March 4, 1969 L. J. VALLE ET AL 3,431,544

ANODE CONNECTOR

Filed Aug. 25, 1967

Fig. 1

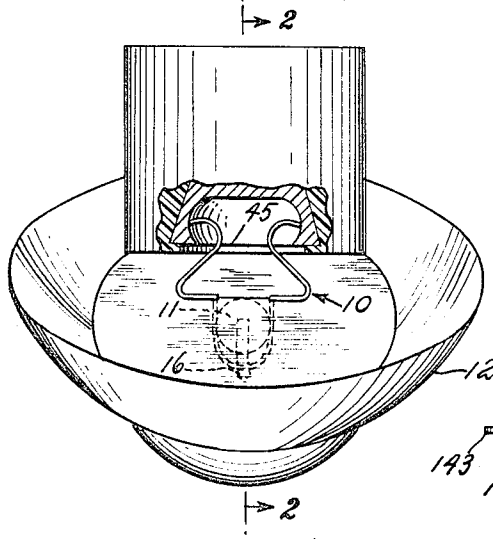


Fig. 6

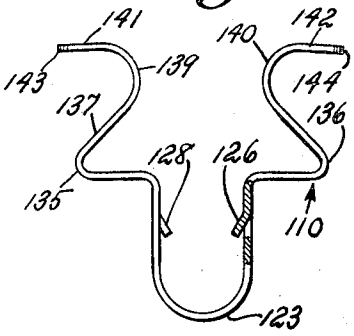


Fig. 2

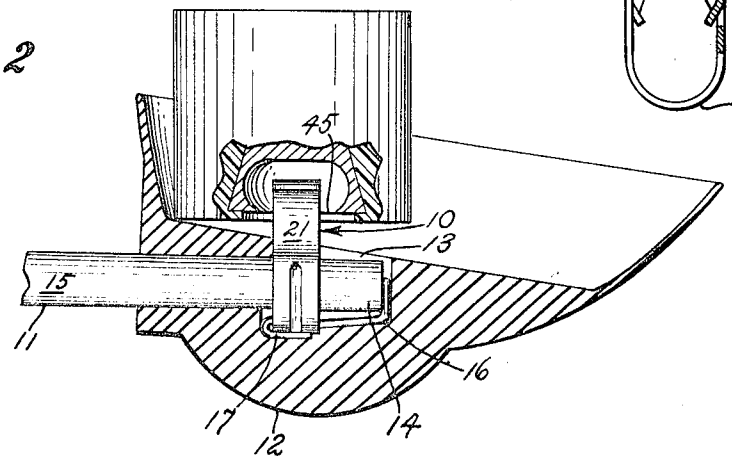


Fig. 4

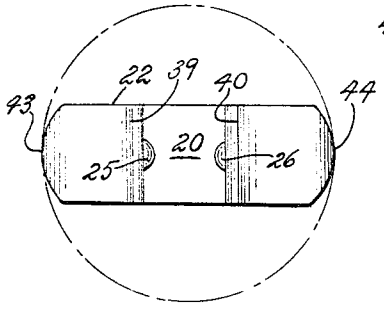


Fig. 3

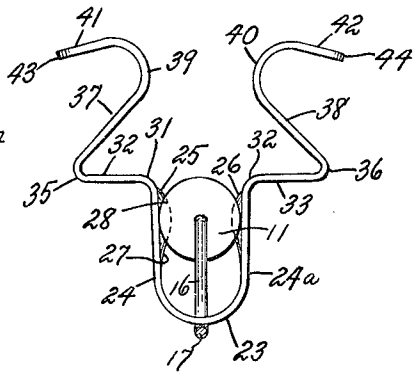
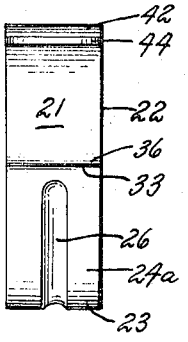


Fig. 5



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ANODE CONNECTOR

Louis J. Valle, Ardsley, and Otto Hoegrel, Westchester, N.Y., assignors to National Tel-Tronics Corporation, Yonkers, N.Y., a corporation of New York

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U.S. Cl. 339—256 5 Claims
Int. Cl. H01r 13/24, 5/10, 15/12

ABSTRACT OF THE DISCLOSURE

An anode connector clip suitable for use in connecting the anode terminal of cathode ray tubes, said clip being formed of flat spring steel strip material in an annealed state, and including means for engaging the insulation of a conductor comprising a pair of elongated ribs, the configuration of which tends to maintain said conductor in engaged condition, as well as separate resilient means for engaging the anode terminal.

This invention relates generally to the field of electrical connector devices, and more particularly to an improved anode connector of the type used to form electrical communication with the anode terminal of a cathode ray tube or similar devices.

It is among the principal objects of the present invention to provide an anode connector of the class described in which the insertion and extraction is more readily accomplished, owing to the presence of a slight lead on the hooked ends thereof.

Another object of the invention lies in the provision of an improved connector of the class described which may be formed from spring steel strip material in an annealed state, to reduce strain of any possible fracture in forming sharp bends.

Yet another object of the invention lies in the provision of an improved connector of the class described having a pair of oppositely facing tapered elongated ribs for engaging the insulative cover of a conductor with which the device is associated, thereby providing a strain relief for said cover.

Still another object of the invention lies in the provision of an improved connector of the class described, in which the cost of fabrication may be of a reasonably low order, directly comparable with existing prior art devices, thereby permitting consequent wide sale, distribution and use.

In the drawing, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

FIGURE 1 is a view in perspective of an embodiment of the invention in engaged condition with an anode terminal.

FIGURE 2 is a longitudinal central sectional view thereof.

FIGURE 3 is an end elevational view of the embodiment in detached condition.

FIGURE 4 is a side elevational view thereof, showing the engagement of the same with a wire conductor.

FIGURE 5 is a view in elevation as seen from the right hand portion of FIGURE 4.

FIGURE 6 is an end elevational view, corresponding to that seen in FIGURE 3, but showing an alternate form of the embodiment.

In accordance with the invention, the device, generally indicated by reference character **10**, is illustrated in the drawing in engaged condition with respect to an anode conductor **11**, and a protective cap or housing **12**, of a type known in the art, the cap **12** forming a recess

13 in which the device is positioned, in connected relation with respect to the end **14** of the conductor **11**. The conductor **11** includes a sheath **15** of insulated material which surrounds a metallic conductive wire **16**, the end **17** of which is bent through 180 degrees and soldered or otherwise connected to the device **10**.

As best seen in FIGURES 3, 4 and 5, the device **10** is formed of a flat spring metal strip, most conveniently formed in the annealed state, and subsequently hardened after the proper shape has been imparted. The strip is bounded by an inner surface **20**, an outer surface **21** and a continuous peripheral edge **22**. In completed form, there is provided a semicircular portion **23**, which is axially located with respect to the principal axis of the device, from which extend first and second generally rectilinear portions **24** and **24***a*. Extending inwardly, that is to say toward the principal axis from each of the portions **24** and **24***a* are a pair of elongated ribs **25** and **26**, each including a shallow end **27** and a relatively deep end **28**. The ribs **25–26** thus form converging surfaces adapted to provide a high degree of purchase on the insulative sheath **15** of the conductor **11**, such that strain exerted on the sheath is not transmitted to the wire **16**.

Connected to the ends of the portions **24** and **24***a* are first and second outwardly bent portions **31** and **32**, respectively which are connected, respectively, to third and fourth rectilinear portions **32** and **33** lying in a common plane, and extending outwardly from the portions **24–24***a* at a right angle. The outer ends of the portions **32–33** are connected to first and second inwardly bent portions **35** and **36**, connected in turn with fourth and fifth rectilinear portions **37** and **38** which converge inwardly at approximately a 45 degree angle. The inner ends of the portions **37–38** are connected to outwardly curved arcuate portions **39** and **40**, the opposite ends of the same being interconnected to angularly disposed rectilinear portions **41** and **42**.

The portions **41** and **42** are provided with curved end terminals at **43** and **44**, respectively, to facilitate entry into the opening **45** of a cathode ray tube anode connection **46** of conventional type.

In obtaining the engagement illustrated in FIGURES 1 and 2, a slight side and upward pressure may be exerted after one leg has already entered the connector, which will cause the compression necessary to narrow the effective width of the device to permit passage through the opening. Release of the device completes the electrical interconnection.

Turning now to the alternate form of the embodiment illustrated in FIGURE 6, parts corresponding to those of the principal form have been designated by corresponding reference characters with the additional prefix **1**.

In the alternate form, the elongated ribs **25** and **26** are substituted by lance barbs which perform a similar function. Upon engagement with a conductor, the same are resiliently deflected to permit passage of the same (part of the deflection being absorbed by the member **123**) and unintentional disengagement is prevented by the sharp terminals thereof digging into the insulation on the conductor.

We wish it to be understood that we do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

We claim:

1. Improved clip construction for use in connecting a conductor to an anode terminal of a cathode ray tube comprising: a unitary length of flat spring steel forming a semicirculary-shaped portion having an effective inter-

nal radius substantially corresponding to the outer diameter of an engaged conductor, said semicircular portion joining a pair of mutually parallel rectilinear portions, said rectilinear portions each having an inwardly directed conductor retaining means, whereby when said semicircular portion is in relatively unstressed condition, a conductor may be engaged over an arcuate distance greater than 180 degrees, a pair of outwardly extending portions each interconnected to one of said rectilinear portions substantially at right angles thereto, a pair of mutually converging members each interconnected to one of said outwardly extending portions, a pair of outwardly curved members each interconnected to one of said converging members, and a second part of outwardly extending members each interconnected to one of said last mentioned outwardly curved members.

2. Structure in accordance with claim 1, said construction being formed in an annealed state.

3. Structure in accordance with claim 1, said second pair of outwardly extending members each having a free end having a curved terminal edge.

4. Structure in accordance with claim 1, said retaining means including a pair of inwardly directed ribs of tapered configuration.

5. Structure in accordance with claim 1, said retaining means including a pair of inwardly directed lance barbs.

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MARVIN A. CHAMPION, *Primary Examiner.*

PERRY TEITELBAUM, *Assistant Examiner.*

U.S. Cl. X.R.

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