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W. C. MacFADDEN

2,360,701

ELECTRICAL TERMINAL CONNECTOR

Filed June 18, 1943

Fig. 1.

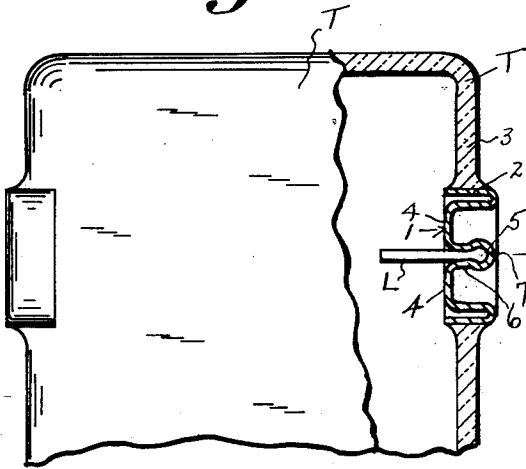


Fig. 2.

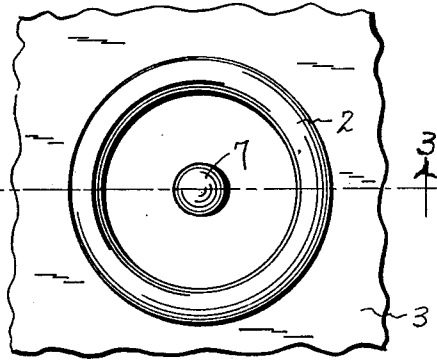


Fig. 3.

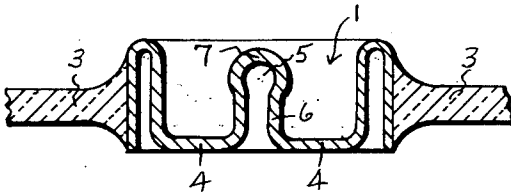


Fig. 4.

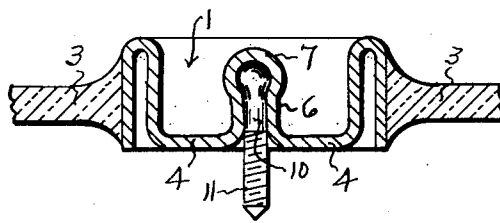


Fig. 5.

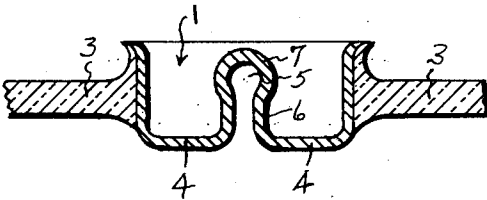
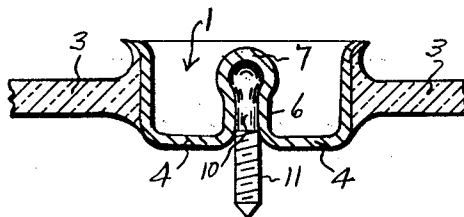


Fig. 6.



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UNITED STATES PATENT OFFICE

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ELECTRICAL TERMINAL CONNECTOR

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2 Claims. (Cl. 250—27.5)

The present invention relates to outside terminal connectors for vacuum electrical discharge tubes and the like, such as cathode ray tubes, wherein one or more of the contact terminals are sealed in the side walls of the glass tube, and the invention aims to improve existing terminal connectors for this purpose.

One of the principal aims and objects of the invention is the provision of an improved one-piece terminal connector which is of simple construction capable of being easily sealed to the glass walls of the tube and providing an especially convenient means for connecting a lead wire to the interior thereof, as well as a means for snap fastener connection of a suitable socket member to the outside thereof.

Illustrative of the invention, reference is had to the accompanying drawing illustrating preferred embodiments of the invention, and in which:

Fig. 1 is a fragmentary elevation of a portion of an electrical discharge tube, for example a cathode ray tube, illustrating the improved terminal connector affixed thereto, a part of the tube and one of the terminals being illustrated in section;

Fig. 2 is a top plan view of the improved one-piece terminal connector;

Fig. 3 is a sectional view thereof as taken on the line 3—3 of Fig. 2;

Fig. 4 is a sectional view similar to Fig. 3 illustrating one manner of connecting a lead wire to the terminal connector; and

Figs. 5 and 6 are sectional views similar to Figs. 3 and 4 illustrating a modified form of the invention.

In the manufacture of certain types of electric discharge vacuum tubes, such as cathode ray tubes, it is customary to provide one or more terminal connectors on the side walls of the glass tube to provide electrical connection for certain of the leads of the interior tube circuit that cannot conveniently be carried out through usual prongs of the tube base.

The present invention provides a simple and efficient one-piece terminal connector for such tubes. Heretofore this part was made of two or more pieces welded, or otherwise assembled. In many instances the assembly of the parts was not good and leakage developed so that the tube was useless. In many cases the leakage would be very slow and failure would develop at a very critical time. Therefore my one-piece construction is of very great importance and has improved the manufacture of tubes requiring such devices.

Referring to the drawing, the invention advantageously comprises an annular one-piece cup member 1 having an outer peripheral face of sufficient depth that the glass wall of the tube T may be sealed thereto, which wall merges into an arcuate button having a central opening surrounded by an integral axial dome-shaped stud adapted for snap fastener connection with a socket member of suitable design and construction.

In the form of the invention illustrated in Figs. 1 to 4 the improved terminal connector comprises a one-piece annular cup-shaped member 1 having an inwardly extending peripheral flange 2 adapted to be sealed in any approved manner directly to the marginal edge of an apertured glass wall 3 of an electrical discharge vacuum tube T, such as a cathode ray tube.

The cup-shaped member 1 preferably has a bottom 4 converging centrally to an integral axially disposed outwardly extending hollow stud 5 having a hollow neck portion 6 and an enlarged or dome-shaped head 7. This stud 5 with its head 7 and restricted neck provides a snap fastener stud member for snap fastener connection to a suitable socket member (not shown) providing a detachable electric connection therewith.

The hollow interior of the neck 6 and stud 7 provides a space for receiving a lead wire L from the interior of the tube T which may simply be inserted in the neck 6 and secured thereto by a drop of solder. Or if desired, a headed terminal 10 (see Fig. 4) may be inserted under pressure in the hollow neck and head and securely held in place therein and in electrical contact with the head by reason of the resilience of the metal of the stud. If desired, the shank 11 of the terminal 10 may be threaded or milled as at 11 for ease in connecting the lead wire thereto.

The form of terminal connector shown in Figs. 5 and 6 is exactly like that shown in Figs. 1 to 4 except that the outer peripheral wall or flange 2 is omitted and the outer face of the cup wall is sealed directly to the wall 3 of the glass tube. This simplifies the construction somewhat, but the form of invention shown in Figs. 1 to 4 is preferred.

I have chosen to illustrate the principles of my invention in connection with forms of tube connectors and mountings, but it is understood that the theory of my invention could be applied to devices other than those specifically illustrated and described.

Although I have illustrated and described preferred forms of my invention, I do not wish to be

limited thereby because the scope of my invention is best defined by the following claims.

I claim:

1. An electrical terminal connector for electrical discharge tubes and the like comprising a one-piece sheet metal member having a tube-engaging peripheral wall, said member having a bottom wall provided with an integral outwardly directed axially disposed stud for snap fastener cooperation with an electrical socket member, said stud being hollow thereby providing a space for receiving an electrical conductor from the inside of the tube.

2. An electrical terminal connector for electrical discharge tubes and the like comprising a

5 one-piece sheet metal member having a tube-engaging peripheral wall, said member having a bottom wall provided with an integral outwardly directed axially disposed stud for snap fastener cooperation with an electrical socket member, said stud being hollow thereby providing a space for receiving an electrical conductor from the inside of the tube, and a stem inserted in the hollow interior of the stud and having a portion extending inwardly beyond the bottom wall of said stud thereby providing a convenient terminal for securing a part of the internal circuit of the tube thereto.

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