Aug. 18, 1959 J. W. LOVE 2,900,631

CENTERING AND MOUNTING MEANS FOR CATHODE RAY TUBES AND THE LIKE

Filed July 6, 1955

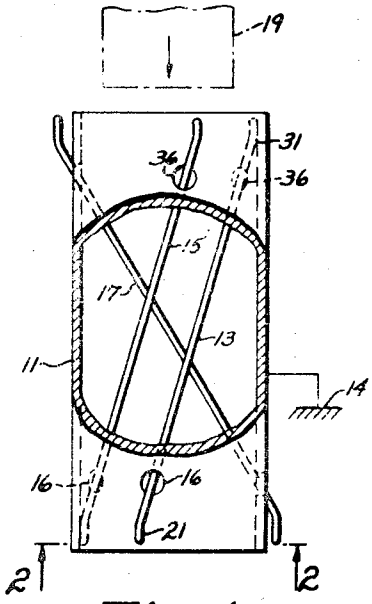

Fig. 1

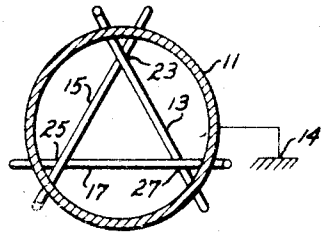

Fig. 2

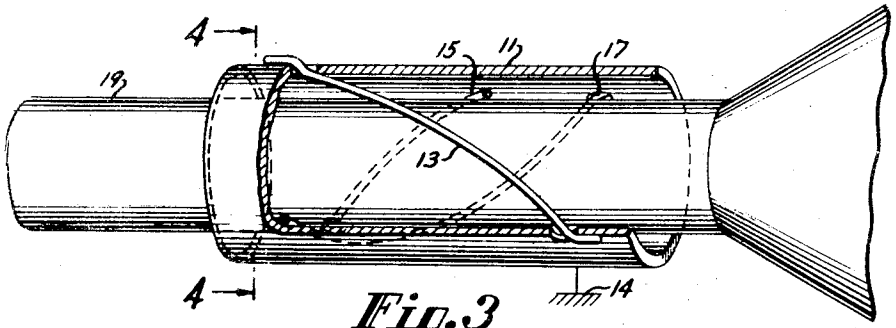

Fig. 3

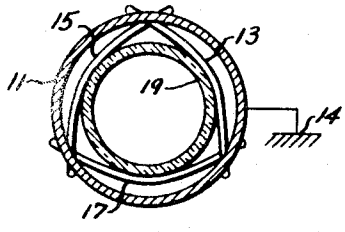

Fig. 4

INVENTOR.
JOHN W. LOVE

BY J. L. Whittaker

ATTORNEY

United States Patent Office 2,900,631 Patented Aug. 18, 1959

2,900,631

CENTERING AND MOUNTING MEANS FOR CATHODE RAY TUBES AND THE LIKE

John W. Love, Los Angeles, Calif., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Air Force

Application July 6, 1955, Serial No. 520,209

6 Claims. (Cl. 340—367)

This invention relates to an improved arrangement for resiliently supporting an elongated member such as the neck of a cathode ray tube.

It is a general object of the present invention to provide a mounting arrangement for a tubular element, such as a cathode ray tube or the like, which is simple, efficient and inexpensive.

It is another object of the invention to provide an improved resilient mounting which automatically centers in the mounting the device to be supported.

Yet another object of this invention is to provide an improved support for cathode ray tubes which automatically adapts to variations in tube dimensions.

According to the invention, a tubular supporting member is formed with a plurality of mounting means (apertures in one form of the invention) in opposite end portions thereof. In a preferred form of the invention the mounting means are equiangularly spaced from one another. A like plurality of flexible struts disposed in the tubular member are secured at opposite end portions thereof to corresponding ones of the mounting means. The struts are arranged relative to the mounting means so that they surround and lie at the same acute angle to the longitudinal axis of the tubular member.

When an object, such as the neck of a cathode ray tube, is inserted into the tubular member, it forces the struts apart. The struts center and resiliently hold the tubular member.

The invention will be described in greater detail with reference to the accompanying drawing in which similar reference characters apply to similar elements, and in which:

Figure 1 is a plan, partially cut-away view of a preferred embodiment of the invention;

Figure 2 is a cross-sectional view taken along line 2—2 of Figure 1;

Figure 3 is a plan, partially cut-away view of the embodiment of the invention shown in Figure 1, with a cathode ray tube in place in the mounting arrangement; and

Figure 4 is a cross-section along section line 4—4 of Figure 3.

Referring to Figure 1, three struts **13**, **15** and **17** are located within a hollow cylinder **11**. The cylinder **11** may be part of the shield for a cathode ray tube, such as those used in television receivers, or may simply be a piece of hollow tubing, preferably but not necessarily, circular in cross-section. The cylinder is rigidly fixed to the chassis by any well-known supporting means, such as a clamp, bracket or the like. This is illustrated in the figure by symbol **14**. The struts **13**, **15** and **17** extend in a generally longitudinal direction, making an acute angle with any line parallel to the longitudinal axis of the cylinder **11**.

In cross-section (Fig. 2) the wall of cylinder **11** appears as a circle and the struts **13**, **15** and **17** appear as equal chords of the circle. The apparent intersections

23, **25** and **27** of the chords form the points of a triangle into which the object to be supported is inserted.

The struts **13**, **15** and **17** may be constructed of resilient material, such as spring steel wire, bronze wire, or rubber, for example. If metal is employed, the ends **21** and **31** of the struts are bent (Figure 1) and inserted through holes **16** and **36** in respective opposite end portions of the cylinder **11**. After installation, the struts straighten out as shown in Figure 1. If the struts **13**, **15** and **17** are made of material such as rubber, the ends may be firmly secured by hooks, clamps or the like to the respective opposite end portions of the cylinder wall.

When an object is inserted between the struts **13**, **15** and **17**, they are bowed outwardly toward the cylinder wall **11** (Fig. 3). The bent end portions **21** and **31** of the struts engage the edges of their respective mounting apertures and this prevents the struts from working free.

The way in which the resilient struts **13**, **15** and **17** are deformed by the insertion of an object, such as the neck **19** of a cathode ray tube, is illustrated in Figs. 3 and 4. The struts **13**, **15** and **17** curve around the neck **19**, and by resilient action, firmly clamp the neck **19** in place.

For perfect centering of an object within the cylinder **11**, symmetrical spacing of the struts **13**, **15** and **17** is required, so that the triangle formed by the strut sides, as viewed in Fig. 2, symmetrically encloses the longitudinal axis of the cylinder **11**.

Greater pressure can be exerted on the supported object if the struts **13**, **15** and **17** are arranged to form a triangle, as viewed from one end of the supporting member, which is somewhat smaller in cross-section than the object to be inserted therein for mounting.

Although a form of the invention employing only 3 struts is illustrated, the invention is equally applicable to the use of 4, 5 or more such struts. Moreover, the tubular member may be square, oval or of other cross-sectional configuration.

What is claimed is:

1. A supporting structure for the neck of a cathode ray tube comprising a tubular member formed with a given plurality of mounting means equi-angularly spaced from one another relative to the axis of said member at one end portion of said tubular member, and a like plurality of mounting means equi-angularly spaced from one another relative to the axis of said member at the opposite end portion of said tubular member; and a plurality of flexible struts, equal in number to said first plurality of mounting means, each supported at one end theerof by one of the mounting means at one end portion of the tubular member and at the other end thereof by one of the mounting means at the other end portion of said tubular member, said struts positioned entirely within said tubular member intermediate said strut ends, successive ones of said struts being mounted to successive ones of said mounting means, and each of said struts being at the same acute angle with the axis of said tubular member.

2. A supporting structure as set forth in claim 1, wherein said struts are formed of spring metal and wherein there are at least three mounting means at each end portion of said tubular member.

3. A supporting structure as set forth in claim 1, wherein said tubular member comprises a rigid, elongated, hollow cylinder.

4. A supporting structure as set forth in claim 3, wherein said supporting means comprise apertures formed in said tubular member and said struts comprise resilient members.

5. In combination, a rigid tubular member formed with a given plurality of mounting means equi-angularly spaced from one another relative to the axis of said mem-

ber at one end portion of said member, and a like plurality of mounting means equi-angularly spaced from one another relative to the axis of said member at the opposite end portion of said member; and a plurality of substantially straight wires formed of spring metal, equal in number to said first plurality of mounting means, each supported at one end thereof by one of the mounting means at one end portion of the tubular member and at the other end thereof by one of the mounting means at the other end portion of said tubular member, said wires positioned entirely within said tubular member intermediate said wire ends, successive ones of said wires being mounted to successive one of said mounting means, and each of said wires being at the same acute angle to the axis of said tubular member.

6. A supporting structure for an elongated object comprising, in combination, a rigid tubular member having a central longitudinal axis, said tubular member having formed on each end thereof at least three apertures spaced circumferentially about said member, the apertures at opposite ends of the member being displaced relative to each other along said longitudinal axis, a plurality of straight resilient strut members disposed within said tubular member, the ends of each strut member being bent substantially S-shaped and positioned in a longitudinal disposed pair of apertures whereby the strut members are positioned within the tubular member at an angle to the longitudinal axis of the tubular member, said strut members being spaced, intermediate their ends, from the interior surface of the tubular member for resiliently supporting a member positioned therebetween.

References Cited in the file of this patent

UNITED STATES PATENTS

1,499,217	Hibbard	June 24, 1924
2,515,592	Cruze	July 18, 1950

FOREIGN PATENTS

22,775	Great Britain	Oct. 1, 1910