

DEVICE FOR FASTENING THE DEMAGNETIZATION COIL OF
A TELEVISION RECEIVER

5 The present invention relates to a device for fastening the demagnetization coil of a television receiver cathode-ray tube.

10 In order to fasten a demagnetization coil, elastic binding devices are generally used. These known devices must be fitted manually, which does not always make it possible to correctly arrange the coil with respect to the tube.

15 A device for fastening a demagnetization coil is known from document FR-A-2,180,067, but because this device includes a "U-shaped" piece in which the cable of the coil is wedged, it cannot receive cables with different diameters, and the cable cannot be positioned precisely.

20 The subject of the present invention is a device for fastening the demagnetization coil of a television receiver cathode-ray tube, which device is simple and inexpensive to produce, and which makes it possible to automate optimal fastening of the coil, without requiring manual operation during or after fastening, this device being independent of the dimensions of the cathode-ray tube and making it possible to position the demagnetization coil automatically and exactly.

30 According to the invention, the device for fastening the demagnetization coil comprises, for each coil fastening point, a support piece mounted freely in rotation, and this device is characterized in that the support piece comprises two hooks formed on a cross-piece, symmetrically with respect to the junction of this cross-piece with a support post and a bar formed on a foot, facing the hooks, this bar constituting, with the hooks, a flared opening for inserting the cable constituting the coil, the smallest width of this opening being less than the diameter of this cable. The fastening points are preferably situated near the four corners of the envelope of the cathode-ray tube. Preferably, these
35 four fastening points are the screws for fastening the

cathode-ray tube into the cabinet of the television receiver. Advantageously, the fastening devices are mounted freely in rotation on the head of the screws for fastening the tube.

5 The present invention will be better understood on reading the detailed description of an embodiment, taken as a non-limiting example and illustrated by the drawing, in which :

10 - Figure 1 is an exploded view in perspective of a fastening device according to the invention, and

 - Figure 2 is a view in axial section of the device in Figure 1, in the mounted position.

 The device 1 for fastening the demagnetization coil, represented on the drawing, is mounted on the head 15 2 of a screw 3 for fastening a cathode-ray tube (not shown). This screw 3, for example of the self-tapping type, passes through the hole of a fastening lug 4 (partially represented in Figure 2) formed or welded on the anti-implosion belt of the cathode-ray tube, and is 20 screwed in a suitable location on the frontage of the television receiver. The anti-implosion belt normally includes four such fastening lugs, located approximately on the diagonals of the envelope of the cathode-ray tube on which it is fitted. Since the fastening of the 25 cathode-ray tube into the cabinet of the television receiver is well known per se, it will not be described in further detail.

 The head of a cathode-ray tube fastening screw generally has the shape of a hexagonal paving stone. In 30 order to make it possible to mount the device 1 on a cathode-ray tube fastening screw, this screw is altered in the following manner. A short axial extension 7, for example with a length of approximately 5 to 10 mm is formed on the hexagonal head 5, opposite the screw body 35 6. This extension 7 has the shape of a grooved rod.

 The demagnetization coil fastening device proper is essentially composed of a foot 9, a post 10 formed on the foot 9, a cross-piece 11 formed at the end of the post 10, two hook devices 12, 13 formed at the ends of

the cross-piece 11, and a guide bar 14 formed on the foot 9. This set of elements of the device 1 is preferably produced by moulding of plastic.

5 The foot 9 has the form of a plate of substantially square shape, the central region 15 of which is slightly convex (as seen from the post 10), is of circular shape, has a small thickness and includes an axial hole whose diameter is substantially equal to the diameter of the extension 7. The region 15 of the foot 9 is
10 slit into a cross by two mutually perpendicular diametral slits, thus defining four circular sectors. The region 15 thus forms a circlip for fastening the device 1 on the extension 7 of the screw 3. It is sufficient to forcibly fit the device 1 over the extension 7, the grooves 8
15 causing the four circular sectors of the region 15 to bend.

The post 10 is formed at the middle of one of the sides of the foot 9, perpendicularly to this foot. The cross-piece 11, formed at the end of the post 10, is
20 composed of two identical arms 11A, 11B arranged symmetrically with respect to the post 10, perpendicularly thereto.

The hook devices 12, 13 each essentially comprise a body 16, 17 respectively, in the form of a rectangular
25 bar, a hook 18, 19 respectively, formed at the end of the bar, near its join with the arm 11A, 11B and a bearing tongue 20, 21 respectively, formed at the other end of the bar.

The bars 16, 17 are parallel to the post 10, point towards the foot 9 and are substantially equal in
30 length to the post 10. The bars 16, 17 and the arms 11A, 11B are coplanar.

The hooks 18, 19 are in the form of folded tongues. These tongues comprise a planar part 18A, 19A
35 connected by a bent part to the end of the corresponding bar 16, 17, on the side where the latter joins the arm 11A, 11B respectively. The planar parts 18A, 19A make an angle of approximately 30 to 50° with the plane of the bars 16, 17, and point approximately towards the junction

between the foot 9 and the bar 14. The length of the planar parts 18A, 19A is equal to or slightly less than half the length of the bars 16, 17. The respective dimensions of the planar parts 18A, 19A of the bars 16, 17 and the value of the angle formed between the said planar parts and the bars are a function of the diameter of the cable 1A forming the demagnetization coil, and of the space available in the cabinet of the television receiver. In one embodiment, for example, the length of the bars 16, 17 is approximately 25 mm, the length of the planar parts 18A, 19A approximately 10 mm and that [sic] of their angle with respect to the plane of the bars 16, 17 approximately 40° for a cable 1A with a diameter of approximately 6 to 10 mm.

The bearing tongues 20, 21 are formed in the extension of the bars 16, 17, their ends being bent through 90° opposite the screw 3. The length of these tongues 20, 21 is such that, when the device 1 is in place on the head 2 of the screw 3 and this screw is screwed into place in order to fasten the cathode-ray tube, the ends 20A, 21A of these tongues are just in contact with the lug 4.

The length of the bar 14 is substantially equal to that of the bars 16, 17. This bar 14 includes a first straight part 14A parallel to the post 10, which extends approximately up to the height of the end 18B, 19B of the hooks 18, 19 and a second part 14B, also straight and parallel to the post 10, making an angle of approximately 10 to 20° with the first part, this second part moving away from the post 10. The junction between the parts 14A and 14B is labelled 14C. A flared opening 22 for inserting the cable is thus formed between the part 14B and the planar parts 18A, 19A, the angle of which opening is approximately 40 to 50°. The narrowest part of this opening 22 lies between the junction 14C and the ends 18B, 19B of the parts 18A, 19A. The width L of this narrowest part is slightly less (by approximately 1 to 3 mm) than the diameter of the cable 1A. Thus, by virtue of the elasticity of the bar 14, and of the hooks 18, 19,

when the cable 1A is inserted into the space 23 contained between the part 14A and the bars 16, 17, this cable remains trapped therein. Because the direction of the tension exerted on the cable 1A during the fitting of the demagnetization coil is approximately parallel to the tongue parts 18A, 19A opposite the screw 3, the cable 1A then becomes wedged between the tongues 18, 19 and the bars 16, 17 respectively, as represented in Figure 2. By virtue of the symmetrical arrangement of the hooks 18, 19 with respect to the post 10 and to the foot 9, by virtue of the slight flexibility of the post 10 (the cross section of which is chosen accordingly), by virtue of the possibility of rotation of the devices 1 about the axis of the screws 3, and by virtue of the arrangement of the four fastening devices 1 in the direction of the diagonals of the envelope, the demagnetization coil can be inserted in a simple manner by a robot into these four fastening devices without having to be positioned exactly, and sets itself in the correct position, that is to say symmetrically with respect to the axes Ox , Oy of the screen, as close as possible to the anti-implosion belt, and with a sufficient tension in the coil.

It will be noted that the tongues 20, 21, which are slightly elastic, prevent excessive bending of the post 10 as a consequence of the forces exerted by the demagnetization coil, in particular when it is being fitted.

The pieces 1 of the invention are standard whatever the type and size of the cathode-ray tube, since the fastening screws 3 are standard.



CLAIMS

1. Device for fastening the demagnetization coil of a television receiver cathode-ray tube, comprising, for each coil fastening point, a support piece (1) mounted
5 freely in rotation, characterized in that the support piece comprises two hooks (18, 19) formed on a cross-piece (11), symmetrically with respect to the junction of this cross-piece with a support post (10) and a bar (14) formed on a foot (9), facing the hooks (18, 19), this bar
10 constituting, with the hooks, a flared opening (22) for inserting the cable (1A) constituting the coil, the smallest width (L) of this opening being less than the diameter of this cable.
2. Fastening device according to Claim 1, characterized in that the coil fastening points are situated
15 near the four corners of the envelope of the cathode-ray tube.
3. Fastening device according to Claim 1 or 2, characterized in that the fastening points are the screws
20 (3) for fastening the cathode-ray tube into the cabinet of the television receiver.
4. Device according to Claim 3, characterized in that it is mounted freely in rotation on the head (2) of the fastening screw (3).
- 25 5. Fastening device according to any one of the preceding claims, characterized in that the means for fastening the foot include a slotted elastic washer (15) formed with the foot, and circumferential grooves (8) formed on an extension (7) of the head of the fastening
30 screw (3).