

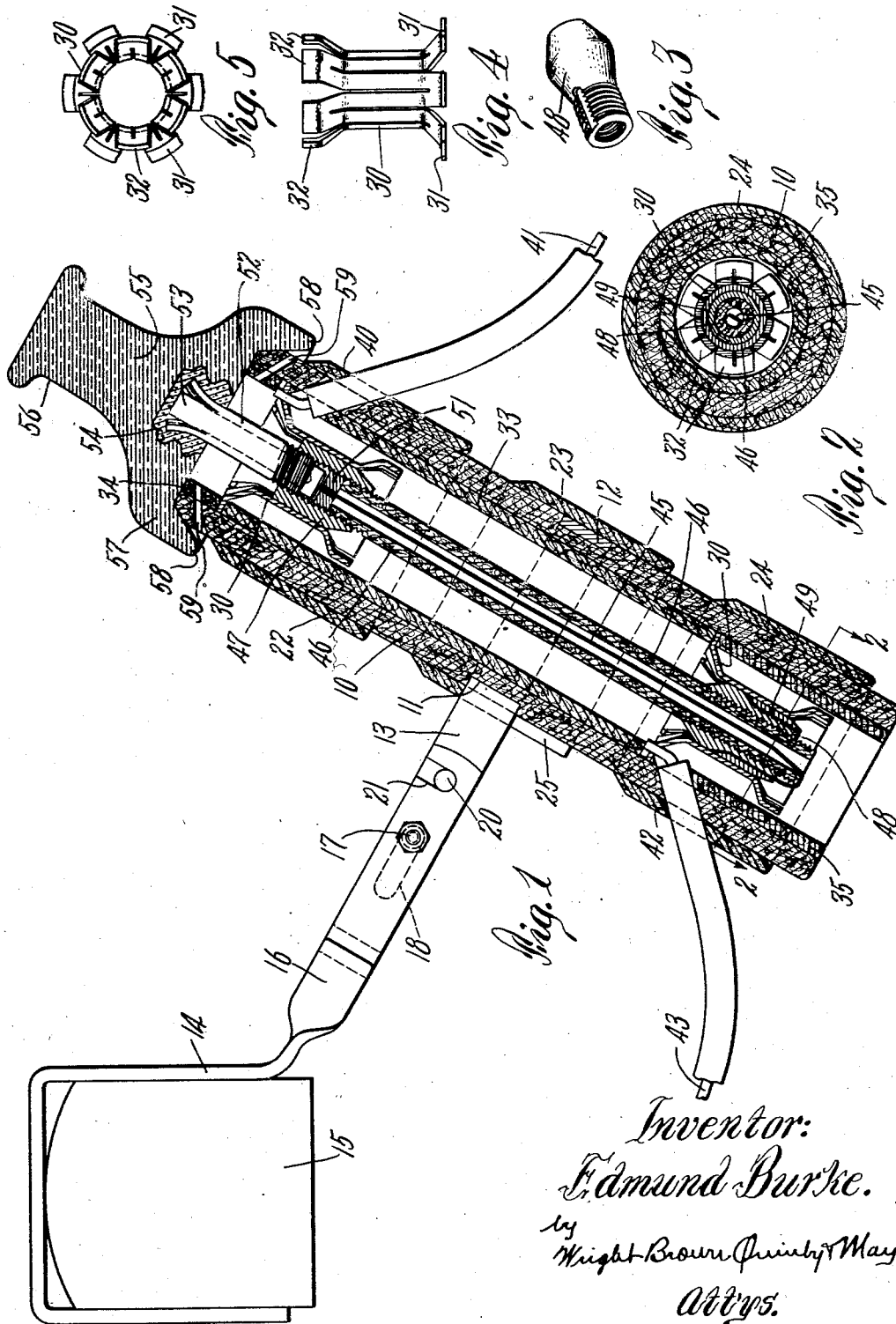
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FUSE CUT-OUT

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UNITED STATES PATENT OFFICE

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FUSE CUT-OUT

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This invention relates to a fuse cut out suitable for high tension electric power transmission lines. An object of the invention is to provide a fuse cut out which is efficient, economical, and which provides maximum safety for an operator breaking the circuit.

For a more complete understanding of the invention reference may be had to the description thereof which follows and to the drawing of which,—

Figure 1 is a sectional view of a device embodying the invention.

Figure 2 is a sectional view on the line 2—2 of Figure 1.

Figure 3 is a perspective view of a ferule employed in the device.

Figure 4 is a side elevation of a contact ring.

Figure 5 is an end view of the same.

Referring to the drawing in detail, the fuse cut-out includes a cylindrical member 10 preferably made of strong fiber tubing rendered waterproof by treating with pitch and asphalt or other equivalent water-proofing substance. This section of tube may be grooved as at 11 near its middle to receive an encircling metal band 12 which constitutes a portion of the supporting bracket. The groove 11 is preferably made with such a depth that the outer surface of the encircling portion of the band 12 is flush with the surface of the tubular member 10. The ends of the band 12 are brought together and extended outwardly from the tube in the form of a laterally projecting arm 13. A pair of suitable brackets 14 may be provided, these brackets having U-shaped portions adapted to fit over a broad arm 15 of the pole or standard which carries the wires. Each of the brackets 14 is provided with a downwardly and outwardly sloping arm 16. The arm 13 may be clamped between the two arms 16 as by a suitable bolt and nut 17, this bolt passing through an elongated slot 18 in the arm 13. A stud 20 is secured to the arm 13 and projects laterally from each side thereof, these projecting portions being adapted to enter suitable slots 21 in the upper edge of the arms 16 near their outer

ends. By loosening the nuts on the bolt 17, the stud 20 may be swung out of the notches 21 and the arm 13 may be slid outwardly, the bolt 17 riding in the slot 18, until the fuse cut-out is free to swing down to a horizontal position. Ordinarily it is held in an inclined position as shown in Figure 1.

Outside the tubular member 10 may be mounted a series of reinforcing collars 22, 23 and 24. The middle collar 23 is slotted upwardly from its lower edge as at 25 so that it can slide over the encircling band 12 and enclose the same, the projecting arm 13 entering the slot 25. These collars are preferably made to have a driving fit on the tube 10, and may be further secured in place by any suitable means such as waterproof adhesives, wooden pegs, or the like. Within the tube 10 are mounted a pair of contact rings 30, one of these rings being adjacent to the upper end of the tube, the other ring being adjacent to the lower end. Each of these rings may be made of a short piece of copper tubing which is slitted alternately from opposite ends, the slits extending longitudinally from the respective ends to points adjacent to the other ends so that an expansible member is thus produced. One end portion of each ring is bent outwardly as at 31, the other end portion being outwardly offset as at 32. The outwardly extending end portion 31 of the rings may be utilized to anchor the rings in place. To this end a waterproofed fibrous lining 33 may be inserted within the tube 10 so that its upper end is against the outwardly extending end portions 31 of the upper contact ring. A fiber collar 34 may also be fitted within the upper end of the tube 10 to engage the end portions 31 on their other faces and thus to clamp these end portions against the upper end of the lining 33. In like manner outwardly projecting portions 31 of the lower contact ring may rest against the bottom end of the lining 33 and may be held against this end by an inner collar 35. The tube 10 with its reinforcing collars and lining is perforated near its upper end as at 40 to receive a leading-in cable 41. A similar per-

foration may be made at 42 to receive the leading-in cable 43. The ends of these cables are electrically connected directly with the respective contact rings 30.

5 Extending between the contact rings 30 is a suitable fuse 45 consisting of a ribbon of wire of metal capable of fusing when overloaded beyond a predetermined current. This fusible wire 45 may extend through a
10 tube 46 of horn fiber, the ends of this tube being threaded to receive an upper ferrule 47 and a lower ferrule which may consist of an inner portion 48 and an outer portion 49. The lower end of the fusible wire 45 is
15 carried around the end edge of the tube 46 and is suitably clamped between the inner and outer portions of the lower ferrule when the outer portion 49 is screwed on the inner portion 48. The upper end of the wire 45
20 may be carried through a central opening in a small plug 51 which is screwed into the ferrule 47 and abuts the upper end of the tube 46. This plug 51, and the ferrule, may be made of copper or other suitable
25 metal. The upper end portions of the fusible wire 45 which passes through the plug 51 may be clamped against the upper face of this plug by a screw stud 52, the lower end of this stud being threaded to enter the ferrule 47. The upper end of the stud 52
30 may be split and expanded as at 53 for anchorage in a body of cement 54 cast within an aperture in the lower face of a porcelain handle 55. This handle is preferably
35 shaped with a suitable grip 56 and with a skirt 57 which covers the upper end of the tubular member 10, thus protecting the interior of the tube from the weather. The skirt 57 has a downwardly projecting rim
40 58 which enhances the protective qualities of the handle. Beneath the projecting rim 58 are a number of perforated apertures 59 through the upper end portions of the tube 10 for ventilating the interior of the device.
45 The structure thus described is light and strong owing to the use of light-weight tubes of waterproofed pulp in the construction of the walls of the device. The skirt on the handle protects the operator, when
50 opening the switch, from any arcing flame which may be caused when the ferrules break contact with the collars. In case the cable is overloaded so as to cause the fuse-wire 45 to melt, the particles of molten metal
55 and the accompanying combustion gases will be discharged downwardly through the open end of the tube 46 since the upper end of the tube is completely closed by the stud 52.

60 The structure described is not only light and strong but is rugged and is economical to make since the fiber portions are relatively cheap and easily worked.

I claim:

65 1. In a line fuse cut-out, a casing includ-

ing a section of waterproofed fiber tube, a lining element secured within said tube, the ends of the lining element being spaced inwardly from the ends of said tube, a pair
70 of radially expansible metal contact rings each having a radial flange resting against one end of said lining element, and means for holding said flanges in place against the respective ends of said liner element.

2. In a line fuse cut-out, a casing including a section of fiber tube impregnated with waterproofing compound and a lining secured within said tube, said lining consisting of three pieces spaced to form a pair
75 of narrow annular grooves within the casing, and a pair of contact rings within said casing, each said ring consisting of a section of metal tubing slitted alternately from opposite ends, the slits from each end
80 extending nearly to the opposite end, the end portions of said slitted metal tube being bent outwardly to form an end flange, one of said end flanges of each contact ring being engaged in said annular grooves to hold
85 said rings operatively in position.

3. A contact element for a line fuse cut-out comprising a piece of copper tubing slit alternately from opposite ends, the slits from each end extending longitudinally
90 nearly to the opposite end, the end portions of said tubing being bent outward.

In testimony whereof I have affixed my signature.

EDMUND BURKE.

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