



Europäisches Patentamt
European Patent Office
Office européen des brevets



Publication number: **0 512 452 A1**

EUROPEAN PATENT APPLICATION

Application number: **92107490.2**

Int. Cl.⁵: **H01J 29/07**

Date of filing: **04.05.92**

Priority: **03.05.91 KR 630391**

Date of publication of application:
11.11.92 Bulletin 92/46

Designated Contracting States:
DE IT NL

Applicant: **GOLDSTAR CO. Ltd.**
20, Yoido-Dong, Youngdungpo-Gu
Seoul(KR)

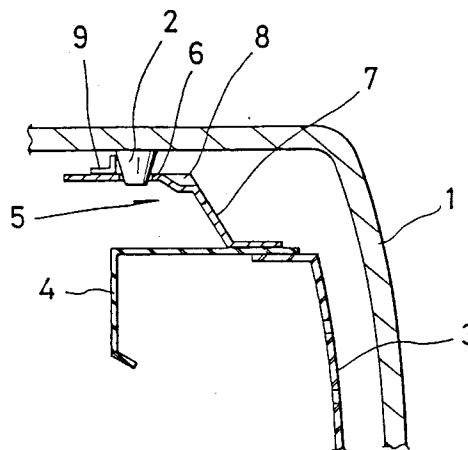
Inventor: **Seo, Ho Seog**
135-26, Shinam-4Dong, Dong-Gu
Taegu City(KR)

Representative: **Cohausz & Florack**
Patentanwälte
Postfach 14 01 61 Schumannstrasse 97
W-4000 Düsseldorf 1(DE)

Device for mounting a shadow mask in a color television tube.

Disclosed is a device for mounting a shadow mask in a color television tube comprising an engaging hole 6 for receiving a panel pin 2 projected on the skirt of a panel 1 to support the shadow mask, a resilient sloped guide surface 7 for guiding the panel pin 2, being bent by contacting the panel pin 2 so as to return to the original state with its resilient force thereof when the panel pin 2 is inserted into the engaging hole 6, a guide groove 8 formed behind the sloped guide surface 7 for smoothly guiding the panel pin 2 toward the engaging hole 6, and a stopper 9, provided behind the engaging hole 6 for preventing the panel pin 2 from being excessively moved behind the engaging hole 6 so as to properly align it with the engaging hole 6.

FIG. 3B



EP 0 512 452 A1

FIELD OF THE INVENTION

The present invention concerns a device for mounting a shadow mask in a color television, which obviates a possible screen damage during assembly.

TECHNICAL BACKGROUND

Generally, a color television tube comprises a panel 1, funnel 11, electron gun 13 enclosed in the neck portion 12 of the funnel, and shadow mask mounted in the inside of the panel, as shown in Fig. 1.

The shadow mask 3 comprises the effective main portion with a plurality of slits or perforations for passing electron beams, and skirt portion formed almost perpendicularly to the periphery of the effective main portion. The skirt portion has a plurality of frames 4 welded thereto for supporting the shadow mask. Attached to the outside of the frames is a resilient support member 10 with an engaging hole 14 to mount the shadow mask 3 to face the inside of the panel 1. The resilient support member is caught by a panel pin projected on the inside of the panel 1.

When mounting such conventional shadow mask 3 in the inside of the panel 1, the resilient support member 10 attached to the frames 4 is pressed inwardly and moved toward the panel 1, so that the engaging hole 14 is aligned with the panel pin 2. Then, if the resilient support member 10 is released to return to the original position by its resilient force, the panel pin 2 is firmly inserted into the engaging hole 14. However, in this case, if the plural resilient members 10 fixed to the frames 4 of the shadow mask 3 are not moved precisely in parallel with the panel 1, the engaging holes 14 may not only be aligned with the panel pins as shown in Fig. 2, but also the shadow mask 3 may contact the screen of the panel 1 so as to damage the phosphor layers of the screen. Moreover it is very difficult to precisely move the shadow mask toward the panel while pressing the plural resilient support members.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a device for mounting a shadow mask, whereby simply moving of the shadow mask into the panel without pressing the resilient support members suffices the precise mounting of the shadow mask in the panel.

It is another object of the present invention to provide a device for mounting a shadow mask, whereby the shadow mask may be mounted with a sufficient distance from the screen so as to prevent

the damage of the screen.

According to the present invention, a device for mounting a shadow mask in a color television tube comprises an engaging hole for receiving a panel pin projected on the skirt of a panel to support the shadow mask, a resilient sloped guide surface for guiding the panel pin, being bent by contacting the panel pin so as to return to the original state with its resilient force thereof when the panel pin is inserted into the engaging hole, a guide groove formed behind the sloped guide surface for smoothly guiding the panel pin toward the engaging hole, and a stopper provided behind the engaging hole for preventing the panel pin from being excessively moved behind the engaging hole so as to properly align it with the engaging hole.

The present invention will now be described more specifically with reference to the drawings attached only by way of example.

BRIEF DESCRIPTION OF THE ATTACHED DRAWINGS

Fig. 1 is a cross sectional view of a conventional color television tube;

Fig. 2 shows a shadow mask misaligned with the panel when using the conventional device for mounting the shadow mask;

Fig. 3A illustrates the initial step of mounting the shadow mask by using the inventive device;

Fig. 3B illustrates the shadow mask completely mounted in the panel by using the inventive device;

Fig. 4 is a perspective view for illustrating a resilient support member according to an embodiment of the present invention; and

Fig. 5 is a view similar to Fig. 4 for illustrating a resilient support member according to another embodiment of the present invention.

DETAILED DESCRIPTION OF CERTAIN PREFERRED EMBODIMENTS

Referring to Figs. 3A, 3B, 4 and 5, a device for mounting a shadow mask in a color television tube comprises a plurality of frames 4 attached to the skirt portion of the shadow mask and a resilient support member 5 with an engaging hole 6 attached to the frame. The engaging hole 6 of the resilient support member 5 receives a panel pin 2 projected on the panel 1.

The resilient support member 5 has a sloped guide surface 7 and guide groove 8. Behind the engaging hole 6 is provided a stopper 9 to prevent the panel pin from being excessively moved behind the engaging hole so as to properly align it with the engaging hole. The guide groove 8 is formed to have an arcuate cross section and the

slope smaller than that of the sloped guide surface so as to smoothly guide the panel pin 2 to the engaging hole 6. The depth of the guide groove 8 is at least equal to or greater than the engaging surface of the panel pin so as to provide an enough space for guiding the panel pin.

In operation, if the shadow mask 3 is moved toward the panel 1, the panel pin 2 formed on the panel 1 presses the sloped guide surface 7 of the resilient support member 5 guided by the guide groove 8 to the engaging hole 6. Then, if a further moving of the shadow mask aligns the panel pin 2 with the engaging hole 6, the sloped guide surface 7 which has been pressed by the panel pin resiliently recovers its original position so as to fix the panel pin 2 into the engaging hole 6. Thus, the shadow mask is readily mounted in the panel without manually pressing the resilient support member 5. The stopper 9 is to prevent the panel pin 2 from being excessively moved behind the engaging hole, as shown in Fig. 3B.

The stopper 9 may be separately prepared and welded to the surface of the resilient support member 5 behind the engaging hole 6 as shown in Fig. 4, or otherwise integrally formed with the resilient support member by bending a portion of the free end thereof as shown in Fig. 5.

As stated above, the inventive device does not need the manually pressing of the resilient support member and prevents the shadow mask from being excessively moved toward the panel screen, thus facilitating the assembly of the shadow mask as well as preventing any possible screen damage and misalignment of the shadow mask.

Claims

1. A device for mounting a shadow mask in a color television tube, comprising:
 - a) an engaging hole (6) for receiving a panel pin (2) projected on the skirt of a panel (1) to support said shadow mask;
 - b) a resilient sloped guide surface (7) for guiding said panel pin (2), being bent by contacting said panel pin (2) so as to return to the original state with its resilient force thereof when said panel pin (2) is inserted into said engaging hole (6);
 - c) a guide groove (8) formed behind said sloped guide surface (7) for smoothly guiding said panel pin (2) toward said engaging hole (6); and
 - d) a stopper (9) provided behind said engaging hole (6) for preventing said panel pin (2) from being excessively moved behind said engaging hole (6) so as to properly align it with said engaging hole (6).

2. A device for mounting a shadow mask in a color television as claimed in Claim 1, wherein said guide groove (8) has an arcuate cross section and a slope smaller than that of said resilient sloped guide surface.

3. A device for mounting a shadow mask in a color television as claimed in Claim 1, wherein said stopper (9) is formed integrally with said sloped guide surface (7).

FIG. 1
(PRIOR ART)

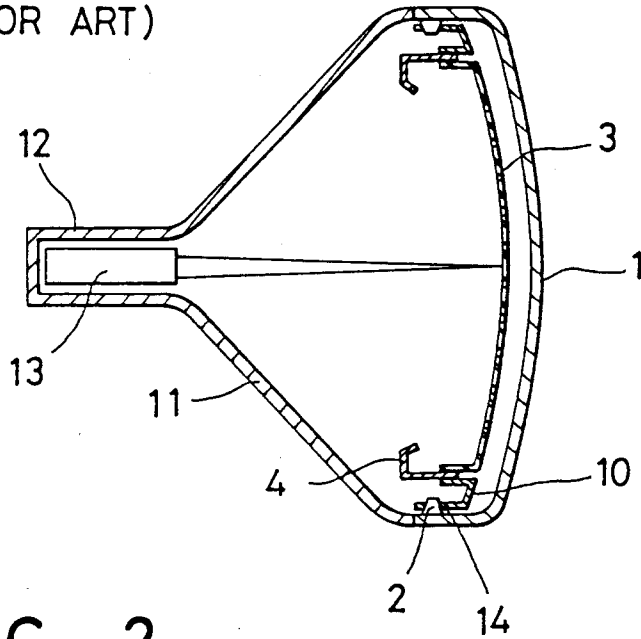


FIG. 2
(PRIOR ART)

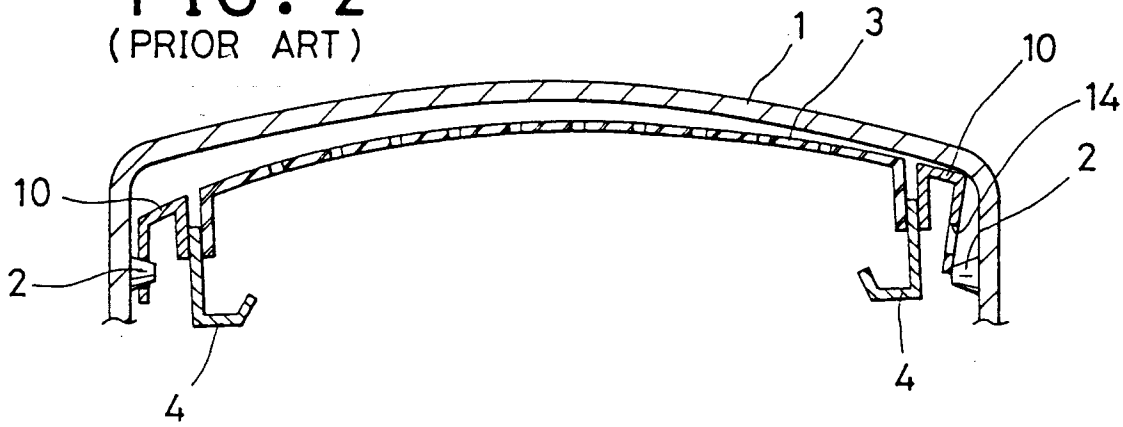


FIG. 3A

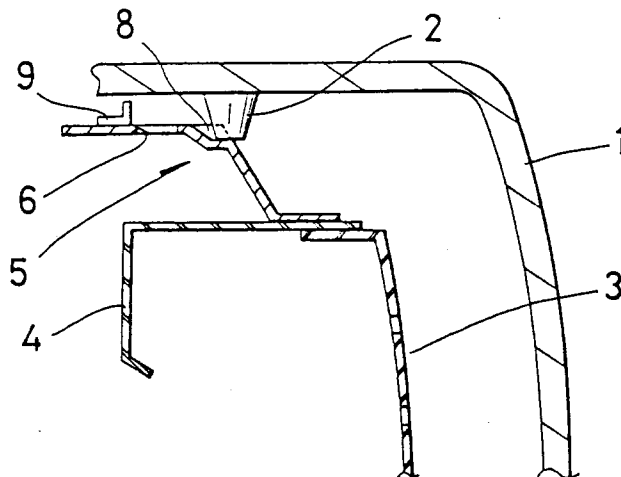


FIG. 3B

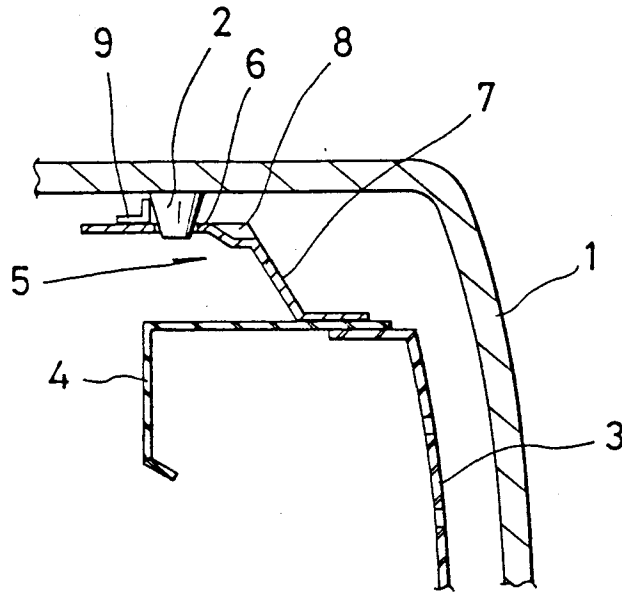


FIG. 4

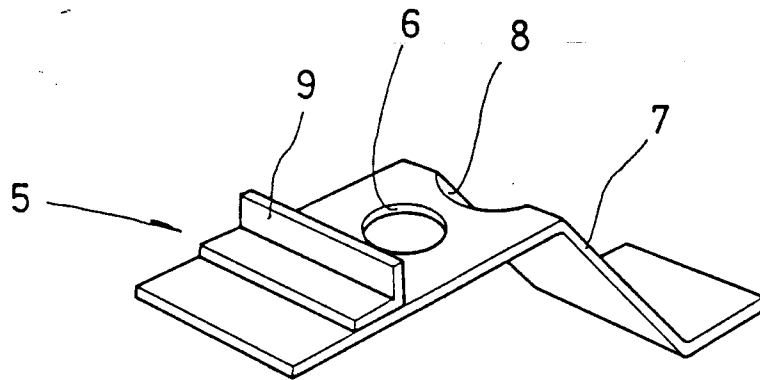
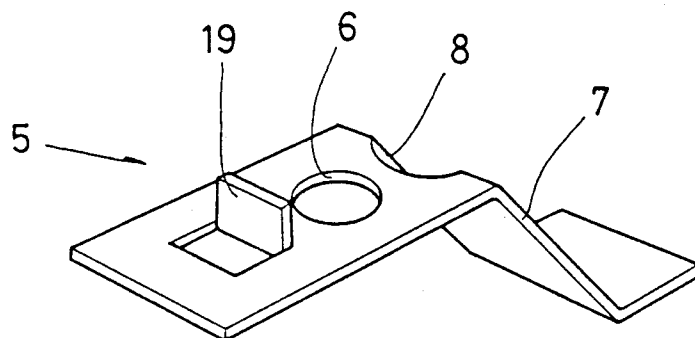


FIG. 5





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	EP-A-0 355 893 (NV. PHILIPS' GLOEILAMPENFABRIEKEN) * column 8, line 25 - line 45 * * figure 9 *	1	H01J29/07
A	---	3	
Y	US-A-3 501 663 (BURDICK) * column 3, line 3 - line 26 * * figures *	1	
A	GB-A-1 218 726 (SYLVANIA ELECTRIC PRODUCTS INC.) * page 2, line 34 - line 44 * * page 2, line 80 - line 91 * * figures 2-8 *	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			H01J
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 24 JUNE 1992	Examiner COLVIN G. G.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			