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(54) **SUPPORT FOR RADIANT PLATES**

(57) A support for radiant plates has an upright provided with a means for fastening to a radiant plate; the means has a first jaw element that is integral with the upright and a second jaw element that is hinged to the first jaw element about a hinge axis, the support also including a screw locking means, acting transversely to the hinge axis, in order to lock at least one convection blade of the radiant plate between the first and second jaw elements. The support has a stop means which cooperates with the locking means and is adapted to limit the relative movement between the radiant plate and the jaw elements.

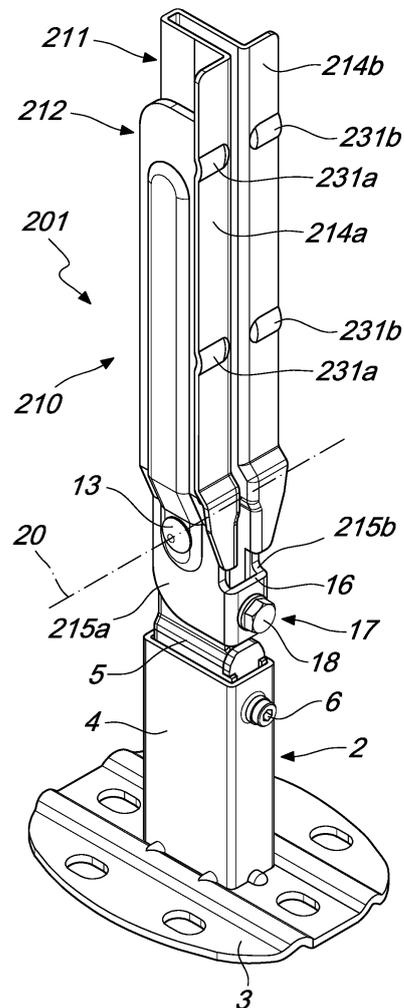


Fig. 7

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Description

[0001] The present invention relates to a support for radiant plates.

[0002] Supports for radiant plates are known which are constituted by an upright designed to rest on the ground or fixed to a wall and by a means for fastening to a radiant plate.

[0003] Usually, the fastening means is designed to be inserted between the gaps of the convection blades of the radiant plate, in order to lock the radiant plate to the upright.

[0004] Typically, the fastening means are configured substantially as a pair of levers that must be inserted between the convection laminas and the plate heating body of the radiator.

[0005] Under the action of a movement mechanism, the levers perform a divaricating action between the heating body and the convection blades, thus locking the radiant plate to the upright.

[0006] Those fastening means, however, risks damaging the radiant plate both from the functional standpoint, causing in some cases the separation of the convection blades from the plate-like radiating body, and from the aesthetic standpoint, causing cracks in the paint or deformations of the radiant plate.

[0007] Other fastening means have shaped jaws which, by means of adapted screw locking devices, clamp a convection blade, locking the radiant plate to the upright.

[0008] DE29604090U1 discloses a pillar bracket for plate heaters. The bracket has a plate element and has a stand pipe fitted vertically into a foot support. A holder supports the plate element. A pivoting element grips the plate heating body at the side of the stand pipe away from the plate element, to clamp the laying surface of the laying unit from the pipe. A plastics plug is at the upper end of the stand pipe, projecting from it as a support for the plate element.

[0009] DE19680486 discloses a stand console for plate heating body provided with convector plates. The holding device can be fixed to the stand tube by a casing surrounding the stand tube and a tension screw, reaching from the casing to the stand tube. A thread for the tension screw is formed from a side wall of the casing near its one end. A strip lying parallel to the casing emerges from the abutting vertical side walls. The cross-section of the vane can be accommodated in the vertical air through passage formed by the convector lamellae of the heating body to be fixed.

[0010] EP2381181 discloses a radiator bracket having a tubular stand part inserted into a hollow space of a heating body, and comprising an opening. A swivel single vane is arranged at a plastic holding device, whose height is adjusted in reference to the stand part. The stand part has a supporting surface, which is attached at the heating body, and a cover in an upper area of the stand part. The vane is swivel via the opening, in an outlet condition, in

which the vane together with the stand part is guided-in or out into/from the heating body.

[0011] While the prior art fasteners are satisfactory in many respects, they are in any case susceptible of improvements in terms of increasing the effectiveness of the locking action, a requirement which in some circumstances can be decisive.

[0012] It should in fact be noted that, in the prior art fastening means, the force of the locking depends exclusively on the interference created between the jaws and the convection blade and therefore it is necessary to greatly increase the interference in order to obtain a sufficiently solid locking.

[0013] However, this can be problematic during the installation of relatively heavy radiant plates or of plates having particularly small dimensions.

[0014] The aim of the present invention is to provide a support for radiant plates that overcomes the drawbacks of the cited prior art.

[0015] Within the scope of this aim, a particular object of the invention is to provide a support that allows safe and precise locking of the radiant plate to the upright, without having to depend exclusively on the skill and strength of the operator.

[0016] A further object of the invention is to provide a support that is suitable to support also relatively heavy radiant plates.

[0017] A further object of the invention is to provide a support that is also suitable for radiant plates having a limited space occupation, in which there is little space between the convection blades.

[0018] A further object of the invention is to provide a support that allows to correctly support also radiant plates with particularly thin convection blades.

[0019] A further object of the invention is to provide a support that is highly reliable, relatively simple to manufacture and obtainable at competitive costs.

[0020] This aim, these objects, and others which will become better apparent hereinafter are achieved by a support for radiant plates, comprising an upright provided with a means for fastening to a radiant plate, said fastening means comprising a first jaw element that is integral with said upright and a second jaw element that is hinged to said first jaw element about a hinge axis, a screw locking means, acting transversely to said hinge axis, being provided in order to lock at least one convection blade of said radiant plate between said first and second jaw elements, said support further comprising a stop means which cooperates with said locking means and is adapted to limit the relative movement between said radiant plate and said first and second jaw elements; said support being characterized in that said stop means comprises a plurality of projections formed on at least one of said first and second jaw elements, said projections being adapted to be inserted in corresponding recesses formed on the other one of said first and second jaw elements.

[0021] Further characteristics and advantages will become better apparent from the description of preferred

but not exclusive embodiments of a support according to the invention, illustrated by way of non-limiting examples in the accompanying drawings, wherein:

Figure 1 is a perspective view of the support according to a first embodiment of the invention;

Figure 2 is a perspective view of a component of the support of Figure 1;

Figure 3 is a perspective view of the support of Figure 1 applied to a radiant plate;

Figure 4 is a perspective view of the support according to a second embodiment of the invention;

Figure 5 is a perspective view of a pair of components of the support of Figure 4;

Figure 6 is a perspective view of the support of Figure 4 applied to a radiant plate;

Figure 7 is a perspective view of the support according to a third embodiment of the invention;

Figure 8 is a perspective view of a component of the support of Figure 7;

Figure 9 is a perspective view of the support of Figure 7 applied to a radiant plate.

[0022] With reference to Figures 1 to 3, a support for radiant plates, provided according to a first embodiment of the invention, is generally designated by the reference numeral 1.

[0023] The support 1 has an upright 2 provided with a means 10 for fastening to a radiant plate 50.

[0024] The radiant plate 50 comprises a plate-like heating body 51 which cooperates with two convection blades 52.

[0025] Each convection blade 52 has an undulated shape and forms openings 53 having a substantially quadrangular cross-section.

[0026] According to an aspect of the invention, the upright 2 has a base 3 for resting on the floor; according to a further aspect of the invention, not shown in the drawings, the upright is configured to be fastened to a wall.

[0027] The upright 2 shown in the figures is telescopic and is formed by two elongated tubular elements, respectively 4 and 5, which are slidingly inserted into each other.

[0028] The mutual positioning of the two tubular elements 4 and 5 is adjustable by means of a threaded element 6.

[0029] The fastening means 10 includes a first jaw element 11, which extends axially from the free end of the tubular element 5, and a second jaw element 12, which is hinged to the first jaw element 11 about a hinge axis 20 which is transverse to the axis of extension of the upright 2.

[0030] The two jaw elements 11 and 12 are mutually articulated by means of a screw pivot 13 which defines the hinge axis 20.

[0031] The first jaw element 11 comprises an elongated body, preferably provided by blanking and stamping a metal plate. The elongated body has an omega-like cross-section extending along most of the length of the

elongated body. The omega-like cross-section has a central core and two mutually coplanar flaps 14a and 14b.

[0032] The second jaw element 12 comprises two mutually parallel laminar members 15a and 15b, which are mutually joined by means of a U-shaped member 16 which has a flat portion that is substantially perpendicular to them; these elements are preferably obtained monolithically by blanking and stamping a metal plate.

[0033] When the two jaw elements 11, 12 are mutually assembled, the two laminar members 15a and 15b are arranged at the sides of the central core of the first jaw element 11, so as to be able to clamp a convection blade 52 between them and the two flaps 14a and 14b.

[0034] A locking means 17 acts between the first and second jaw elements 11, 12 and allows to lock the convection blade 52, utilizing in particular the operating principle of first-class levers.

[0035] The locking means 17 comprise a screw 18 that passes through the flat portion of the U-shaped member 16 and engages a diametrical threaded hole of a cylindrical pivot 19 inserted in the first jaw element 11, parallel to the hinge axis 20.

[0036] According to the present invention, the support 1 includes a stop means which cooperates with the locking means 17 in order to limit the relative movement between the radiant plate 50 and the two jaw elements 11, 12.

[0037] According to the embodiment shown in Figures 1 to 3, the stop means is constituted by a support element 30 which is detachably fastened in a cantilever manner to the upright 2.

[0038] The support element 30 can be engaged by interlocking with a rim portion of the radiant plate 50.

[0039] The support element 30 has a pair of shaped arms 31a and 31b having first ends. The first ends have seats 32a, 32b adapted to receive a portion of the lower rim of the plate-like heating body 51.

[0040] Advantageously, appropriate insulating inserts can be inserted in the seats 32a and 32b and are interposed between the support element 30 and the radiant plate 50.

[0041] The shaped arms 31a and 31b are monolithic with a base 33 that is arranged transversely thereto and is provided with one or more holes 34 which allow its fastening to the upright 2.

[0042] Preferably, the support element 30 is fixed to the upright 2 by means of the screw 18, as shown in Figures 1 to 3.

[0043] According to a further aspect of the invention, shown in Figures 4 to 6, wherein the support is generally designated by the reference numeral 101, the stop means comprise a pair of abutment elements 130a and 130b, which are detachably fastened to the two laminar members 115a and 115b of the second jaw element 112.

[0044] The abutment elements 130a and 130b are arranged at the same distance from the base 3 and can engage in abutment against the lower rim of the convection blade 52 that is clamped between the first and second

jaw elements 111, 112.

[0045] The abutment elements 130a and 130b are provided, at their opposite ends, with coupling teeth, respectively 131a and 131b, which are elastically deformable and are suitable to be inserted in adapted seats, not shown, provided in the two blades 115a and 115b.

[0046] The abutment elements 130a, 130b also have protrusions 132a and 132b adapted to enter corresponding engagement openings 21 a and 21b provided on the two flaps 114a and 114b of the first jaw element 111.

[0047] In the example shown in Figures 4 to 6, there are two pairs of seats for the engagement teeth 131a and 131b and two engagement openings 21a and 21b; however, it is evident to the person skilled in the art that, in alternative embodiments of the present invention, not shown in the figures, the seats and the engagement openings might be multiple and might be provided at different heights.

[0048] According to a further aspect of the invention, shown in Figures 7 to 9, wherein the support is generally designated by the reference numeral 201, the stop means comprise projections 230a and 230b formed on the laminar members 215a and 215b of the second jaw element 212, at different heights, and recesses 231a and 231b, having a substantially complementary shape, which are formed on the two flaps 214a and 214b of the first jaw element 211.

[0049] The projections 230a, 230b and recesses 231a, 231b cooperate with the jaw elements 211 and 212, increasing their effect of clamping the convection blade 52 and avoiding any unwanted slippage thereof.

[0050] In the embodiments of the invention shown in Figures 4 to 9, the elements that correspond to the elements that have already been described with reference to the embodiment shown in Figures 1 to 3 have been designated by the same reference numerals.

[0051] The use of the support according to the invention is evident from what has been described above.

[0052] A convection blade 52 of the radiant plate 50 is inserted between the flaps 14a, 114a, 214a and 14b, 114b, 214b of the first jaw element 11, 111, 211 and the laminar members 15a, 115a, 215a and 15b, 115b, 215b of the second jaw element 12, 112, 212 and is clamped under the action of the locking means 17, in a per se known manner.

[0053] The action of the locking means 17 is assisted by the support element 30, by the abutment elements 130a and 130b, or by the projections 230a, 230b and by the recesses 231a, 231b, which act as abutment and support for the radiant plate 50, avoiding unwanted movements of the plate with respect to the support 1, 101, 201.

[0054] This turns out to be particularly advantageous, for example, during the installation of the radiant plate 50, a circumstance in which the stop means considerably facilitate the operator, who no longer needs to worry about temporarily supporting the radiant plate 50 while he fastens the locking means 17.

[0055] The support element 30, the abutment elements 130a and 130b, the projections 230a, 230b and the recesses 231a, 231b contribute to the correct and precise positioning of the radiant plate 50 with respect to the upright 2.

[0056] In practice it has been found that the invention achieves the intended aim and objects, providing a support for radiant plates that allows to safely and precisely lock the radiant plate to the upright without having to entrust such operation exclusively to the skill and strength of the operator.

[0057] The support according to the invention is also suitable for particularly heavy radiant plates, for radiant plates with limited space occupation, in which there is little space between the convection blades, and for radiant plates with particularly thin convection blades.

[0058] The materials used, as well as the shapes and dimensions, may of course be any according to the requirements and the state of the art.

Claims

1. A support for radiant plates, comprising an upright provided with a means for fastening to a radiant plate, said fastening means comprising a first jaw element that is integral with said upright and a second jaw element that is hinged to said first jaw element about a hinge axis, a screw locking means, acting transversely to said hinge axis, being provided in order to lock at least one convection blade of said radiant plate between said first and second jaw elements, said support further comprising a stop means which cooperates with said locking means and is adapted to limit the relative movement between said radiant plate and said first and second jaw elements; said support being **characterized in that** said stop means comprises a plurality of projections formed on at least one of said first and second jaw elements, said projections being adapted to be inserted in corresponding recesses formed on the other one of said first and second jaw elements.
2. The support according to claim 1, **characterized in that** said stop means comprises a support element that is removably fastened in a cantilever manner to said upright, said support element being engageable with a rim portion of said radiant plate.
3. The support according to claim 2, **characterized in that** said support element comprises at least one shaped arm having mutually opposite first and second ends, said first end being provided with a seat adapted to receive said rim portion of said radiant plate.
4. The support according to claim 3, **characterized in that** said support element comprises a base that is

transversely joined to said second end of said at least one shaped arm, said base being provided with at least one hole for the association of said support element with said upright.

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5. The support according to claim 1, **characterized in that** said stop means comprises at least one abutment element that is removably fastened to at least one of said first and second jaw elements, said at least one abutment element being engageable with a rim portion of said at least one convection blade of said radiant plate.

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6. The support according to claim 5, **characterized in that** said at least one abutment element comprises two coupling teeth which can be inserted in respective seats provided on at least one of said first and second jaw elements, said coupling teeth being elastically deformable.

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7. The support according to claim 5, **characterized in that** said at least one abutment element comprises a protrusion adapted to be inserted in a corresponding engagement opening provided on at least one of said first and second jaw elements.

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8. The support according to claim 1, **characterized in that** said stop means comprises a plurality of projections formed on at least one of said first and second jaw elements, said projections being adapted to be inserted in corresponding recesses formed on the other one of said first and second jaw elements.

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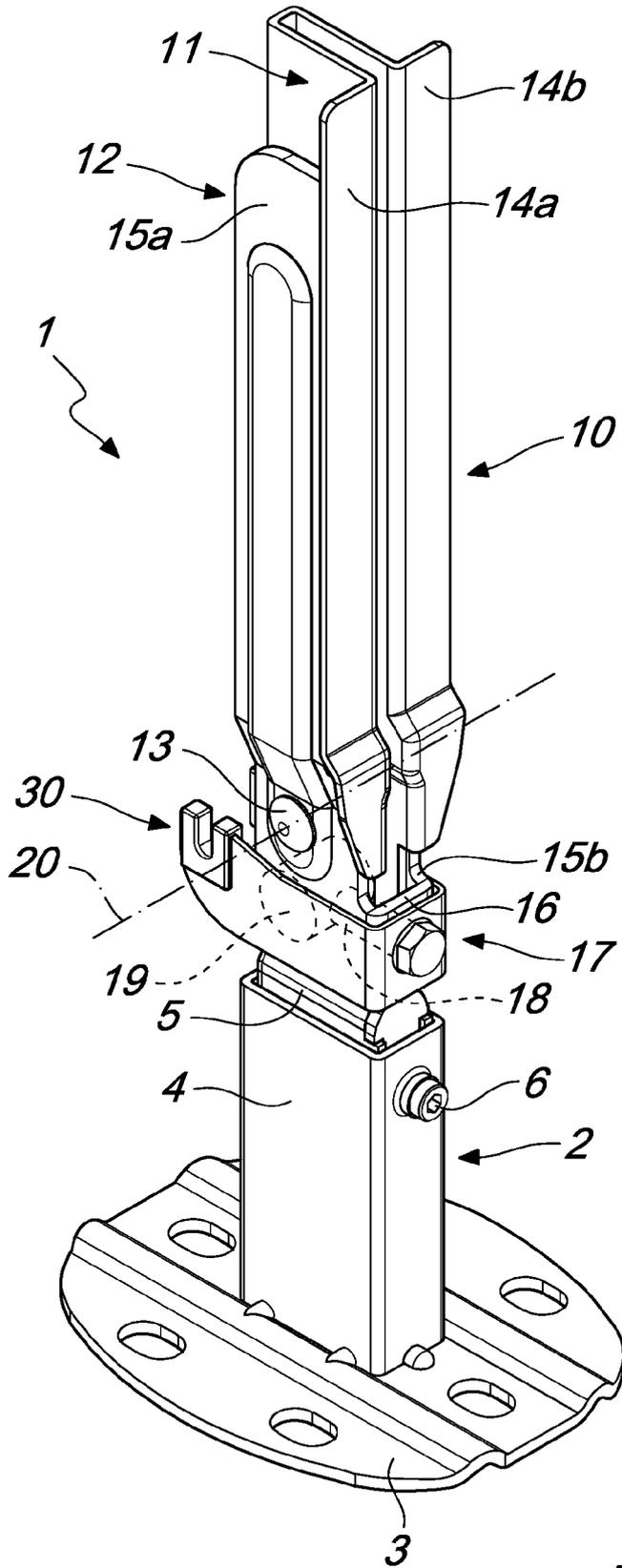


Fig. 1

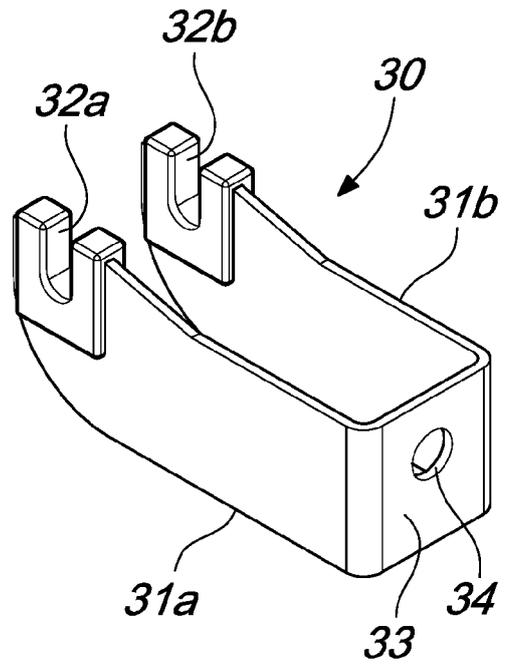


Fig. 2

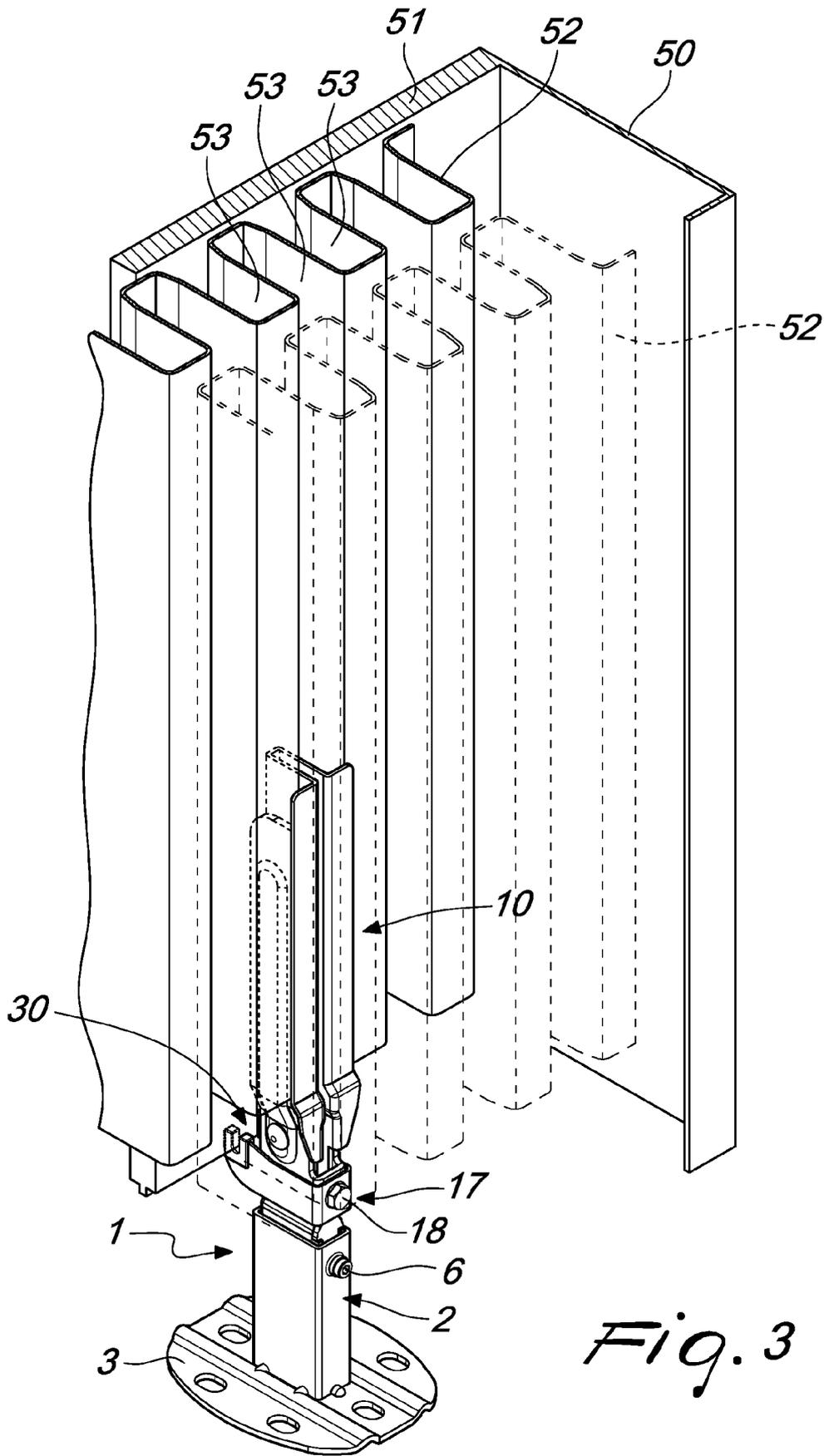


Fig. 3

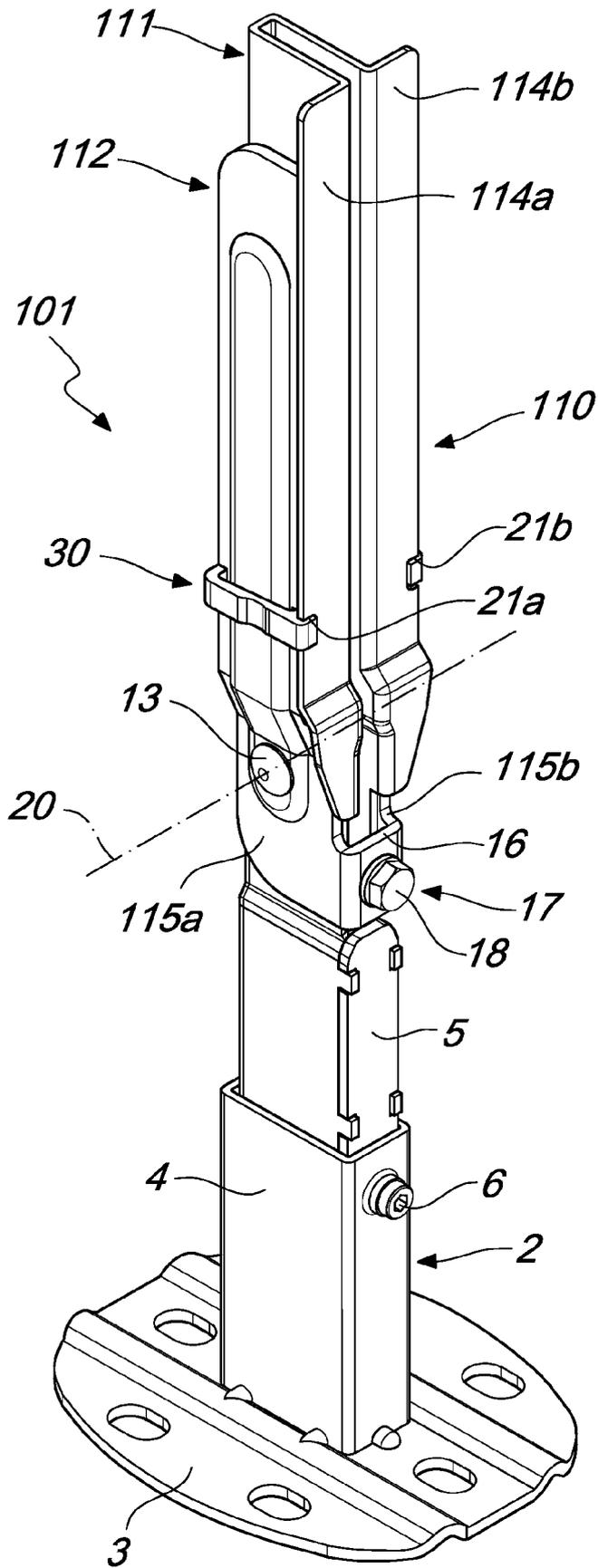


Fig. 4

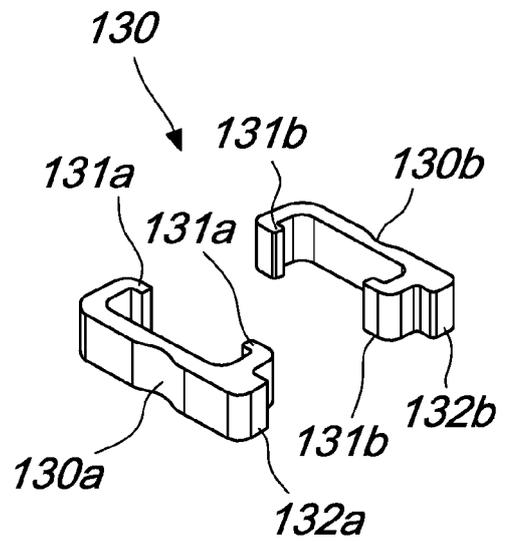


Fig. 5

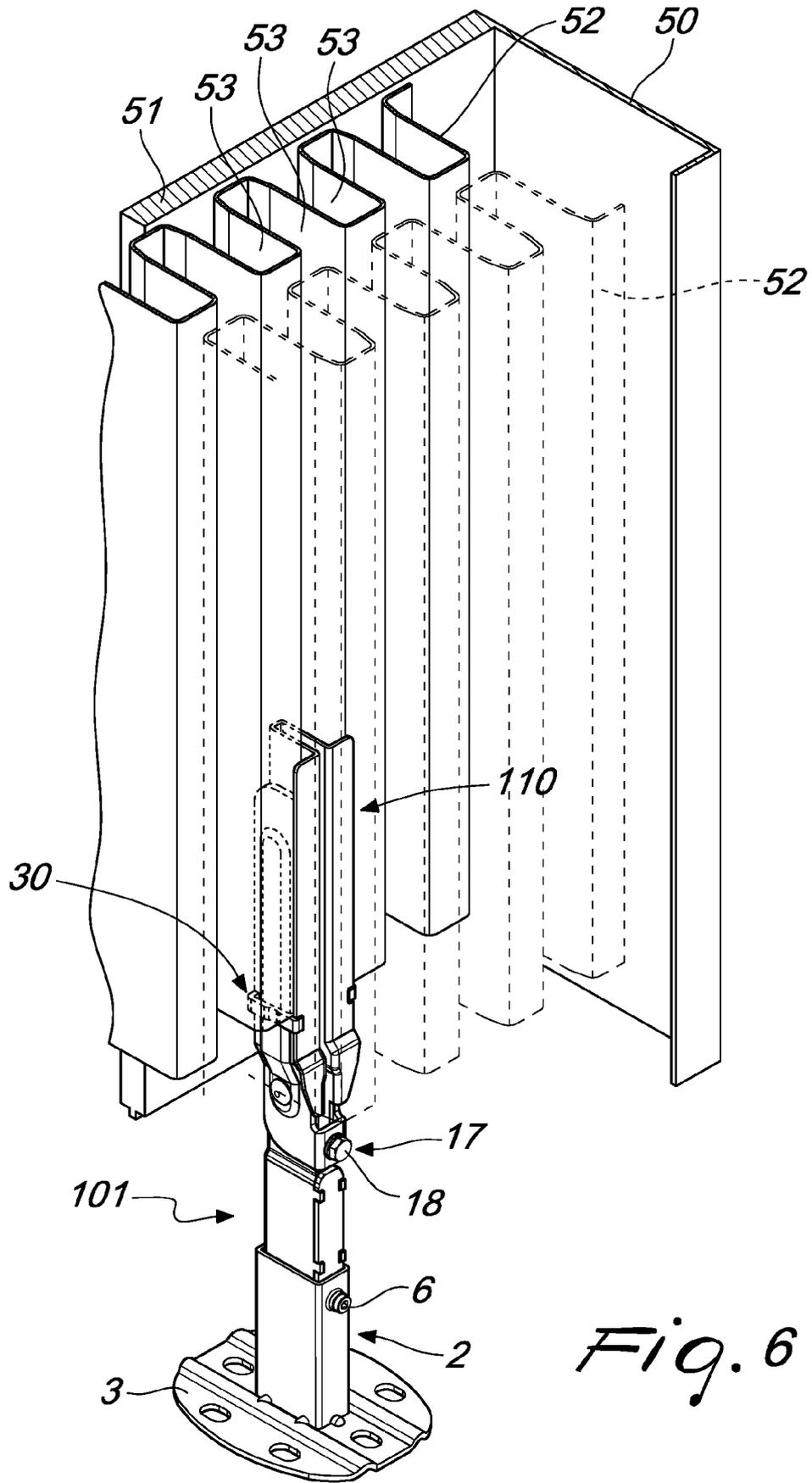


Fig. 6

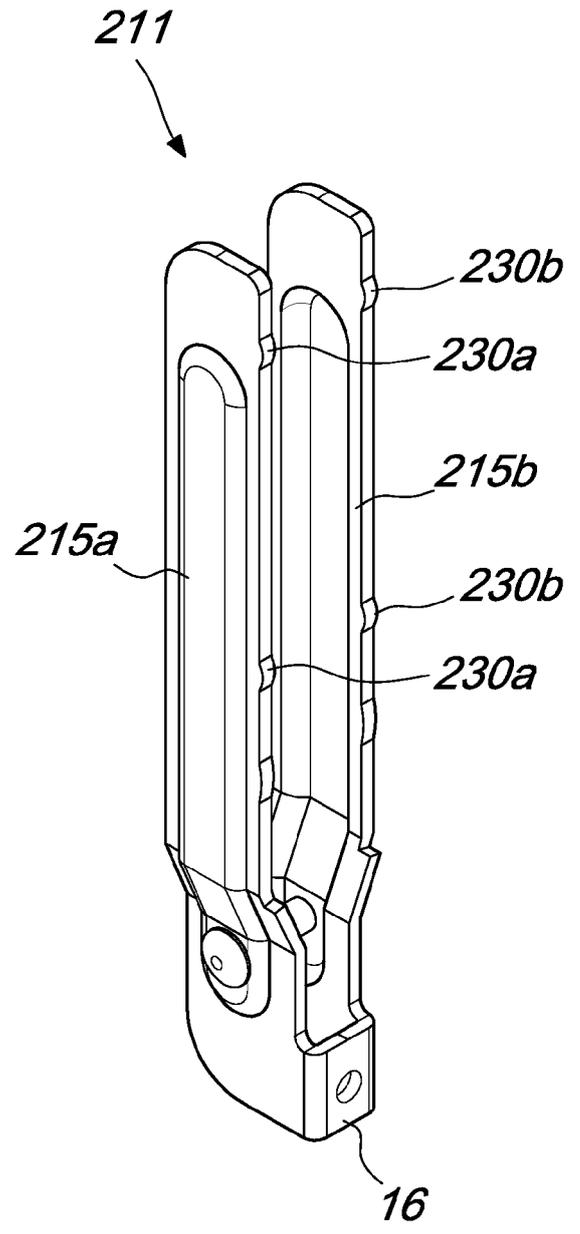
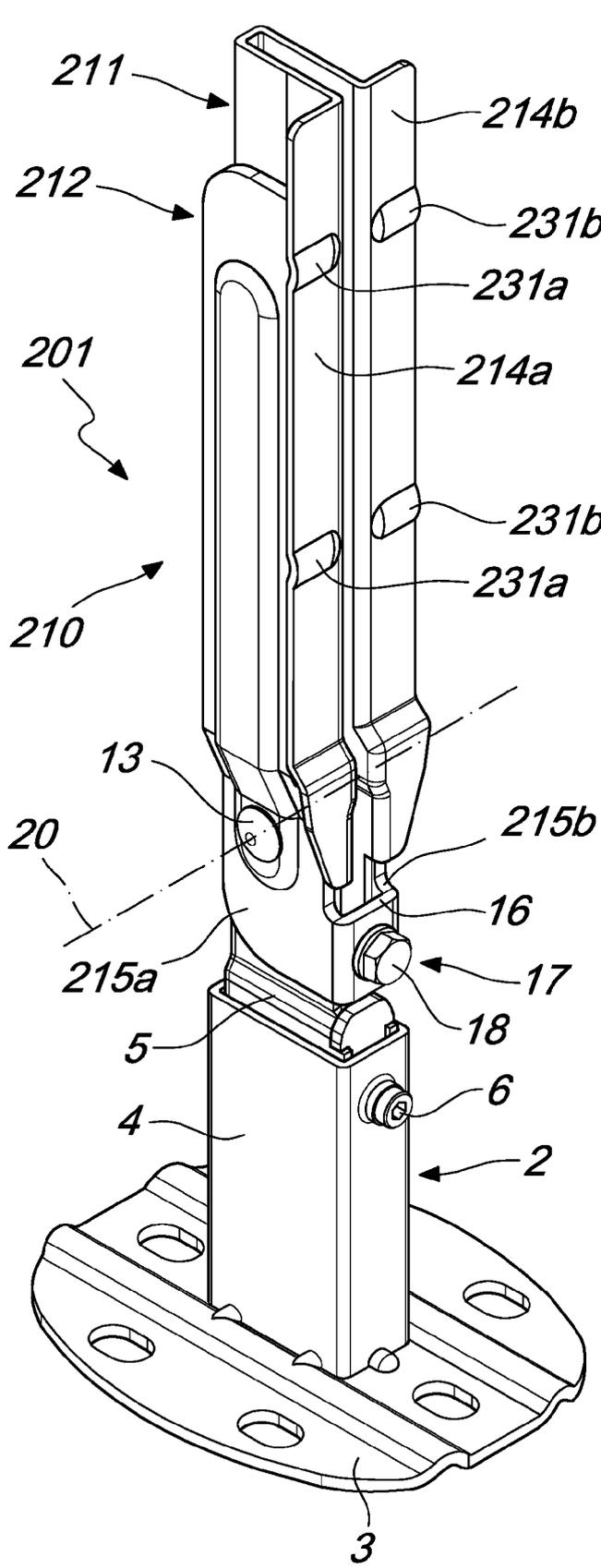


Fig. 8

Fig. 7

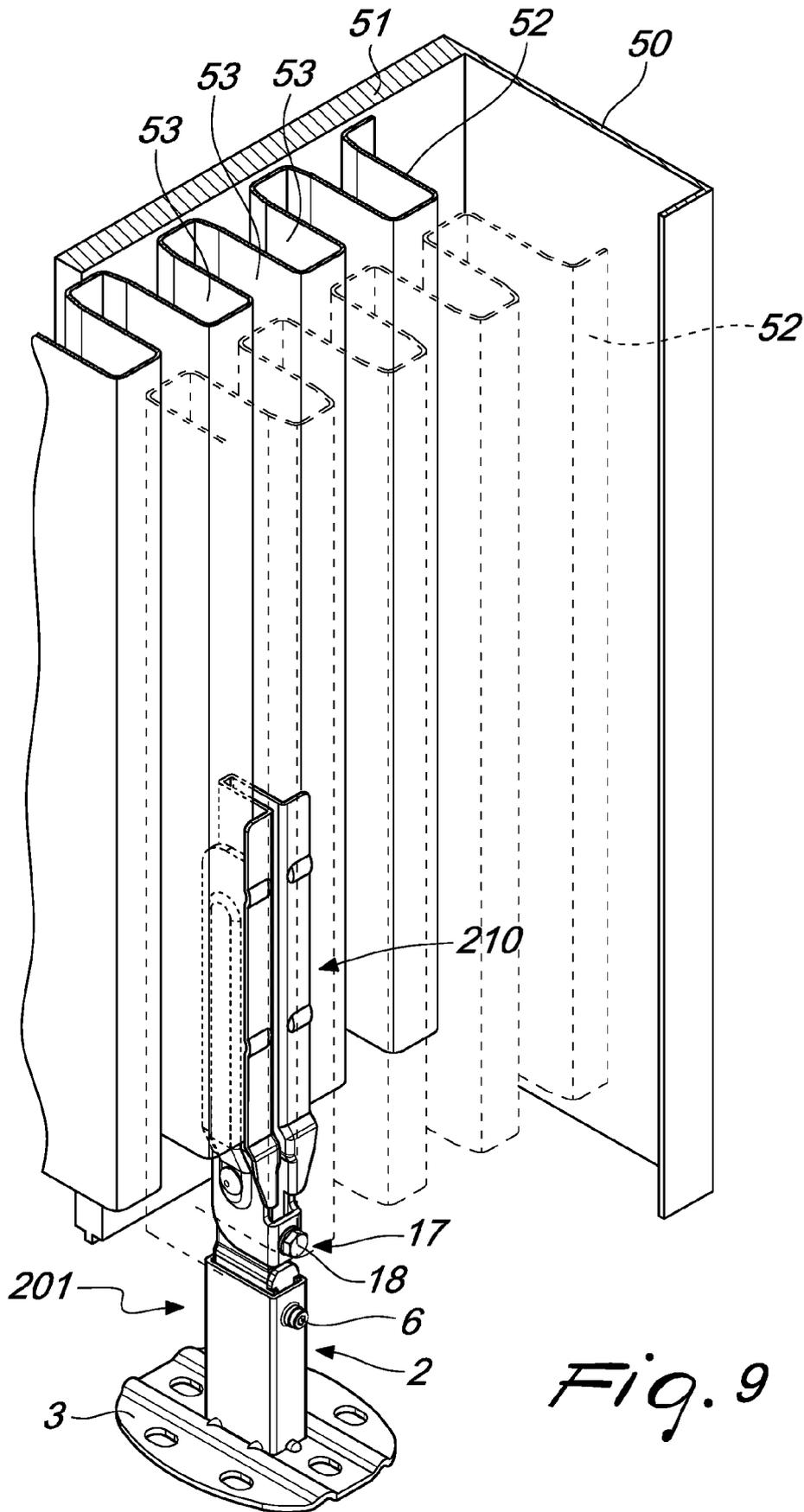


Fig. 9



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