

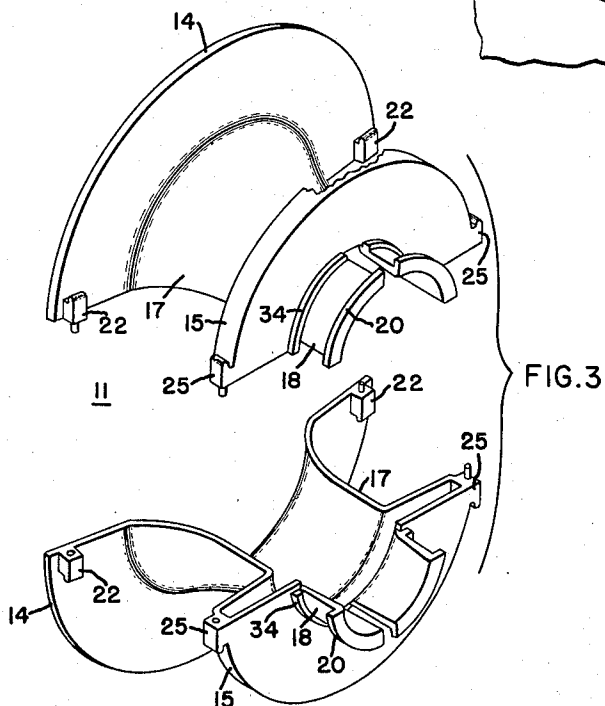
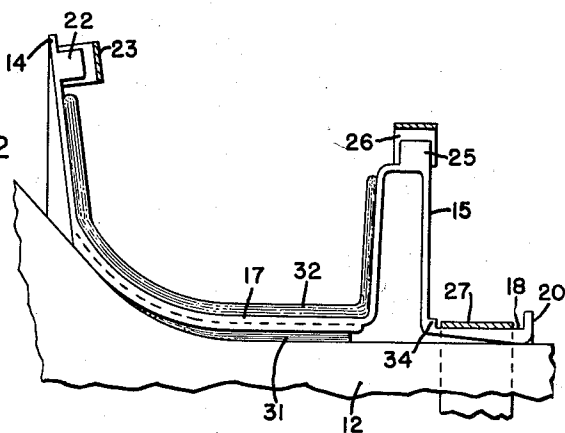
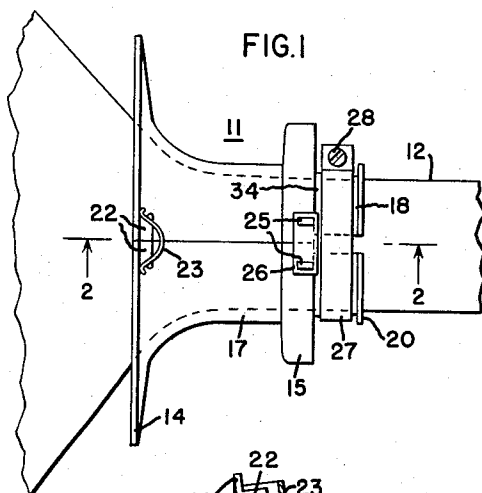
Sept. 16, 1958

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YOKE COIL FORM

Filed Oct. 30, 1956

2,852,712



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YOKE COIL FORM

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Application October 30, 1956, Serial No. 619,227

8 Claims. (Cl. 313—76)

The present invention relates to an improved coil form for use in a deflection yoke for a cathode ray tube.

Cathode ray tubes are used in applications in which a visual indication of an electrical signal is desired. Television sets and oscilloscopes are typical of such applications. In a cathode ray tube the picture is produced by an electron beam that is swept or deflected across the face of the tube. One suitable system for deflecting this beam comprises a pair of windings arranged in a vertical plane and another pair of windings arranged in a horizontal plane. A current through the vertically arranged windings deflects the beam in a horizontal direction and a current through the horizontally arranged windings deflects the beam in a vertical direction. Because the magnetic fields generated by these currents produce deflection, the arrangement of these windings is called a magnetic deflection system.

The two pairs of deflection windings are usually mounted on a yoke coil form that is shaped to fit around the neck of a cathode ray tube. One pair of windings is placed on the interior of the form next to the neck of the tube and the other pair is mounted on the exterior portion of the form away from the tube. Thus, the form acts as an insulator between the two pairs of windings.

Prior coil forms are fixed on the cathode ray tube by means of a separate clamp placed on the tube neck behind the deflection yoke. The bell-shaped portion of the tube prevents forward movement of the yoke and the clamp prevents backward movement. An insulator must be placed between the neck of the tube and the clamp to prevent scratching and other detrimental effects that the clamp might cause if an insulator were not used. Obviously, it would be advantageous to have a coil form that was self-mounting; i. e., one that did not require a separate clamp. Then only one assembly, the deflection yoke, would have to be placed on the neck of the tube rather than two—the yoke and the clamp. This simplification of operation would result in a saving of money in the cost of assembling the system, for one operation is less expensive than two. Also, a saving would be had on parts because if the clamp were a part of the yoke assembly, there would be no need of a separate insulator for the clamp.

Accordingly, an object of the present invention is to provide a self-mounting deflection yoke.

Another object is to provide a deflection yoke having a clamp mounting portion that is an integral part of the yoke.

A further object of the present invention is to provide a self-mounting deflection yoke that is clamped to a cathode ray tube by means of a clamp that is applied to the yoke.

Briefly, in accordance with my invention, I provide a coil form that has a front flange and a rear flange interconnected by a quasi-cylindrically-shaped element so as to form an assembly that looks something like a spool. Integrally joined to the rear flange is a split cylindrical

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sleeve over which a clamp can be placed. The coil form has an inside diameter sufficiently large to slip over the tube socket during the assembly operation. Because the diameter of the tube socket is usually a little larger than that of the tube neck, the inside diameter of the sleeve is larger than the diameter of the tube neck. The cylindrical sleeve is tapered in thickness so that when the clamp is tightened around it, the clamp will be held in a non-tilted position. Otherwise, the outside surface of the sleeve would not be level due to the difference in size of its inside diameter and the outside diameter of the tube neck. With the clamp in a non-tilted position, it does not have a tendency to creep off the coil form.

The features of my invention which I believe to be novel are set forth with particularity in the appended claims. The invention, however, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings in which:

Figure 1 is a top view of a preferred embodiment of the present invention shown mounted on the neck of a cathode ray tube;

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

Figure 3 is an exploded perspective view of the device of Figure 1.

In Fig. 1 a preferred embodiment of the coil form 11 of the present invention is shown mounted on the neck of a cathode ray tube 12. Form 11 has a front flange 14, rear flange 15, and an interjoining quasi-cylindrically-shaped portion 17. A channel-shaped sleeve 18 having a rear lip 20 is joined integrally to rear flange 15. For convenience of manufacture, coil form 11 is preferably made in two half sections. Lugs 22 and clamp 23 are provided on the front flange and lugs 25 and clamp 26 on the rear flange to secure these two half sections together. Clamp 27, which is mounted on sleeve 18, is generally circular in form and it has two ends that are held together by means of a bolt 28.

Fig. 2 is, for the most part, a partial cross-section taken along line 2—2 of Fig. 1 but in addition contains inner windings 31 and outer windings 32 that are not shown in Fig. 1. Windings 31 and 32 are the deflection windings. The wedge-shaped wall thickness of sleeve 18 is clearly shown in Fig. 2. This wedge shape is an important feature because it permits clamp 27 to reside in a non-tilted position. Thus, there is no tendency for this clamp to slip. The inside diameter of sleeve 18 must be slightly larger than the outside diameter of the neck of tube 12 because this sleeve has to fit over the tube socket which is larger in diameter than the neck of the tube. If sleeve 18 were not wedge shaped in thickness, clamp 27, when applied to this sleeve, would force the rear of this sleeve down toward the tube. Thus, the whole sleeve would slant downwardly from flange 15 to lip 20. This slanting might cause the clamp to slip. Because the wedge shape prevents slanting, it prevents clamp slippage. Lip 20, which is provided on the rear of sleeve 18, aids in the holding of clamp 27 for if by chance this clamp does slip to the rear, it will be held on the sleeve by this lip. A ridge 34 can be provided at the junction of the rear of flange 15 and sleeve 18. This ridge not only serves to strengthen this junction, but it limits the movement of clamp 27 thereby aiding in the placement of this clamp on the sleeve.

The exploded perspective view of Fig. 3 shows the details of coil form 11. Sleeve 18 is shown to have four slots arranged 90 degrees apart. These slots not only permit ready expansion of this sleeve when it is passed over the tube socket, but they also facilitate the clamping of

form 11 to tube 12 because they render the sleeve more resilient. Another feature of interest in this figure are lugs 22 on the front flange and lugs 25 on the rear flange. Each pair of these lugs comprises one female and one male member. Thus, the cooperation between these members prevents movement between the two halves of form 11 in a direction parallel to the axis of the cathode ray tube.

In summary, the disclosed coil form is provided with a channel-shaped sleeve upon which a clamp can be mounted. This sleeve has a wedge-shaped wall thickness which permits the clamp to be held in an even position. A lip is provided at the rear of the sleeve to prevent the clamp from slipping off the coil form. The single construction of the present coil form provides a cheaper and easier assembled deflection yoke than do the prior systems.

While I have described a particular embodiment of my invention, other applications and arrangements will readily occur to those skilled in the art. I do not therefore desire my invention to be limited to the specific construction illustrated, and I intend by the accompanying claims to cover all modifications within the true spirit and scope of my invention.

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

1. A coil form for use in a deflection yoke, said form comprising: a front flange, a rear flange, a quasi-cylinder element connected between said front flange and said rear flange to form a spool-shaped assembly, a slotted sleeve integrally connected at one edge to the rear flange, and a lip integrally joined to said sleeve along the other edge.

2. A coil form comprising: a front flange having a circular inner periphery, a rear flange having a circular inner periphery, a quasi-cylindrically-shaped member interconnecting the inner peripheries of said front and

rear flanges to form a spool-shaped assembly, a sleeve having one edge integrally joined to said rear flange, said sleeve having: a plurality of transverse slots, a wedge-shaped wall thickness, and a lip extending around the edge of said sleeve that is not joined to said rear flange.

3. A coil form for a deflection yoke, said form comprising: a first portion which is adapted to be placed around the neck of a cathode ray tube and upon which windings can be mounted, a channel-shaped sleeve integrally joined to said first portion, said sleeve being suitable for mounting a clamp thereon, the wall thickness of said sleeve having a wedge shape.

4. The coil form of claim 3 in which the thinnest part of the wall thickness of said sleeve is at the connection of said sleeve to said first portion.

5. The coil form of claim 3 in which transverse slots are provided in said sleeve.

6. A coil form for a deflection yoke, said form comprising: a first portion upon which windings can be mounted, a sleeve joined integrally by one edge to said first portion, the wall of said sleeve being of wedge shape, and a lip extending around the other edge of said sleeve.

7. The coil form of claim 6 wherein said sleeve has transverse slots therein.

8. The coil form of claim 6 wherein the thinnest part of said wall is at the connection of said sleeve to said first portion.

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