Dec. 23, 1958 R. A. FISCH 2,866,187

INSULATING SHIELD AND MOUNTING DEVICE FOR COLOR TELEVISION TUBES

Filed July 11, 1955

FIG. 1

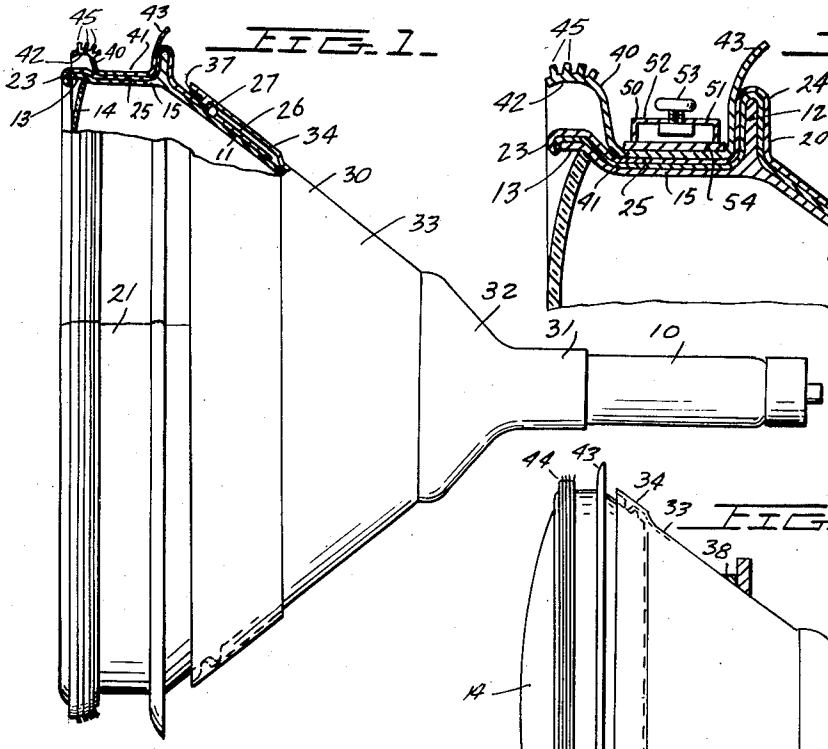


FIG. 3

FIG. 5

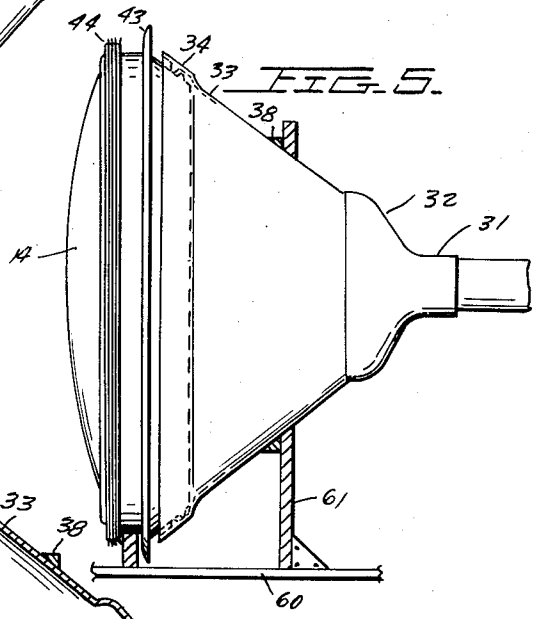
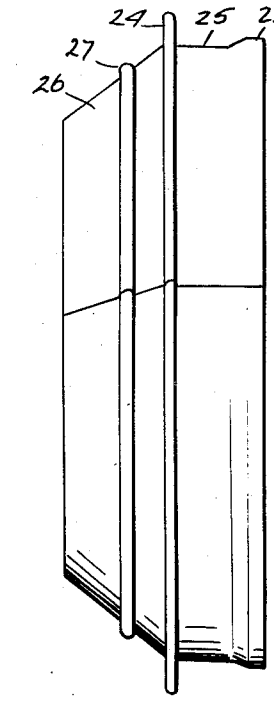


FIG. 2



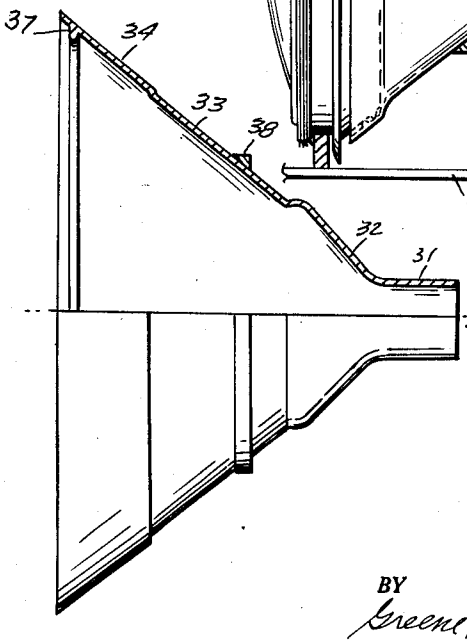


FIG. 4

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INSULATING SHIELD AND MOUNTING DEVICE FOR COLOR TELEVISION TUBES

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3 Claims. (Cl. 340—367)

This invention relates to an insulating and mounting device for metal backed cathode ray tubes employed in color television.

Among the objects of the invention is to provide an insulating and mounting device for color television picture tubes in which the parts thereof cooperate to provide an interlocking structure.

Among other objects of the invention is to provide a plural part insulating shield for metal backed color television tubes of the type having a peripheral projecting flange adjacent the larger part of the metal backing part of the tube in which portions of the insulating shield parts overlap to provide for the complete insulation of the tube.

These objects and others ancillary thereto are obtained by providing an insulation device comprising a gapped ring member adapted to fit around the end portion and overlap at the open ends of the gapped ring, and a cone member adapted to fit around the conical part of the tube and extend up to and beyond the rear edge of the gapped ring. The cone member comprises an offset portion at the larger end thereof adapted to overlap the lower edge of the gapped ring including the overlapped ends of the latter whereby the cone member holds the gapped ring in place on the tube. In addition, interlocking beads may be formed on the interior of the offset portion of the cone member or on the exterior of that portion of the ring which is overlapped by the cone member. An additional insulating ring may be provided to fit into the portion of the tube between the flange and the lens and provide a support for a strap, holding magnets, which is placed around the color TV tube.

The invention both as to its organization and its method of operation together with additional objects and advantages thereof will best be understood from the following description of specific embodiments thereof when read in connection with the accompanying drawing in which

Fig. 1 is a side view of a color television tube with the insulating device of the invention applied thereto.

Fig. 2 is a detail view of the insulating ring.

Fig. 3 is a cross-sectional detail view of the insulating ring, taken on line 3—3 of Fig. 1, with the magnet ring added.

Fig. 4 is a side view, partly in cross section, of a modified form of the cone member.

Fig. 5 is a side view of a tube mounted with the aid of the ring and cone member of the invention.

The color television tube **10** comprises a metal backing member **11** of generally frustoconical shape with a peripheral flange **12** extending around the larger end adjacent to but spaced from the edge **13** of the larger end. The edge **13** is also flanged to provide a seat for the glass lens **14**. Between flange **12** and edge **13** is a flat depressed area **15**. These are the general characteristic parts of a color TV tube although the various dimensions of the parts may vary widely.

The insulating shield of the invention comprises two or three parts, the ring member **20**, the cone member **30** and the magnet insulator **40**. The ring member **20** is gapped or open so that it can be wrapped around the large end of the metal backing section **11**. An overlap of at least 6 inches at the gapped ends **21** and **22** of the ring is provided. The ring has an internal flange **23** at the edge thereof adapted to lock onto the edge **14** of the metal backing member **11** and a grooved portion **24** adapted to fit about the flange **12** of the tube **10**. Between grooved portion **24** and interior flange **23** of the ring is the flat portion **25** adapted to fit snugly into the similar flat portion **15** of the tube **10**.

The rear apron portion **26** of ring **20** includes a bead **27** extending at least part of the distance around the said apron **26**. This bead **27** may have an almost vertical front wall (as shown in Fig. 3) to provide an interlocking engagement with a similar bead **37** on the cone member **30**.

The cone member **30** is formed to fit snugly about the smaller conical end portion of the tube. Thus this cone member **30** has (*a*) a small tubular portion **31** for fitting about the corresponding section of tube **10**, (*b*) an enlarged portion **32** fitting about the glass bulb section of tube **10**, (*c*) a frusto conical portion **33** for fitting about the metal backing **11** and (*d*) an edge section **34** which is slightly offset outwardly from the section **33** so as to overlap the lower edge portion of ring **20** and especially to overlap and hold in place the overlapped ends of the said ring **20**. The portion **34** also includes an interior bead **37** which is adapted to interlock with bead **27** on the ring **20**. In this way the cone member **30** locks the ring **20** in position about the end of tube **10**. These parts actually fit rather tightly together although for clarity the various overlapping portions are shown in spaced relationship. Thus the bead member **27** of the ring **20** serves also to hold the cone member **30** in place on the tube **10**.

The part **40** is a second ring member made of insulating material. This ring member **40** has the flat central portion **41** and the two outwardly extending flanges **42** and **43**. The flat portion **41** is adapted to receive the straps **43**, on which magnets **51** are mounted by means of a bridge **50** which comprises the hollow or channel housing **52**. The magnets **51** (only one shown) are adjustably held in position by wing nuts **53**. Since the parts **51** to **54** are metallic it is necessary to avoid any leakage from the metal back **11** of tube **10** to the said coil **50**. The necessary extended creepage path is provided by the flanges **42** and **43**. The flange **42** is short enough so as not to interfere with the mounting of the tube in a cabinet, for example, but in order to assure a long creepage path of at least 5 inches, a plurality of smaller flanges **45** are formed thereon.

In practice the gapped ring **20** it fitted about the flanges **12** and **13** of the tube **10** and the cone portion **30** is applied with the edge portion **34** overlapping the inner edge **26** of the ring **20** and the bead **37** is snapped over the bead **27**. The insulating ring **40** is then applied and the coil **50** is fitted in place. The tube is then ready for mounting on the chassis of a color TV set.

In order to provide for accurate mounting of the tube in the chassis **50** of a television set the additional bead **38** on the outside of the cone member **30** may be provided as shown in Figs. 4 and 5. This bead **38** is formed on the cone member **30** along a line which corresponds to the position of a yoke member **61** in chassis **60**.

The features and principles underlying the invention described above in connection with specific exemplifications will suggest to those skilled in the art many other

modifications thereof. It is accordingly desired that the appended claims shall not be limited to any specific feature or details thereof.

This application is a continuation-in-part of U. S. application Serial No. 481,620, filed January 13, 1955.

We claim:

1. A plural part insulating shield for a metal-backed color cathode ray tube of the type having an outwardly projecting flange adjacent the lens end thereof, comprising a first overlapping gapped ring member having an internal peripheral groove adapted to extend over the said flange of the cathode ray tube, the interior edge portion of said ring extending beyond said flange and over a substantial portion of the metal backed area of the tube, said first gapped ring having an interior flange on the front edge portion adapted to extend over the corresponding front edge portion of the cathode ray tube adjacent the lens thereof and an exterior bead extending along the interior edge portion thereof, and in combination therewith a conical insulating member adapted to extend from the glass portion of the cathode ray tube substantially up to the flange of the latter, said conical portion fitting snugly about said tube and including an interior bead adjacent the edge portion of the larger end thereof adapted to interlock with the exterior bead of the first gapped ring member whereby the said parts cooperate to completely cover all metal portions of the cathode ray tube and to lock each other in position.

2. The device as set forth in claim 1 comprising in addition a second ring member adapted to fit outside of the first gapped ring member in the area between the peripheral groove and the interior flange of said first gapped ring member, said second ring member having an exteriorly extending peripheral flange portion at each side thereof whereby to provide an extended creepage path of at least 5 inches between the metal portion of said tube and a metal coil extending around said second member.

3. The device as set forth in claim 1 comprising an exterior bead on the outside of the conical member having a substantially vertical rear wall adapted to position the tube enclosed by the conical member with respect to a support on the chassis of a TV set.

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