

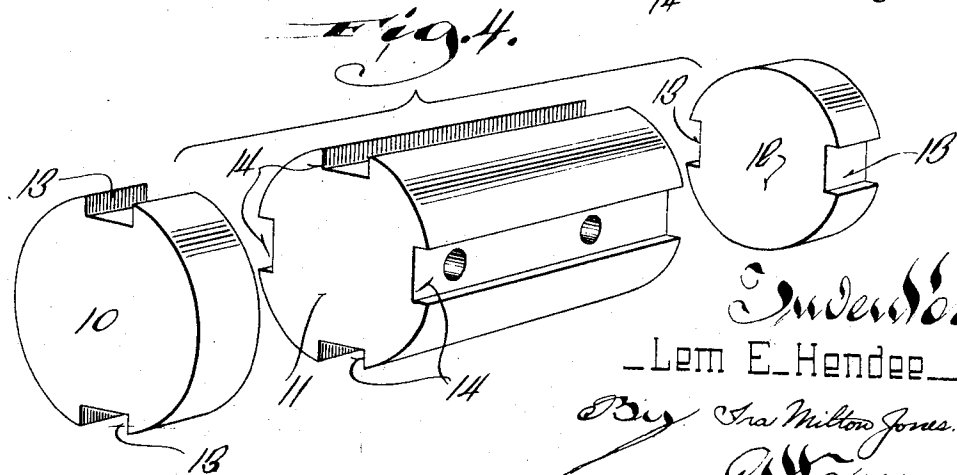
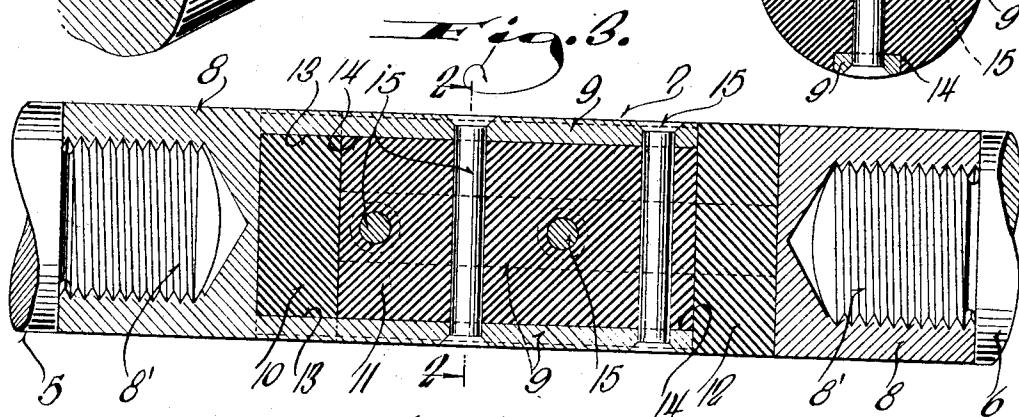
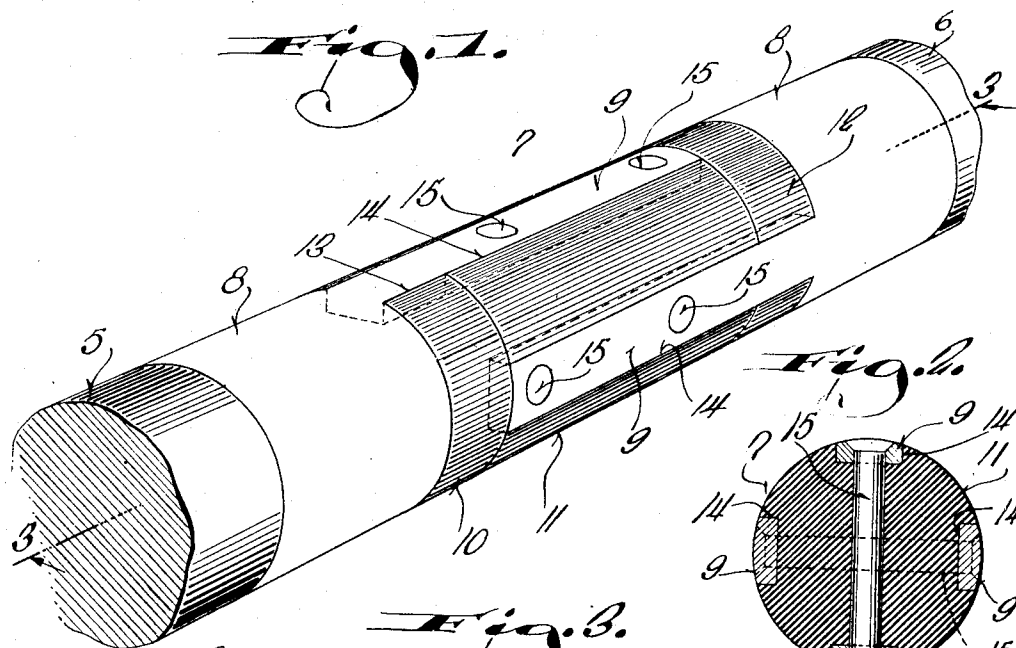
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ELECTRICAL APPLIANCE

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## UNITED STATES PATENT OFFICE

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## ELECTRICAL APPLIANCE

Application filed June 18, 1926. Serial No. 116,850.

This invention relates to certain new and useful improvements in electrical appliances and has as a primary object the provision of an improved insulating coupling for operating rods or shafts such as employed for the operation of oil switches and the like.

Where oil switches or other devices designed to carry large loads are operated manually, it is highly desirable that every possible safeguard be provided to protect the operator against electrocution in the event the operating rod or shaft becomes included in the circuit and to this end this invention has as a further object the provision of improved means adapted to be incorporated within an operating rod or shaft to thoroughly insulate one portion thereof from the other.

In an insulating coupling of the character described it is of utmost importance that the same be of high mechanical strength and subject to as little variation as possible in either tension or compression due to sudden loads and to this end it is a further object of my invention to provide an improved insulator coupling in which the insulating material is at all times under compression and one in which the general construction is extremely strong whereby the shaft in which the same is incorporated is no weaker at the insulating point than at any other point.

A still further object of this invention resides in the provision of a coupling of the character described which is so designed as to be capable of economical manufacture.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein-disclosed invention may be made as come within the scope of the claims.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far

devised for the practical application of the principles thereof, and in which:

Figure 1 is a perspective view of a portion of a shaft or rod having my improved insulator coupling incorporated therein;

Figure 2 is a transverse sectional view taken through my improved coupling on the plane of the line 2—2 of Figure 3;

Figure 3 is a transverse sectional view taken through Figure 1 on the plane of the line 3—3, and

Figure 4 is a perspective view of the sectional insulating member apart from the rod and coupling.

Referring now more particularly to the accompanying drawings, in which like numerals designate like parts throughout the several views, the numerals 5 and 6 designate two sections of an operating rod or shaft adapted to be joined by my improved insulating coupling 7. The coupling consists of two complementary metallic members 8 suitably secured to the shaft sections 6, as at 8', and each having a pair of diametrically opposed fingers or elongated lugs 9 projected from their ends to receive an insulator therebetween.

The insulator is made in three parts or sections 10, 11 and 12, the sections 10 and 12 being identical in construction and of a diameter equal to the outside diameter of the members 8 and having two diametrically opposed recesses 13 in their peripheries of a depth and width to conform to the depth and width of the fingers 9. The member 11 is likewise of a diameter equal to the outside diameter of the members 8 and has four equal-spaced slots or recesses 14 in its outer surface of a depth and width equal to that of the fingers 9 to receive the same, the length of the member 11 being equal to the length of the fingers 9 less the thickness of one end insulating piece so that with the sectional insulating member in place the assembly will be as illustrated in Figure 1, with the fingers 9 of one member 8 spaced from the other member 8 a distance equal to the thickness of an end insulating piece and spaced from the finger 9 of the other member 8 the distance between adjacent recesses or slots 14 of the insulating piece 11.

The parts forming the coupling are secured together by means of steel pins, rivets or the like 15 passed through the member 11 and connecting the fingers 9 of each pair, the pins of one member 8 being spaced from those of the other to insure the necessary electrical clearance.

The insulator may be of any desired material such as a phenolic condensation material, fibre or the like and may be produced either by turning or molding. When turned, it is desirable from the standpoint of production to produce the insulators in three sections, for otherwise the formation of the slots or recesses 14 of the central portion 11 out of alignment with the end pieces would require delicate machining and consequently involve an increased cost. Making the insulating member of three pieces permits the quick and cheap formation of the recesses 13 and 14 by means of an automatic screw machine.

From the foregoing description taken in connection with the accompanying drawings it will be readily apparent to those skilled in the art to which an invention of this character appertains that I have provided an improved coupling wherein the insulator is always maintained under compression which is very desirable where insulating material of any type is being used, one which will be of increased strength and one which will readily lend itself to production by reason of its construction.

What I claim as my invention is:

35 1. An appliance of the character described, comprising a pair of coupling members having spaced fingers extended from adjacent ends, an insulating member engaged by the ends of the coupling members adapted to be compressed therebetween and having spaced recesses to receive said fingers, the opposite ends of the recesses being closed to provide a bed of insulating material between the end of each finger and the adjacent coupling member and means securing said fingers to the insulating member, whereby longitudinal stress may be applied to the coupling members in either direction.

50 2. In an appliance of the character described, a pair of coupling members, diametrically opposed fingers projecting from the ends of the coupling members, a pair of insulating members of a shape in cross-section approximately that of the coupling members in cross-section and having recesses in their peripheries to receive said fingers, one insulating member being confined between the fingers of each coupling member and abutting the end of each coupling member, a third insulating member of a cross-section complementary to that of the other insulating members and having equi-spaced longitudinal recesses in its periphery of a depth and width to receive said fingers, said third insulating member being of a length

substantially equal to the distance the fingers project beyond the first insulating members, and means securing said fingers to said third mentioned insulating member.

3. In an appliance of the character described, a pair of coupling members, diametrically opposed fingers projecting from the ends of the coupling members, a pair of insulating members of a shape in cross-section approximately that of the coupling members in cross-section and having recesses in their peripheries to receive said fingers, one insulating member being confined between the fingers of each coupling member and abutting the end of each coupling member, a third insulating member of a cross-section complementary to that of the other insulating members and having equi-spaced longitudinal recesses in its periphery of a depth and width to receive said fingers, said third insulating member being of a length substantially equal to the distance the fingers project beyond the first insulating members, and fastening means connecting the fingers of each coupling through the third-mentioned insulating member, the fastening means of one coupling member being staggered with respect to the fastening means of the other.

In testimony whereof I affix my signature.

LEM E. HENDEE.