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J. R. TATE

2,269,135

ELECTRIC CUTOUT

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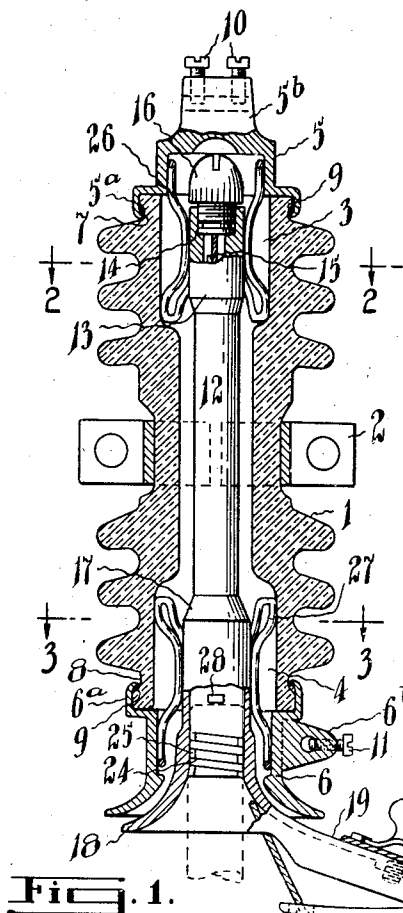


FIG. 1.

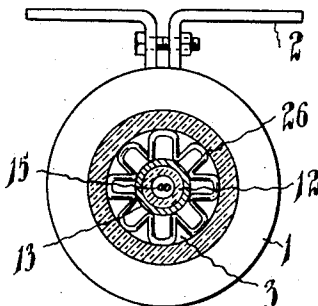


FIG. 2.

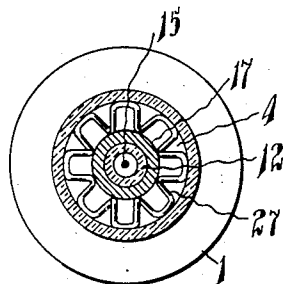


FIG. 3.

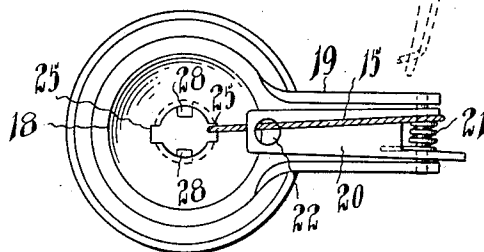


FIG. 4.

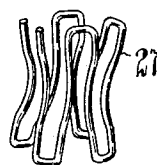


FIG. 5.

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ELECTRIC CUTOUT

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4 Claims. (Cl. 200—117)

This invention relates to tubular electric cut-outs of either the "top-pull" or "bottom-pull" type. These cut-outs comprise a tubular body of porcelain or other suitable insulating material, adjacent each end of which is provided a contact to which the conductor wires are connected. Slidable longitudinally in the housing is an insulating tube having a contact adjacent each end adapted to engage the contacts on the body. A fusible link extends between the contacts on the insulating tube to complete the circuit.

The objects of the present invention are to devise an improved method of securing the contacts on the tubular body; to provide improved resilient engaging means between the contact on the body and the corresponding contact on the insulating tube; to provide improved means for removing the insulating tube from the body; and to provide improved means for venting the insulating tube for the escape of gases in the event that the fusible link breaks while the insulating tube is being removed from or replaced in the body.

I attain my objects by means of the constructions hereinafter described and illustrated in the accompanying drawing in which

Fig. 1 is a vertical section of an expulsion cut-out of the "bottom pull" type;

Fig. 2 a cross section on the line 2—2 in Fig. 1;

Fig. 3 a cross section on the line 3—3 in Fig. 1;

Fig. 4 a plan view of the lower end of the cut-out; and

Fig. 5 a perspective view of one of the spring contacts.

In the drawing like numerals of reference indicate corresponding parts in the different figures.

1 is the tubular body of the device, preferably made of porcelain and also preferably externally corrugated above and below the supporting bracket 2. The interior of the body at each end is provided with a portion of enlarged diameter to provide an annular seat or recess, the seat or recess 3 at the upper end being smaller than the seat or recess 4 at the lower end.

On the upper end of the body is mounted an upper contact 5, which forms a cap or closure for the upper end of the body, while at the lower end of the body is mounted an annular lower contact 6. The contacts 5 and 6 are preferably formed as brass castings, which abut against the respective ends of the body. The contact 5 is provided with a downwardly directed flange 5^a, the edge portion of which is bent inwardly to engage in a groove 7 in the body. Similarly the contact 6 is provided with an upwardly directed

flange 6^a, the edge portion of which is bent inwardly to engage in a groove 8 adjacent the lower end of the body. To avoid damage to the porcelain body during the bending in operation, a cushion 9 of stranded wire, or other suitable material, is interposed between the material of the flange and the bottom of the recess. It will be noted that the flanges 5^a and 6^a are relatively thin compared to the thickness of the main parts of the contact wall and adjacent the edge where the greatest amount of bending takes place, they are thinned down to almost a knife edge.

The upper contact 5 is provided with an upwardly directed lug 5^b, which is drilled to receive the end of the conductor, the latter being held in place by set screws 10.

Similarly the lower contact 6 is provided at one side with a lug 6^b, which is drilled to receive the end of the other conductor, the latter being held in place by set screws 11.

12 is the insulating tube, to the upper end of which is secured a contact 13, which is provided with a recess to receive a head 14 on the end of a fusible link 15. The recess is threaded to receive a plug 16 which holds the head 14 of the fusible link firmly in place.

At the lower end of the insulating tube is a contact 17 which is provided at its lower end with a bell-mouthed extension 18, from which projects at one side an arm 19, preferably channel-shaped in cross section. Fulcrumed between the flanges of the arm 19 is a lever 20. On the pivot pin is arranged a spring 21 normally tending to move the arm to the position shown in dotted lines. The arm has a hole 22 formed therein adjacent its free end through which the fusible link is passed, the end of the fusible link being passed around the pivot pin as shown and secured on top of the arm by a clamping screw 23.

To facilitate the insertion of the cartridge or insulating tube into the body, the contact 6 is provided with a bell-mouthed extension.

The bell-mouthed extension 18 on the contact 17 is for the purpose of facilitating the engagement of a suitable puller stick. The stick is provided with a head having a coarse thread thereon, as indicated in dotted lines in Fig. 1, and the interior of the upper part of the bell-mouthed extension 18 is correspondingly threaded as shown at 24. As there is sometimes danger of the fusible element blowing while the cartridge or insulating tube is being inserted or removed, I provide grooves 25 through the threaded portion of the contact, which grooves provide convenient escape for gases formed by

the blowing of the fuse and thus avoid damage to the cartridge or body.

One of these grooves also provides a channel for the fusible element so as to avoid damaging the latter by the puller stick. Stops 28 are provided inside the contact 17 to limit the insertion of the puller trick.

Contact between the body contact 5 and the contact 13 is established thorough a resilient member 26 supported in the recess 3 and contact between the body contact 6 and the contact 17 is established through a resilient member 27 supported in the recess 4. These members 25 and 27, aside from size, are of similar construction, being each formed from a piece of wire which is bent up and down to form a plurality of U-shaped bends as shown in Fig. 1, the whole being bent to form a split ring, as shown in Figs. 2 and 3. As will be seen from Fig. 1, the U-shaped bends are also bent into bow-shape in the vertical plane, with the ends of the bends being engaged with the contacts 5 or 13, and the intermediate part engaging the contacts 6 or 17 as the case may be. The ends of the U-shaped bends are slightly flattened to give greater bearing against the contact on the body.

The resilient members thus formed provide a very good electrical engagement between the contacts on the body and those on the cartridge, are simple to make and easy to position.

What I claim as my invention is:

1. An electrical cut-out comprising a tubular body of insulating material, having a contact adjacent each end thereof; a fuse cartridge slidable longitudinally within said body, said cartridge having a contact adjacent each end engaging the corresponding contact on the body, the lower contact on the cartridge having a tubular extension, said extension being internally threaded for engagement by a cartridge removing tool, the threads being cut away at one side to form a vent groove for the escape of gases from the interior of the cartridge, when said tool is in position.

2. An electrical cut-out comprising a tubular body of insulating material, having a contact adjacent each end thereof; a fuse cartridge slidable longitudinally within said body, said cartridge having a contact adjacent each end engaging the corresponding contact on the body, the lower contact on the cartridge having a tubular extension; said tubular extension being internally threaded for engagement by a cartridge removing tool; said tubular extension having a bell-mouthed lower end forming a guide for the entrance of said tool.

3. An electrical cut-out comprising a tubular body of insulating material, having a contact adjacent each end thereof; a fuse cartridge slidable longitudinally within said body, said cartridge having a contact adjacent each end engaging the corresponding contact on the body, the lower contact on the cartridge having a tubular extension, said extension being internally threaded for engagement by a cartridge removing tool, the threads being cut away at one side to form a vent groove for the escape of gases from the interior of the cartridge when said tool is in position, said tubular extension having a bell-mouthed lower end forming a guide for the entrance of said tool.

4. An electrical cut-out comprising a porcelain body having a fuse cartridge receiving bore formed therethrough; said body having a hollow contact of malleable cast metal mounted on each end thereof, the interior of each of said contacts forming an extension of the bore of the body; each of said contacts having an integral annular flange sleeved on to the adjacent end of the body, said flange adjacent its edge being of gradually reduced thickness and said body having a peripheral recess into which the edge of the flange is bent, a cushion of stranded wire being interposed between the flange and body; and means on each of said contacts for engagement with a conductor.

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