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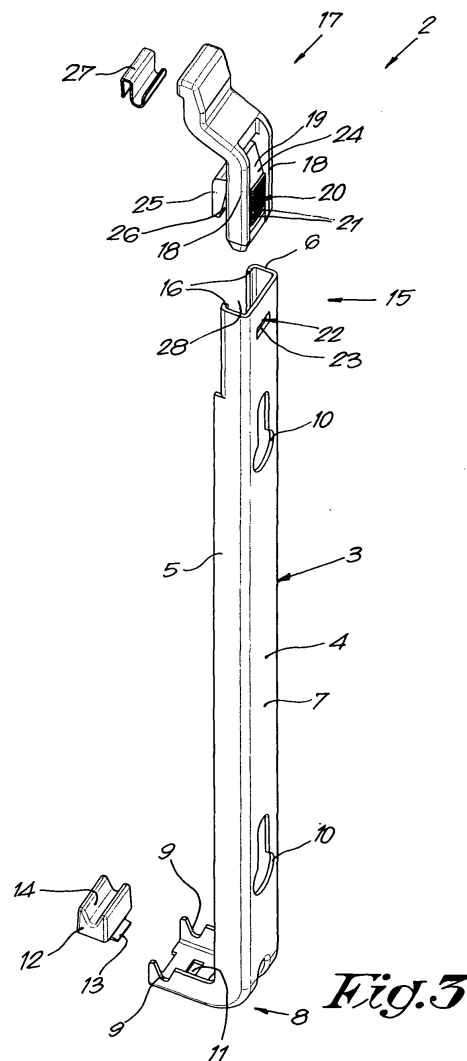
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(54) **Improved device for fixing a radiator to a wall or the like**

(57) Improved device for fixing a radiator (1) to a wall or the like, which mainly consists of at least one bracket (3) in which the radiator (1) can be clamped, and which is formed of a strut (4) designed to be fixed to a wall on the one hand, one far end (8) of which is bent at right angles so as to support the radiator (1) to be fixed, and of a hook-shaped element (17) which is provided with a leg (18) which can be axially shifted in the other far end (15) of the above-mentioned strut (4) on the other hand, and which is provided with detachable locking means, characterised in that these locking means are such that they can be detached from a mounted radiator (1), from the top or the bottom of the radiator (1), as well as from a side of the radiator (1), whereby the above-mentioned locking means are made as an elastic, bendable lip (19) of the above-mentioned leg (18), which lip (19) is provided with a toothing (20) on one side which can work in conjunction with a toothing (22) of the strut (4) directed towards the inside of the strut (4), and whereby the above-mentioned lip (19) is provided with a groove (26) or with a protrusion (25) which is accessible to a screw-driver or any other tool from the top and/or bottom of a dismantled radiator (1).



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Description

[0001] The present invention concerns an improved device for fixing a radiator to a wall or the like.

[0002] Such a device is already known which mainly consists of one or several brackets in which the radiator can be clamped and which are each formed of a strut designed to be fixed to a wall on the one hand, one far end of which is bent at right angles so as to support the radiator to be fixed, and of a hook-shaped element which is provided with a leg which can be axially shifted in the other far end of the above-mentioned strut on the other hand, and which is provided with detachable locking means.

[0003] Such a device makes it possible to fix a radiator in a fast and simple manner to a wall or the like by first fixing one or several brackets to the wall at a distance from each other and to make the radiator subsequently rest on the bent far ends of the brackets, after which the hook-shaped elements are pushed on the free end of the strut so as to be able to clamp the radiator and to lock it between the bent far ends and the hook-shaped elements.

[0004] However, a disadvantage of the known devices is that the detachable locking means can only be detached from the hook-shaped elements, such as in order to dismount the radiator, from the top of the radiator, for example with the use of a screwdriver.

[0005] A disadvantage linked thereto is that in situations whereby the top of the radiator is hardly or not at all accessible, for example in situations whereby a tablet or a protruding part of the wall is provided above the radiator, it will be difficult to dismount the radiator or to do so without damaging the radiator or the wall.

[0006] Devices are already known whereby the radiator can be dismounted from the top or from the side, but whereby these devices have a relatively complex construction. Such devices are known for example from DE 20 2005 005565, EP 1,209,422 and DE 198,53,061.

[0007] An additional disadvantage is that the look of and/or the accessibility of the detachable locking means is not ideal from all sides, which may form a hindrance to safely dismount a radiator without causing any damages.

[0008] Another disadvantage is that the hook-shaped element and the locking means consist of different components.

[0009] This implies that when mounting the radiator, these components need to be assembled and provided in the bracket, which may be relatively complex for the do-it-yourselfer who is not so dextrous, and which may consequently also lead to wrong assemblies or the loss of certain components.

[0010] That is why such devices are usually pre-assembled in the factory, which is in turn disadvantageous in that these devices cannot be packed in the radiator in a space-saving manner when delivering the radiator.

[0011] The present invention aims to remedy one or

several of the above-mentioned and other disadvantages.

[0012] To this end, the invention concerns a device with a bracket of the above-mentioned type for fixing a radiator, whereby the locking means of this bracket are such that they can be detached from a mounted radiator, from the top or the bottom of the radiator as well as from a side of the radiator and whereby these locking means are made as an elastic, bendable lip of the above-mentioned leg, which lip is provided with a tothing on one side which can work in conjunction with a tothing of the strut directed towards the inside of the strut, and whereby the above-mentioned lip is provided with a groove or a protrusion which is accessible to a screwdriver or another tool from the side and from the top and/or bottom of a mounted radiator.

[0013] Such a device offers the advantage that the radiator can always be easily dismounted, even in situations whereby the top and/or bottom of the radiator is covered or whereby the sides of the radiator are difficult to access.

[0014] According to a preferred characteristic, the above-mentioned groove or the above-mentioned protrusion is formed of a hook-shaped part of the lip on the side opposite the toothed side of the lip, and the groove or the hook-shaped part has an inner wall which is directed slantingly in relation to the axial direction of the strut.

[0015] In this manner, by providing a simple tool between the above-mentioned inner wall and the strut, the lip of the hook-shaped element can be easily locked by moving said tool in the axial direction of the strut, in other words to the top or to the bottom.

[0016] Additionally, the bending lip can be provided, on its toothed side which is turned towards the back of the strut, with a bevelled part forming an angle with the axial direction of the strut, such that the radiator can also be dismounted by pushing a tool in the opening between the above-mentioned bevelled part and the back of the strut so as to unlock the lip from the hook-shaped element.

[0017] Preferably, the hook-shaped element is designed such that it can only be dismounted by means of a tool, which is better in view of the safety.

[0018] The hook-shaped element is preferably formed in one piece with the strut and dismountable from the latter, whereby the strut and the hook-shaped element are made such, according to a preferred embodiment, that they fit in the radiator or can be pushed in the latter in a space-saving manner in view of their delivery and transport, together with a radiator as a radiator kit.

[0019] Also, the invention concerns such a radiator kit, consisting of an actual radiator and one or several devices according to the invention, the bracket and hook-shaped element of which are separately pushed in the radiator in view of the delivery and transport of the radiator kit.

[0020] In order to better explain the characteristics of

the invention, the following preferred embodiments of an improved device according to the invention for fixing a radiator to a wall or the like are given as an example only without being limitative in any way, with reference to the accompanying drawings, in which:

figure 1 schematically represents a radiator in perspective, provided with an improved device according to the invention for fixing the radiator to a wall or the like;

figure 2 is a side view according to arrow F2 in figure 1 with partial omissions and sections;

figure 3 is an exploded view in perspective of the part indicated by F3 in figure 1;

figure 4 represents the part indicated by F4 in figure 2 to a larger scale;

figure 5 represents a view as that in figure 4, but for another position;

figure 6 represents a variant of figure 2.

[0021] Figures 1 and 2 represent a radiator 1 which is clamped in an improved device 2 according to the invention, which is in this case formed of two brackets 3.

[0022] Each bracket 3 comprises a strut 4 with a U-shaped section with two legs 5 and 6 which are connected to each other by a back 7, designed to be mounted against a wall or the like.

[0023] The lower end 8 of the strut 4 is bent at right angles and is provided with notches 9 provided one opposite the other at the legs 5 and 6.

[0024] In the back 7 of the strut 4 are provided two passages 10 for fixing the strut 4 to a wall or the like, for example by means of screws, and at the bent far end 8 is provided a slot 11 in the given example.

[0025] In the bent far end 8 is provided a supporting block 12 which can be fixed in the above-mentioned slot 11 by means of a rib 13 and which is provided with a continuous groove 14 in line with the above-mentioned notches 9.

[0026] At the top end 15 of the strut 4, the free edges 16 of the legs 5 and 6 are bent inward at right angles so as to form an axial guide for a hook-shaped element 17 which is provided with a leg 18 which can be axially shifted in the above-mentioned guide which is confined by the U-shaped strut 4 and the above-mentioned bent edges 16.

[0027] The hook-shaped element 17 is in this case made in one piece and is provided with detachable locking means made in the form of an elastic bendable lip 19 of the above-mentioned leg 18, whereby this lip 19 is provided with a toothing 20 on one side in the form of a series of teeth 21 having a saw tooth section, which toothing 20 can work in conjunction with a toothing 22 of the strut 4 directed towards the inside of the strut 4 which, in this case, is formed of a lip-shaped, inwardly bent cut 23.

[0028] The bendable lip 19 is provided with a bevelled part 24 on its toothed side forming an angle A with the axial direction of the strut 4, and it is provided with a hook-

shaped protruding part 25 of the lip 19 on its opposite side, defining a groove or slot 26 together with the body of the lip 19.

[0029] The hook-shaped part 25 protrudes from the strut 4 through a slot 28 which is defined by the bent edges 16 of the strut 4.

[0030] An S-shaped bracket 27 is provided, which can be fit in a slot 29 of the hook-shaped element 17 with one free end, and which can be provided over an edge of the radiator 1 with the other free end.

[0031] The strut 4 is preferably made of a metal, whereas the hook-shaped element 17 is preferably a synthetic element.

[0032] The use of an improved device according to the invention is very simple and as follows.

[0033] In order to fix a radiator 1 to a wall or the like, two or more brackets 3 are first fixed to the wall by means of screws or the like which are screwed through the passages 10 in the wall.

[0034] The S-shaped brackets 27 are mounted on the radiator and hooked over the top edge of the radiator with one free end, under the sheeting if present.

[0035] Next, the radiator 1 is placed on the bent far ends 8, resting in the notches 9 and in the groove 14 of the supporting block 12 with a lower edge 30.

[0036] Afterwards, the radiator 1 is clamped by providing a hook-shaped element 17 in each bracket 3 and by pushing each hook-shaped element 17 axially in the guide at the top end 15 of the bracket 4 with a leg 18 until the hook-shaped element 17 is hooked with the slot 29 over the loose free end of the S-shaped bracket so as to tightly clamp the radiator.

[0037] The leg 18 of every hook-shaped element 17 is hereby automatically locked as the toothing 22 of the strut 4 hooks behind the toothing 20 of the elastic bendable lip 19, as represented in figure 4.

[0038] Thanks to the saw tooth section of the toothing 20, the hook-shaped elements 17 cannot be removed without moving the elastic bendable lip 19 in the direction of the radiator 1 so as to thus pull the toothings 20 and 22 of the locking means between the lip 19 and the strut 4 out of each other.

[0039] In order to be able to loosen the above-mentioned locking means, one only has to push, as represented in figure 5, a screwdriver 32, which is schematically represented by means of a chain line in figure 5, or another sharp tool over the top of the radiator 1 in the opening 33 which is formed between the back 7 of the strut 4 and the bevelled part 24 of the lip 19 so as to thus bend the elastic bendable lip 19 towards the radiator 1 and to disengage the toothings 20 and 22 from each other so as to be able to axially remove the hook-shaped element 17 from the strut 4 and to subsequently dismount the radiator 1.

[0040] An alternative possibility for removing the hook-shaped element 17 so as to be able to dismount the radiator 1, as is also represented in figure 5, consists in bending the lip 19 inward from the side or the top of the

radiator 1 by putting a tool such as a squared hexagonal key 34 in the groove 26 of the hook-shaped part 25, so as to disengage the toothings 20 and 22 from each other.

[0041] The groove 26 or the hook-shaped part 25 are preferably provided with an inner wall 35 which is directed towards the strut 4 and which is slantingly directed at an angle B in relation to the axial direction of the strut 4.

[0042] This offers the advantage that, when the tool 34 is pushed upward in the axial direction of the strut 4, the lip 19 is automatically pulled away towards the radiator 1, so that it becomes possible to move or dismount the hook-shaped element.

[0043] From what precedes it is clear that the radiator 1 can be easily dismounted, both from the top of the radiator 1 as from a side of the radiator 1.

[0044] The opening 33 as well as the opening 36 which is formed between the above-mentioned inner wall 35 and the strut 4 are preferably narrower than a finger.

[0045] Thus is prevented that the hook-shaped element 17 might be accidentally unlocked by a child or the like, since an appropriate tool is required to do so.

[0046] Although in the figures, the hook-shaped element 17 is provided at the top end of the bracket 3, it is not excluded to provide such an element 17 at the bottom of the radiator 1, either or not in combination with a hook-shaped element 17 at the top, such that it may also be possible to dismount the radiator 1 via the bottom of the radiator 1.

[0047] It is clear that the radiator 1 can be fixed in the brackets 3 in different ways, and that the radiator 1 can be fixed for example to the bent lower end 8 by means of a bolt 33 or the like, as is represented for example in figure 6, in which the slot 11 is omitted by the way.

[0048] Also the locking means can be realised in other ways than by means of the toothings 20 and 22.

[0049] If necessary, the S-clamps can be omitted or they can be integrated in the hook-shaped elements.

[0050] The present invention is by no means limited to the embodiments given as an example and represented in the accompanying drawings; on the contrary, such a device according to the invention for fixing a radiator to a wall or the like can be made in all sorts of shapes and dimensions while still remaining within the scope of the invention.

Claims

1. Improved device for fixing a radiator (1) to a wall or the like, which mainly consists of at least one bracket (3) in which the radiator (1) can be clamped, and which is formed of a strut (4) designed to be fixed to a wall on the one hand, one far end (8) of which is bent at right angles so as to support the radiator (1) to be fixed, and of a hook-shaped element (17) which is provided with a leg (18) which can be axially shifted in the other far end (15) of the above-mentioned strut (4) on the other hand, and which is provided with

detachable locking means, **characterised in that** these locking means are such that they can be detached from a mounted radiator (1), from the top or the bottom of the radiator (1), as well as from a side of the radiator (1), whereby the above-mentioned locking means are made as an elastic, bendable lip (19) of the above-mentioned leg (18), which lip (19) is provided with a tothing (20) on one side which can work in conjunction with a tothing (22) of the strut (4) directed towards the inside of the strut (4), and whereby the above-mentioned lip (19) is provided with a groove (26) or with a protrusion (25) which is accessible to a screwdriver or any other tool from the top and/or bottom of a dismounted radiator (1).

2. Improved device according to claim 1, **characterised in that** the tothing (20) of the bendable lip (19) has a saw tooth section.

3. Improved device according to claim 1 or 2, **characterised in that** the tothing (22) of the strut (4) is formed of a lip-shaped, inwardly bent cut (23) of the strut (4).

4. Improved device according to any one of the preceding claims, **characterised in that** the tothing (22) of the strut (4) is situated on the back (7) of the strut (4), in particular on the back with which the strut (4) is to be mounted against a wall or the like.

5. Improved device according to any one of the preceding claims, **characterised in that** the above-mentioned groove (26) or the above-mentioned protrusion (25) is formed of a hook-shaped part (25) of the lip (19) provided on the side opposite the toothed side of the lip (19).

6. Improved device according to claim 5, **characterised in that** the hook-shaped part (25) protrudes from the strut (4) via a slot (28) in the strut (4).

7. Improved device according to any one of the preceding claims, **characterised in that** the groove (26) or the hook-shaped part (25) are provided with an inner wall (35) which is slantingly directed in relation to the axial direction of the strut (4).

8. Improved device according to any one of the preceding claims, **characterised in that** the opening (36) which is formed between the above-mentioned inner wall (35) and the strut (4) is narrower than a finger.

9. Improved device according to any one of the preceding claims, **characterised in that** the bendable lip (19) is provided, on its toothed side which is directed to the back (7) of the strut (4), with a bevelled part (24) which forms an angle with the axial direction of the strut (4).

10. Improved device according to claim 9, **characterised in that** the opening which is formed between the back (7) of the strut (4) and the above-mentioned bevelled part (24) of the hook-shaped element (17) is narrower than a finger when mounted. 5
11. Improved device according to any one of the preceding claims, **characterised in that** the hook-shaped element (17), after it has been mounted, can only be dismantled with an appropriate tool. 10
12. Improved device according to any one of the preceding claims, **characterised in that** the strut (4) is made of metal and **in that** the hook-shaped element (17) is a synthetic element. 15
13. Improved device according to any one of the preceding claims, **characterised in that** the hook-shaped element (17) is made in one piece and can be dismantled from the strut (4). 20
14. Radiator kit consisting of an actual radiator and one or several devices according to any one of the preceding claims, the bracket (3) and the hook-shaped element (17) of which are pushed separately in the radiator (1) in view of the delivery and transport of the radiator kit. 25

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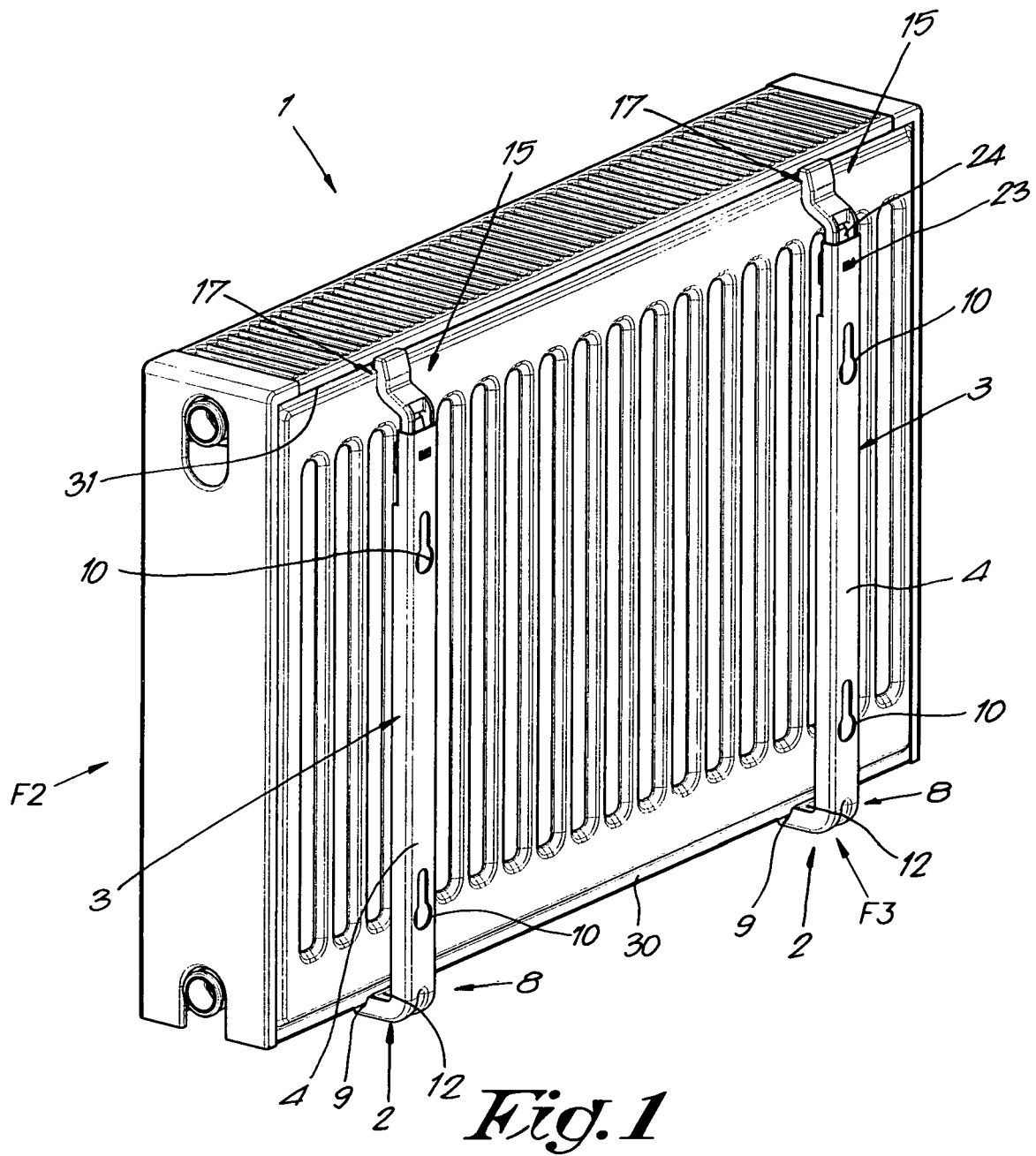
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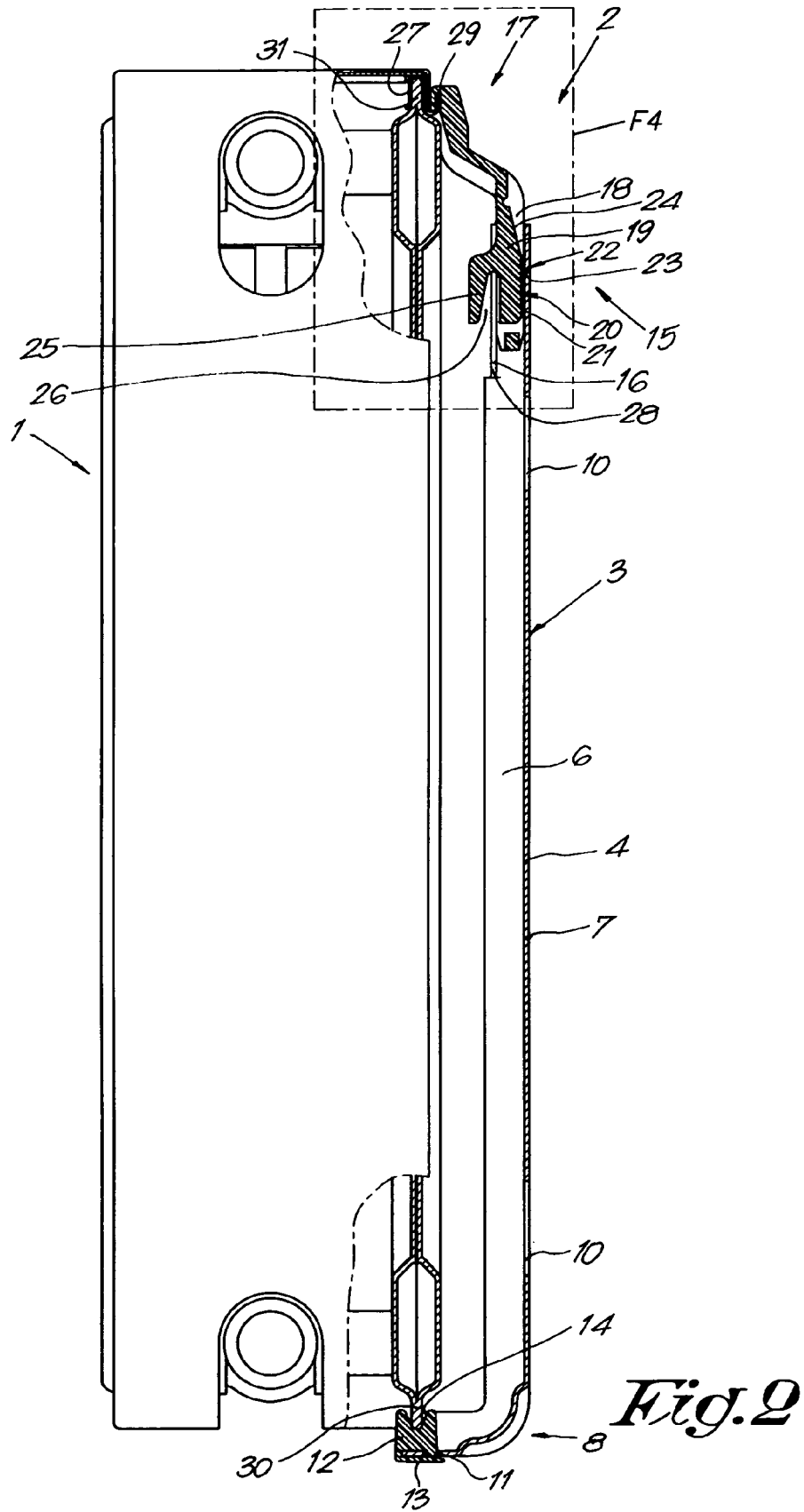
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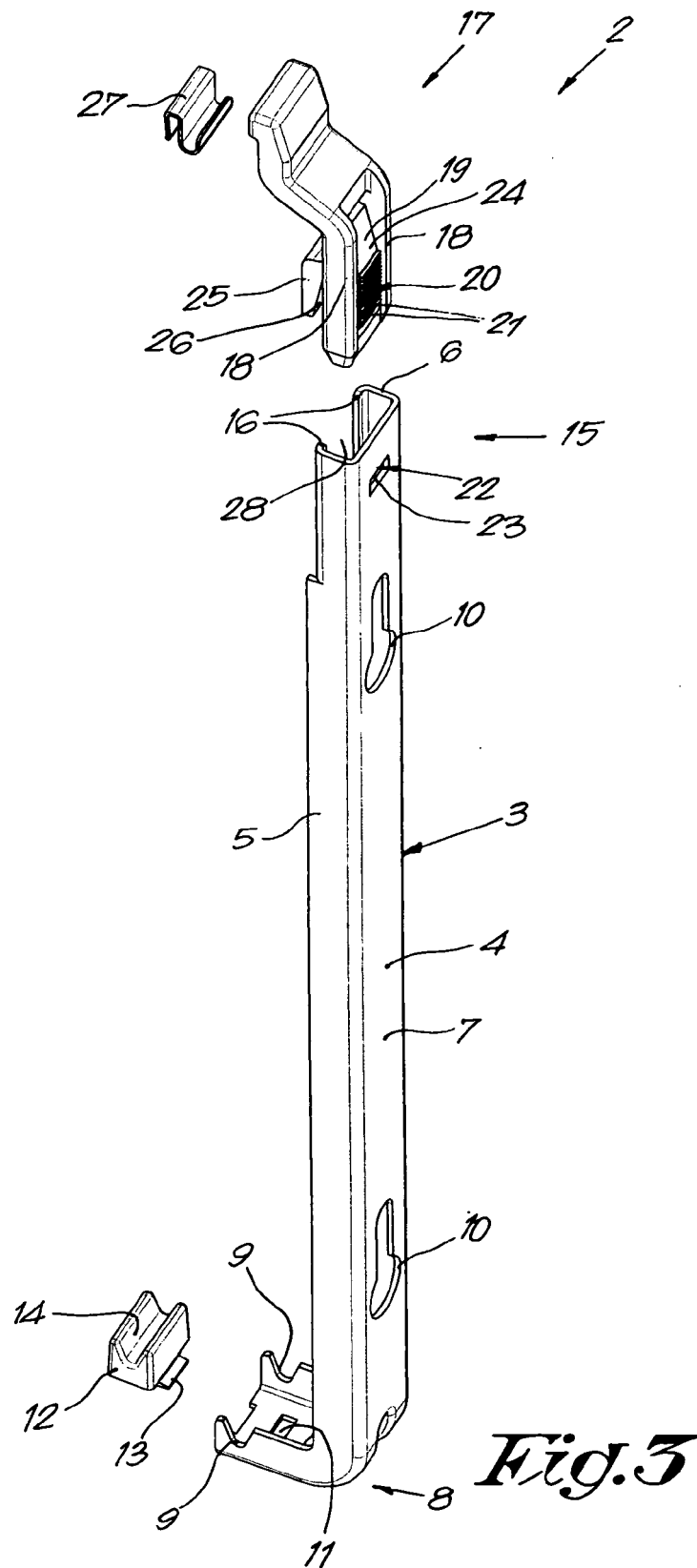
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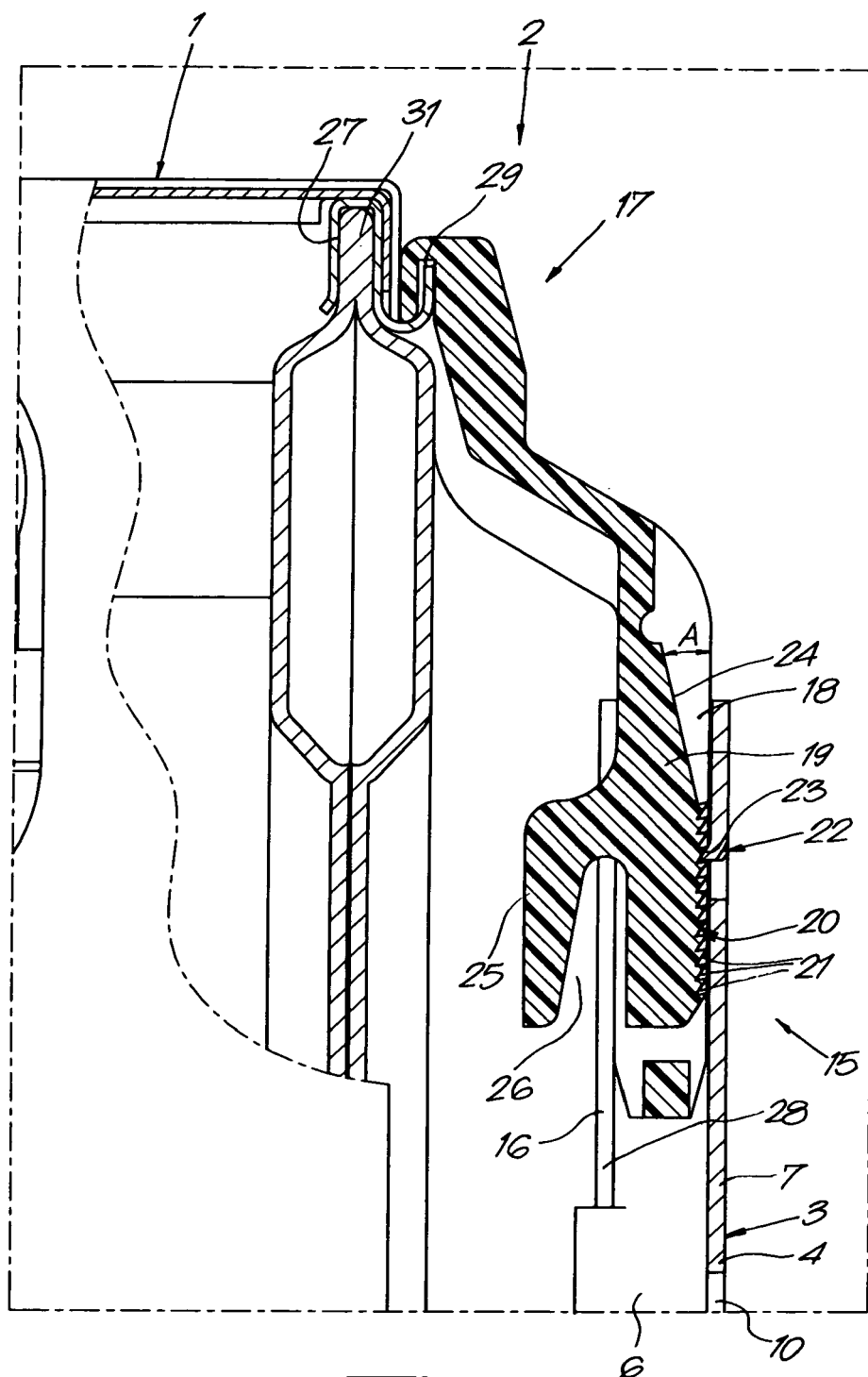


Fig. 4

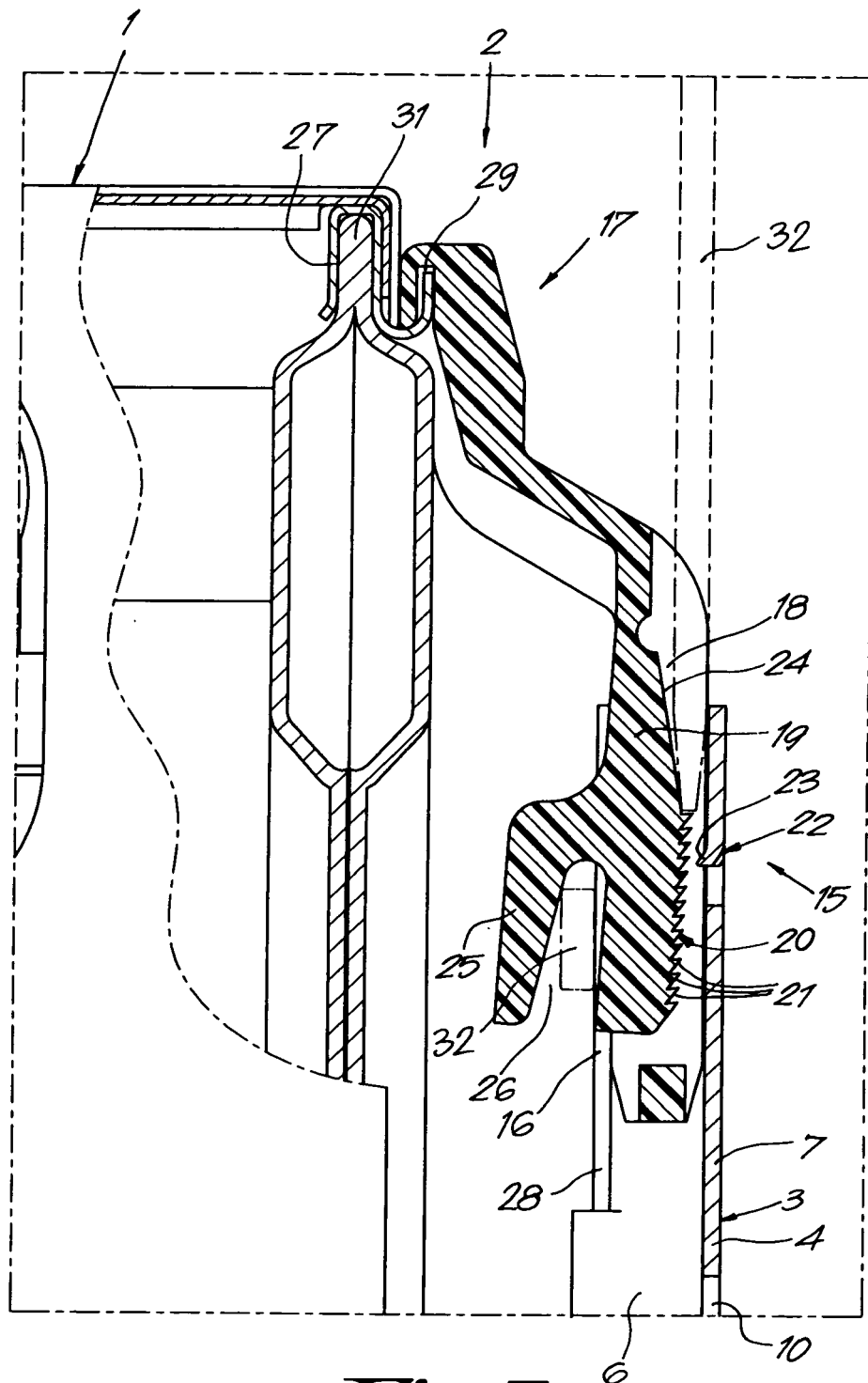
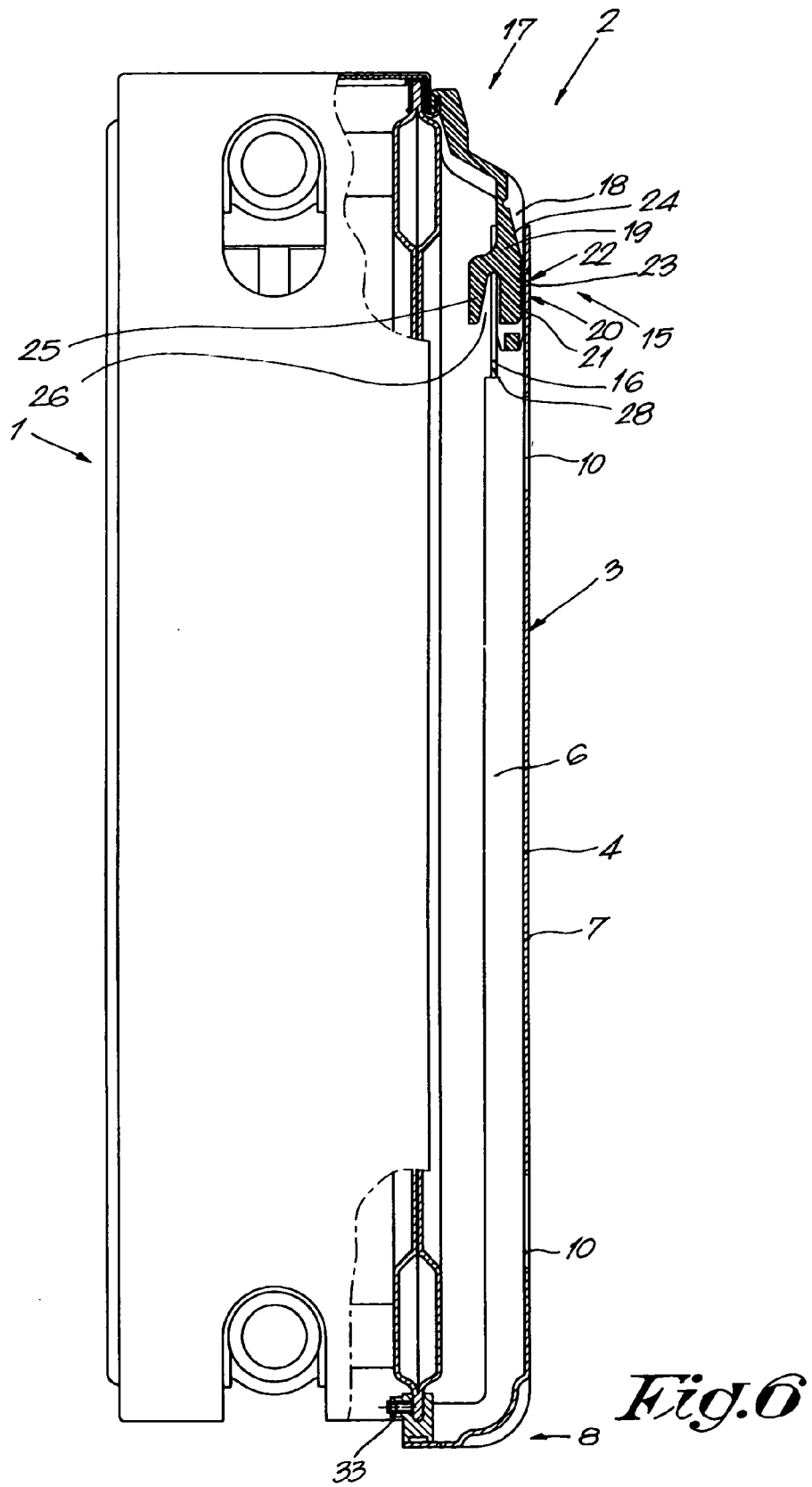


Fig.5





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EUROPEAN SEARCH REPORT

Application Number
EP 06 07 6227

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 06 07 6227

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REFERENCES CITED IN THE DESCRIPTION

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