

June 6, 1967

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3,324,271

ARC-QUENCHING CIRCUIT-CONTROLLER

Filed Aug. 31, 1964

Fig. 1

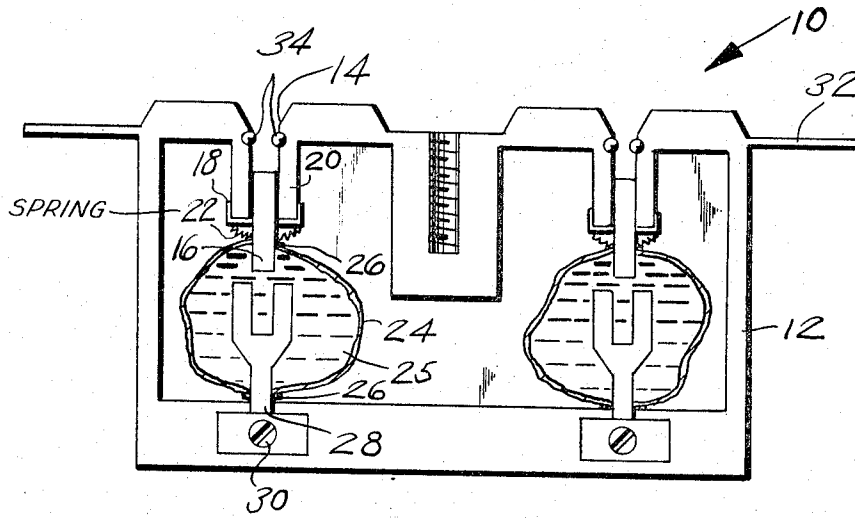
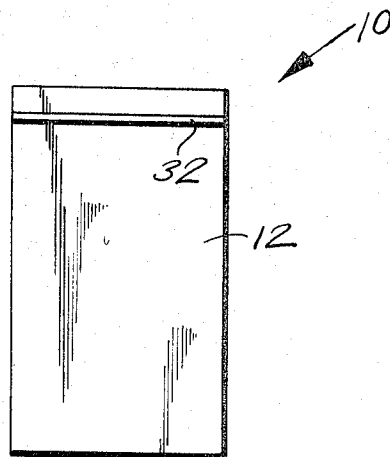


Fig. 2



1

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ARC-QUENCHING CIRCUIT-CONTROLLER

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Filed Aug. 31, 1964, Ser. No. 393,168

3 Claims. (Cl. 200—168)

This invention relates broadly to arc-quenching circuit-controllers, such illustratively, as in wall receptacles and the like.

It is an object of the present invention to provide an arc-quenching and thus an explosion-proof receptacle which will have spring-loaded electrical contacts and will have deformable sacks containing said contacts and filled with transformer oil to increase the safety factor when the receptacle is used in the home.

Another object of the present invention is to provide an explosion-proof receptacle which will have a copper disconnect bar in the opening of the receptacle and will have a spring constantly urging against them, tending to reject anything which may be inserted into the receptacle which will be an added safety factor when the device is used where small children are present.

A further object of the present invention is to provide an explosion-proof receptacle which will have locking balls in the openings to hold the prongs of the device.

Other objects of the invention are to provide an explosion-proof receptacle bearing the above objects in mind which will be of simple construction, have a minimum number of parts, be inexpensive to manufacture and efficient in operation and use.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in conjunction with the accompanying drawing, in which:

FIGURE 1 is a side elevational view of the present invention shown in section; and

FIGURE 2 is an end view of FIGURE 1.

Referring now more in detail to the drawing, an explosion-proof receptacle 10 made in accordance with the present invention is shown to include a hollow rectangular housing 12 which is provided with a plurality of openings 14 for receiving plug prongs (not shown). A copper disconnect bar 16 is slidably received within openings 14 and slidably received within a U-shaped channel 18 which is fixedly secured to an inward extension 20 of housing 12. A pair of springs 22 are secured at one end to channel 18 and at the other end to copper disconnect bar 16 and provide spring return means for disconnect bar 16 within opening 14. A deformable fluid sack 24 containing transformer oil 25 is fixedly secured by a pair of seals 26 to disconnect bar 16 and to connector 28 of Y-shaped configuration. Connector 28 is secured to housing 12 by means of a threaded screw 30. A pair of flanges 32 extending from receptacle 10 provide a means for securing receptacle 10 within a wall or the like. A pair of oppositely opposed balls 34 within openings 14 of receptacle 10 provide a means of locking and holding prongs received within openings 14.

It will be seen that the fluid-filled container or deformable sack has a lower wall portion from which the connector 28 extends inwardly into the sack, and has an upper wall portion from which bar 16 extends in-

2

wardly into the sack, so that both connectors are surrounded by a body of quenching fluid at all times. When for any reason the bar 16 and connector 28 are forced together the fluid is displaced and the sack is deformed to receive the displaced fluid while contact is made between the immersed bar and the immersed connector, to close a circuit. When by any means these elements are forcibly separated, opening the circuit, the said wall portions of the sack are moved apart while still maintaining immersion of the two connectors in a column of fluid, quenching any arc. It will be seen that displacement of fluid and relative movements of the connectors are synchronous.

In use, electrical plugs are inserted within openings 14 by urging them inwardly thus contacting disconnect bar 16 which is urged downwardly within Y-shaped connector 28 which will complete the circuit.

It shall be recognized that when the plug is removed from opening 14, springs 22 will springingly urge disconnect bar 16 upward within opening 14, removing it from within connector 28.

It shall also be noted that the present invention is covered by article 500 to 503, Chapter 5, of the National Electrical Code.

It shall further be recognized that balls 34 provide a means for locking the prongs within opening 14 and when it is desired to remove the plug from opening 14, a sharp pulling motion is placed upon it to disengage balls 34 from the plug.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What we claim as new and desire to protect by Letters Patent of the United States is:

1. A shock-proof electrical outlet device having an outer face with an opening to receive a prong of a circuit-control element, a guideway within said device in alignment with said opening providing a path of movement for such prong, an electrical connector member within said device, a contact member within said device in position to be engaged by such prong and movable thereby toward said connector member, said two members having side face portions disposed and adapted for relative sliding engagement after said movable member is moved axially of said guideway into contact with said connector member, a flexible container in sealed engagement with said two members, enclosing said face portions, and means normally urging said members apart.

2. The construction of claim 1, wherein said flexible container has therein an arc-quenching fluid.

3. The construction of claim 1, together with means normally preventing sliding disengagement of said side face portions when a prong inserted through said openings has caused full engagement thereof.

References Cited

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