Dec. 22, 1953 J. H. F. VAN WERD ET AL 2,663,853

ELECTRICAL CONTACT ASSEMBLY

Filed April 13, 1950

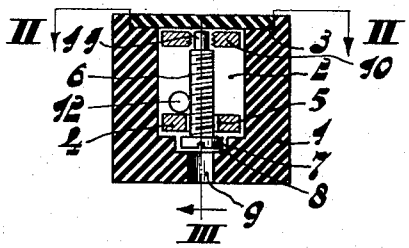


Fig. 1.

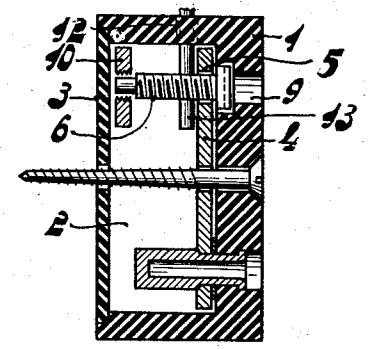


Fig. 3.

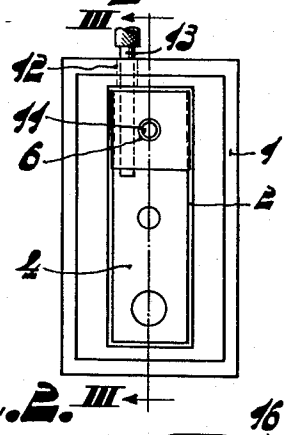


Fig. 2.

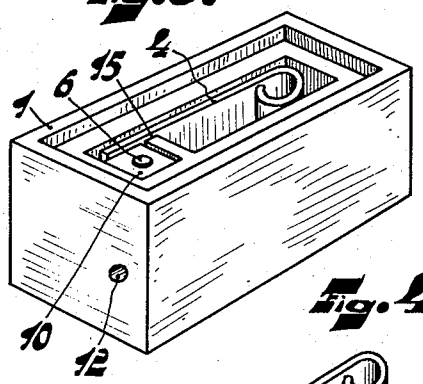


Fig. 4.

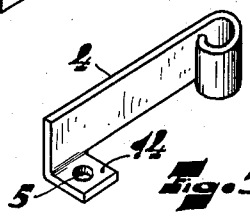


Fig. 5.

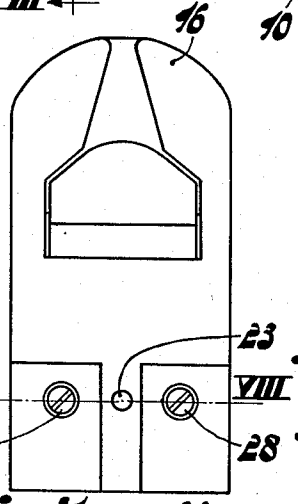


Fig. 6.

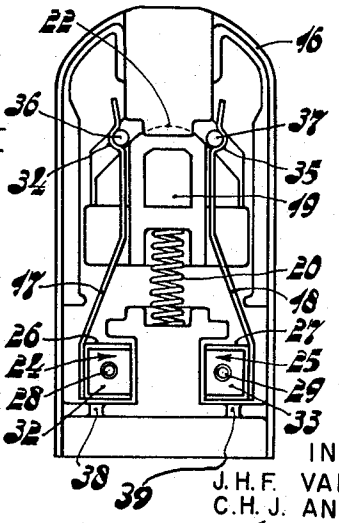


Fig. 7.

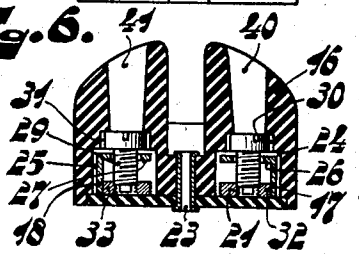


Fig. 8.

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ELECTRICAL CONTACT ASSEMBLY

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2 Claims. (Cl. 339—210)

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The invention relates to an electrical apparatus comprising an insulating body enclosing an electrical contact assembly or junction unit. Such apparatus exist in widely different forms, for example in the form of contact plugs, switches, lampholders and so forth.

It is an object of the invention to provide a construction of an electrical supply contact which may be realized with the use of components readily obtainable commercially.

It is another object of the invention to provide an easily adjustable electrical contact for an electrical apparatus, such as a discharge tube.

In accordance with the invention, the supply contact comprises an assembly of an insulating body enclosing a screw member, the head of which member is recessed and is housed in a cavity provided in one of the internal walls of the insulating body. This head is made easily accessible to a tool manipulated from the outside of the insulating body through a passageway in the insulating material. The opposing end of the stem of the screw member is preferably narrowed and not threaded. An electrically conductive element embraces the screw member with a certain amount of play at the head end. A nut is also provided on the screw member and engages the internal walls of the insulating body, but is adapted to move along a threaded portion of the screw when the screw is rotated. The engagement of the nut with the wall prevents rotation of the nut. The insulating body is also provided with a conduit in at least one of its side walls, and through this conduit an electric supply conductor may be led from the outside of the insulating body to the interior of the assembly in a direction transverse to that of the stem of the screw member and then positioned between the conductive element and the nut.

The insulating body is preferably closed by a lid which is permanently secured to the insulating body.

According to an alternative preferred embodiment the length of the screw is approximately equal to the spacing between the bottom of the cavity housing the head and the inner face of the lid. The conductor may be constituted by a strip, the length of which is parallel to the length of the stem of the screw, which strip is provided with a bent over eyelet which embraces loosely the stem of the screw, the strip being introduced through a slot in the wall of the enclosure.

The advantages of the said construction are particularly apparent, when the apparatus is constructed in the form of a holder to support one of the ends of the discharge tube, more particularly a low-pressure mercury-vapour discharge tube.

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In order that the invention may be more clearly understood and readily carried into effect, it will now be described more fully with reference to the accompanying drawing, in which:

Fig. 1 is a view in transversal elevation of the apparatus of invention.

Fig. 2 is a plan view of the device of Fig. 1 taken on the line II—II of Fig. 1, after removal of the lid.

Fig. 3 is a view taken on the line III—III of Figs. 1 and 2.

Figs. 4 and 5 are perspective views of a modified construction of the conductor shown in Fig. 1.

Fig. 6 is an elevational view of an apparatus of the invention incorporated in a tube holder.

Fig. 7 is a rear view of the apparatus of invention and tube holder shown in Fig. 6.

Fig. 8 is a sectional view taken on the line VIII—VIII of Fig. 6.

As shown in Fig. 1 the apparatus comprises an insulating body 1 having a rectangular chamber 2 closed by a lid 3. A screw having a stem 6 is positioned in the chamber 2 and a conductive element in the shape of a metal strip 4, is provided at head end 7, of the screw. The element 4, is provided with an aperture 5, which is sufficiently large to permit insertion of the stem 6 of the screw thus permitting conductor 4 to loosely embrace the stem 6. The head 7 of this screw is housed in a cavity 8 provided in the bottom of the chamber 2. The screw may be turned by means of a screw-driver, which can be inserted through passageway 9 in the insulating body 1. The stem 6 of the screw is furthermore provided with a square nut 10, which is shown here in the position which it occupies during component mounting, that is to say on the narrowed, unthreaded part 11 of the stem of the screw. Thus nut 10 slidingly engages the walls of the chamber and cannot rotate within this chamber. The insulating body is also provided with an aperture 12 through which a conductor 13 may be introduced. This conductor is introduced in a direction transverse to the length of the stem 6 of the screw, between the conductor 4 and the nut 10.

It is evident from the above that the whole input contact is constituted by a screw, a conductive element, and a nut only. It is not necessary that the stem of the screw should comprise a narrowed part 11, but component mounting is simplified thereby, as will be seen hereinafter.

When assembling the apparatus, the head 7 of the screw is first introduced into cavity 8. The conductive element 4 is then slipped with its aperture 5 over the stem 6 of the screw the stem passing through the aperture 5 of the element 4, and the nut 10 is then put on the end of the stem 6. If this end is narrowed, the nut

may simply be placed upon it. The lid 3 is then placed in position on the insulating body 1 and the nut 10 is thus prevented from falling from the stem 6. If the thread of the screw extends as far as the end of the stem, it is desirable to move the square nut down upon the stem by turning the screw when mounting. This construction however has a limitation in that, if the screw is unscrewed excessively, the nut will be pressed against the lid 3, which thus may be damaged or become detached. The nut 10 as noted cannot turn in the rectangular chamber 2, since it is supported from one or more walls thereof. Consequently, when the screw is turned, the nut moves up and down the stem 6 of the screw. A very satisfactory guide of the nut along substantially the whole circumference is obtained if the conductive element 4 (Figs. 4 and 5) is shaped in the form of a strip, the length of which is parallel to the stem of the screw, the strip comprising a bent-over eyelet 14 which embraces the stem 6 of the screw. The strip is introduced into the space 2 through a narrow slot 15. Beforehand, a screw with its stem 6 upward, has been inserted in the space 2 and afterwards the nut 10 is placed on the stem. The square nut will now be guided by three walls of the space 2 and by the vertical part of the element 4.

The conductive element may serve for any purpose. It may lead to the circuit of an apparatus. In the Figures 1–5 it is used as a contact sleeve for a contact lug.

The lid 3 is preferably secured permanently to the insulating part 1, for example, by means of a hollow rivet. This is possible, since tightening and loosening of the supply contact can be effected wholly from the outside.

In the tube holder shown in Figs. 6 and 7 which will be described hereinafter two of such supply contacts as shown in Fig. 8 are used. The tube holder comprises a base 16, which has a cavity containing two contact springs 17 and 18, a slide 19 and a spring 20, which urges the slide 19 upwards. The cavity in the base is closed by a lid 21, the upper face of which is located behind a lug 22 and the lower face of which is secured in place by means of a hollow rivet 23. The base 16 comprises two chambers 24 and 25 defined by several joggles on the base 16 and accommodating the contact springs 17 and 18 in a manner such that the eyelets 26 and 27 of these springs are embraced by the joggles. Screws 28 and 29 have previously been introduced with their heads into the cavities 30 and 31, the holder in Fig. 8 being arranged in the reverse position of that which is shown in Fig. 7. The nuts 32 and 33 are put on the ends of these screws, after which the lid 21 can definitely be secured.

The contact springs 17 and 18 may be provided at their upper ends each with a bend 34 and 35 respectively which may be engaged by studs 36 and 37 of a discharge tube.

For connecting supply wires to these contacts the wires are introduced through conduits 38 and 39 provided in the walls of the spaces 24 and 25 as shown in Fig. 7. They thus find their way automatically between the nuts 32 and 33 on the one hand and the eyelet 26 and 27 of the contact springs on the other hand as may clearly be seen from Fig. 8. The screws may be tightened through passageways 40 and 41 in the base 16, the nuts being directly held by the screws.

What we claim is:

1. An electrical apparatus comprising an insulating body having surface portions and a passageway having a given diameter leading from one said surface portion to a chamber in said body, said chamber having wall portions, one said wall portion having a cavity interconnecting said passageway and said chamber, a screw member in said chamber including a head portion having a diameter greater than said given diameter positioned in said cavity with a surface adapted to accommodate a tool at said passageway and a stem portion of said member extending into said chamber up to one of said wall portions, a nut on said stem portion remote from said head portion slidingly engaging another said wall portion of said chamber, a substantially L-shaped conductive element having a short side thereof adjacent said head portion and having an aperture therein through which said stem portion freely passes and a long side thereof extending parallel to said stem portion of said screw member and slidingly engaging said nut on said stem portion, said short side of said conductive element and said nut defining a spacing therebetween, said insulating body having a conduit therein extending from one surface into said spacing transversely to said stem portion of said screw member.

2. An electrical apparatus comprising an insulating body having surface portions and a passageway having a given diameter leading from one said surface portion to a chamber in said body, said chamber having wall portions, one said wall portion having a cavity interconnecting said passageway and said chamber, a screw member in said chamber including a head portion having a diameter greater than said given diameter positioned in said cavity with a surface adapted to accommodate a tool at said passageway and a stem portion of said member extending into said chamber and having the end thereof remote from said head portion unthreaded and in engagement with one of said wall portions, a nut on said stem portion remote from said head portion slidingly engaging another said wall portion of said chamber, a substantially L-shaped conductive element having a short side thereof adjacent said head portion and having an aperture therein through which said stem portion freely passes and a long side thereof extending parallel to said stem portion of said screw member and slidingly engaging said nut on said stem portion, said short side of said conductive element and said nut defining a spacing therebetween, said insulating body having a conduit therein extending from one said surface into said spacing transversely to said stem portion of said screw member.

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