

The subject of the present invention is a device for fixing screens or panels for decorating and protecting appliances, in particular electrical and electronic appliances.

5 The decorating and protecting screens such as the facade screens of electronic appliances and the screens of loudspeaker cabinets, whether these are metal or plastic, must in the majority of cases be fixed securely to their supports in order to prevent them from vibra-
10 ting, which vibration may be annoying and may even cause them to detach if they are not fixed reliably. In order to provide them with a vibration-resistant fixing, these screens are generally equipped with sufficiently long tabs of which the ends are twisted, but such an operation
15 is not easy to automate and requires access from the rear of the cabinet. Another known device for fixing such screens consists in equipping them with tabs including a cutout into which is clipped a catch secured to the cabinet, but such a solution does not allow the fixing of
20 the screens to resist vibrations for very long because the usual manufacturing tolerances in mass production do not allow the cutout to be positionned be accurately enough.

Document US-A-4,424,881 discloses a screen for a
25 loudspeaker cabinet, but the installation of this screen is difficult to automate and the shape of its tabs does not provide a vibration-resistant fixing.

The subject of the present invention is a device for fixing screens or panels of the abovementioned type,
30 guaranteeing them a very good resistance to vibration, which is simple, can receive both plastic screens and metal screens, and which allows easy automation of the installation of these screens.

The device for fixing decorating and protecting
35 screens in accordance with the invention comprises fixing tabs on these screens, which are all perpendicular to the plane of the screens or panels, on which there are formed bosses which clip into corresponding slits in the support of these screens, the wall part of each of these slits

which interacts with the corresponding boss being elastic, the bosses having a face for insertion into the slits whose angle is small, and a holding face whose angle is greater than that of the insertion face, the
5 length of the rear face of the boss being sufficiently large for the rim of the slit to bear on the rear face when the screen is in place, thus taking up the play.

According to another advantageous feature of the invention, the elasticity of the walls of the slits is
10 obtained by making, parallel to these slits, on the boss side, slits having approximately the same dimensions as the first ones, the partition of material remaining each time between these two slits having such a thickness that it ensures an elasticity and a resistance thereof which
15 are sufficient for clipping in.

According to yet another feature of the invention, when the screens to be fixed are metal and must be connected electrically to a reference potential, connection tabs, of which one of the long sides is substantially rectilinear, are formed on these screens.
20

The present invention will be better understood from the reading of the detailed description of two embodiments, taken as non-limiting examples, and illustrated by the appended drawing in which:

25 - Figure 1 is a blown apart perspective view of a support part and of a decorative screen made of plastic,

- Figure 2 is a sectional view of two embodiments of the device of the invention for metal and plastic
30 screens, and

- Figure 3 is an enlarged detailed view of connection tabs of the metal screen of Figure 2.

The invention is described below with reference to a decorative screen intended to be fixed onto the
35 moulded plastic facade of a television set on which are fixed, for example, loudspeakers, control buttons, etc. It is clearly understood that the invention is not limited to such an application, and that it can be implemented for fixing a screen or a panel which is not

perforated or partially perforated for decorating and/or protecting onto a support surface to allow mounting thereof by simple translation, which is therefore easy to robotize. The device of the invention is particularly
5 beneficial in the cases where the support surface frequently transmits vibrations, as is particularly the case for surfaces on which loudspeakers are fixed.

Figure 1 represents a television set facade part 1, produced by moulding plastic. In particular, there can
10 be distinguished thereon a circular cutout 2 behind which is fixed a loudspeaker (not represented).

The facade 1 includes several sets 3 of two slits distributed at its periphery for fixing a decorative (metal) screen 4A represented on the left-hand part of
15 Figure 2 or a decorative (plastic) screen 4B represented on the right-hand part of Figure 2.

Each set 3 includes two mutually parallel rectangular slits 5, 6. In the present example, these slits are parallel to the sides of the screen 4A (or 4B). The width
20 of the partition 7 separating the slits 5, 6 is such that, taking account of the thickness of the facade 1 around the slits 5, 6, this partition has an elasticity and a solidity which are sufficient to allow the passage of the bosses, described below, formed on the fixing tabs
25 of the screen and for retaining them, whether this screen is made of metal or plastic. Indeed, it is beneficial for just one model of facade to be able to receive metal screens or plastic screens with different aesthetic appearances equally well in order to personalize various
30 series of television sets by changing the minimum possible number of elements.

In the present example, for a thickness of the facade 1 around the slits 5, 6 of approximately 3 mm, the width of the partition 7 (that is to say the distance
35 between the slits 5 and 6) is approximately 2 mm, the slits 5 and 6 having a length of approximately 15 to 25 mm.

In the case where the screen is made of metal (screen 4A), it includes tabs 8 with a width of

approximately 20 mm which are intended to be inserted into the outer slits 5. Each of these tabs 8 includes, on its internal face, a boss 9 produced simply by stamping. The boss 9, of substantially pyramid shape, includes a substantially planar insertion face 10 forming an angle α_1 with the plane of the rest of the tab 8. The rear face 11 of the boss 9, which constitutes its active face (that is to say the one which retains the tab in the slit), forms an angle α_2 with the plane of the rest of the tab 8. According to an advantageous feature of the invention, the angle α_1 is less than the angle α_2 . In one embodiment, the angle α_1 is approximately 30° , and the angle α_2 approximately 60° . Thus, the small angle α_1 allows easy insertion of the tab into the corresponding slit, whereas the angle α_2 which is greater provides good retention of the tab in the slit by offering a high resistance to the withdrawal of the tab. Of course, the length of the face 11 is sufficiently great to compensate for the manufacturing tolerances of the screens and of the facades, that is to say that the rim 12 of the slit 5 must always bear on the face 11 when the screen is in place. Thus, the boss 9 takes up play.

When the screen is made of plastic (4B), it is formed with tabs 13 the ends of which are formed with bosses 14 similar to the bosses 9 of the tabs 8. These bosses 14 are formed on the external faces of the tabs 13 because these tabs are intended to be inserted, in the present example, into the inner slits 6. As in the case of the bosses 9, the bosses 14 have an insertion face 15 which has a gentler slope than that of the rear face 16.

When the screen is made of metal and it is desired to connect it electrically to the earth of the television set, with the aid of connection terminals such as the female terminals 17 represented on the drawing, at least one connection tab 18 is formed on this screen. To facilitate the insertion of these tabs into the terminals 17, they are cut so that one of their long sides, for example the side 19, is rectilinear. Given that the mesh size of the screens may be very variable, it is highly

possible that if these tabs are cut to the necessary width without correctly placing the cutting lines, the two sides of the tabs will be ragged like the sides 20 of the tabs 18, making it difficult to insert the tabs into
5 the terminals 17.

To dismantle the screen (4A or 4B), it is equally possible to act directly on the tabs or on the facade. Indeed, in this latter case, it is possible, for example, to provide, close to the slits 5, 6, slits 21 into which
10 a screwdriver is inserted which is pushed towards the slits 5, 6 if the screen is made of plastic, or which is moved away from these slits if the screen is made of metal, in order to move the partition 7 away from the boss 14 or 9. It is thus possible to dismantle the screen
15 without damaging it, and without having to have access to the fixing tabs.

Of course, the number of tabs is a function of the dimensions of the screen, of its shape and of its rigidity.



CLAIMS

1. Device for fixing screens or panels for decorating and protecting appliances, in particular electrical and electronic appliances, characterized in that it
5 comprises fixing tabs (8, 13), which are all perpendicular to the plane of the screens or panels, on which there are formed bosses (9, 14) which clip into corresponding slits (5, 6) in the support (1) of these screens, the wall part (7) of each of these slits which interacts
10 with the corresponding boss being elastic, the bosses having a face (10, 15) for insertion into the slits whose angle (a1) is small, and a holding face (a2) whose angle is greater than that of the insertion face, the length of the rear face (11) of the boss (9) being sufficiently
15 large for the rim (12) of the slit (5) to bear on the face (11) when the screen is in place, thus taking up the play.

2. Device according to Claim 1, characterized in that the elasticity of the walls of the slits is obtained
20 by making, parallel to these slits, on the boss side, slits (6) having approximately the same dimensions as the first ones.

3. Device according to Claim 2, characterized in that additional slits (21) are made close to the afore-
25 mentioned slits to allow the screens to be dismantled when there is no direct access to the fixing tabs.

4. Fixing device for metal screens, according to one of the preceding claims, characterized in that these screens comprise electric connection tabs (18) one of the
30 long sides (19) of which is substantially rectilinear.