United States Patent [19]

Alfrich et al.

[11] **3,829,804**

[45] **Aug. 13, 1974**

[54] **DEFLECTION YOKE MOUNTING ASSEMBLY**

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[22] Filed: **Nov. 14, 1973**

[21] Appl. No.: **415,717**

[52] **U.S. Cl.** **335/210,** 178/7.8

[51] **Int. Cl.** **H01f 7/00**

[58] **Field of Search** 335/210, 212, 213; 313/75; 178/7.8

[56] **References Cited**

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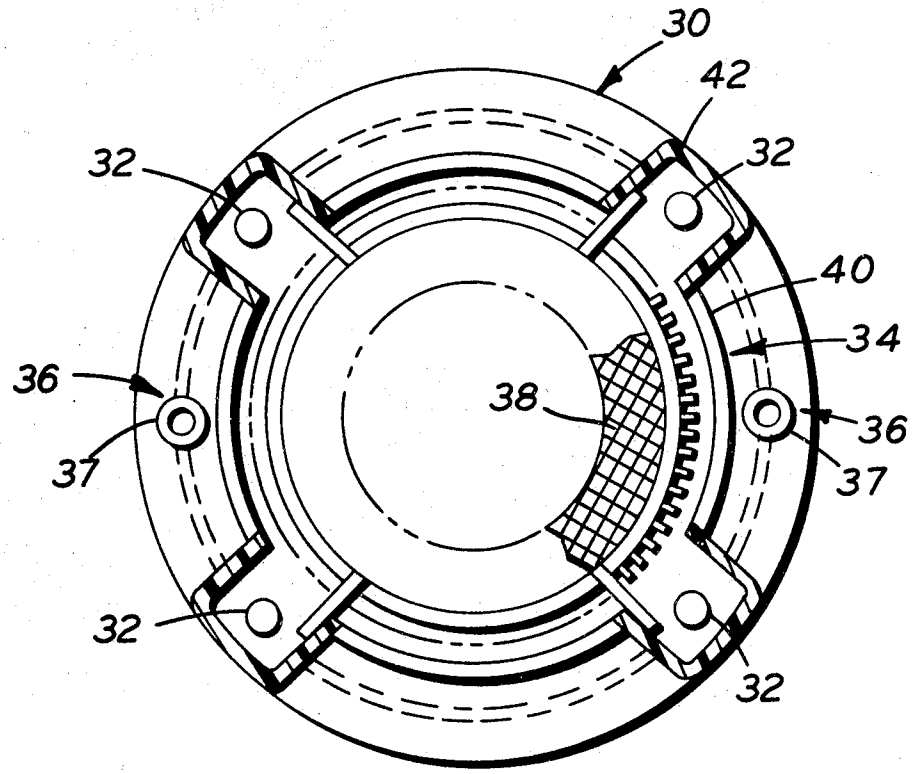
Primary Examiner—G. Harris

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[57] **ABSTRACT**

A deflection yoke mounting assembly for semi-permanently mounting a deflection yoke in operative position on the neck of a cathode ray tube is provided. The assembly comprises an annular tube ring having six spaced projecting hollow studs which is to be bonded to the rear of a tube. A yoke retainer ring carrying a deflection yoke has four hollow pockets which receive four of the hollow studs. A hardenable adhesive is dispensed into the hollow pockets and about the four studs and simultaneously into the two remaining hollow-studs whereby the yoke retainer ring is bonded to the annular tube ring and the annular tube ring is bonded to the tube in a single operation.

6 Claims, 5 Drawing Figures



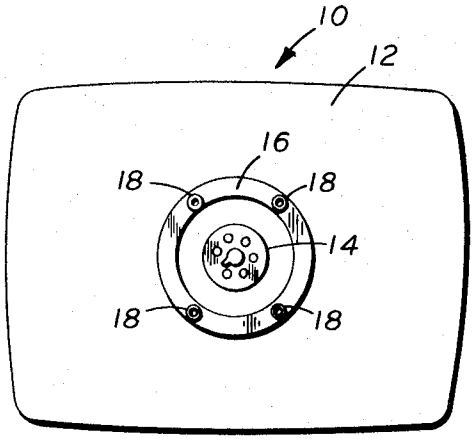


Fig. 1
PRIOR ART

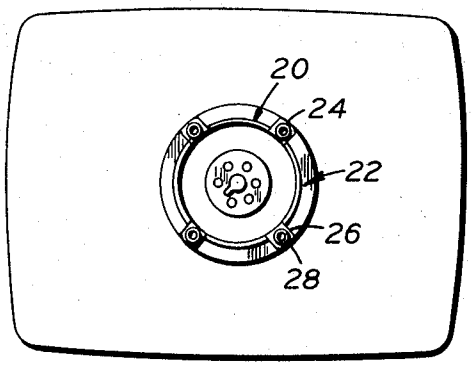


Fig. 2
PRIOR ART

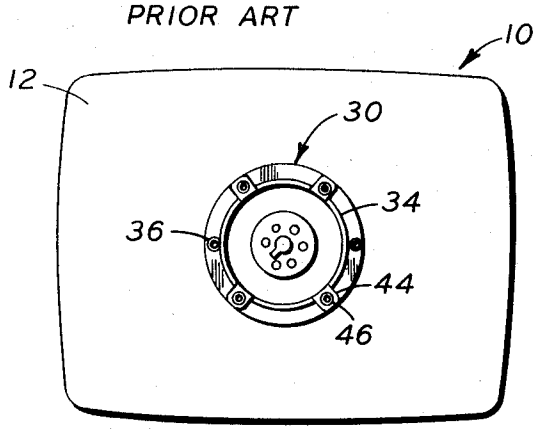


Fig. 3

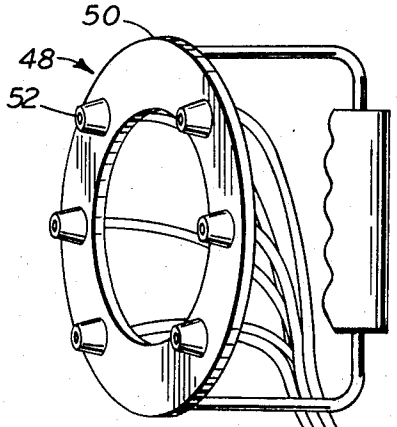


Fig. 5

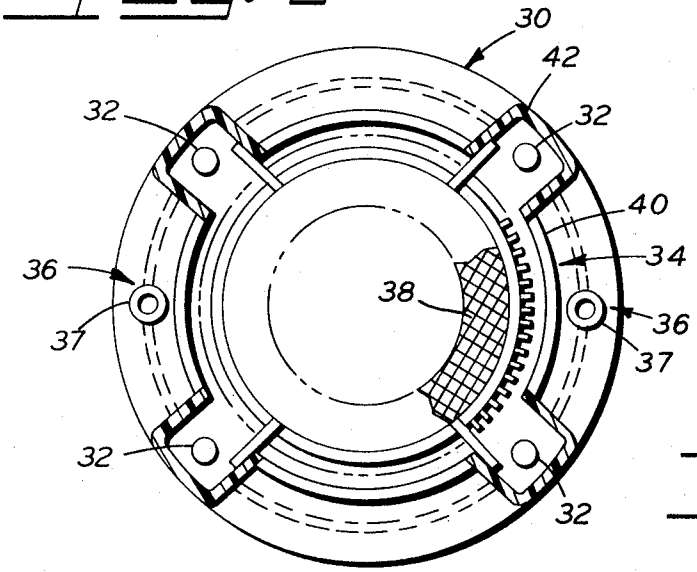


Fig. 4

DEFLECTION YOKE MOUNTING ASSEMBLY

BACKGROUND OF THE INVENTION

This invention relates to cathode ray tube deflection yokes and more particularly to a mounting assembly for semi-permanently mounting a deflection yoke in operable position upon a cathode ray tube. The prior art construction of television receivers or similar apparatus utilizing cathode ray tubes generally employed a complex mounting arrangement within the receiver for mounting the deflection yoke. The cathode ray tube was then generally fitted into the yoke. It has been recently proposed that a more suitable method would be to permanently or semi-permanently attach the deflection yoke to the cathode ray tube at the time the cathode ray tube is manufactured. It is with the latter method of mounting a yoke that this invention is particularly concerned. The prior mounting practices involved establishing the position, in the appropriate place, of an annular tube ring. The annular tube ring is generally of a plastic material and fits against the rear wall of the cathode ray tube in a position substantially surrounding the cylindrical projecting neck of the tube. The annular tube ring is provided with a hollow interior and has a plurality of hollow projecting studs extending therefrom in a direction substantially parallel to the neck of the cathode ray tube. With the tube ring being held in its desired position a hot hardenable adhesive was forced through the hollows of the projecting studs and allowed to flow about the hollow interior of the tube ring. A suitable material will generally harden in 2 to 10 minutes. After the tube ring was mounted, a yoke retainer ring, also generally of plastic material, and having a deflection yoke mounted therein, was positioned to be mounted upon the annular tube ring. The yoke retainer ring was provided with a number of hollow pockets having an adhesive fill opening therein. The yoke retainer ring was held in a jig which allowed for three-directional movement; i.e., movement along an X, Y and Z axis. The hollow pockets surrounded the projecting studs and after appropriate signals were applied to the tube and the deflection yoke to determine its optimum position, a hot hardenable adhesive was forced through the adhesive fill openings in the hollow pockets and surrounded the projecting studs of the tube ring. After hardening, the attaching jib could be removed and the yoke was left in a semi-permanently bonded position upon the cathode ray tube. While this procedure has worked well it has been quite expensive and time consuming in that at least two bonding or glueing operations were necessary. In view of the automated procedures generally employed in manufacturing plants this double glueing operation is not desirable.

OBJECTS AND SUMMARY OF THE INVENTION

It is, therefore, an object of this invention to obviate the disadvantages of the prior art.

It is yet another object of this invention to eliminate one of the prior art glueing operations.

It is yet another object of the invention to provide an enhanced annular tube ring.

Still another object of the invention is to provide a method of mounting a deflection yoke which employs only one glueing operation.

These objects are accomplished in one aspect of the invention by the provision of a deflection yoke mounting assembly which comprises an annular tube ring and a yoke retainer ring. The annular tube ring has first means for supporting the yoke retainer ring and second means distinct from the first means for use in bonding the tube ring to the rear wall of a cathode ray tube. The employment of the separate and distinct means for attaching the tube ring to the rear wall of the cathode ray tube and for mounting the yoke retainer ring allows the use of a single glueing operation. The single glueing operation results in a savings of time, and a saving of operator cost.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a rear elevational view of a prior art form of the invention;

FIG. **2** is also an illustration of a prior art form of yoke mounting;

FIG. **3** is a rear view of a cathode ray tube illustrating the invention;

FIG. **4** is an enlarged view partially in section showing in more detail the tube ring and yoke retainer ring of the invention; and

FIG. **5** is a diagrammatic perspective view of a hot adhesive dispensing head which can be employed with the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

For a better understanding of the present invention together with other and further objects, advantages and capabilities thereof, reference is made to the following disclosure and appended claims in conjunction with the above-described drawings.

Referring now to the drawings with greater particularity, there is shown in FIGS. **1** and **2** a prior art mounting assembly. In FIG. **1** a cathode ray tube **10** is shown in diagrammatic elevation as having a rear wall **12** and a projecting cylindrical neck **14.** Substantially surrounding the neck **14** is an annular tube ring **16.** The ring **16** was provided with four projecting hollow studs **18.** The hollows in the studs **18** communicated with the hollow interior of tube ring **16.** When tube ring **16** was first mounted in position upon the rear wall **12** of tube **10,** it was maintained in that position by some means such as a jig, not shown. A hardenable adhesive in fluid form was forced through the hollows in studs **18** in an amount sufficient to penetrate the hollow interior of tube ring **16** and under sufficient pressure to cause it to flow about the internal periphery thereof. After sufficient adhesive was inserted, it was allowed to harden thus bonding tube ring **16** to the rear wall **12** of tube **10.**

Thereafter, a yoke retainer ring **20** which is formed of a plastic material having a circumferential wall **22** provided with a plurality of projecting hollow pockets **24** was positioned over the studs **18** of tube ring **16.** That is, the studs **18** were encompassed and surrounded by the hollow pockets **24.** For purposes of clarity, the yoke itself is not shown in FIG. **2.** The hollow pockets **24** had a closed bottom portion **26** which was provided with an adhesive receiving aperture **28.** Again, the yoke retainer ring **20** was maintained in position by a suitable jig which is not shown. After the optimum position of the yoke had been determined, a similar liquid, hardenable adhesive was forced through

adhesive apertures **28** in an amount sufficient to substantially fill hollow pockets **24** and surround the encompassed studs **18.** After a sufficient amount of adhesive had been dispensed it was allowed to harden. This prior mounting technique utilizing the prior assembly required two separate bonding operations. These separate bonding operations entail a good deal of time since it is necessary for each of the dispensed adhesive to harden before going on to the next step in the operation.

In order to obviate the above disadvantages, the mounting assembly shown in FIG. **4** is provided. Herein a tube ring **30** is formed with first means **32** for supporting a yoke retainer ring **34** and second means **36** for achieving the bond between the tube ring **30** and the rear wall **12** of a cathode ray tube **10.** The second means **36** are separate and distinct from first means **32.** In this particular instance and referring again particularly to FIG. **4,** it can be seen that first means **32** can comprise projecting studs. The studs in this instance do not have to be hollow although that is permissible. The second means **36,** spaced from and separate and distinct from first means **32,** comprise projecting hollow studs **37.** These hollow studs communicate with the interior of tube ring **30.** To utilize the above-described assembly, the tube ring **30** is mounted in suitable position on the rear wall **12** of tube **10** and is maintained in that position as by a suitable jig. Yoke retainer ring **34** containing a yoke **38,** which is shown diagrammatically and partly in section in FIG. **4,** therein is then mounted in suitable position over the first means **32.** The yoke retainer ring **34** is similar to that described in regard to the prior art and contains a circumferential wall **40** being provided with a plurality of projecting hollow pockets **42** which are shown in section in FIG. **4.** The first means **32** are encompassed within the hollow pockets **42.** Again, the hollow pockets have a closed bottom portion **44** as can be seen in FIG. **3** and are provided with adhesive receiving apertures **46.** With tube ring **30** and yoke retainer ring **34** now mounted and held in position and the yoke position itself optimized, both units can be sealed simultaneously. This can be accomplished by a single adhesive dispensing gun such as is shown diagrammatically in FIG. **5.** Herein, the adhesive dispensing gun **48** is shown as comprising an annular ring **50** which carries adhesive dispensing tips **52.** In this instance six dispensing tips **52** are shown, four of which will dispense adhesive into adhesive receiving apertures **46** in hollow pockets **42** and two of which will dispense adhesive into second means **36.** The simultaneous dispensing of the hardenable adhesive eliminates one of the prior art bonding operations and reduces the cost of the assembly. It also reduces the time necessary to complete the assembly since all of the adhesive is dispensed simultaneously and thus all of the dispensed adhesive will harden at substantially the same time. When hardened, the accompanying positioning jigs can be removed and the completed cathode ray tube with its semi-permanently bonded yoke will be ready for assembly into a television receiver.

While there have been shown what are at present considered to be the preferred embodiments of the invention, it will be apparent to those skilled in the art that various changes and modifications can be made herein without departing from the scope of the invention as defined by the appended claims.

What is claimed is:

1. A deflection yoke mounting assembly comprising: an annular tube ring; and a yoke retainer ring; said annular tube ring having first means for supporting said yoke retainer ring; and second means, distinct from said first means, for use in bonding said tube ring to the rear wall of a cathode ray tube.

2. The assembly of claim **1** wherein said tube ring has an angled circumferential wall and said first and second means project rearwardly from said wall.

3. The assembly of claim **2** wherein said first and second means are in the form of extending studs and at least said second means are hollow.

4. The assembly of claim **3** wherein said tube ring is provided with at least an internal hollow groove which communicates with said hollows in said second means.

5. The assembly of claim **4** wherein said yoke retainer ring has a circumferential wall containing a plurality of hollow pockets, which cooperate with said first means of said tube ring.

6. The assembly of claim **5** wherein said tube ring is sealed to the rear wall of a cathode ray tube by a hardenable adhesive and said yoke retainer ring is sealed to said tube ring by a hardenable adhesive substantially filling said hollow pockets and surrounding said first means which are positioned within said hollow pockets.

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