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G. H. BLAKER ET AL

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POSITIONING STRUCTURE FOR CATHODE-RAY TUBES

Filed May 20, 1950

3 Sheets-Sheet 1

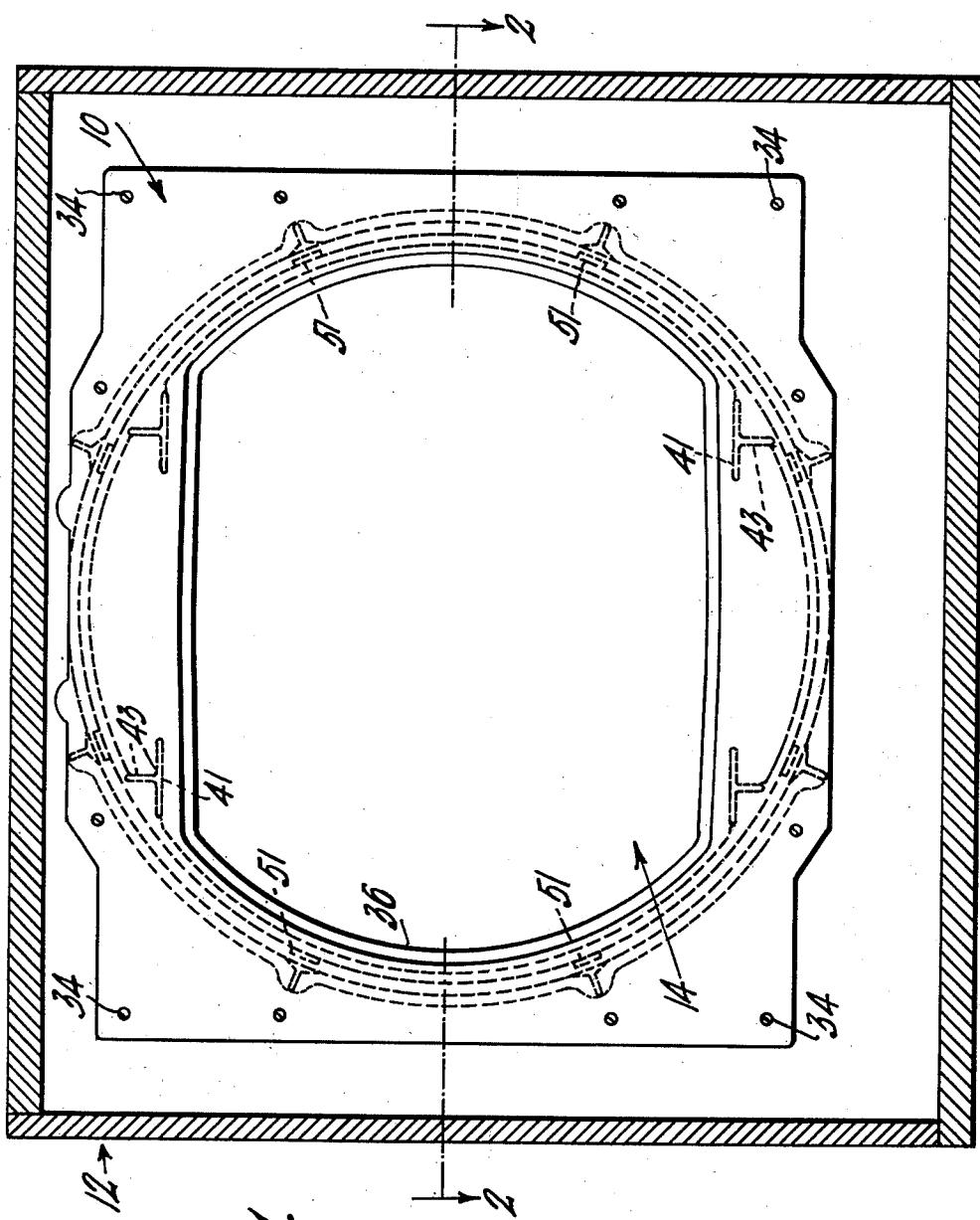


Fig. 1.

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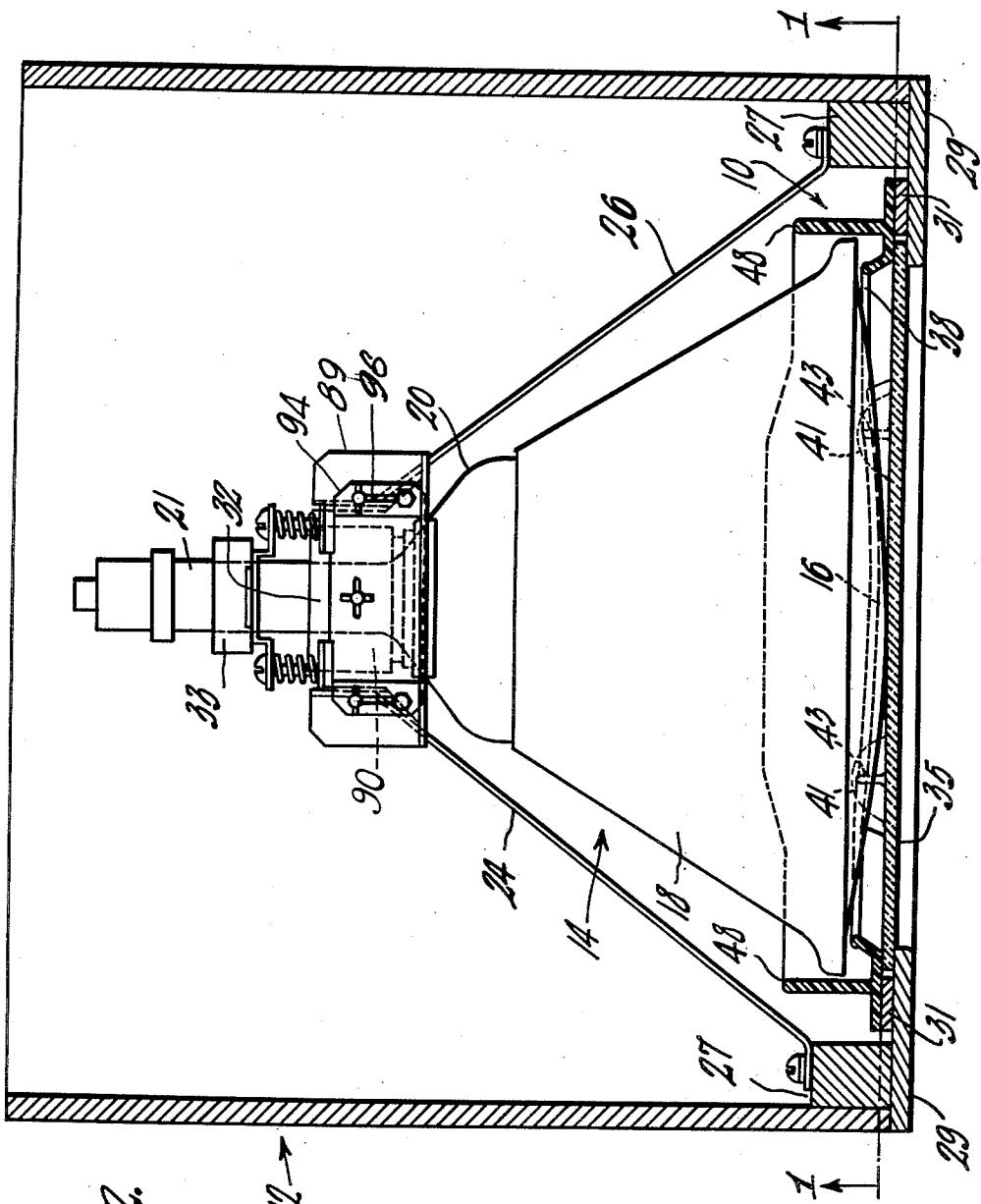
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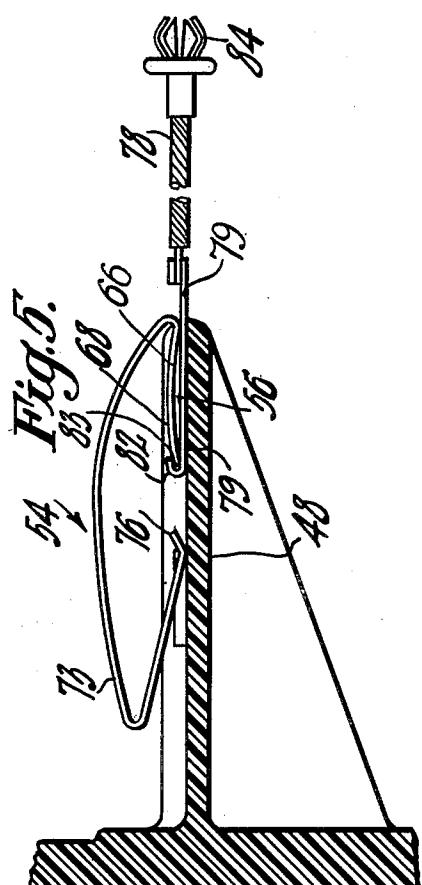
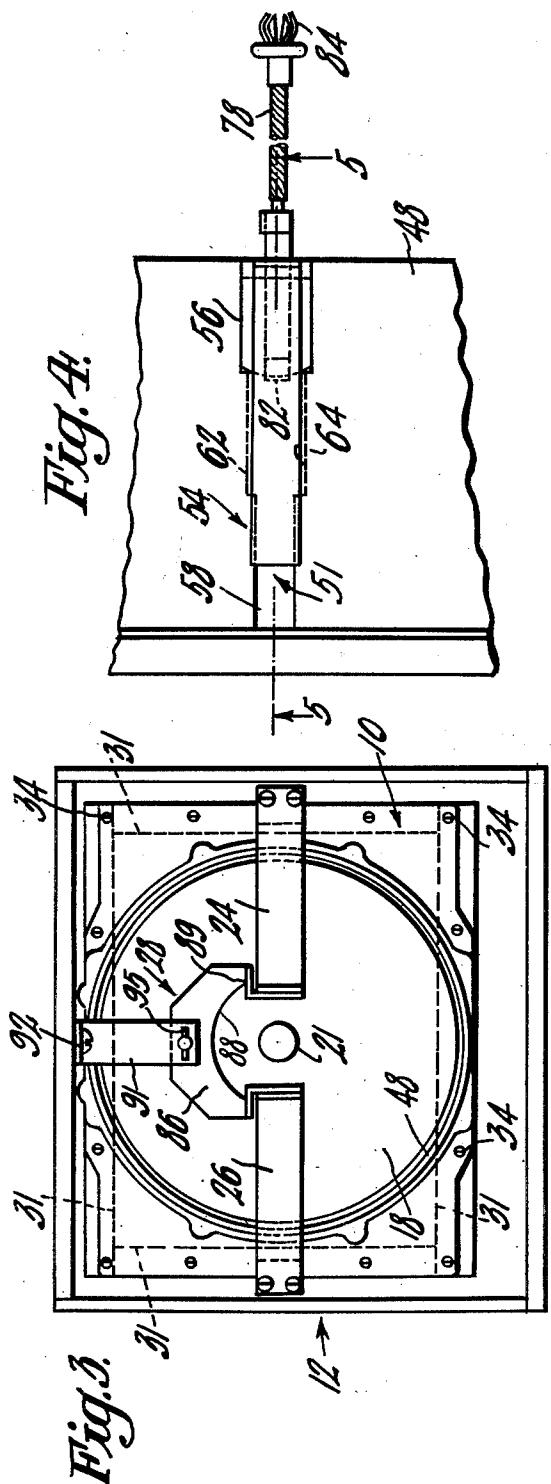
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POSITIONING STRUCTURE FOR CATHODE-RAY TUBES

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POSITIONING STRUCTURE FOR
CATHODE-RAY TUBES

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5 Claims. (Cl. 340—367)

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This invention bears on supports for cathode ray tubes namely, but not exclusively, on an improved means for positioning a high voltage cathode ray tube with respect to a cabinet.

The invention provides an insulated mask for the tube face having a collar and springs to center the tube rim. Also, a support positions the deflection yoke and the focus coil. The mask and support are cabinet mounted in the final assembly. A novel contact means provides second anode voltage for the tube.

One aim is to support a high voltage cathode ray tube in a cabinet.

Another aim is to provide a novel insulating mask for a cathode ray tube. This mask may be attached to a cabinet.

A further object is to provide a novel high voltage connection for a cathode ray tube.

Other objects will be seen by reading this specification which refers to the drawing in which:

Figure 1 is a sectional front elevational view of apparatus embodying the invention, the section being taken on line 1—1 of Fig. 2;

Figure 2 is a top plan view in section of the apparatus of Fig. 1, the section being taken on line 2—2 of Fig. 1;

Figure 3 is a view in rear elevation showing the yoke and coil support;

Figure 4 is a fragmentary radial view of one support spring and a high voltage connector in position; and

Figure 5 is a fragmentary section on line 5—5 of Fig. 4.

Reference numeral 10 indicates the mask which is located in a cabinet or case 12. The case 12 is designed to contain a television receiver including an image tube 14. The tube 14 is of the high-voltage type, for example, having a metal cone 18, a glass part 20, and a neck 21. Straps or rods 24 and 26 are secured to a support 28. One end of each strap is fixed to blocks 27 on the case front 29. The deflecting yoke 32 and the focusing coil 33, shown in outline, are suitably secured to the support 28. Strips 31 inside of the case front 29 serve to locate a pane of safety glass 35 to cover an opening in the case front. The mask 10 is secured to the strips 31 by screws 34.

The mask 10 has an opening 36 that outlines the image on the end 16 of the tube 14. The opening 36 is framed by an offset rim 38 which enables the opening to follow the contour of the tube face.

The mask 10 is provided with four lips 41 which engage the tube face 16 to limit motion of the

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tube 14. The tube face rests against these lips 41. Each lip 41 is braced by a rib 43. The entire mask 10 may be molded from plastic material of high insulating value. The front opening 36 of the mask may be filled in with transparent molded plastic to do away with the need for safety glass.

The mask 10 is provided with a collar 48 which receives the rim of the tube 14. At points spaced around the collar, grooves 51 are provided to receive springs 54. The grooves have a widened end 56 and a narrower part 58. The narrower part is undercut as indicated at 62 to provide shallow grooves 64 which receive the edges 66 of the enlarged bowed part 68 of the spring 54. Eight of these springs are employed in the showing of this example. Each spring 54 is of one piece and includes a bowed part 73 against which the tube rim rests. An inturned narrow end 76 rests in the narrow part 58 of the groove in the collar.

The high voltage connection to the metal rim and metal cone 18 of the tube is made by a cable 78 having a clip 79 at its end. The clip is provided with an inturned tongue 82 which fits over the end 83 of the part 68 of one of the springs 54. A suitable connector 84 goes to the power supply terminal (not shown).

The support 28 comprises an end plate 86 having an arched opening 88 to provide clearance for a cushioned yoke housing 90. The slotted ears 94 of this yoke housing may be secured to flat portions 89 of the support 28 by suitable screw or bolt connections passing through the slots 96 of the ears. A mounting bracket 91 has an inturned end 92 which is adapted to be secured to the top of the case 12. The end plate 86 has an enlarged opening which receives a bolt and thumb nut 95 for clamping the bracket 91. The enlarged opening allows for variations in size of the cabinet or case 12. The focusing coil may be carried by the yoke housing.

In assembling the tube 14 into the case 12, the tube is inserted in the collar 48. The yoke housing 90 is pushed forward until the cushions thereon make contact with the cone 18 of the tube. The bracket 91 is then secured to the end plate 86. The tube mounting then gives a secure self-centered mounting and enables the case 12 and the instrument therein to be handled with the tube 14 ready for operation.

What is claimed is:

1. A cathode ray tube appliance comprising a cabinet for housing a cathode ray tube of the type having a flaring conductive conical part

with a conductive rim and a neck, said cabinet having a front wall and a top, a bracket having means to support the neck of a cathode ray tube positioned in said cabinet, an insulating mask having a cylindrical collar for supporting the rim of the tube, and grooves in said cylindrical collar to receive conductive spacing springs, each spacing spring comprising an enlarged portion to be slidably engaged in one of said grooves, a bowed portion to resiliently press against the rim and an end portion to lie against said cylindrical support.

2. In a television receiver, the combination comprising a cabinet for housing a television receiver chassis and a cathode ray tube of the type having a viewing face, a flaring conductive conical part and a neck, said cabinet having a front wall and a top, an insulating mask secured to said front wall and against which said viewing face of said tube rests, a support member, positioning rods connected to said support member and to said cabinet front wall, said support member having means to receive a tube neck supporting structure, said mask having a cylindrical collar provided with circumferentially spaced grooves on the inside surface thereof, and spacing springs for supporting the rim of said tube, each of said springs being seated in one of said circumferentially spaced grooves.

3. In a television receiver, the combination comprising a cabinet for housing a television receiver chassis and a cathode ray tube of the type having a viewing face, a flaring conductive conical part and a neck, said cabinet having a front wall and a top, an insulating mask secured to said front wall and against which said viewing face of the tube rests, a support member, positioning rods connected to said support member and to said cabinet front wall, a bracket connected to said support member and said cabinet top, said bracket having means to receive a tube neck supporting structure, said mask having a cylindrical collar provided with circumferentially spaced grooves on the inside surface thereof, and spacing springs for supporting the rim of the tube, each of said springs being seated in one of said circumferentially spaced grooves.

4. In a television receiver, the combination comprising a cabinet for housing a television receiver chassis and a cathode ray tube of the type having a viewing face, a flaring conductive conical part and a neck, said cabinet having a front wall and a top, an insulating mask secured to said front wall and against which said viewing face of the tube rests, a support member comprising a vertical portion having an arcuate open-

ing to accommodate the tube neck and focusing and deflecting coils surrounding the neck and having horizontally extending portions, positioning straps connected to said horizontally extending portions and to said cabinet front wall, said mask having a cylindrical collar provided with circumferentially spaced grooves on the inside surface thereof, and spacing springs for supporting the rim of the tube, each of said springs being seated in one of said circumferentially spaced grooves.

5. In a television receiver, the combination comprising a cabinet for housing a television receiver chassis and a cathode ray tube of the type having a viewing face, a flaring conductive conical part and a neck, said cabinet having a front wall and a top, an insulating mask secured to said front wall and against which said viewing face of the tube rests, a support member including a vertical portion having an arcuate opening to accommodate the tube neck and a yoke housing surrounding the neck, and also including horizontally extending portions, said yoke housing having horizontally extending ears connected to said horizontally extending portions of the support member, a bracket connected to the vertical portion of said support member and to said cabinet top, positioning straps connected to said horizontally extending portions and to said cabinet front wall, said mask having a cylindrical collar provided with circumferentially spaced grooves on the inside surface thereof, and spacing springs for supporting the rim of the tube, each of said springs being seated in one of said circumferentially spaced grooves.

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