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(54) **Wall anchor, particularly for tubular radiators**

(57) A wall anchor, particularly for tubular radiators, including a supporting bracket that can be fastened to a wall and at least one engagement member that is joined to the supporting bracket and is provided with a seat that is suitable to allow its association with a tubular portion of a radiator. A quick locking means is adapted to pass, reversibly and without the use of tools, from a removable condition, in which the seat has a partially open transverse cross-section, to a non-removable condition, in which the seat has a substantially closed transverse cross-section.

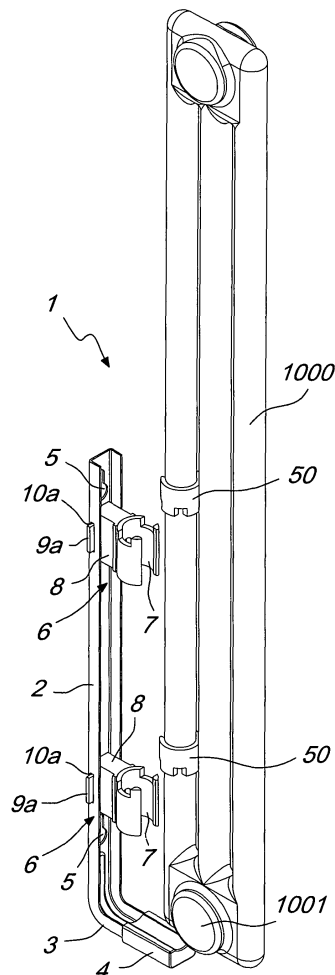


Fig. 2

Description

[0001] The present invention relates to a wall anchor, particularly for tubular radiators.

[0002] Conventional devices for anchoring tubular radiators to the wall are generally constituted by more or less sophisticated brackets that can be fastened to the walls while the radiators are detachably associated with such brackets.

[0003] Ordinary anchors are constituted by brackets that support the radiators simply by means of saddle-like portions shaped complementarily with respect to the horizontal manifold of the radiator. Other anchors have a higher degree of technological perfection and are substantially constituted by clamps or jaws of various kinds that can be applied to portions of the radiators and can be associated with suitable supports that are fastened to the wall.

[0004] Italian patent application No. VI2006A00074 discloses an anchor constituted by a support device to be fastened to a wall while the radiator is detachably associated to the support. The support device has an engagement member that detachably clamps a tubular portion of the radiator and cooperates with a support member which can be fastened to the wall. The engagement member is detachably associated with the support member.

[0005] Conventional anchors have some drawbacks. The simpler anchors do not generally ensure the necessary safety while the more elaborate anchors make the installation and assembly operations more difficult.

[0006] In the more complex anchors, the need to pre-assemble parts to the radiators, paying particular attention to their placement and necessarily having to resort to the use of tools, leads to a complication of the installation operations and almost directly to an increase in time, thus running the risk of making their use no longer justifiable.

[0007] The aim of the invention is to solve the problems described above by providing a wall anchor particularly for tubular radiators that is able to combine ease and high speed of assembly with considerable safety in engagement, preventing any accidental disengagement of the radiator.

[0008] Within the scope of this aim, a particular object of the invention is to provide a wall anchor that can be coupled to the radiator without resorting to tools or specific equipment.

[0009] A further object of the invention is to provide a wall anchor that can be adjusted both horizontally and vertically.

[0010] A further object of the invention is to provide a wall anchor which, starting from a limited number of supports with different dimensional characteristics, allows to anchor radiators substantially of any height to walls.

[0011] A further object of the invention is to provide a wall anchor that allows easy installation of radiators and is concealed from sight.

[0012] Another object of the invention is to provide a

wall anchor that is advantageous from a purely economic standpoint and is at the same time sturdy and aesthetically pleasant.

[0013] The above aims and objects, and other aims and objects that will be more apparent hereinafter, are achieved by a wall anchor, particularly for tubular radiators, comprising a supporting bracket that can be fastened to a wall and at least one engagement member that is joined to said supporting bracket, said engagement member being provided with a seat that is suitable to allow its association with a tubular portion of a radiator, **characterized in that** it comprises a quick locking means that is adapted to pass, reversibly and without the use of tools, from a removable condition, in which said seat has a partially open transverse cross-section, to a non-removable condition, in which said seat has a substantially closed transverse cross-section.

[0014] Further characteristics and advantages will become better apparent from the description of preferred but not exclusive embodiments of a wall anchor according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a wall anchor according to the invention;

Figure 2 is a perspective view of the wall anchor of the preceding figure, during installation;

Figure 3 is a perspective view of the wall anchor of Figure 1 and of a radiator, in the removable condition;

Figure 4 is a perspective view of the wall anchor of Figure 1 and of a radiator, in the non-removable condition;

Figure 5 is a side view of the wall anchor of Figure 1 and of a radiator, in the removable condition;

Figure 6 is a side view of the wall anchor of Figure 1 and of a radiator, in the non-removable condition;

Figure 7 is a perspective view of a wall anchor according to a further aspect of the invention and of a radiator, during installation;

Figure 8 is a perspective view of the wall anchor of Figure 7;

Figure 9 is a side view of the wall anchor of Figure 7 and of a radiator, in the non-removable condition;

Figure 10 is a perspective view of the wall anchor of Figure 7 and of a radiator, in the removable condition;

Figure 11 is a perspective view of the wall anchor of Figure 7 and of a radiator, in the non-removable condition;

Figure 12 is a perspective view of a wall anchor according to a further aspect of the invention and of a radiator, during installation;

Figure 13 is a side view of the wall anchor of Figure 12 and of a radiator, in the non-removable condition;

Figure 14 is a perspective view of the wall anchor of Figure 12;

Figure 15 is a perspective view of the wall anchor of Figure 12 and of a radiator, in the removable condition;

Figure 16 is a perspective view of the wall anchor of Figure 12 and of a radiator, in the non-removable condition.

[0015] With reference to the cited Figures 1 to 6, the wall anchor, particularly for tubular radiators, generally designated by the reference numeral 1, comprises a supporting bracket 2, which is longitudinally elongated and is constituted by a U-shaped metal profile which has, at its lower end, such a shape as to form a fixed hook 3 provided with an insulating pad 4.

[0016] The length of the supporting bracket 2 substantially corresponds to the height of a radiator 1000 to be anchored to a wall.

[0017] The supporting bracket is preferably constituted by a metal profile.

[0018] If the radiator is particularly tall, the metal profile can optionally be composed of multiple members that are substantially mutually similar and can be aligned with respect to their longitudinal axis 20, as shown merely by way of example in Figures 4 and 6.

[0019] The supporting bracket 2 can be fastened to the wall by means of suitable fasteners that engage slots 5 formed on the back of the bracket.

[0020] The supporting bracket 2 is provided with at least one engagement member 6, on which there is a longitudinally elongated seat 7 that allows its snap interlocking on a tubular portion of the radiator 1000.

[0021] The engagement member 6 is constituted by a one piece, or monolithic, contoured body 8.

[0022] A seat 7 is provided on the front of the contoured body 8. The seat 7 has a substantially C-shaped transverse cross-section and has a shape substantially complementary to the shape of the tubular portion of the radiator 1000.

[0023] The contoured body 8 is preferably made of thermally insulating material, in order to prevent thermal and electrical losses as well as unwanted transmissions of mechanical vibrations.

[0024] Two wings 9a and 9b protrude symmetrically from the back of the contoured body 8 and enter a corresponding number of guides 10a and 10b that are formed thereat on the sides of the supporting bracket 2 in order to load thereon the weight of the radiator 1000.

[0025] The engagement member 6 is therefore slidably engaged within the guides 10a and 10b, transversely to the longitudinal axis 20 of the supporting bracket 2, and can be locked in the desired position by a retention means, not shown in the figures.

[0026] Preferably, the distance between the fixed hook 3 and the engagement member 6 that is closest to it substantially corresponds to the distance between the bottom of the radiator 1000 and the upper end of the corresponding horizontal manifold 1001, so that the lower edge of the contoured body 8 can abut against the horizontal manifold, preventing unwanted vertical sliding movements of the radiator 1000.

[0027] According to the invention, the wall anchor 1

comprises a quick locking means, which can pass reversibly and without the aid of tools from a removable condition, in which the transverse cross-section of the seat 7 is partially open, to a non-removable condition, in which the transverse cross-section of the seat 7 is substantially closed, allowing to couple the radiator 1000 to the wall anchor.

[0028] According to a first embodiment of the invention, the quick locking means is constituted by an interlocking member 50, which is provided with a recess 51 having a transverse cross-section with a substantially C-shaped profile. The recess 51 has a shape that is substantially complementary to the shape of the tubular portion of the radiator 1000.

[0029] The interlocking member 50 is adapted to be interlocked with a snap action on a tubular portion of the radiator 1000, which is located above the tubular portion engaged by the engagement member 6, and to cooperate with the contoured body 8 in order to give the seat 7 a substantially closed transverse cross-section during the non-removable condition.

[0030] In this regard, the interlocking member 50 has a contoured portion at its lower end. The contoured portion is substantially formed by a first protrusion 52, which is arranged centrally at the lower end of the interlocking member 50, and by two other protrusions 53a and 53b, that are arranged symmetrically to the sides thereof.

[0031] At the upper end of the contoured body 8 there is a complementarily shaped portion that is substantially constituted by an open portion of the seat 7 and mates with the protrusion 52, and by a pair of notches 11a and 11b that are arranged symmetrically at the sides of the protrusion and can be coupled to the protrusions 53a and 53b, by interlocking.

[0032] Figures 7 to 11 illustrate a further embodiment of the invention, wherein the wall anchor has been generally designated by the reference numeral 101.

[0033] The contoured body 8 has a modular structure that is adapted to form a seat 7 with features that are substantially similar to the ones of the embodiment described above but with such dimensions as to allow it to rotatably accommodate a rotary member 150 that is coaxial thereto.

[0034] The rotary member 150 in practice constitutes a quick locking means. The rotary member 150 has a substantially tubular shape and is provided longitudinally with a cavity 151 having a transverse cross-section with a substantially C-shaped profile.

[0035] The shape of the cavity 151 is substantially complementary to the shape of the tubular portion of the radiator 1000, allowing to interlock it with a snap action thereon.

[0036] The rotary member 150 may rotate with respect to the contoured body 8 and therefore the rotary member 150 gives the seat 7 a substantially closed transverse cross-section, during the non-removable condition.

[0037] Preferably, the rotary member 150 is laterally provided with a first pawl 152a and with a second pawl

152b, which can be associated by interlocking, with a rotary motion, with a corresponding number of openings 12a and 12b that are formed thereat on the contoured body 8.

[0038] Undercuts are provided at the ends of the pawls 152a and 152b for preventing accidental rotations of the rotary member 150 and accordingly for maintaining the achieved non-removable condition. The undercuts are not shown in the figures.

[0039] Two diametrically opposite arms 153a and 153b protrude from the upper edge of the rotary member 150 and allow to facilitate the rotation thereof.

[0040] The rotary member 150 is preferably made of thermally insulating material, in order to prevent unwanted thermal and electrical losses as well as the transmission of mechanical vibrations.

[0041] According to a further embodiment of the invention, illustrated in figures 12 to 16, the anchor, generally designated by the reference numeral 201, comprises a quick locking means substantially constituted by a lever member 250, which is pivoted to the contoured body 8 about a pivoting axis that lies transversely to the longitudinal axis of the seat 7.

[0042] In this case too, the possibility to rotate with respect to the contoured body 8 allows the lever member 250 to give the seat 7 a substantially closed transverse cross-section during the non-removable condition.

[0043] A protrusion 251 is formed at the free end of the lever member 250 and can be associated with a groove 13 that is formed thereat on the contoured body 8 in order to maintain the achieved non-removable condition.

[0044] In the embodiment shown in figures 7 to 16, the component parts that correspond to the component parts that have already been described with reference to the embodiment shown in Figures 1 to 6 have been designated by the same reference numerals.

[0045] The operation of the wall anchor according to the invention is as follows.

[0046] After coupling each supporting bracket 2 to the wall, using the slots 5 according to per se already known methods, and after optionally superimposing thereon the other modules that compose it, aligning them with respect to the longitudinal axis 20, it is possible to anchor the radiator 1000.

[0047] In the first embodiment, after resting the bottom of the radiator 1000 on the fixed hook 3, substantially at each engagement member 6, an interlocking member 50 is interlocked by snap action on a tubular portion of the radiator 1000 by using the recess 51.

[0048] Then, each engagement member 6 is interlocked by snap action on a tubular portion of the radiator 1000 by using the seat 7.

[0049] Subsequently, each interlocking member 50 is made to slide vertically on the tubular portion of the radiator 1000 until the first protrusion 52 matches up with the open portion of the seat 7 and the other two protrusions 53a and 53b match up with the pair of notches 11a

and 11b, associating them by interlocking.

[0050] That manoeuvre causes the transition of the quick locking means from the removable condition, in which the transverse cross-section of the seat 7 is partially open, to the non-removable condition, in which the transverse cross-section of the seat 7 is substantially closed, allowing to couple the radiator 1000 to the wall anchor.

[0051] As regards the second embodiment, after resting the bottom of the radiator 1000 on the fixed hook 3, each engagement member 6 is interlocked with a snap action on a tubular portion of the radiator 1000, using the cavity 151.

[0052] Subsequently, each rotary member 150 is made to rotate with respect to the contoured body 8, using the arms 153a and 153b and an ordinary tool, such as for example a screwdriver.

[0053] That manoeuvre causes the transition of the quick locking means from the removable condition, in which the transverse cross-section of the seat 7 is partially open, to the non-removable condition, in which the transverse cross-section of the seat 7 is substantially closed, allowing to couple the radiator 1000 to the wall anchor.

[0054] The rotation of the rotary member 150 joins the first pawl 152a to the opening 12a and the second pawl with the opening 12b, by interlocking, preventing subsequent accidental rotations and consequently maintaining the achieved non-removable condition.

[0055] Considering the third embodiment, after resting the bottom of the radiator 1000 on the fixed hook 3, each engagement member 6 is interlocked by snap action on a tubular portion of the radiator 1000, using the seat 7.

[0056] Subsequently, each lever member 250 is made to rotate about its own pivoting axis, using an ordinary tool, such as for example a screwdriver, moving the protrusion 251 to interlock in the groove 13.

[0057] That manoeuvre causes the transition of the quick locking means from the removable condition, in which the transverse cross-section of the seat 7 is partially open, to the non-removable condition, in which the transverse cross-section of the seat 7 is substantially closed, allowing to couple the radiator 1000 to the wall anchor.

[0058] In practice it has been found that the wall anchor according to the invention fully achieves the intended aim, ensuring a considerable degree of safety in engagement and offering easy and quick assembly.

[0059] The wall anchor according to the invention also remains concealed from sight.

[0060] It should also be noted that the wall anchor according to the invention is particularly versatile, combining the broad possibility to adjust positioning with the ability to anchor radiators substantially of any height, starting from a limited number of supports with different dimensional characteristics.

[0061] This application claims the priority of Italian Patent Application No. VI2008A000119, filed on May 23,

2008, the subject matter of which is incorporated herein by reference.

Claims

1. A wall anchor, particularly for tubular radiators, comprising a supporting bracket that can be fastened to a wall and at least one engagement member that is joined to said supporting bracket, said engagement member being provided with a seat that is suitable to allow its association with a tubular portion of a radiator, **characterized in that** it comprises a quick locking means that is adapted to pass, reversibly and without the use of tools, from a removable condition, in which said seat has a partially open transverse cross-section, to a non-removable condition, in which said seat has a substantially closed transverse cross-section.
2. The wall anchor according to claim 1, **characterized in that** said engagement member comprises a contoured body that forms said seat, said seat having a substantially C-shaped profile of the transverse cross-section and a shape that is substantially complementary to the shape of said tubular portion.
3. The wall anchor according to one or more of the preceding claims, **characterized in that** said contoured body is made of thermally insulating material to prevent thermal and electrical losses as well as a transmission of mechanical vibrations.
4. The wall anchor according to one or more of the preceding claims, **characterized in that** said engagement member comprises a pair of wings that protrude from said contoured body in order to enter a corresponding number of guides formed thereat on said supporting bracket, said engagement member sliding in said guides transversely to said supporting bracket.
5. The wall anchor according to one or more of the preceding claims, **characterized in that** said quick locking means comprises an interlocking member provided with a recess with a substantially C-shaped profile of the transverse cross-section and a shape that is substantially complementary to the shape of said tubular portion, said interlocking member being detachably associatable with said tubular portion and being interlocked with said contoured body, in order to give said seat a substantially closed transverse cross-section during said non-removable condition.
6. The wall anchor according to one or more of the preceding claims, **characterized in that** said interlocking member comprises a contoured portion that is formed at its lower end and can be interlocked with a complementarily shaped portion that is formed at the upper end of said contoured body, in order to maintain said non-removable condition.
7. The wall anchor according to one or more of the preceding claims, **characterized in that** said complementarily shaped portion comprises a pair of notches that are formed at the upper end of said contoured body and are arranged symmetrically with respect to the open portion of said seat.
8. The wall anchor according to one or more of the preceding claims, **characterized in that** said contoured portion comprises three protrusions that are formed at the lower end of said interlocking member, said protrusions being interlocked with said notches and with said open portion of said seat.
9. The wall anchor according to one or more of the preceding claims, **characterized in that** said quick locking means comprises a rotary member provided with a cavity with a substantially C-shaped profile of the transverse cross-section and a shape that is substantially complementary to the shape of said tubular portion, said rotary member being associatable detachably with said tubular portion and being rotatably associated with said contoured body coaxially to said seat, in order to give said seat a substantially closed transverse cross-section during said non-removable condition.
10. The wall anchor according to one or more of the preceding claims, **characterized in that** said rotary member comprises at least one pawl that can be associated rotatably by interlocking with at least one opening that is formed thereat on said contoured body, in order to maintain said non-removable condition.
11. The wall anchor according to one or more of the preceding claims, **characterized in that** said pawl comprises an undercut that is formed substantially at its free end in order to prevent accidental rotations of said rotary member and maintain said non-removable condition.
12. The wall anchor according to one or more of the preceding claims, **characterized in that** said rotary member comprises at least one arm formed at its upper edge in order to facilitate its rotation.
13. The wall anchor according to one or more of the preceding claims, **characterized in that** said rotary member is made of thermally insulating material, in order to prevent thermal and electrical losses as well as a transmission of mechanical vibrations.

14. The wall anchor according to one or more of the preceding claims,
characterized in that said quick locking means comprises a lever member that is pivoted to said contoured body, said lever member having a pivoting axis that lies transversely to the longitudinal axis of said seat and being suitable to give said seat a substantially closed transverse cross-section during said non-removable condition.
15. The wall anchor according to one or more of the preceding claims, **characterized in that** said lever member comprises a protrusion that can be associated with a groove that is formed thereat on said contoured body, in order to maintain said non-removable condition.
16. The wall anchor according to one or more of the preceding claims, **characterized in that** said supporting bracket comprises a fixed hook that is formed by a contoured portion of its lower end.
17. The wall anchor according to one or more of the preceding claims, **characterized in that** the distance between said fixed hook and said engagement member substantially corresponds to the distance between the bottom of said radiator and the upper end of the corresponding horizontal manifold, the lower edge of said contoured body abutting against said horizontal manifold in order to prevent unwanted vertical sliding motions of said radiator.

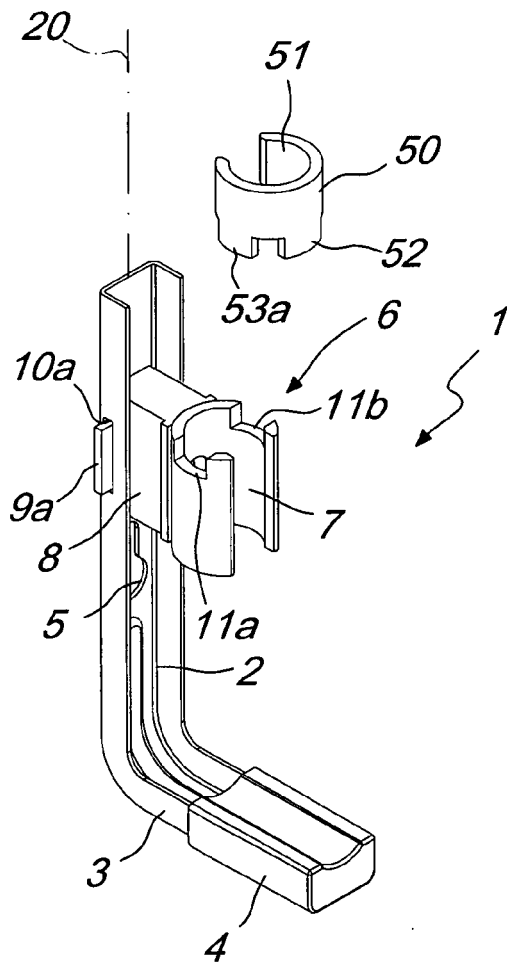


Fig. 1

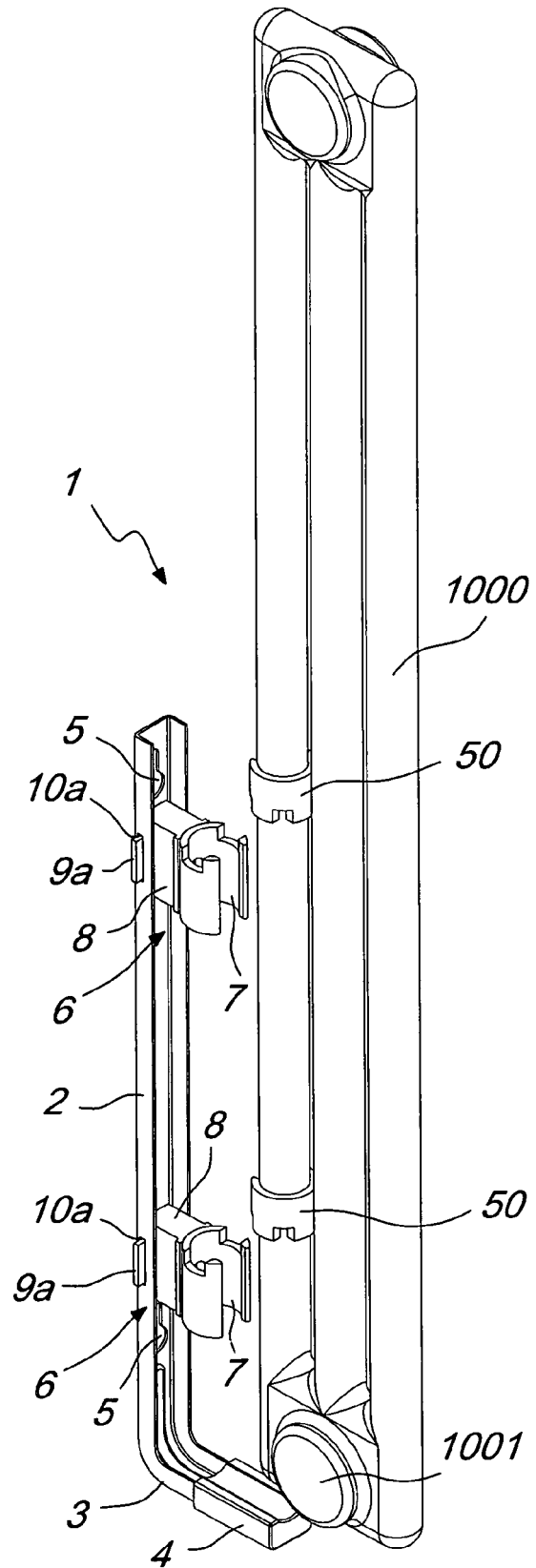
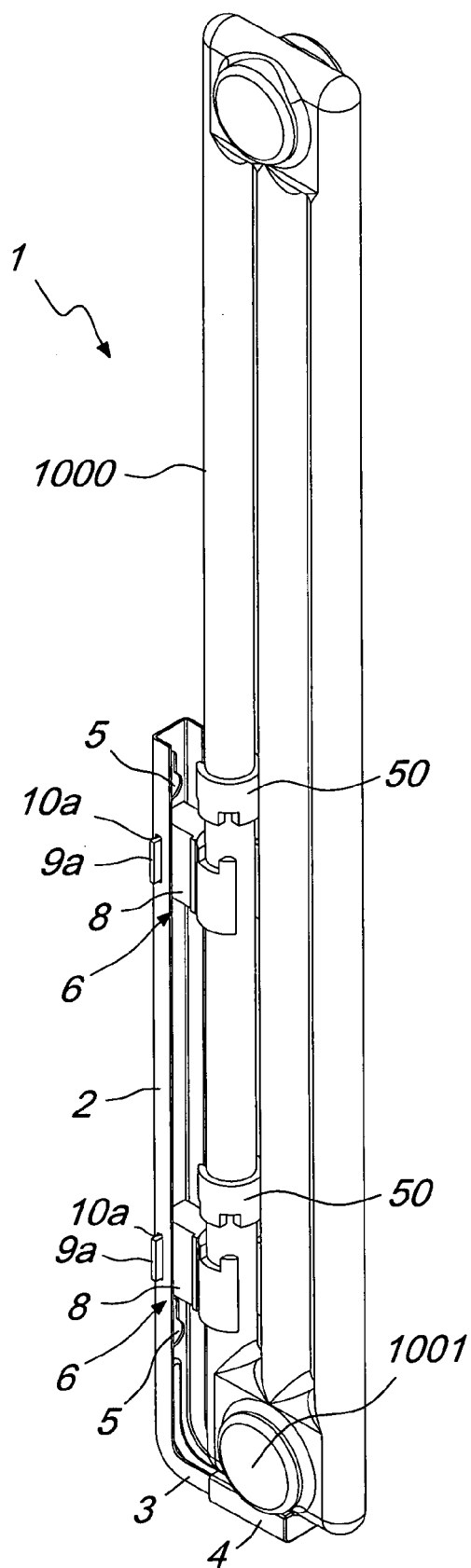


Fig. 2



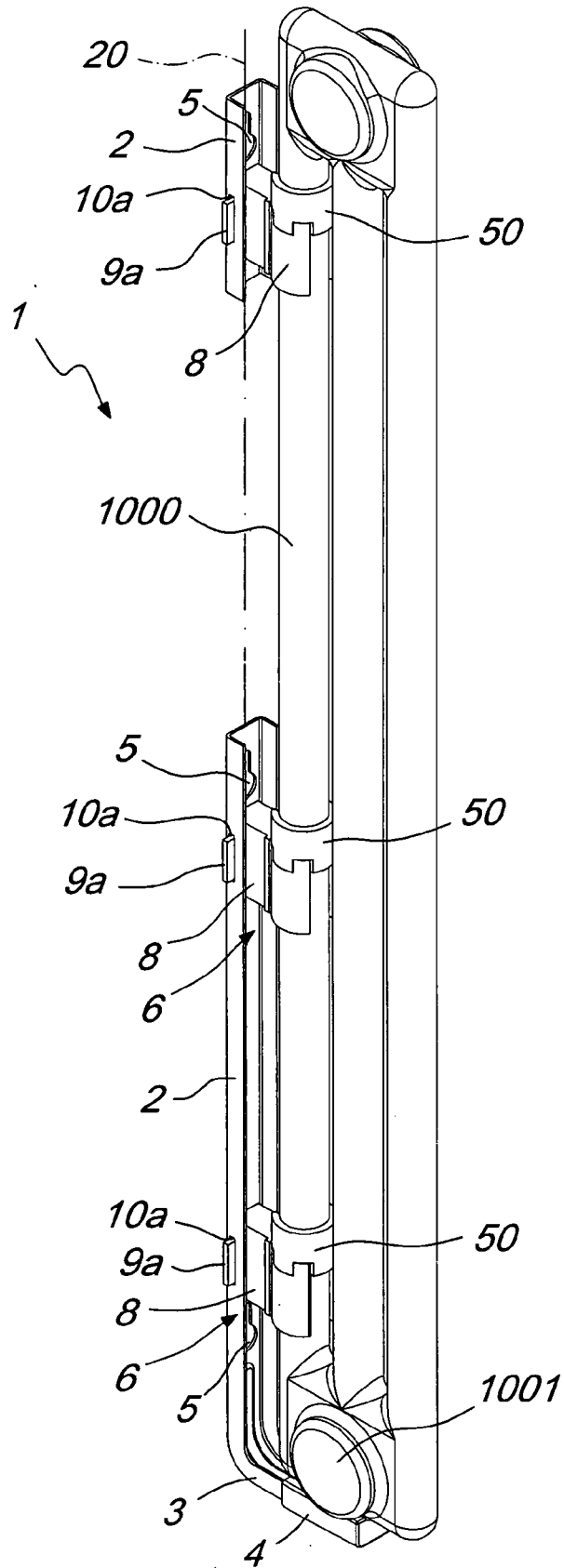


Fig. 4

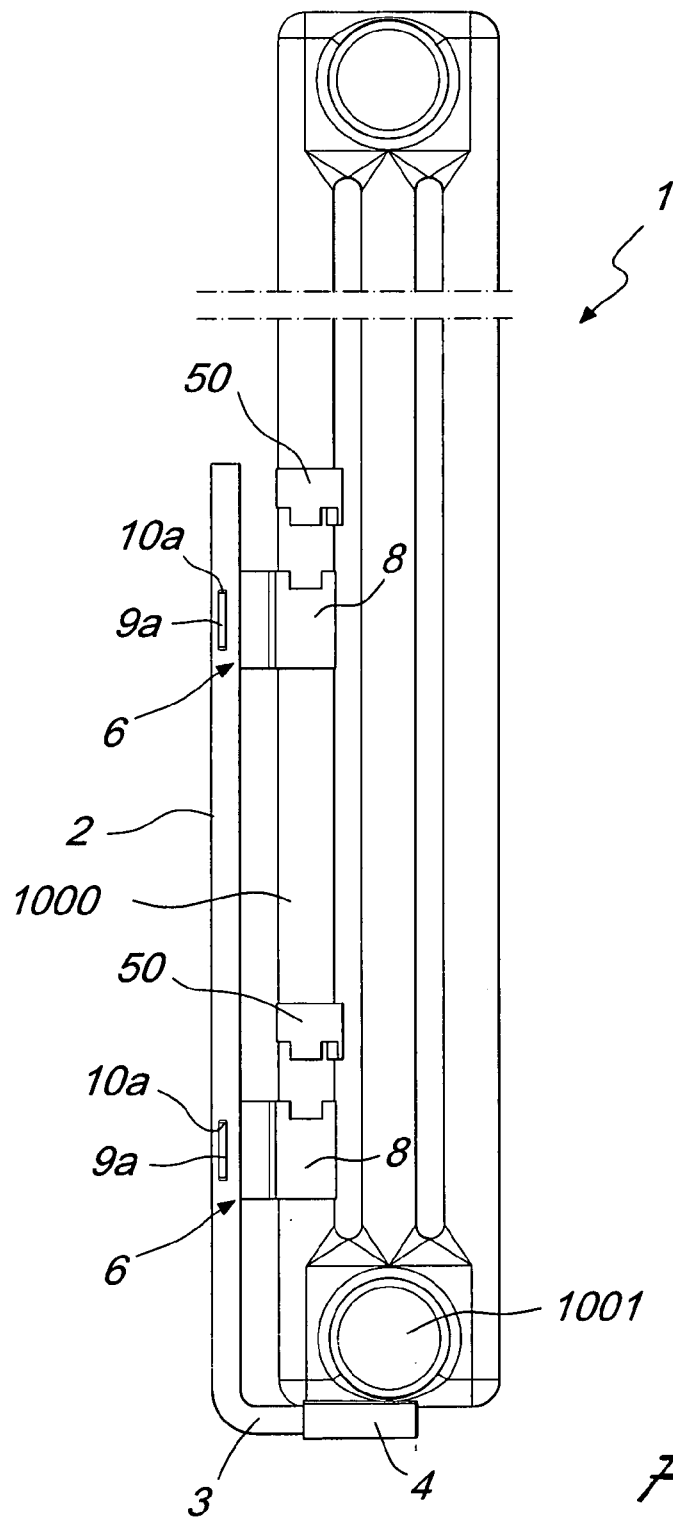


Fig. 5

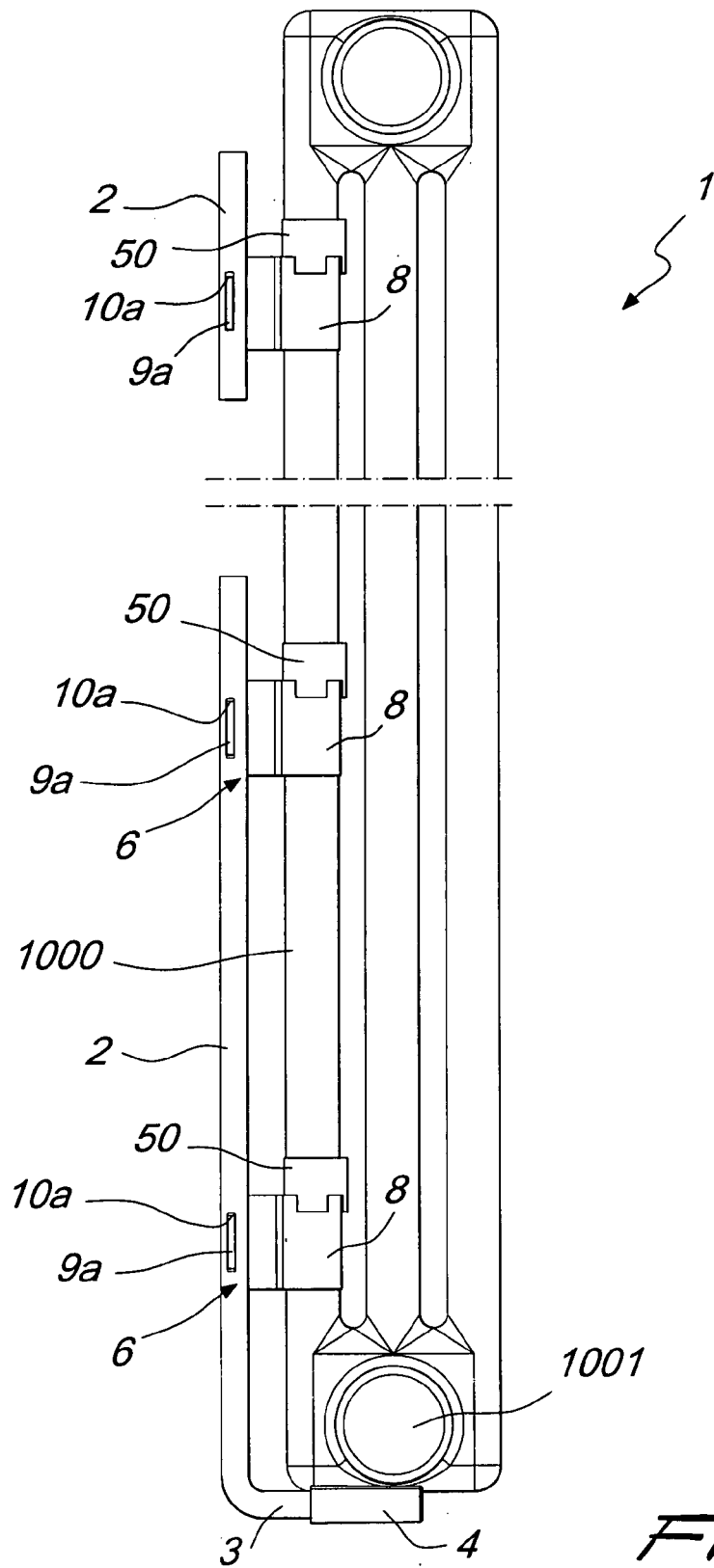
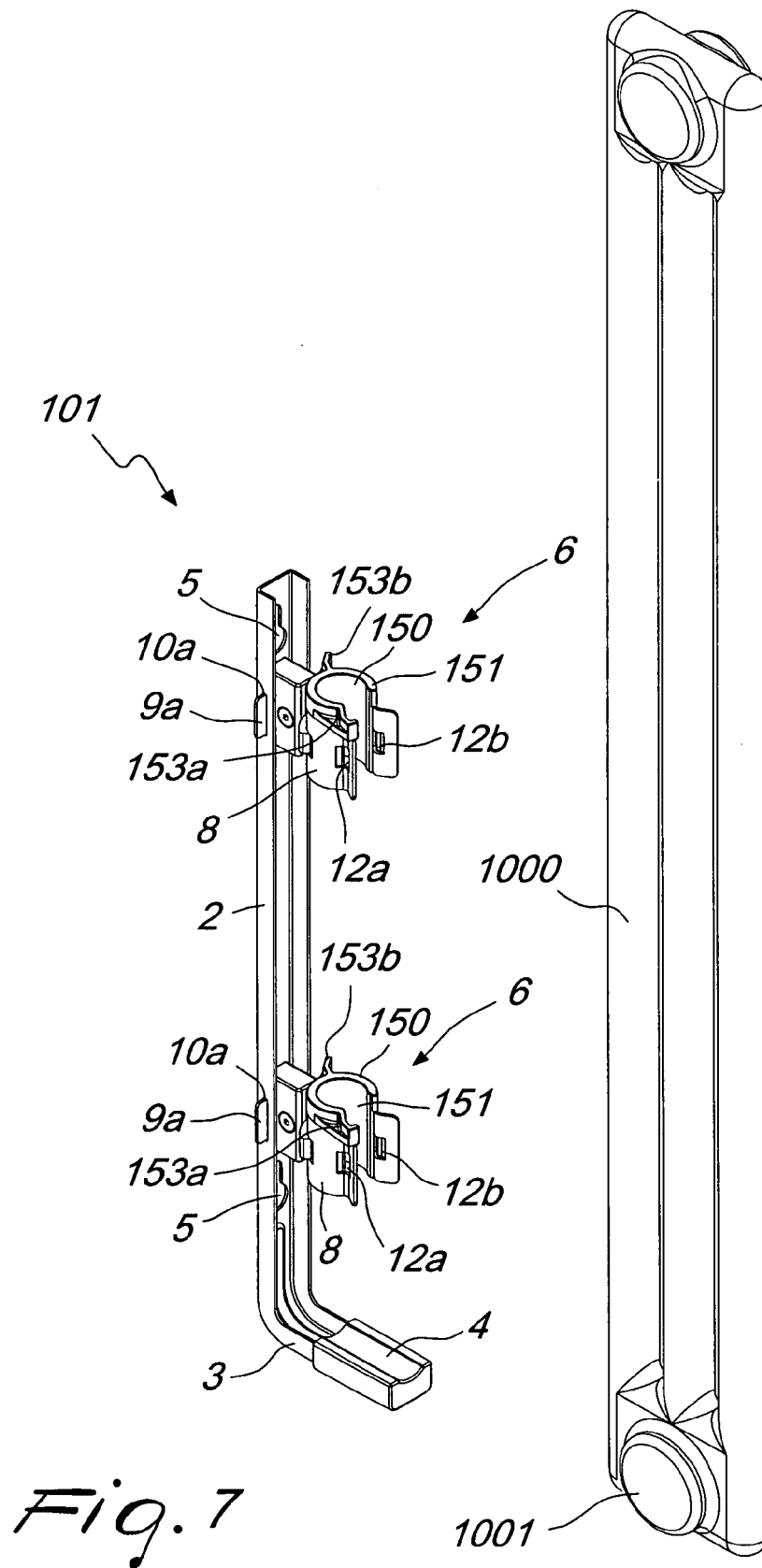


Fig. 6



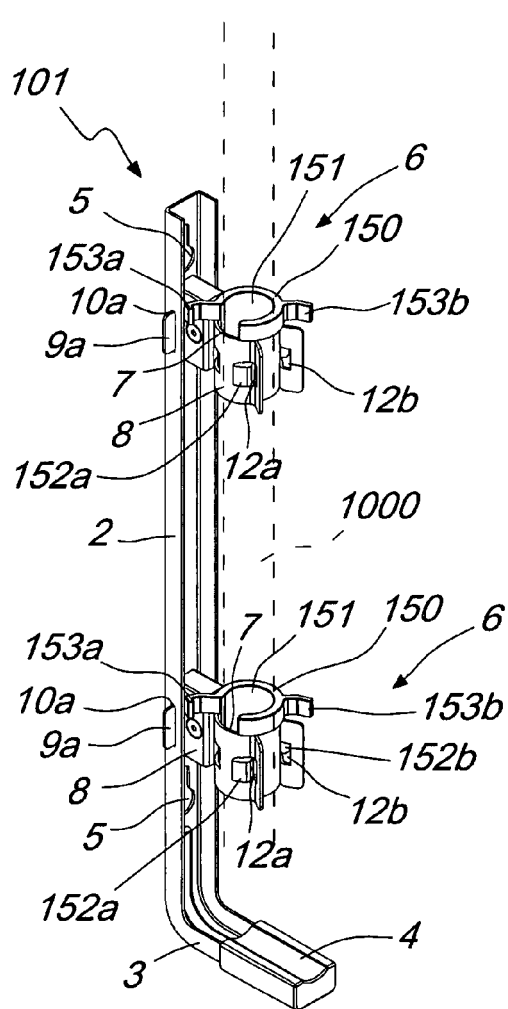


Fig. 8

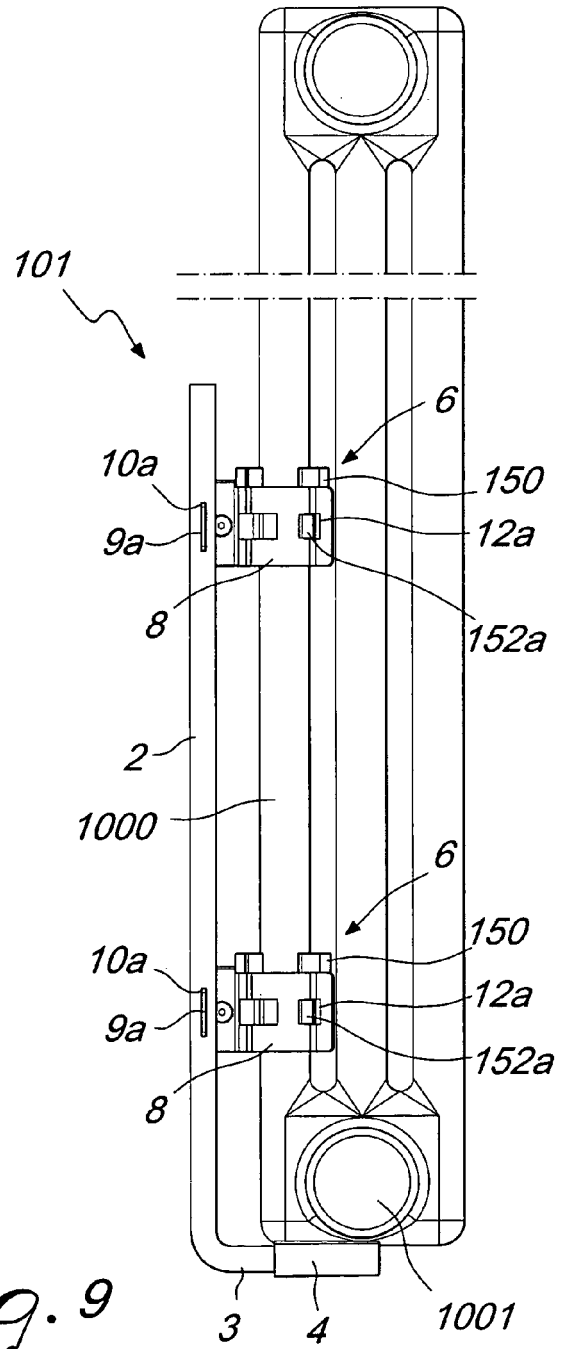


Fig. 9

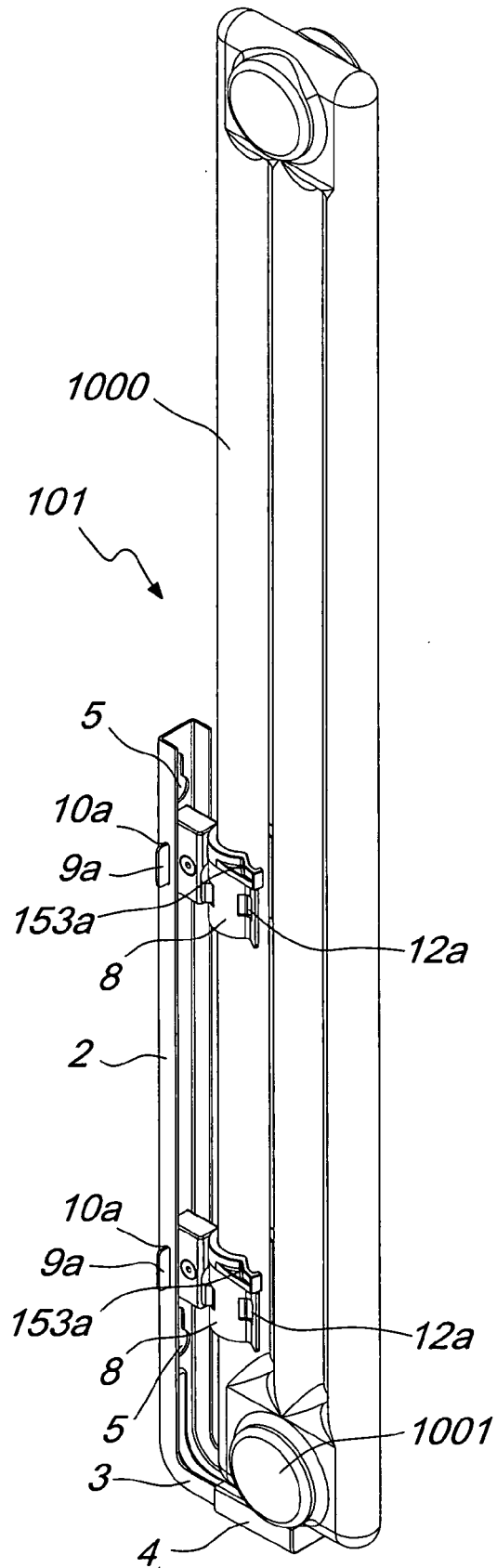


Fig. 10

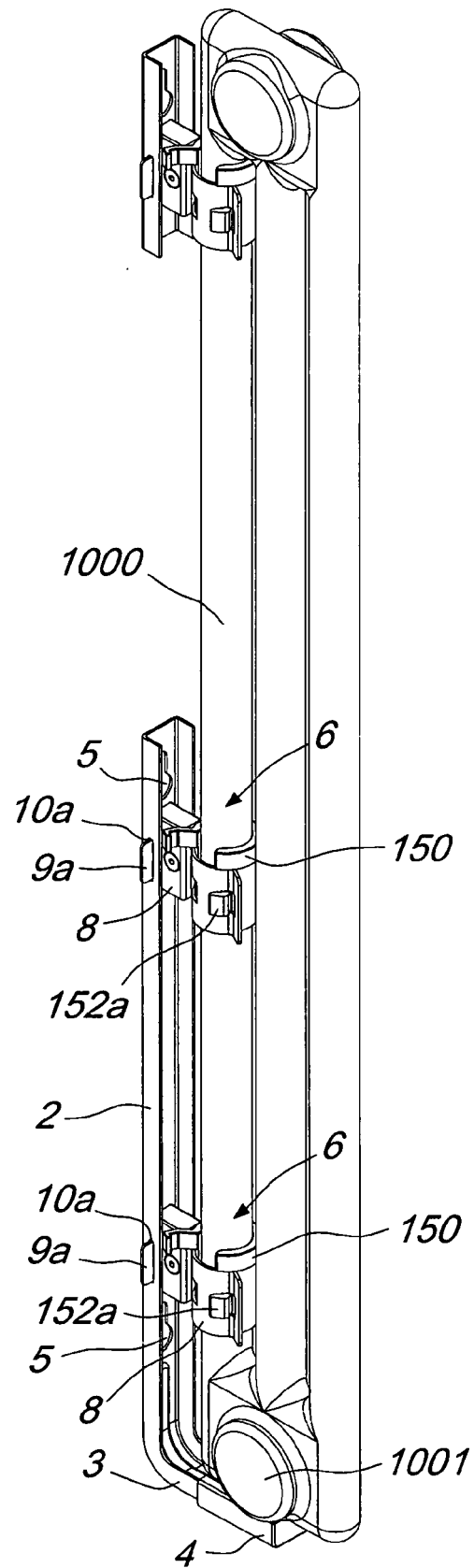
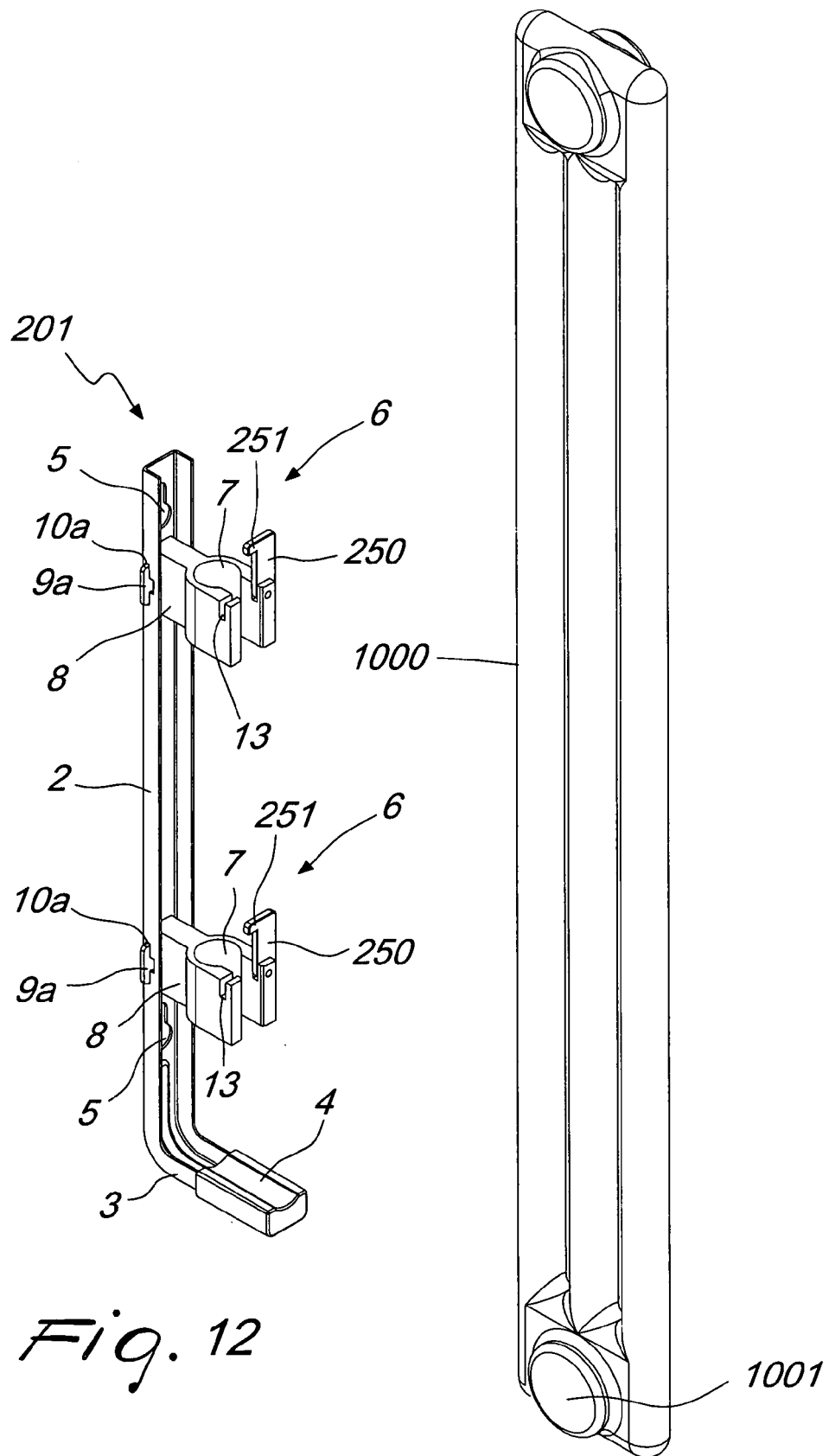
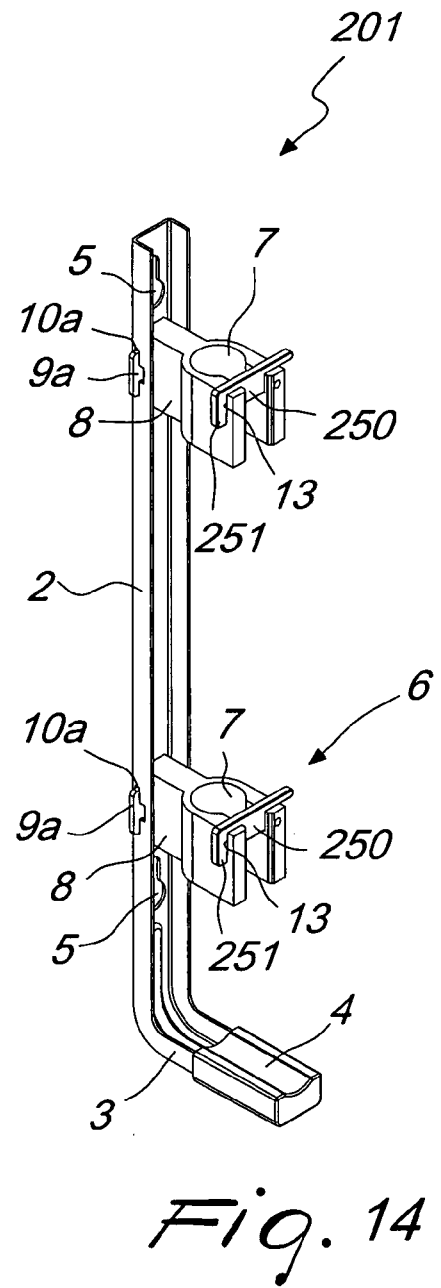
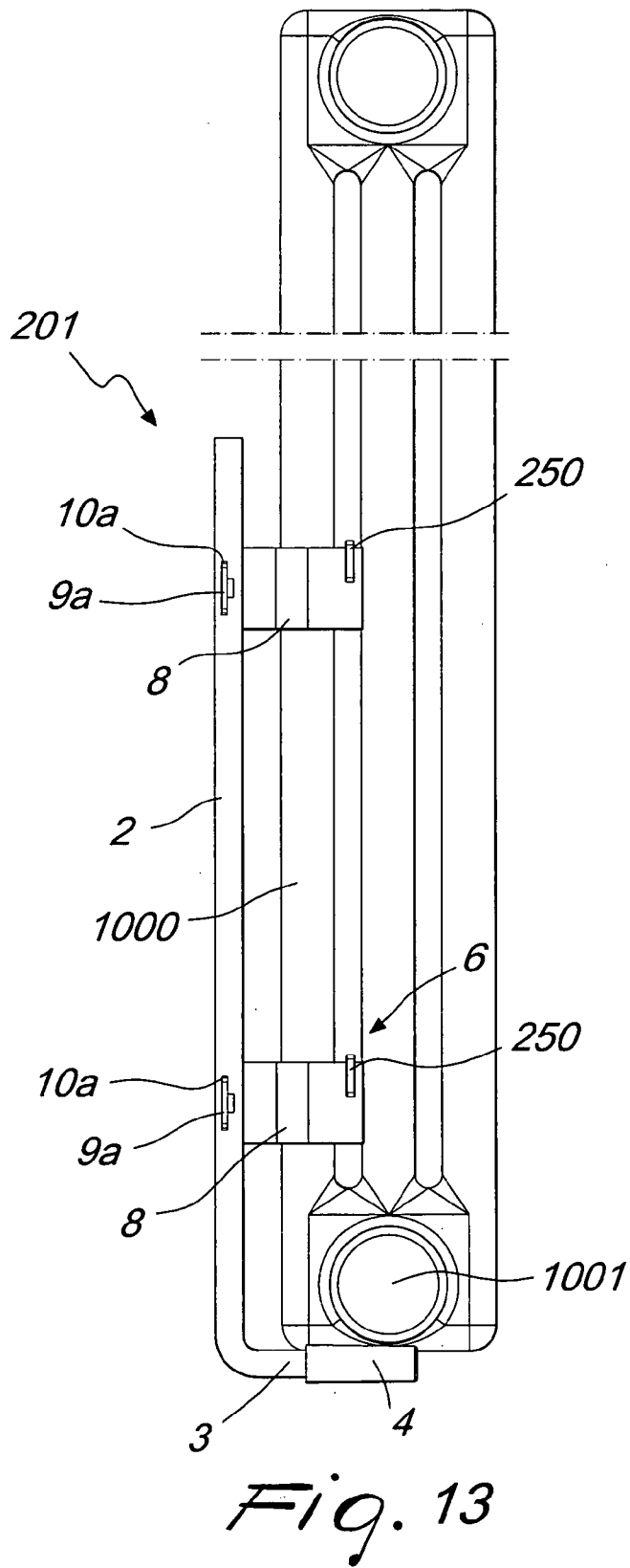


Fig. 11





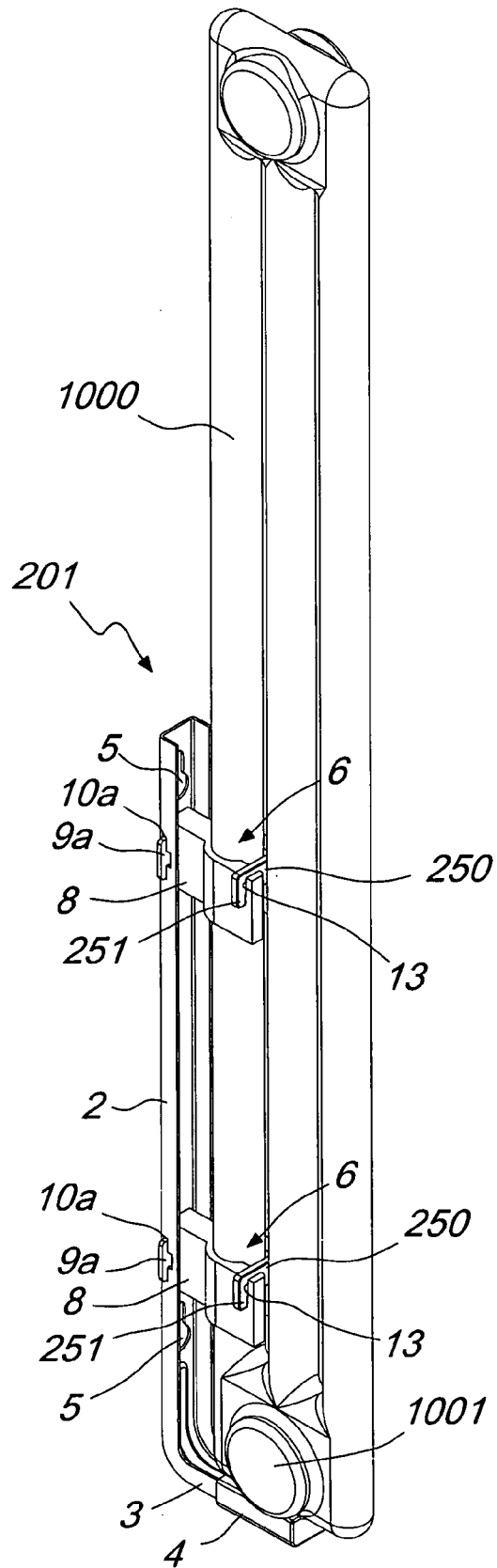


Fig.15

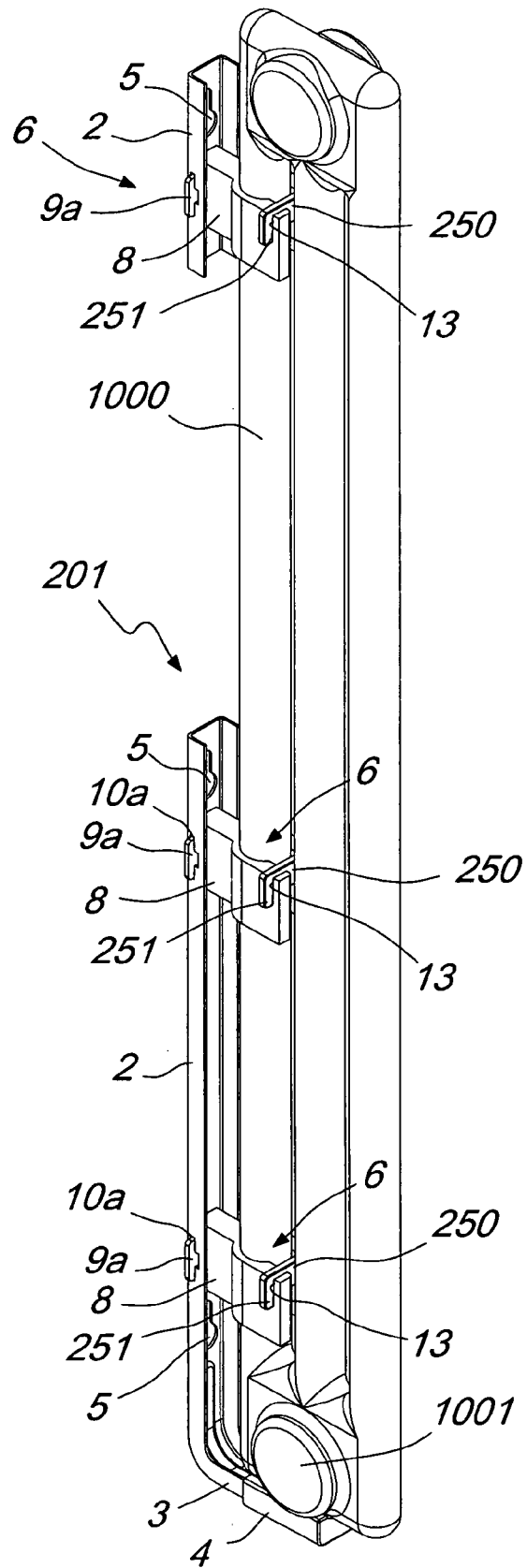


Fig.16

REFERENCES CITED IN THE DESCRIPTION

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