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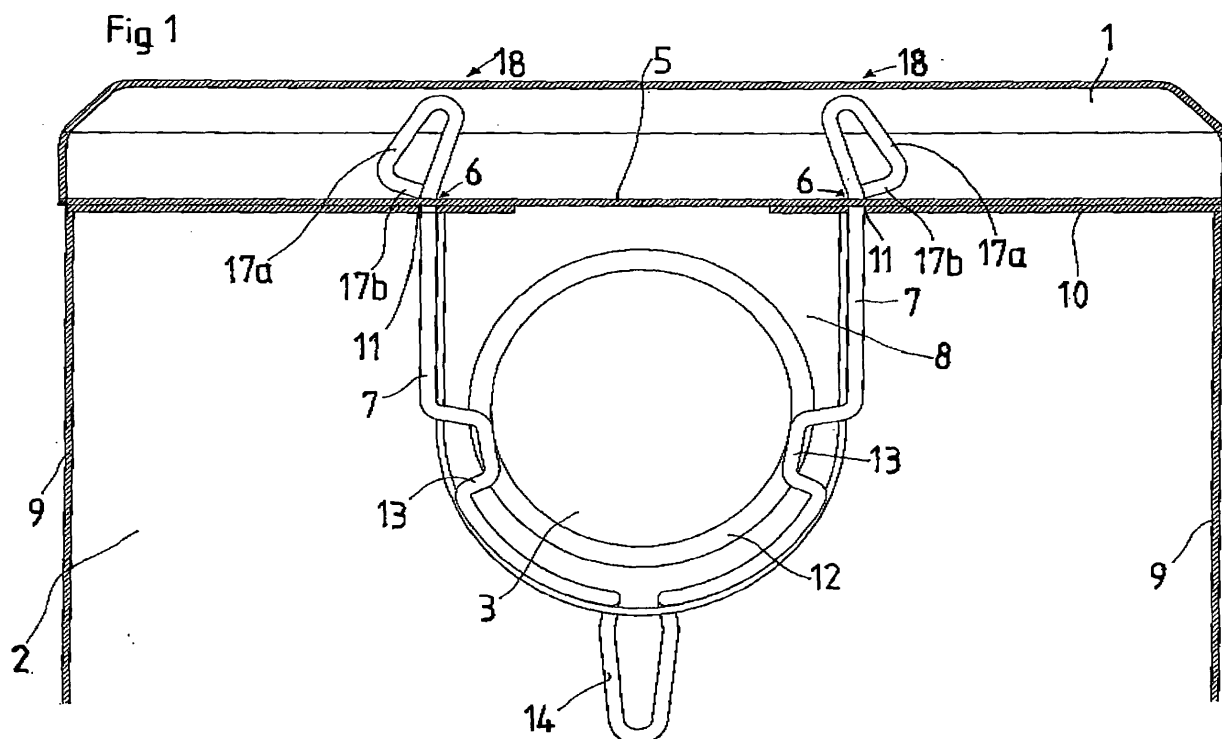
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(54) **An anchorage device**

(57) In a device for anchoring a side plate and an upper covering grille on a radiator, the side plate is transversely directed and has a duct or aperture for a through-going pipe. There is provided a snap catch device which

is disposed in the region around the duct or aperture. The snap catch device is interconnectable with the upper grille for positional fixing of the side plate and the grille in relation to one another.



Description

TECHNICAL FIELD

[0001] The present invention relates to a device for anchoring, on the one hand a side plate and, on the other hand, an upper covering grille on a radiator, the side plate being transversely directed, with at least one aperture for a through-going pipe, a snap catch device being provided in the region around the aperture.

BACKGROUND ART

[0002] There are innumerable types of radiators, and one particularly common type of radiator is for water-borne heat. Such radiators are available in many different versions, but one common denominator is that the water conduit extends up to the radiator from a central system so that the circulating hot water may be led into and out of the radiator. In many cases, the water conduits are connected to the radiator at its side. Further, many radiators consist of one or more panels through each one of which the hot water flows. Apart from the fact that the water must be led to and away from the radiator as a unit, there are also pipes between the panels included in the radiator.

[0003] In order, to some extent, to conceal the space between the panels and impart to the radiator a more aesthetically attractive general impression, side plates and/or grilles are provided on the radiator. Corresponding holes through the side plates are necessary at positions where pipes extend laterally out from the radiator. It is previously known in the art to provide resilient means surrounding such holes in order to achieve an anchorage of the side plates with limited demands on precision in the manufacture and assembly of the radiator with its associated piping. Hence, the anchorage device compensates for any possible tolerances in the dimensions of the radiator and the piping and in their relationship to one another.

[0004] Some examples of such resilient anchorage devices are disclosed in DE 20 2007 013 609 U1 and SE 523 264. These anchorage devices function per se for the anchorage of side plates against the piping of the radiator, but one drawback is that the radiators are often provided with a covering grille which is disposed on the upper region of the radiator, without any positioning possibility in relation to the pipe or pipes passing through the side plates. This results in the transition between the side plate and the grille being in many cases disjointed and aesthetically unattractive. In certain cases, there is a risk that gaps occur between the grille and the side plate, and in the worst case scenario surrounding vibrations may be amplified and give rise to disturbing noise in this particular region. Another drawback is that the uneven transition between the grille and the side plate becomes difficult to keep clean since this is a particular dirt trap.

[0005] The covering grille which is disposed at the up-

per side of the radiator is intended to allow the passage of heated air at the same time as preventing objects from falling down and fastening between the panels of the radiator. The openings in the grille have a certain permitted maximum size in compliance with prevailing standards, but the grille does not, naturally, prevent dust from accumulating in the space between the radiator panels. In order for the grille not to fall off the radiator far too easily and cause damage to walls, floors or furniture fittings, it is generally fixed by some form of anchorage device. Unfortunately, this anchorage device runs the risk of making it difficult to remove the grille for cleaning, when the intention is to gain access to the space between the panels of the radiator.

PROBLEM STRUCTURE

[0006] There is thus a need in the art to realise a more or less simply removable anchorage of the grille so that the space beneath the grille may readily be cleaned. At the same time, there is a need for a uniform and aesthetically attractive transition between the covering grille and the side plate. The anchorage must also be such that assembly at the works of the manufacturer will be as simple as possible,

SOLUTION

[0007] The objects forming the basis of the present invention will be attained if the device intimated by way of introduction is **characterised in that** the snap catch device is interconnectable with the upper grille for positional fixing of the side plate and the grille in relation to one another.

[0008] Further advantages will be attained if the device is moreover given one or more of the characterising features as set forth in appended Claims 2 to 6.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

[0009] The present invention will now be described in greater detail hereinbelow, with reference to the accompanying Drawings. In the accompanying Drawings:

- Fig. 1 is a section through a side plate and a covering grille taken just inside the end wall of the radiator;
- Fig. 2 is a section from the side through the device according to the present invention in the region of the through-going pipe;
- Fig. 3 is a top plan view of the device according to the present invention without covering grille or pipe;
- Figs. 4a-c are views of a stirrup included in the present

invention seen straight from the front, straight from the side and straight from above, respectively; and

Fig. 5 is an end view of the side plate and the covering grille assembled using the device according to the present invention.

DESCRIPTION OF PREFERRED EMBODIMENT

[0010] Fig. 1 shows a section through a covering grille 1 and side plate 2 on a double radiator. The section is taken just inside the end wall of the radiator. In the Figure can be seen the covering grille 1, the side plate 2, a pipe 3 which extends through the side plate 2 to the radiator and a stirrup 4 which, on the one hand, holds the side plate 2 in its position in relation to the pipe 3 and, on the other hand, interconnects the covering grille 1 with the side plate 2.

[0011] The covering grille 1 is a fundamentally conventional component of which there are many different types available according to the prior art technology. The upper side of the grille 1 may be planar, as intimated in Fig. 1, but may also be arched in order to provide a different visual impression. The grille 1 is provided with a plurality of grille apertures on its upper side in order to allow the passage of hot air from the radiator so that the air may rise upwards and spread out in the room. The grille apertures in the covering grille 1 are quite narrow, since there are different national standards and regulations which govern the maximum transverse dimension of the apertures. The basic intention is that it should not be possible for a person's fingers to become trapped in the apertures.

[0012] Regardless of the design of the upper side of the covering grille 1, there is a planar section 5 disposed on its under side in the region of the short sides, i.e. close to the end portion of the radiator, when the covering grille 1 is mounted in position. The planar section 5 faces downwards towards the side plate 2 at each respective end wall, and the planar section 5 of the covering grille 1 is intended to abut against the inwardly bent upper edge 10 of the side plate 2 so that a smooth and uniform transition between the covering grille 1 and the side plate 2 is obtained.

[0013] The planar section 5 is provided with apertures 6 through which the shanks 7 of the stirrup 4 may be passed.

[0014] The side plates 2 cover the space between the panels included in the radiator. The side plate 2 is disposed at the end walls of the radiator, and typically surround the short sides of the panels. Further, the side plate 2 has a planar, covering outside with one or more ducts 8 for pipes 3 which extend out from the radiator in the lateral direction. The side plate 2 has bent side edge portions 9 and an upper edge portion 10. These edge portions 9, 10 are bent substantially transversely of the major plane of the side plate 2. The upper, planar edge portion

10 is intended for abutment against the planar portion 5 of the covering grille 1, as was mentioned above. As a result of the abutment, there will be realised an alignment of the covering grille 1 and the side plate 2 in relation to one another in the vertical direction, and the mutual transition between them will be without play and will be aesthetically attractive. In the same manner as in the planar portion 5 of the covering grille 1, there are provided apertures of slots 11 for the shanks 7 of the stirrup 4 in the upper edge portion 10. The apertures or slots 11 are placed in register with the apertures 6 in the covering grille so that an alignment of the covering grille 1 in the lateral direction will be realised,

[0015] The pipe duct 8 in the side plate 2 is slightly larger than the pipe 3 which is intended to pass through. In the preferred embodiment, the pipe duct 8 is in the form of a semicircle or a semi-ellipse, i.e. its outer edges assume substantially the configuration of a U. The edges of the pipe duct 8 are provided with an inwardly folded edge 16 or flaps or projections for cooperation with the stirrup 4.

[0016] The pipe 3 is intended for the hot water supply to the radiator, and a radiator has at least two such pipes, a supply pipe and a pipe for the removal of cooler water which is passed through the radiator.

[0017] In the region of the duct 8 through the side plate 2, the pipe 3 is provided with a flange or a collar 12 which is particularly clearly apparent in Fig. 2.

[0018] As is particularly apparent from Figs. 1 and 4a, the stirrup 4 is substantially U-shaped, which approximates to the configuration of the pipe duct 8. The stirrup 4 has a number of projections 13, 14 which are substantially transversely directed from the major curve of extent of the stirrup. The angled projections 13 which are disposed on each side of the stirrup 4 act for engagement with the pipe 3 and/or its flange 12 and, thanks to the elasticity of the stirrup 4, the mutual positional fixing between the pipe 3 and the projections 13 functions even if the positioning of the pipe 3 is not exact or if its size varies within reasonable limits.

[0019] The downwardly directed projection 14 on the stirrup 4 fixes the stirrup 4 in relation to the side plate 2, in that the projection 14 may be inserted in a lower aperture 15 in the edge portion 16 of the duct 8, as is particularly clearly apparent in Fig. 3. Moreover, the stirrup 4 is fixed at the upper ends 18 of the shanks 7, these ends being resilient and being disposed to extend through holes or apertures 11 in the upper edge portion 10 of the side plate 2. The shanks 7 are resilient and their ends 18 will be urged slightly towards one another on passage through the apertures 11 in the edge portion 10 in the apertures 6 in the covering grille 1. As is most clearly apparent in Figs. 1 and 4a, the upper ends 18 of the stirrup 4 are bent so that the wires are angled in relation to the major direction of the shanks 7, at least in two portions. These angled wire portions 17a, 17b constitute ramp surfaces which cooperate with the side edges of the apertures 6 and 11 in the covering grille 1 and

in the upper edge portion 10, respectively, when the shank ends 18 are inserted in or withdrawn therefrom. On this movement substantially in the vertical direction, the ramp surfaces 17a, b also realise a movement in the lateral direction of the shanks 7, since the ramp surfaces 17a, b come into contact with the sides of the apertures 6, 11. As a result, the stirrup 4 flexes out on passage through the apertures 6, 11, and when the ramp surfaces 17a, b have passed, the stirrup 4 assumes a retentive position from which it cannot be dislodged unless the ends 18 of the shanks 7 are manipulated.

[0020] In such instance, the ends 18 of the stirrup 4 function as snap catches.

[0021] For releasing the grille 1 from the side plate 2, for example on cleaning, a firm grip is taken about, on the one hand, the covering grille 1 and, on the other hand, the side plate 2 and the covering grille 1 is then pulled with a firm movement upwards. In such instance, the ramp surfaces 17b come into contact with the apertures 6 in the planar section 5 of the covering grille and are forced to make an inward movement so that the entire upper portions 18 of the shanks 7 may pass through the apertures 6 in the covering grille 1, so that the covering grille 1 is released from the side plates 2. When the covering grille 1 is once again to be fixed on the side plate 2, the apertures 6 in the planar section 5 are aligned with the upper portions 18 of the shanks 7. The ramp surfaces 17a will realise the pressing of the shanks 7 towards one another under the action of the edge of the apertures 6 in the covering grille. The inward movement entails that the shanks 7 may pass through the apertures 6 and will thereafter snap outwards to their original position, so that the covering grille 1 is held in position.

[0022] On manufacture and assembly of the device according to the present invention, the covering grille 1 and the side plate 2 are first given their configuration with bent edge sections 5, 9, 10, 16, respectively and apertures 6, 8, 11, 15, respectively. The stirrup 4 is bent to its configuration as illustrated in Fig. 4a-c using metal wire. Thereafter, the stirrup 4 is fitted on the side plate 2 in that its lower projection 14 is passed into the corresponding aperture 15 on the edge portion 16 of the duct 8. The shanks 7 of the stirrup 4 are each passed into their aperture 11 in the upper edge portion 10 of the side plate 2. These apertures 11 are advantageously recesses or slots which are open in a direction towards the duct 8.

[0023] The side plate 2 and the stirrup 4 now together constitute a unit which is possible to fit on the radiator at the manufacturers. Thereafter, the covering grille 1 is pressed into position on the shanks 7 of the stirrup 4, as described above. Finally, the radiator is then ready for packing and shipment. Fig. 5 shows a view straight from the side of the covering grille 1 and the side plate 2 which has been fitted on the radiator.

DESCRIPTION OF ALTERNATIVE EMBODIMENTS

[0024] In the foregoing, one preferred embodiment of the present invention was described. Naturally, other geometric configurations of the components included are conceivable, for example there is considerable freedom as regards the outer configurations of the covering grille 1 and the side plate 2, for realising a particular aesthetic impression.

[0025] Regarding the functional features according to the present invention, these may also be varied without departing from the scope of the appended Claims. For example, the stirrup which, in the foregoing description, was described as being bent from metal wire, may also be manufactured from some suitable plastic material which is elastic and possesses good aging properties. In such instance, the stirrup 4 may be given a slightly different configuration which better corresponds to the material properties and behaviour of the plastic on manufacture. Means corresponding to the projection 14 which cooperates with the side plate 2, and the projections 13 which cooperate with the pipe 3 as well as the shanks 7 will, however, be retained.

[0026] The covering grille 1 may be modified regarding the aperture 6 in the planar section 5. Instead of one aperture 6 for each stirrup end 18, one continuous, long and narrow aperture 6 may be provided where the shanks 7 of the stirrup 4 rest against the outer ends of the aperture 6 in the assembled state.

[0027] The present invention may be modified further without departing from the scope of the appended Claims.

Claims

1. A device for anchoring, on the one hand, a side plate (2) and, on the other hand, a covering grille (1) on a radiator, the side plate (2) being transversely directed, with at least one aperture (8) for a through-going pipe (3) and there being provided, in the region around the aperture (8) a snap catch device (4, 18) which is interconnectable to the upper grille (1) for positional fixing of the side plate (2) and the grille (1) in relation to one another, **characterised in that** the snap catch device (4, 18) includes a substantially U-shaped, resilient stirrup (4), whose shanks (7) are insertable and fixedly snappable in at least one aperture (6) in a downwardly facing surface (5) of the upper grille (1).
2. The device as claimed in Claim 1, **characterised in that** at least one of the ends (18) of the shanks (7) displace a ramp surface (17a, b) for actuation of the shank (7) in the lateral direction on insertion in the aperture (6) in the grille (1).
3. The device as claimed in Claim 1 or 2, **characterised**

in that the U-shaped stirrup (4) has projections (13,14) which extend transversely over the major plane of extent of the stirrup (4) for cooperation, on the one hand, with an edge portion (15) of the aperture (8) for the pipe (3) and on the other hand with the through-going pipe (3). 5

4. The device as claimed in Claim 3, **characterised in that** the edge portion (15) of the aperture (8) has projections which extend transversely of the major plane of extent of the side plate (2), for cooperation with the stirrup (4). 10

5. The device as claimed in any of Claims 1 to 4, **characterised in that** the stirrup (4) is manufactured from a metal wire. 15

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Fig 1

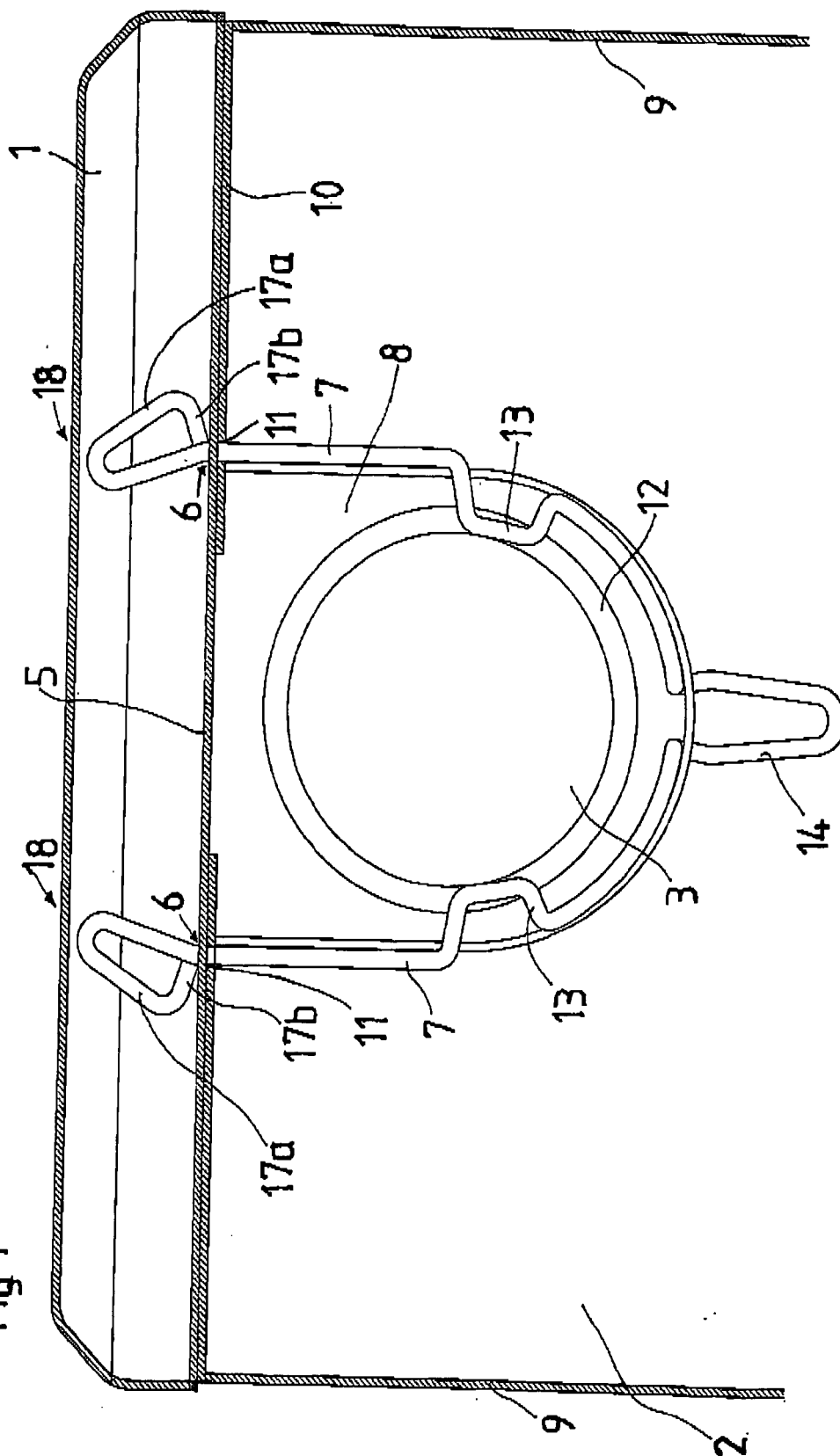


Fig 2

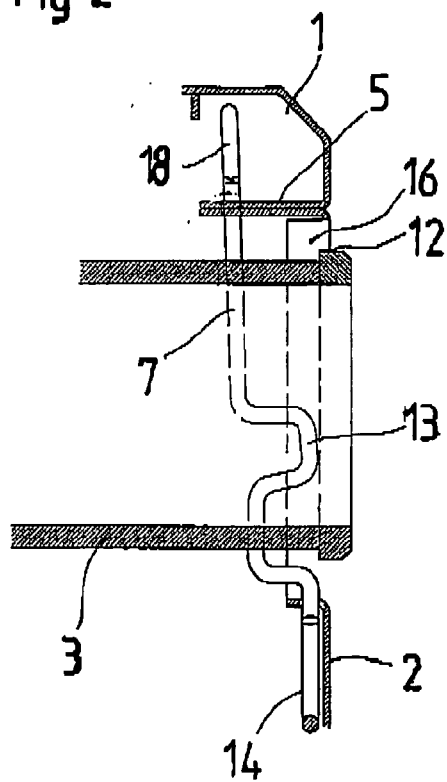
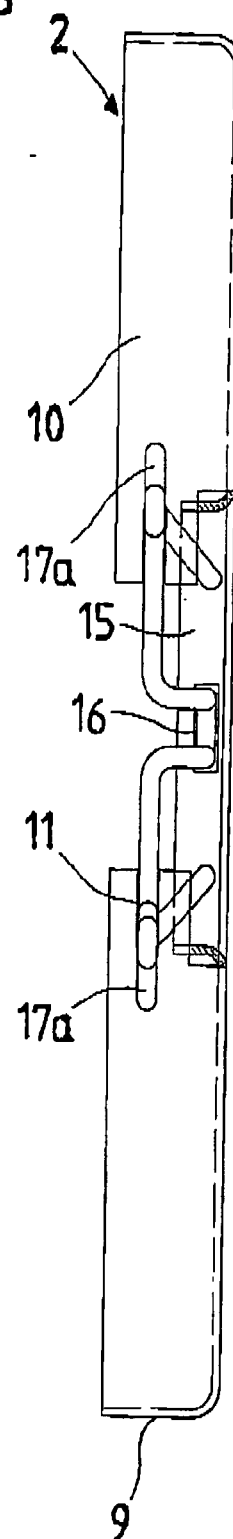
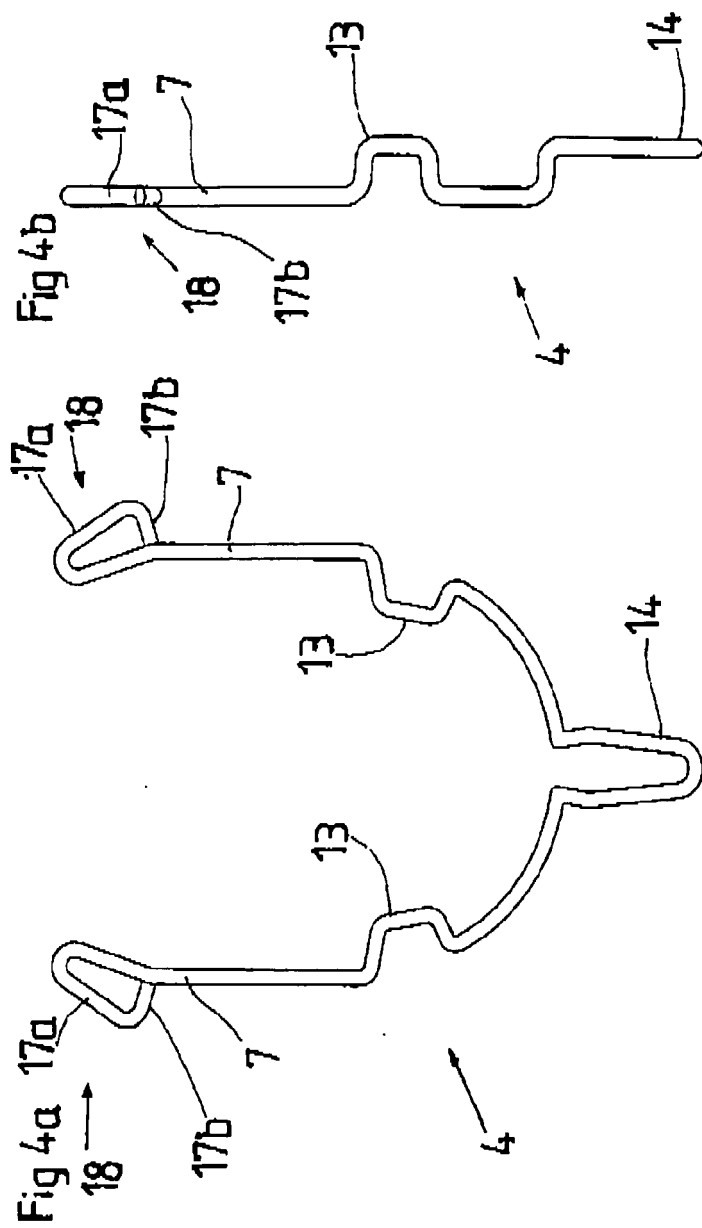
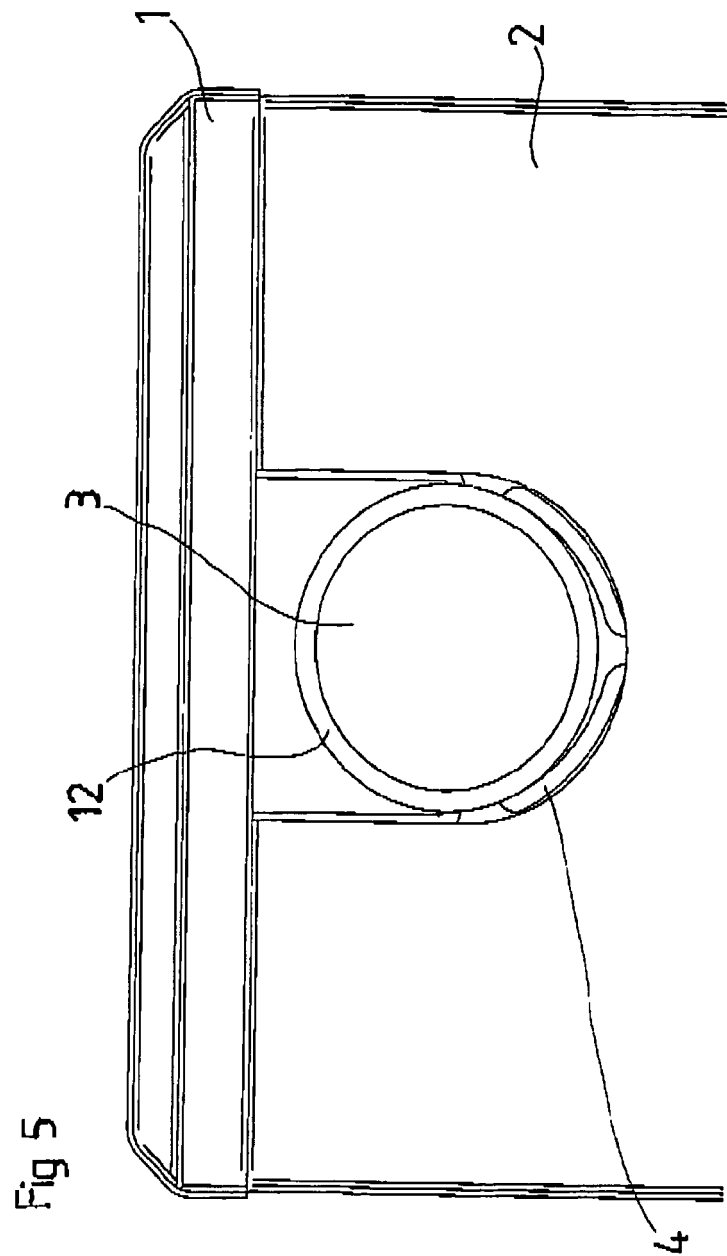


Fig 3







REFERENCES CITED IN THE DESCRIPTION

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