Nov. 15, 1932. H. W. BROWN 1,888,068

ELECTRICAL DISCHARGE DEVICE

Filed July 20, 1928

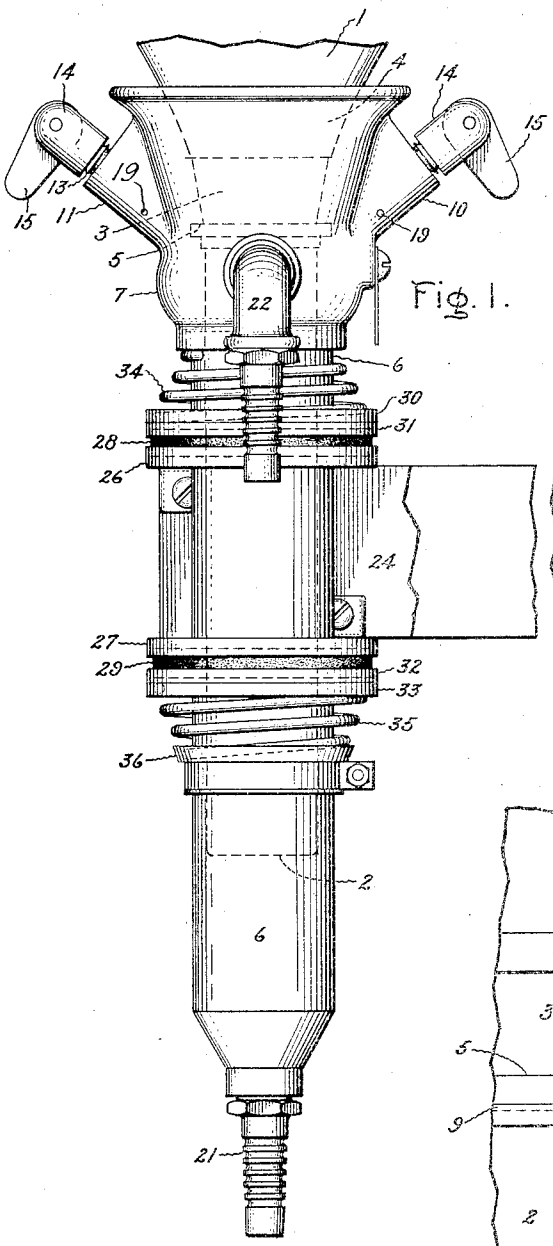
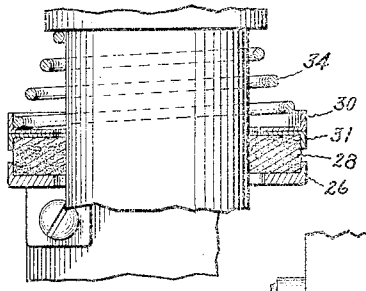


Fig. 1.

Fig. 3.



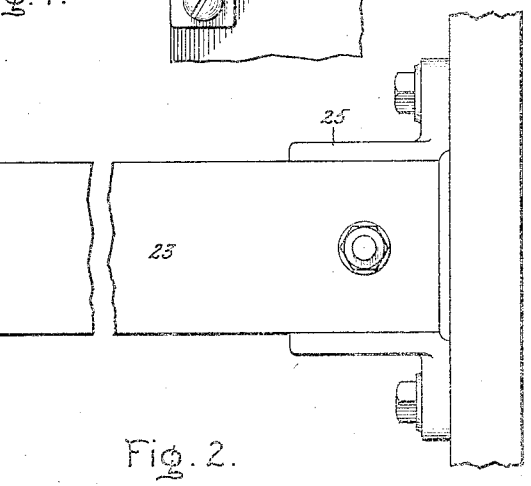


Fig. 2.

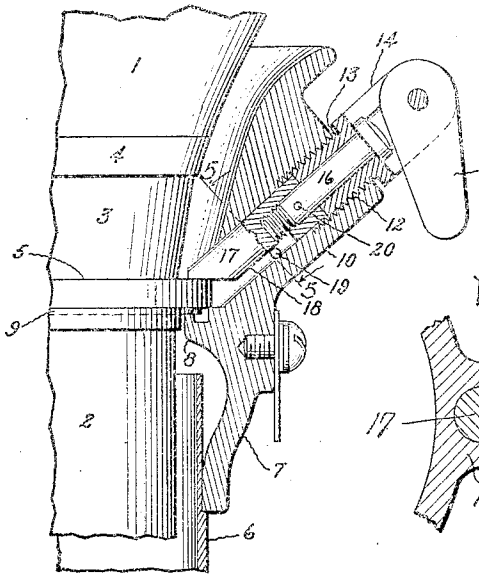


Fig. 4.

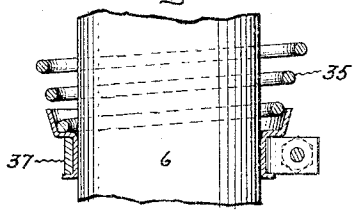


Fig. 5.

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UNITED STATES PATENT OFFICE

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ELECTRICAL DISCHARGE DEVICE

Application filed July 20, 1928. Serial No. 294,376.

The present invention relates to electrical discharge devices and more particularly to devices of this character which are adapted to be surrounded by a jacket which is supplied with a cooling fluid. In the use of such devices some difficulty has been experienced in obtaining a good electrical contact with the anode member. Moreover, with the former clamping or contact member employed to secure the discharge device in the water jacket there has been a tendency to twist the discharge device in the jacket when the contact members were tightening, thereby causing a twisting of the leading-in wires, connected to the electrodes.

It is one of the objects of the present invention to provide an improved form of clamping and contact member for securing a discharge device in a water jacket.

In carrying the invention into effect I provide at diametrically opposite points on a shielding member which constitutes a part of the water jacket two independently adjustable clamping members, which also function as contact members, and make a sliding, radially brushing contact with the usual external flange on the anode member of the discharge device. The clamping members may be separately tightened to any desired degree without causing twisting of the discharge device in the water jacket, and each clamp will make its own good contact independent of the other. Moreover, on account of the radial brushing action, the contacts are self-cleaning.

The novel features which I believe to be characteristic of the invention are set forth with particularity in the appended claims. The invention itself however will best be understood from reference to the following specification when considered in connection with the accompanying drawing in which Fig. 1 is a view in elevation, partly broken away, of an electrical discharge device and a jacket and mounting therefor which embody the features of the present invention; Fig. 2 is a detail view of my improved means for securing the discharge device in the water jacket; Figs. 3 and 4 are detail views of a flexible support for the combined water jacket and discharge device; while Fig. 5 is a view of a cross section taken along line 5—5 in Fig. 2.

Referring more particularly to the drawing, I have indicated in Figs. 1 and 2 a discharge device comprising an evacuated receptacle having a tubular glass portion 1 and tubular anode 2 joined to the glass member by a metal sleeve or collar 3 which is sealed to the glass member at the point 4. The anode 2 is provided with an annular flange 5 which serves to support the discharge device in the water jacket. The jacket comprises a cylindrical member 6 which has a relatively heavy dished shielding member 7 secured to the upper end thereof. The shielding member 7 extends upwardly and outwardly beyond the seal 4, serving in a well known manner to protect the seal from corona or arc discharges, and is provided with a flange 8 which supports the flange 5 of the anode. A suitable gasket 9 interposed between the flanges prevents leakage of the cooling fluid.

The shielding member 7 is provided at diametrically opposite points with extensions or enlarged portions 10 and 11 which are bored out and provided at their upper ends with screw threads 12. A pair of independently adjustable contact or clamping members are positioned in the bore of the extensions 10 and 11, each adjustable member including a screw 13 which engages the threads 12. Screw 13 is provided with a pair of oppositely disposed lugs 14 which support a pivoted handle 15 between them. A bolt 16, screw-threaded at its lower end, extends through the screw 13 and engages a slidable member 17, the latter having a flattened contact surface and a cut-away portion 18 on its lower side. A pin 19 extends through the enlarged portions 10 and 11 and slidably engages the lower side of member 17 to prevent rotation thereof. A pin 20 secures the bolt 16 to the slidable member 17 so that the bolt cannot turn but remains securely in place in member 17.

When the pivoted handle 15 is rotated so as to turn screw 13, the member 17 thereupon slidably engages the flange 5 on the anode,

clamping it securely in place. The sliding action of the member 17, in the radial direction of the flange 5, maintains the contact surfaces in a clean condition and has no tendency whatever to twist the discharge device when the contact is tightened.

The cooling medium is supplied to the water jacket through an inlet pipe 21. An outlet pipe 22 is secured to the lower part of the shielding member 7 as indicated in Fig. 1.

To prevent vibration of the discharge device, it is resiliently mounted on two rigid insulating supports 23 and 24 which are spaced apart and secured to a supporting bracket 25. Circular flanged plates 26 and 27 are mounted on the upper and lower sides respectively of the supporting members 23 and 24 and at the outer end thereof. These plates are provided with felt layers 28 and 29 respectively on which are mounted two pairs of flanged members 30, 31 and 32, 33 which are similar to each other. A spring 34 is positioned between the upper flanged member 30 and the lower edge of the shield 7, while a similar spring 35 is positioned between the lower flanged member 33 and a flanged collar 36 which is secured to the lower portion of the water jacket 6 by an adjustable metallic band 37. As thus arranged the felt layers and spring supporting members prevent transmission of shocks and vibrations to the discharge device, the felt layers absorbing the higher frequency vibrations while the spring members absorb the lower frequencies.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. In combination, an electrical discharge device comprising an anode having a flanged portion, a jacket therefor adapted to contain a cooling fluid, contact members slidably mounted in openings in the jacket and adapted to engage the upper surface of the flange to secure the jacket to the discharge device, and means rotatably mounted in said openings for operating said slidable members.

2. In combination, an electrical discharge device comprising a flanged anode, a jacket therefor adapted to contain a cooling fluid, said jacket including a dished shielding member at the upper end thereof, said member having a plurality of openings therethrough, and means slidably mounted in said openings and adapted to engage the flange on said anode and thereby to position the discharge device in said jacket, and means rotatably mounted in said openings for operating said slidable means.

3. In combination, an electrical discharge device comprising an anode and a tubular glass member sealed thereto, a jacket surrounding said anode and adapted to contain a cooling medium, said jacket including a dished shielding member and extending upwardly and outwardly beyond the seal between said glass member and anode, said shielding member having a flanged portion adapted to support the discharge device, and means mounted in said shielding member and adapted to secure said discharge device in said jacket, said means comprising a slidable contact member adapted to engage the anode and a rotatable member adapted to control the movement of said slidable member.

In witness whereof, I have hereunto set my hand this 19th day of July, 1928.

HAROLD W. BROWN.