserted is locked in place against any accidental detachment.

The particular construction of this insulator is such that the two line wires are looped about the insulator and engage the insulator at diagonally opposite points, or in other words, the loops overlap each other and each loop passes through the other loop. This construction is such that in case the insulator breaks down, the wires being crossed or having overlapping loops will keep the insulator from dropping down into the street, and it does not matter whether the insulator breaks longitudinally or transversely in a horizontal plane or transversely in a vertical plane the two loops will keep the pieces of the insulator from dropping down. The insulator is made water-proof by the rubber

gasket 13 and this gasket prevents the insulator from shifting when the two sections are drawn together.

While I have described my insulator as particularly used in connection with street lighting systems, I do not wish to be limited to this use nor do I wish to be limited to minor details of construction except as defined in the appended claims.

I claim:

1. A combined insulator and circuit closer for electric light circuits comprising an insulating body having means whereby it may be mounted on a post and formed with a chamber open at one end, the body being formed with transversely extending apertures through which main line wires may be passed, opposed metallic resilient contacts disposed at the closed end of the chamber and having portions extending longitudinally through the insulator, binding sleeves disposed within the insulator and having electrical engagement with the contacts, the binding sleeves being adapted to receive the ends of the main line wires, binding screws engaging said main line wires and holding them in the sleeves, and a plug having a head adapted to close the open end of the chamber and having a handle whereby it may be removed, the plug carrying oppositely disposed metallic tongs adapted to be inserted between and having interlocking engagement with the contacts and adapted to support a dielectric element holding the tongs apart against the resilience of the contacts.

2. A combined insulator and circuit closer for electric light circuits comprising an insulating body having means whereby it may be mounted on a post and formed with a chamber open at one end, the body being formed with transversely extending apertures through which main line wires may be passed, opposed metallic resilient contacts disposed at the closed end of the chamber and having portions extending longitudinally through the insulator, binding sleeves disposed within the insulator and having electrical engagement with the contacts, the binding sleeves being adapted to receive the ends of the main line wires, binding screws engaging said main line wires and holding them in the sleeves, and a plug having a head adapted to close the open end of the chamber and having a handle whereby it may be removed, the plug carrying oppositely disposed metallic tongs adapted to be inserted between and having interlocking engagement with the contacts and adapted to support a dielectric element holding the tongs apart against the resilience of the contacts, the contacts being formed to provide outwardly bowed portions having diverging extremities and the tongs being formed to provide outwardly

bowed portions engaging the bowed portions of the contacts and beyond the bowed portions having parallel portions within which the dielectric element is adapted to be disposed.

5 3. An insulator of the character described adapted to be disposed between the ends of main line wires and with which the ends of the main line wires are adapted to be engaged, said insulator having means where-
10 by it may be mounted upon a pole and having a chamber therein, open at one end and closed at the other, oppositely disposed contacts mounted in the inner end of said cham-
15 ber and resiliently urged toward each other, with which contacts the ends of the main line wires adapted to be electrically engaged, and a plug comprising a head and a handle adapted to be inserted in the open end of
20 the chamber to form a water-tight closure therefor, and tongs mounted upon said head extending into the chamber and contracted so as to extend between the ends of the contacts, a dielectric element disposed be-
25 tween and supported by the tongs, the contacts resiliently urging the element-carrying portions of the tongs into electrical engagement with each other.

4. A strain insulator comprising two con-
30 fronting sections, means for holding the sections engaged with each other, the insulator having at opposite ends transverse passages and having longitudinal grooves upon its outer face leading from each end of the
35 insulator to the ends of the remote passage whereby to permit main line conductors to be looped each through one of the passages and the loop extended along said grooves and the free end of the main line conductor
40 to be wrapped around the body of the conductor, the insulator having a medially disposed chamber having contacts therein, binding posts at opposite ends of the insulating body to which the contacts are con-
45 nected and adapted to receive the terminal portions of the main line wires, and means insertable into the chamber acting to hold the contacts apart until the voltage across the contacts is increased beyond a
50 predetermined point.

In testimony whereof I hereunto affix my signature.

RAYMOND E. SHEPERD.

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