ABSTRACT: A supporting dielectric body containing conductors to which the adjacent ends of consecutive spans of an electric line are connected. The conductors, having matched contacts, are each rotatably secured by an insulative member to an adequate axle which is rigidly affixed within the body in such a manner as to amplify the tension of the supported lines and use that amplified force to hold the matched contacts securely together thereby providing for the uninterrupted flow of electricity from one span through a conductor, thence through the matched contacts, thence through the companion conductor and into the next sequential span only so long as the spans are supported. In the event of severance of a span so supported negating the tension therein, the conductors attached to the broken span will then automatically rotate vertically about the axle separating the matched contacts a controlled distance during the interval of free fall of the broken span thereby disconnecting it from the power supply during which time there is relatively no flow of electricity, thus rendering it dead.
SAFETY OF ELECTRIC TRANSMISSION AND DISTRIBUTION

My invention relates to automatic disconnect devices in electrical distribution systems and more particularly to those used in the facilities for the transmission and distribution of high voltage electricity, to safeguard life and property from "live wires" so dangerous during and after storms, accidents, etc.

An example of such a device of this character is the relay, now used in such systems to provide some degree of safety to life and property should said facility fall, blow, or otherwise become a hazard, subjecting life and property to the danger of being burned or electrocuted. These devices now in use do not provide adequate protection to life and property, a fact evidenced by the repeated warnings by the authorities after a storm, accident, or such, to "stay away from live wires."

The object of my invention is to provide a positive, instantaneous, automatic safety device to be installed between each span of each "line" at its point of support and between said "line" and its supporting structure. Said device shall be connected to the supporting structure and to each adjacent span of the "line" in such a manner as to support each "line" of the facility in the usual design position of said facility. The weight of the said "line" each side of the device, pulling in opposite directions is employed to hold the contact points of the device securely together so long as conditions are normal, whereas, in the event of damage to the facility, the weight of the broken or fallen portion of the "line" is employed to cause the contacts to separate and stop the flow of electricity at the device thereby rendering the fallen portion of the line, the dreaded live wire, dead.

This device will be best understood from a consideration of the following detailed description, in view of the accompanying drawings forming a part of this application which serves to explain and illustrate only one specific embodiment of my invention, considered by me to be the best of several modes contemplated.

Referring to the accompanying drawing:

FIG. 1 shows the "inside" face of item 2 with item 1 embedded therein.

FIG. 2 shows the other side of FIG. 1.

FIG. 3 is a sectional view along the line as indicated on FIG. 1.

FIG. 4 is a partial sectional view along the line as indicated on FIG. 1.

FIGS. 1—4 are intended to illustrate, in a general way, a suggested shape of items 1 and 2 and a method of "...holding item 1...in its proper position...."

FIGS. 5—7, respectively, show a side, end, and bottom view of the complete assembly illustrating the hood or shield (item 4), bracket (item 5), item 3 as a bolt and related items 6, 7, and 8 suggesting a general appearance of the device.

FIG. 8 is intended to illustrate the principle of the invention. Assume the "line" to the right has just been broken and is falling, the weight of the broken portion of the line is causing item 2 to rotate, thereby separating items 1 at "A."

Two conductors each held securely by an insulative material of sufficient strength and rigidity (generally shaped as indicated by item 2) to be pivotally connected by item 3 in such a manner as to hold each conductor (item 1) in its proper position relative to the other and at the same time allowing each to rotate about the pivot or axle (item 3) independently of the other for a controlled arc distance. Item 1 being so fashioned at end "C" to facilitate expedient connection with one end of one line of the facility (item 9) and at "A" to provide suitable and adequate contact area for the electrical load for which it will be used, and between "A" and "C" of such cross section as deemed adequate and expedient. Item 2 being so fashioned or shaped at "A" as to provide proper contact, and at "B," to prevent, in the event of failure or damage to the facility, contact between item 1 and item 9.

As shown in FIGS. 1 and 4 a portion of each of the insulators holding the conductors has at least one substantially flat face. A flange-like portion extends from the face of the insulating member (note FIG. 3) and partially extends around the periphery of the insulating member. The conductor (item 1) is embedded in said flange portion so as to extend out at least one end thereof as at A. Each conductor is designed to carry the required load and to be connected to an electric line.

In operation, the device is assembled so that one end of a span of an electric distribution or transmission line is attached to the outer end of one conductor. Under normal conditions the forces of tension acting through the axle will hold the matched innermost ends of the conductors in closed electrical contact, but in the event of severance of one of the lines breaking the distribution or transmission circuit the forces of gravity will cause rotation of the members about the axle which will separate the contact ends of the conductor, during the interval of free fall a controlled but sufficient distance to prevent the reestablishment of the circuit.

The assembly shall be housed or partially covered by a hood or shield (item 4) to provide protection from the weather and to hold some of the heat from the flow of electricity through item 1 so as to prevent the accumulation of moisture and/or ice between the items shielded thereby, and connected to the supporting structure by a bracket (item 5) of such strength, size and rigidity as to securely attach the device to the supporting structure.

Item 4 and item 5 to be made of an insulative material, having moisture-shedding characteristics.

Item 3 may be anything adequate to perform the function of holding the assembly properly together and may be fastened by nuts (item 6), cotter pins (item 7) and washers (item 8) or any combination thereof deemed expedient.

Having thus described my invention, I claim as new and desire to secure by Letters Patent, the following:

1. A safety device for use in electric transmission and distribution systems having live wires comprising, a pair of insulating members having at least one substantially flat face portion, at least one of said insulating members having an aperture extending therebeyond, means in said aperture pivotally mounting said flat face portions of said insulating members to each other so that at least one of said insulating members is free to rotate, a flange portion partially extending around the periphery of each of said insulating members, each of said flange portions on said insulating members extending from the flat face of said insulating members towards the other of said members to form engageable edges, a conductor embedded in each of said flange portions and extending through said engageable edge, means on said conductors at said engageable edge portion forming a contact, means at the other end of said conductor for attaching a transmission line, whereby the tension of the line will when attached to the conductor will hold the contacts in engagement but in the event of severance of the line the forces of gravity will cause rotation of the members and thereby disengage the contacts.

2. A safety device as in claim 1 wherein protective housing means are provided for said insulating members.