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SPARKING ELECTRODE FOR DRY ELECTRICAL TESTING OF INSULATED WIRE

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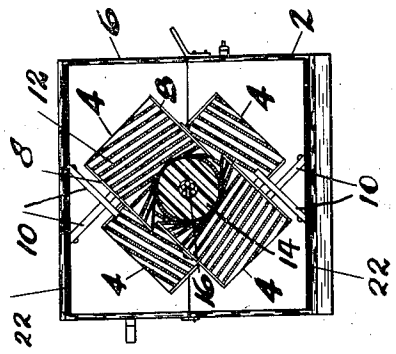



Fig. 2

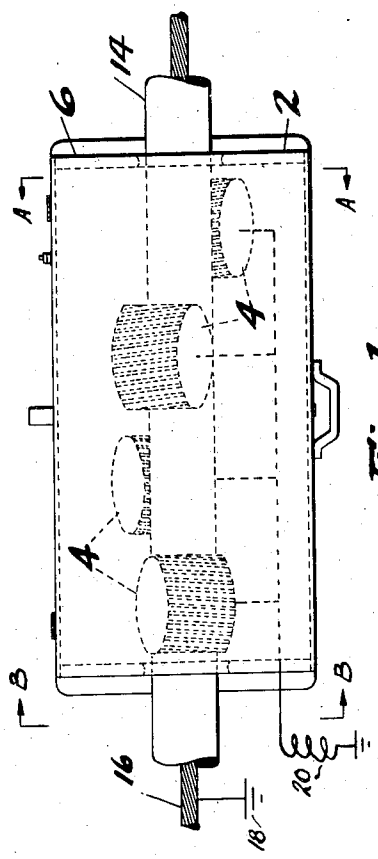



Fig. 1

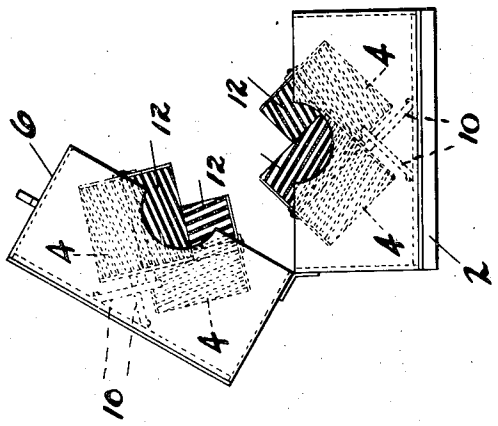



Fig. 3

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## SPARKING ELECTRODE FOR DRY ELECTRICAL TESTING OF INSULATED WIRE

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4 Claims. (Cl. 175—183)

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Our invention relates to an improvement in sparking electrodes for use in the dry electrical testing of insulated wire.

Prior to our invention it has been the custom to dry test insulated wire by the use of close fitting pipe, dangling metallic chains, etc. None of these prior devices completely contacted the entire cable surface and depended on the voltage jumping over the other part of the insulation surface.

One of the objects of our invention is to provide a sparking electrode for the dry testing of insulated wire wherein substantially the entire surface of the insulation is contacted.

Another object of our invention is to provide a sparking electrode for the dry testing of insulated wire which is of such construction that a range of sizes of wire may be tested in the same electrode with equal facility.

Still another object of our invention is to provide a sparking electrode for the dry electrical testing of insulated wire wherein multi-conductor insulated wire may be dry-tested readily.

Further objects and advantages of our invention will appear from the detailed description which follows.

In the accompanying drawing,

Fig. 1 is an elevational view of our improved device;

Fig. 2 is a section on the line A—A of Fig. 1; and

Fig. 3 is a section on the line B—B of Fig. 1 but with the box or housing in open position ready to receive the wire to be tested.

Referring to the drawings in detail, our improved sparking electrode comprises a casing, housing or box 2 within which we mount a plurality of spring roller contacts or electrodes 4. In the drawings we have shown two pairs of roller contacts, one pair being mounted in the housing itself, the other pair being mounted in the upper half or cover 6 of the housing.

Each roller contact comprises a pair of discs 8, mounted in spaced relation on a bearing shaft 10 secured to the housing or to the housing cover. Bridging or spanning each pair of discs are coil springs 12. These springs provide or constitute the roller contact periphery or body, and they are preferably set out of parallel with the axis of rotation of the roller as shown in the drawings.

As will be seen from Fig. 1 the rollers 4 are arranged in staggered relation to each other. The insulated wire 16, the insulation 14 of which is to be tested, is fed through the box as illustrated in Fig. 1, the wire being grounded as indicated at 18 and voltage applied to the electrodes as indicated at 20.

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Inasmuch as each electrode is freely rotatable on its own axis, and by reason of the staggered disposition of the electrodes and the provision of the spring metal body for each electrode, it will be appreciated that when an insulated wire is fed through the tester substantially every part of the surface of the insulation is contacted. Fig. 2 illustrates this feature.

The provision of contact rollers of the spring type has an advantage other than those mentioned in that it permits of a wide range of wire sizes to be tested in the one tester.

As above mentioned the springs 12 of each contact roller are preferably set out of parallel with the axis of the roller, that is diagonally of the roller. We find this beneficial in the testing of multi-conductor wire in that the springs may be set to extend at about the same angle as the conductors of the multi-conductor wire so as to roll down in between these conductors during testing.

It will be understood by those skilled in this art that in the use of our device with voltage applied to the roller contacts 4 and with the wire 16 grounded, the insulated wire is run continuously through the device, and any holes and imperfections in the insulation 14 will be indicated by the heavy surges produced in the current to the roller contacts.

For protection of personnel we provide the insulation shown at 22.

It is to be understood that changes may be made in the details of construction and arrangement of parts herein shown and described within the purview of our invention.

What we claim is:

1. Testing apparatus for the dry testing of the insulation of electrically insulated wire, said apparatus comprising in combination a plurality of rotatable electrodes disposed in staggered relation along and about a common axis, said electrodes being rotatable about axes positioned at right angles circumferentially about said common axis, each electrode comprising a pair of spaced heads the plane of which is parallel to said common axis, spring metal members spanning or bridging said heads and constituting the body of each electrode, said spring metal members being adapted to engage the surface of the insulation under test when a wire the insulation of which is to be tested is moved along said common axis.

2. Testing apparatus for the dry testing of the insulation of electrically insulated wire, said apparatus comprising in combination a plurality of metal electrodes disposed in staggered relation about a common axis, each electrode comprising a roller composed of two spaced heads and a spring metal body, the plane of the heads being parallel to said common axis and each electrode body being adapted to be deformed to the contour of the insulation of a wire moving along said common axis, the electrodes being rotatable about axes positioned substantially at right angles about said common axis, the electrodes being so spaced that substantially the entire surface of the insulation under test is contacted by the electrodes during the passage of a length of wire the insulation of which is to be tested along said common axis.

3. Testing apparatus for the dry testing of the insulation of electrically insulated wire, said apparatus comprising in combination a plurality of rotatable electrodes disposed in staggered relation along and about a common axis, said electrodes being rotatable about axes positioned at right angles circumferentially about said common axis, each electrode comprising a pair of spaced heads the plane of which is parallel to said common axis, coil springs spanning or bridging said heads and constituting the body of each electrode, said springs being adapted to engage the surface of the insulation of an insulated wire under test as the wire is moved along said common axis.



4. Testing apparatus for the dry testing of the insulation of electrically insulated wire, said apparatus comprising in combination a plurality of electrodes disposed in staggered relation along and about a common axis, said electrodes being rotatable about axes positioned at right angles circumferentially about said common axis, each electrode comprising a pair of spaced heads the plane of which is parallel to said common axis, coil springs spanning or bridging said heads and extending diagonally of the roller axis, said springs constituting the electrode body and being adapted to contact the surface of the insulation of an insulated wire as the wire is moved along said common axis.

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