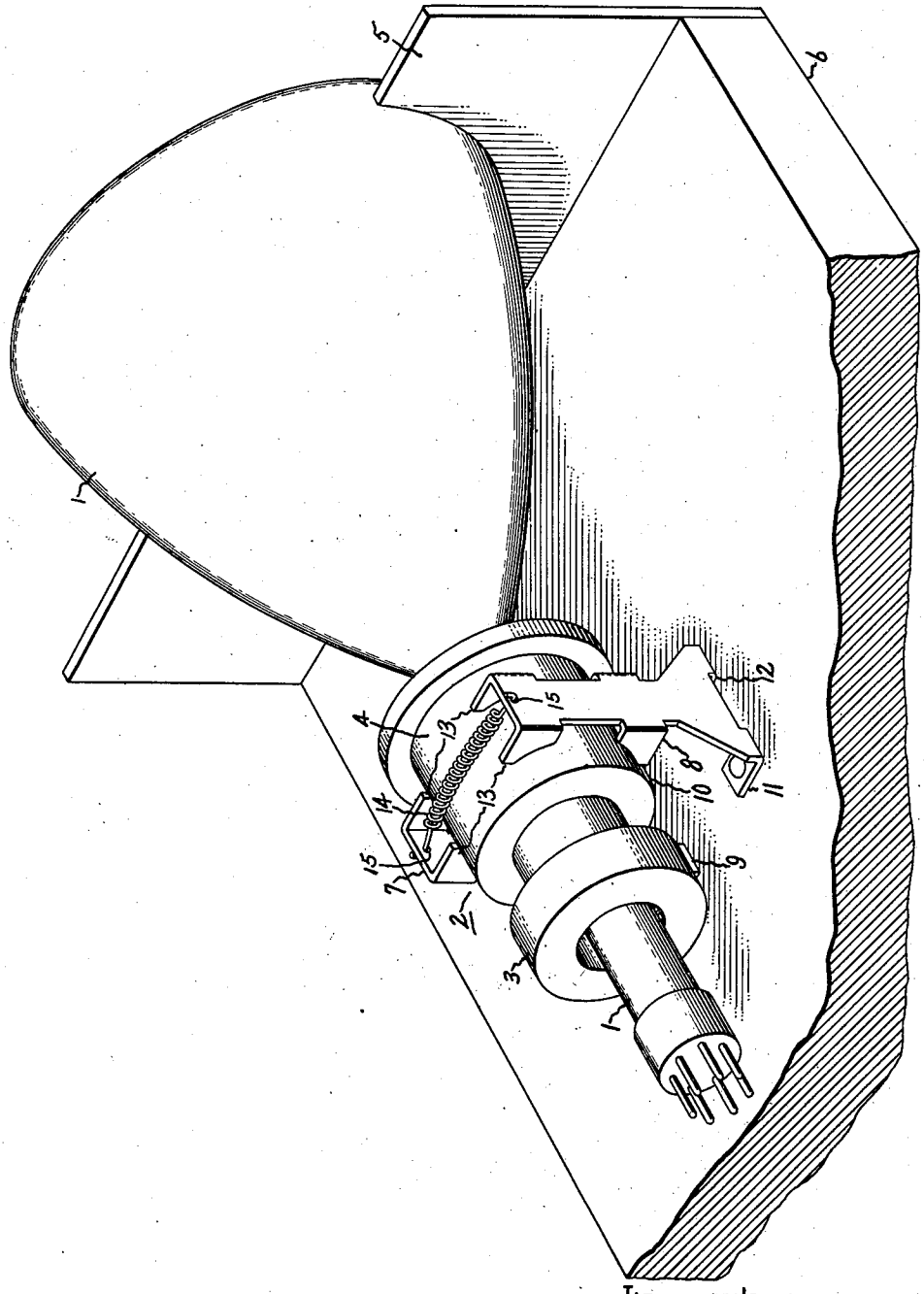
May 24, 1949. D. B. KEIM 2,471,154

SUPPORTING DEVICE FOR CATHODE-RAY TUBES

Filed May 21, 1948



Inventor:
Donald B. Keim,
by Merton D'Moore
His Attorney.

Patented May 24, 1949

2,471,154

UNITED STATES PATENT OFFICE

2,471,154

SUPPORTING DEVICE FOR CATHODE-RAY TUBES

Donald B. Keim, Bridgeport, Conn., assignor to General Electric Company, a corporation of New York

Application May 21, 1948, Serial No. 28,355

3 Claims. (Cl. 250—141)

1

This invention relates to cathode ray tubes and is especially concerned with apparatus for supporting the elongated end or neck of a cathode ray tube. More particularly, the invention relates to cathode ray tubes which utilize magnetic focusing and require that the yoke and focus coil assembly be securely supported in optimum operating position.

It is customary to employ magnetic means for focusing and deflecting the electron beam in a cathode ray tube, such as are used, for example, in a television camera or receiver. This magnetic means comprises a focus coil and yoke assembly, fitted around the elongated portion or neck of the cathode ray tube, and so positioned both transversely and rotatively, relative to the neck of the tube, as to produce the desired results. Having once been properly positioned, the assembly must thereafter be securely held in this position on the tube neck until a change in circuit parameters necessitates further adjustment. It is highly advantageous that the clamping device for holding the assembly in position be readily accessible, easily operated, and consume a minimum amount of chassis space. In order to retain the assembly in the desired position, the present practice is to provide a combination of swivel brackets, slotted holes and wing nuts.

Accordingly, it is the primary object of the present invention to provide a new and improved focus coil and yoke assembly clamping device that is rugged in construction, occupies a minimum amount of chassis space, possesses no moving parts, and may be manufactured at very low cost.

Another object of the present invention is to provide a new and improved device for supporting the elongated end of an electron tube of the cathode ray type on the chassis of electronic apparatus embodying such tubes.

In one embodiment of my invention two opposed spaced metal brackets, resiliently biased toward each other by a spring, and each possessing four inwardly directed supporting members cradle the focus coil and yoke assembly and normally prevent any transverse or rotational displacement of the assembly relative to the elongated portion of the electron tube but permit adjustment for focusing purposes.

The features of my invention which I believe to be new and desire to protect are pointed out with particularity in the appended claims. The invention itself, together with further objects and advantages, may best be understood by reference to the following description taken in

2

connection with the accompanying drawing, the single figure of which is a perspective view of a cathode ray tube installation utilizing a focus coil and neck supporting device in accordance with the present invention.

Referring more particularly to the drawing, there is shown a cathode ray tube generally designated by the numeral 1, which has an assembly 2 comprising a focus coil 3 and deflecting yoke 4 enclosing the outer periphery of a portion of the elongated end of the cathode ray tube 1. The tube 1 may be supported at its enlarged bulbous end by the front edge 5 of the chassis 6. It is adjustably supported at its elongated shaft end by the brackets 7 and 8, which may be riveted to the chassis 6 at the points 9, 10, 11 and 12. The brackets 7 and 8 may be formed by punching them from thin metal sheets, such as steel, aluminum or other suitable material, and then compressing them into the shape indicated. The brackets 7 and 8 each have four inwardly directed supporting members or fingers 13 which rest against the yoke 4 in such a manner as to firmly hold the focus coil and yoke assembly 2 in the desired operating position relative to the tube 1. In this manner, the assembly 2 which fits around the tube neck supports this portion of the cathode ray tube 1. A stiff, metal spring 14 is stretched between brackets 7, 8 and attached to apertures 15 in the upper ends of these brackets, causing fingers 13 to engage the outer surface of the deflection yoke 4.

While the force with which the fingers 13 engage the outer surface of yoke 4 is sufficient normally to hold this yoke and associated assembly in a rigid position to resist all movement that would otherwise be caused by vibration, shocks, etc., the yoke itself may be adjusted longitudinally of the neck of the tube by sliding the entire assembly 2 relative to the tube neck and the fingers 13. Also, the assembly 2 may be rotated through any desired angle to align the raster (or picture) on the usual fluoroescent end wall of the tube 1 with the window in cabinet. Thus, the engagement of the fingers 13 with the metallic covering of the deflection yoke 4 is such that the described longitudinal and rotational adjustment of the position of this assembly 2 may be readily effected.

The brackets 8 likewise serve as a support for the beam focusing and deflecting device when the cathode ray tube is removed from the chassis 6. To effect such removal, the cathode ray tube is merely pulled forward relative to the front edge 5 of the chassis, the neck of the tube

passing through the assembly 2. Thereafter, the assembly 2 may be removed without disturbing the supporting brackets 7, 8 simply by pulling the entire assembly toward the right as seen in the figure.

While a particular embodiment of the present invention has been described, it should be clearly understood that numerous modifications may be made by those skilled in the art without actually departing from the true spirit and scope of the present invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A support for a cathode ray tube of the type having a neck portion and which is adapted to have a beam focusing and deflecting device supporting said neck portion comprising a base, a pair of juxtaposed arms supported on said base and extending outwardly therefrom, each of said arms having a plurality of fingers extending toward the other arm, said fingers being adapted to engage the focusing and deflecting device of the cathode ray tube, and resilient means connected between said fingers to engage said device with sufficient force to support both the device and tube while permitting adjustment of the longitudinal and angular position of the device.

2. A support for the neck portion of a cathode ray tube of the type adapted to have a deflection device surrounding said neck comprising a base member, a pair of opposed metallic arms attached to said member and extending outwardly therefrom, each of said arms having a plurality of relatively spaced fingers extending toward the other of said arms, said fingers comprising points arranged around the circumference of a circle having a diameter substantially equal to the diameter of the focusing coil, said fingers being arranged to engage the outer surface of a deflection device and a spring connected between said arms adjacent their ends remote from said base, said spring being of sufficient strength to cause said fingers to engage the outer surface of the device and resist movement thereof.

3. A support for the neck portion of a cathode ray tube of the type adapted to have a deflection device surrounding said neck comprising a base member, a pair of opposed metallic arms attached to said member and extending outwardly therefrom, each of said arms having a plurality of relatively spaced fingers extending toward the other of said arms, said fingers comprising points arranged around the circumference of a circle having a diameter substantially equal to the diameter of the device, said fingers being arranged to engage the outer surface of a deflection device and a spring connected between said arms adjacent their ends remote from said base, said arms being formed of a material such that they may be bent outwardly to permit longitudinal and rotational adjustment of the device on the neck of the cathode ray tube, said spring normally causing said fingers to engage the outer surface of said coil normally to resist movement thereof while permitting adjustment of the position thereof.

DONALD B. KEIM.

No references cited.