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(54) **HEIGHT ADJUSTMENT MEANS AND HOUSEHOLD APPLIANCE OR CABINET COMPRISING THE SAME**

(57) The present invention relates to height adjustment means for adjusting the height of an article with respect to a supporting surface.

The height adjustment means comprising a plate-like member having at least one fixation point for mounting the plate-like member substantially vertically at the article, the plate-like member comprising an outer rim a portion of which, in use of the plate-like member, rests on the supporting surface, wherein the plate-like member is configured to be mounted at the article in a plurality of orientations and/or positions that provide for a different distance between the fixation point and that portion of the rim which rests on the supporting surface.

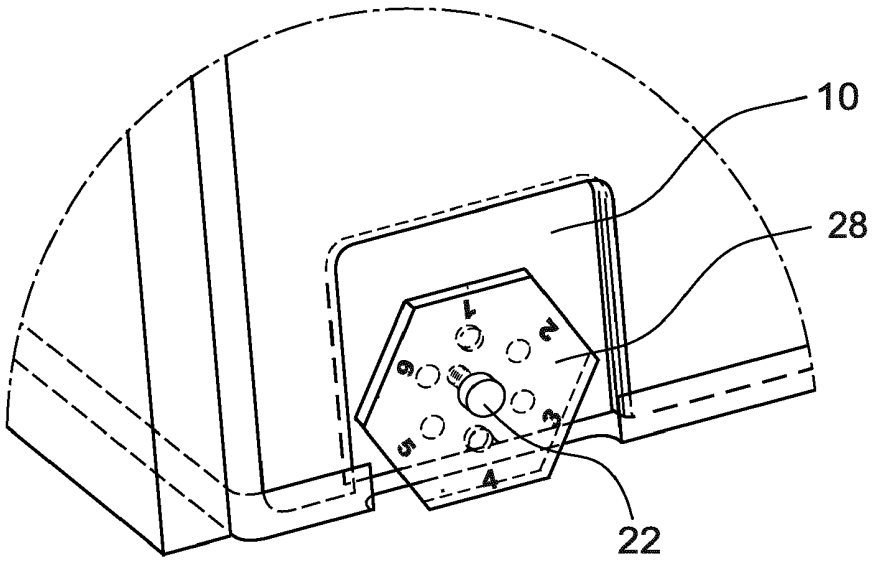

FIG. 3A

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Description

[0001] Furniture, such as cabinets, or devices, such as household appliances, often are provided with height adjustment means, so as to level the orientation of the furniture element or device with respect to a supporting surface carrying furniture element or device,

[0002] Particularly in the field of domestic kitchen appliances, there is a clear trend to be seen on the household appliance market that the kitchen furniture manufacturers seek for higher precision in the alignment of appliances with furniture panels or edges next to the appliance, wherein the gaps between the individual components are to be made smaller and smaller which involves increasingly less forgiving tolerances for the alignment.

[0003] To fulfill these requirements, installers have to put a lot of effort into the fine-tuning of the positioning while placing the appliance in the respective furniture niche, wherein often thin foils or sections of sheet material are inserted between the appliance and the supporting surface so as to lift up the appliance and thus provide for vertical alignment.

[0004] In view of the above difficulties it is an object of the present invention to provide for a height adjustment means for adjusting the height of an article with respect to a supporting surface, wherein the height adjustment means shall allow making fine adjustments either over a continuous range or in predefined steps of for example 0,10 mm or 0,25 mm. Furthermore, the adjustment should be designed in a way, which is easy, quick and self-explaining.

[0005] The present invention addresses the above object by providing for a height adjustment means for adjusting the height of an article with respect to a supporting surface, wherein the height adjustment means comprises a plate-like member having at least one fixation point for mounting the plate-like member substantially vertically at the article, the plate-like member comprising an outer rim a portion of which, in use of the plate-like member, rests on the supporting surface, wherein the plate-like member is configured to be mounted at the article in a plurality of orientations and/or positions that provide for a different distance between the fixation point and that portion of the rim which rests on the supporting surface.

[0006] In the height adjustment means suggested herein the height adjustment thus is provided by the manner in which the plate-like member is mounted at the article, wherein the orientation of the plate with respect to the article and/or the position at which the plate is mounted at the article defines the distance at which the article is supported above the supporting surface. To provide for different heights, the plate-like member has a geometry with an outer rim that in different portions provides for a different distance of the respective outer rim portion to the fixation point at which the plate-like member is mounted at the article.

[0007] Preferred embodiments of the present invention are defined in the dependent claims.

[0008] In particular, the plate-like member can comprise a curved rim, the curvature of which varies along the length of the rim. Due to the varying curvature, the rim of the plate-like member has a different distance from the fixation point of the plate-like member which is located in a central region of the plate-like member. In such embodiments the plate-like member can have a planar spiral shape, in the center of which there is located the fixation point.

[0009] In further preferred embodiments the plate-like member can have a polygonal shape having a plurality of straight rim sections, at least two of which are located at a different distance from a fixation point, which is located in a central region of the plate-like member.

[0010] Thus; the plate-like member can have a rectangular, non-square, shape in the center of which there is located the fixation point, so that the plate-like member provides for two different heights which can be selected by turning the plate-like member by 90°

[0011] To allow selection of 3 or 4 different, the plate-like member can have a rectangular, non-square, shape, wherein the fixation point is located in a central region of the plate-like member, but offset with respect to the center of the plate.

[0012] In a further embodiment, the height adjustment means comprises a plate-like member has a bottom rim and a lengthy aperture for accommodating fixation means for mounting the plate-like member at the article, such as a screw, wherein the lengthy aperture has a plurality of stepped sections that are located at different levels with respect to the bottom rim. In such embodiments, a user can select one of a plurality of different levels, by changing the position of the plate-like member such that the fixation means is engaged with another of the stepped sections.

[0013] In alternative embodiments, the plate-like member has at least one lower surface for contacting the supporting surface, at least one slanted or stepped surface that is oriented at an angle to the lower surface for supporting the article, and at least one elongate hole that extends in parallel to the slanted or stepped surface for accommodating a bolt for fixing the plate-like member at the article. The at least one lower surface for contacting the supporting surface can be a single straight surface, or more than one, preferably two lower surfaces for contacting the supporting surface which are located at a distance to each other. In such embodiments, the height of the article can be adjusted by laterally shifting the plate-like member so that the slanted or stepped surface is moved with respect to the bolt.

[0014] The plate-like member and the receptacle further can comprise means for arresting the orientation and/or position of the plate-like member by form fit, such as a projection and a plurality of recesses for accommodating the rejection in each of the plurality of orientations and/or positions. Further to the function of arresting the orientation and/or position of the plate-like member, the

form-fit means can be configured to carry at least at portion of the weight of the article when the article rests on the supporting surface, so that there is less load on the fixation point.

[0015] The projection can be a pin, a bulge or a land, and the plurality of recesses can comprise a plurality of holes, depressions or grooves, respectively.

[0016] In accordance with a further aspect of the present invention, the above object is solved by a height adjustment means for adjusting the height of an article with respect to a supporting surface, wherein the height adjustment means comprises a vertically oriented flat receptacle fixedly connected to said article, and a plate-like member having at least one fixation point for mounting the plate-like member substantially vertically at the receptacle, the plate-like member comprising an outer rim a first portion of which, in use of the plate-like member, rests on the supporting surface, and a second portion of the rim opposite the first portion, rests against an upper counter surface of the receptacle, wherein the plate-like member is configured to be mounted at the receptacle in a plurality of orientations, wherein the vertical dimension of the plate-like member is different for different orientations of the plate-like member.

[0017] In such alternative solution, the weight of the article is not carried by the fixation point and/or the above-mentioned form-fit means, but instead is held by the upper counter surface of the receptacle which is fixedly connected to the article.

[0018] Preferred embodiments of such height adjustment means further are defined in the respective dependent claims.

[0019] Thus, the plate-like member further can comprise a though hole for accommodating a bolt for fixing the plate-like member at the receptacle, wherein the though hole is larger than the outer diameter of the bolt. While the plate-like member thus can be fixed at the plate-like member by the bolt, the larger size of the though hole provides for the required tolerance to arrange the plate-like member in a plurality of orientations.

[0020] In order to provide for a larger choice of height adjustments, there can provided for a set of plate-like members of different dimensions, so that further to fixing the plate-like member at different orientations and/or positions, the plate-like member can be exchanged for another plate-like member having different dimensions.

[0021] In preferred embodiments the plate-like member comprises markings to indicate a height adjustment level assigned to the plurality of orientations and/or positions in which the plate-like member can be mounted at the article. The markings can comprise symbols or numbers that correspond to the heights to be achieved, such as in a plate-like member that provides for 4 different heights a series of numbers from 1 to 4, or in a plate-like member that provides for a continuous range of heights a series of numbers ranging from 1 to 10, or the like. The markings can be provided as an embossment, stamping, printing or label, wherein the orientation and/or position or the marking provides for an assignment of the marking to the respective orientation and/or position of the plate-like member. Thus, for example in a plate-like member that can be rotated to thus provide for different heights, the numbers for designating the level can be provided in different orientations and preferably are provided such that in each orientation of the plate-like member the respective number is oriented upright, so that the plate-like member provides for self-explaining instructions for the use of the height adjustment means.

[0022] The height adjustment means suggested herein can be employed to advantage particularly in a household appliance which comprises a housing and at least one of the afore-mentioned height adjustment means which is provided in a bottom region of the housing so as to downwardly project from the housing.

[0023] While height adjustment means as noted above could be provided in the corner regions of both the front side and the rear side of the housing of the household appliance, particularly when the household appliance is to be arranged in a cabinet that forms part of a built-in kitchen, which usually provides for a fairly even supporting surface, it usually will be sufficient to provide height adjustment means as noted above in one or both of the corner regions of only the front side or the rear side of the household appliance, wherein providing the height adjustment means in the front region provides for easier access and hence facilitates installing the household appliance.

[0024] The height adjustment means suggested herein also can be employed to advantage at a cabinet for accommodating a household appliance, wherein the height adjustment thus is effected not at the household appliance as such but at a cabinet in which household appliance is installed.

[0025] The height adjustment means suggested herein can be mounted at the appliance or cabinet either by the manufacturer or can be provided as an accessory that is mounted when installing the appliance or cabinet.

[0026] Preferred embodiments of the present invention are described below by reference to the drawings in which:

Figure 1A illustrates an embodiment of a height adjustment means in accordance with the present invention;

Figure 1B illustrates the mounting region of the appliance shown in Fig. 1A before mounting the plate-like member;

Figure 1C illustrates the plate-like member of the height adjustment means shown in Fig. 1A, wherein the plate-like member has a spiral shape;

Figure 2A illustrates another embodiment of a height adjustment means in accordance with the

present invention;

Figure 2B illustrates the plate-like member of the height adjustment means shown in Fig. 2A, wherein the plate-like member has a rectangular shape;

Figure 3A illustrates a further embodiment of a height adjustment means in accordance with the present invention;

Figure 3B illustrates the plate-like member of the height adjustment means shown in Fig. 3A, wherein the plate-like member has a hexagonal shape;

Figure 4A illustrates yet another embodiment of a height adjustment means in accordance with the present invention;

Figure 4B illustrates the plate-like member of the height adjustment means shown in Fig. 4A, wherein the plate-like member has a stepped bore;

Figure 5A illustrates an alternative embodiment of a height adjustment means in accordance with the present invention;

Figure 5B illustrates the mounting region of the appliance shown in Fig. 5A before mounting the plate-like member;

Figure 5C illustrates the plate-like member of the height adjustment means shown in Fig. 5A, wherein the plate-like member has a hexagonal shape;

Figure 6A illustrates an alternative embodiment of a height adjustment means in accordance with the present invention;

Figure 6B illustrates the plate-like member of the height adjustment means shown in Fig. 6A, wherein the plate-like member has a rectangular shape;

Figure 7 illustrates a set of plate-like members having a similar shape but different dimensions which set can be used in height adjustment means as they are shown in Figs. 2A and 6A;

Figure 8A illustrates yet a further embodiment of a height adjustment means in accordance with the present invention; and

Figure 8B illustrates the plate-like member of the height adjustment means shown in Fig. 8A.

[0027] Fig. 1A illustrates a first embodiment of a height adjustment means in accordance with the present invention. While such height adjustment means can be used to adjust the level and orientation of cabinets and appliances, the embodiment shown in Fig. 1A is particularly suited for fine tuning the orientation of a household appliance which is to be installed in a cabinet, which usually provides for a leveled supporting surface, so that the main purpose of the height adjustment of the appliance is to provide for a an exact spatial alignment of the appliance so the visible walls and edges of the appliance extend in parallel to those of the cabinet in which the appliance is installed. In doing so it can be provided for continuous small gaps between the walls of the appliance and those of the cabinet which results in an attractive and harmonic look.

[0028] The height adjustment means comprises a receptacle 10 which is provided close to the bottom of a sidewall 12 of a household appliance 14, such as a refrigeration, dishwasher, oven, washing machine, dryer or the like. The receptacle 10 comprises a shallow recess in which there is mounted a plate-like member 16, which in the embodiment of Fig. 1A is a round plate. The receptacle 10 serves to provide for a space for mounting the plate-like member 16 such that it does not project beyond the sidewall 12 of the appliance. As is illustrated, plate-like member 16 is a generally round and almost circular element, in which the diameter slightly varies. In the situation shown in Fig. 1A, plate-like member 16 has been oriented such that it provides for a medium height, which is indicated to the user by the respective one of the numbers that are assigned to each of the possible positions.

[0029] Whereas a plate-like member which as member 16 shown in Figs. 1A and 1C has a spiral shape can provide for a continuous and stepless range of heights, in the embodiment shown in Fig. 1C, the plate-like member at its rear side has two bulges 18 which when the plate-like member 16 is mounted in the receptacle 10 are accommodated in corresponding depressions 20 that are provided in the receptacle 10 and which serve to arrest the selected orientation of the plate-like member 16.

[0030] In the embodiment shown in Fig. 1B, in which there are provided 12 depressions in the receptacle 10, the user thus can select among 12 different levels. Starting from the situation shown in Fig, 1A, which may comprise a default state in which the appliance is delivered from a manufacturer, when installing the appliance for example in a kitchen cabinet, the height of the appliance can be adjusted, by loosening central screw 22 with which the plate-like member 16 is mounted within receptacle 10, by rotating the plate-like member 16 until the appliance is correctly adjusted, and again tightening the screw.

[0031] By the use of a plate-like member 16 which as shown in Figs. 1A and 1C in which the distance between

the highest level and the lowest level is in the millimeter range, such as between 1 and 3 mm, preferable between 1 and 2 mm, even when providing for the illustrated bulges and depressions which necessarily restrict the number of possible levels, the height adjustment means thus allows adapting the level of the appliance by minute steps of (1 to 3 mm)/12, i.e. of 0,083 to 0,25 mm, or of (1 to 2 mm)/12, i.e. of 0,083 to 0,17 mm.

[0032] Instead of a screw as it is shown in Fig. 1, the plate-like member 16 of course also can be held by other fixation means at the receptacle, such as by a spring biased bolt, which draws the plate-like member 16 towards the receptacle 10, but which allows lifting off the plate-like member 16 from the receptacle 10 to an extent such that the plate-like member 16 can be rotated. In order to avoid that in such embodiments with spring-biased attachment of the plate-like member 16, the plate-like member 16 is lifted off from the receptacle 10 by the weight of the appliance, instead of rounded bulges as they are shown in Fig. 1B, for example cylindrical pins could be provided at the plate-like member 16 which cooperate with corresponding cylindrical recesses or with round apertures at the receptacle 10.

[0033] From the above, it should be readily understood, that in the embodiment shown in Figs. 1A-1C the weight of the appliance can be held either by the screw (or any other fixation member), by the means for arresting the orientation (i.e. the bulges or pins) or by a combined action of these elements.

[0034] In Figs. 2A and 2B there is shown a further embodiment of a height adjustment means in accordance with the present invention. In such further embodiment a plate-like member 24 is employed which has a rectangular shape. While thus plate-like member 24 has two longer sides, which in the situation illustrated in Fig. 2A are oriented horizontally, and two shorter sides which in the situation illustrated in Fig. 2A are oriented vertically, in order to provide for a selection of four possible levels, the aperture 26 (see Fig. 2B) in plate-like member 24 which accommodates a fixation screw 22 or a spring biased bolt is located offset with respect to the center of the plate-like member 24, so that the distance from the respective rim portion of the plate-like member 24 to the aperture 26 is different for opposing rim portions of the plate-like member 24.

[0035] In Figs. 3A and 3B there is shown a further embodiment of a height adjustment means in accordance with the present invention, in which a plate-like member 28 is employed which has a hexagonal shape. Similarly as in the embodiment shown in Figs. 2A and 2B, also in the embodiment shown in Figs. 3A and 3B the aperture 30 (see Fig. 3B) in plate-like member 28 which accommodates a fixation screw 22 or a spring biased bolt is located offset with respect to the center of the plate-like member 28, so that the distance from each rim portion of the plate-like member 28 to the aperture 30 is different for the opposing rim portion of the plate-like member 28.

[0036] While hexagonal plate-like member 28 thus provides for six different levels from which a user can choose, plate-like members of any other regular or irregular polygonal shape can be employed to thus provide for a desired number of different levels.

[0037] In Figs. 4A and 4B there is shown a further embodiment of a height adjustment means in accordance with the present invention, in which a plate-like member 32 is employed which provides for different levels rather than by rotating the plate-like member by changing the position of the plate-like member. To this end plate-like member 32 comprises a lengthy aperture 34 having a plurality of stepped sections that extend parallel to each other but at different levels with respect to the lower rim 36 of the plate-like member 32.

[0038] Thus, as can be best seen in Fig. 4B, plate-like member 32 has an aperture 34 having three sections, wherein in the position shown in Fig. 4B a left section 38 of aperture 34 provides for the shortest distance from the aperture to the lower rim 36 of plate-like member 28, middle section 40 of aperture 34 provides for a larger distance from the aperture to the lower rim 36 than left section 38, and right section 42 provides for an even larger distance from the aperture to the lower rim 36 than middle section 40. To provide for further levels to be achieved in a height adjustment means as it is illustrated in Fig. 4A and 4B, aperture 34 is positioned in plate-like member 32 so that the distance from the right section 42 of the aperture to the lower rim 36 is smaller than the distance from the right section 42 to the upper rim 44 of plate-like member 32. In this manner, by turning the plate-like member 32 by 180°, there can be provided for three further levels so that the plate-like member 32 with aperture 34 having three stepped sections in total provides for six different levels. Furthermore, the aperture of course could be provided with any different number of steps as that shown in the exemplary embodiment of Figs. 4A and 4B.

[0039] It is to be noted that while in the embodiment shown in Fig. 4A and 4B the plate-like member 32 is fixed with two fixations screws 46 and 48, so as to divide the load of the appliance onto two members, there also could be provided just one fixation element, being it a screw, a spring-biased bolt or any other fixation means.

[0040] Furthermore, also in embodiments in which the plate-like member is held at the receptacle with two fixation members, such as screws 46 and 48, the screws need not be provided at the same level as it is shown in Fig. 4A so as to cooperate with a plate-like member having an aperture in which all sections are oriented horizontally, but instead could be provided at different levels, in which case the aperture then would be configured to have a plurality of slanted sections.

[0041] In Figs. 5A, 5B and 5C there is shown a further embodiment of a height adjustment means in accordance with the present invention, in which similarly as in the embodiment illustrated in Figs. 3A and 3C a plate-like member of hexagonal shape is used, but which differs from the embodiment illustrated in Figs. 3A and 3B by

the dimensioning of the receptacle and its interaction with the plate-like member.

[0042] In particular, in the embodiment shown in Fig. 5A receptacle 50 has a height that is smaller than that of the embodiment shown in Fig. 3A, and which is dimensioned such that the plate-like member 52 abuts with its upper rim 54 against an upper counter surface 56 of the receptacle 50. To allow a slight vertical movement of the plate-like member 52 with respect to the receptacle 50, so that in all its orientations the plate-like member 52 can abut against upper counter surface 56 of receptacle 50, the plate-like member 52 has an aperture 58 that is larger than the core diameter of fixation screw 60.

[0043] In the embodiment shown in Fig. 5A the load of the appliance thus needs not be held by the fixation element, such as a screw, but rests on the upper rim 54 of the plate-like member 52, which with its lower rim 62 rests on the supporting surface on which the appliance is installed, so that in fact the entire load is taken up by the plate-like member 52 itself rather than by the fixation means.

[0044] It should be understood that the concept of providing for a receptacle which is configured for abutment of an upper rim of the plate-like member against an upper counter surface of the receptacle can be employed with any of the embodiments mentioned above in the description of Figs. 1 to 3, such as with plate-like members having a spiral shape, as shown in Fig. 1C, with plate-like members such as plate-like member 63 illustrated in Figs. 6A and 6B which has a rectangular shape, or with plate-like members having a polygonal shape, similarly as the one shown in Fig. 5B, but having an aperture that is slightly larger than the fixation bolt.

[0045] Furthermore, in order to provide for additional height levels, there can be provided a set of two or more plate-like members having different dimensions, an example of which is illustrated in Fig. 7. Note that whereas Fig. 7 illustrates an embodiment of a set 66 comprising a 1st plate-like member 68, a 2nd plate-like member 70, a 3rd plate-like member 72 and a 4th plate-like member 74, wherein the individual plate-like members each provide for two different heights, the apertures in any of these plates can be located offset with respect to the center of the respective plate-like member, so as to provide for different distances of opposing rim portions from the aperture so the respective plate-like member provides for four different heights. Furthermore, while a set 66 as it is illustrated in Fig. 7 particularly is suited for embodiments having a receptacle in which the plate-like member is mounted by one or more fixation elements without interaction of the upper rim of the plate-like member with a counter surface of the receptacle, so that the dimensions of usable plate-like members solely are restricted by the dimensions of the receptacle, a set of several different plate-like members also may be employed in embodiments as shown in Figs. 5 and 6, wherein however in plate-like members that have substantially different dimensions there is to be provided either for several apertures or for a lengthy aperture which allows a larger amount of shifting of the plate-like member with respect to the fixation element.

[0046] A further alternative embodiment is illustrated in Figs. 8A and 8B which shows a height adjustment means that is particularly suited for being formed at an appliance in which either the housing of the appliance or a receptacle provided at the housing in made of sheet metal. As illustrated in Figs. 8A and 8B the plate-like member 76 comprises a slot 78 which is slanted with respect to the bottom edge 80 of the plate-like member 76. A screw 82 extends through the slot into a sidewall 84 of the appliance, wherein by shifting plate-like member 76 along the sidewall 84 the interaction of the slanted slot 78 and the screw 82 results in an upward or downward movement of the plate-like member 76 with respect to the sidewall 84 of the appliance.

[0047] In the embodiment illustrated in Figs. 8A and 8B the plate-like member 76 further comprises a guide member 86 which is formed along an upper edge of plate-like member 76 by a stepped bend that extends in parallel to the slanted slot 78. Guide member 86 is inserted into a slanted guiding slot 88 provided at the sidewall 84. While the weight of the appliance thus can be supported by the combined interaction of slanted slot 78 with screw 82 and of guide member 86 with slanted guiding slot 88, so as to allow a continuous and stepless high adjustment feature, in the embodiment illustrated in Figs. 8A and 8B the is shown a variant in which a dog 90 has been formed in the sheet metal of sidewall 84 by cutting or stamping a flap and then bending the flap so that it extends vertically above the upper edge 92 of plate-like member 76. In order to provide for discrete levels that can be selected for the height adjustment, upper edge 92 comprises a stepped portion 94 which abuts against the dog 90. Although in such latter embodiment the slanted slot 78 is a bit wider so as to allow shifting the plate-like member 76 along the steps of stepped portion 94, a part of the load of the appliance nevertheless is taken up by the screw 82 which upon selecting a desired level is tightened so as to fix the position of the plate-like member 76 with respect to sidewall 84. In order to provide for a larger surface area on which the plate-like member rests on a supporting surface, the plate-like member 76 comprises a foot portion 96 which is formed by bending the sheet metal of which the plate-like member 76 is formed.

Reference signs

[0048]

10	receptacle
12	sidewall
14	household appliance
16	plate-like member (Fig. 1)
18	bulge
20	depression
22	screw

24 plate-like member (Fig. 2)
26 aperture in 24
28 plate-like member (Fig. 3)
30 aperture in 28
32 plate-like member (Fig. 4)
34 aperture in 32
36 lower rim of 32
38 left section
40 middle section
42 right section
44 upper rim of 32
46 fixation screw
48 fixation screw
50 receptacle
52 plate-like member (Fig. 5)
54 upper rim
56 upper counter surface of 50
58 aperture in 52
60 fixation screw
62 lower rim of 52
64 plate-like member (Fig. 6)
66 set of plate-like members
68 1st plate-like member
70 2nd plate-like member
72 3rd plate-like member
74 4th plate-like member
76 plate-like member (Fig. 8)
78 slot
80 bottom edge of 76
82 screw
84 sidewall
86 guide member
88 guiding slot
90 dog
92 upper edge
94 stepped portion of 92
96 foot portion of 76

Claims

1. Height adjustment means for adjusting the height of an article (14) with respect to a supporting surface, the height adjustment means comprising a plate-like member (16; 24) having at least one fixation point (26) for mounting the plate-like member substantially vertically at the article, the plate-like member comprising an outer rim a portion of which, in use of the plate-like member, rests on the supporting surface, wherein the plate-like member is configured to be mounted at the article in a plurality of orientations and/or positions that provide for a different distance between the fixation point and that portion of the rim which rests on the supporting surface.

2. The height adjustment means of claim 1, wherein the plate-like member (16) comprises a curved rim, the curvature of which varies along the length of the rim.

3. The height adjustment means of claim 2, wherein the plate-like member (16) has a planar spiral shape, in the center of which there is located the fixation point.

4. The height adjustment means of claim 1, wherein the plate-like member has a polygonal shape (24; 28) having a plurality of straight rim sections, at least two of which are located at a different distance from a fixation point (26; 30), which is located in a central region of the plate-like member.

5. The height adjustment means of claim 4, wherein the plate-like member (24) has a rectangular shape, in the center of which there is located the fixation point (26).

6. The height adjustment means of claim 4, wherein the plate-like member (24) has a generally rectangular shape, wherein the fixation point (26) is located in a central region of the plate-like member offset with respect to the center of the plate.

7. The height adjustment means of claim 1, wherein the plate-like member (32) has a bottom rim (36) and a lengthy aperture (34) for accommodating fixation means for mounting the plate-like member at the article, the lengthy aperture having a plurality of stepped sections (38, 40, 42) that are located at different levels with respect to the bottom rim (36).

8. The height adjustment means of claim 1, wherein the plate-like member (76) has at least one lower surface (80) for contacting the supporting surface, at least one slanted or stepped surface (86, 94) that is oriented at an angle to the lower surface for supporting the article, and at least one elongate hole (78) that extends in parallel to the slanted or stepped surface (86, 94) for accommodating a bolt for fixing the plate-like member at the article.

9. The height adjustment means of any of the preceding claims, wherein the plate-like member and the receptacle comprise means for arresting the orientation and/or position of the plate-like member by form fit.

10. The height adjustment means of claim 9, wherein the means for arresting the orientation and/or position of the plate-like member (16) comprises a projection (18) and a plurality of recesses (20) for accommodating the rejection in each of the plurality of orientations and/or positions.

11. The height adjustment means of claim 10, wherein the projection (18) is a pin, a bulge or a land, and

the plurality of recesses (20) comprises a plurality of holes, depressions or grooves, respectively.

12. Height adjustment means for adjusting the height of an article with respect to a supporting surface, the height adjustment means comprising:

(a) a vertically oriented flat receptacle (50) fixedly connected to said article; and
(b) a plate-like member (52) having at least one fixation point (58) for mounting the plate-like member substantially vertically at the receptacle, the plate-like member comprising an outer rim a first portion of which, in use of the plate-like member, rests on the supporting surface, and a second portion of the rim opposite the first portion, rests against an upper counter surface (56) of the receptacle, wherein the plate-like member is configured to be mounted at the receptacle in a plurality of orientations, wherein the vertical dimension of the plate-like member is different for different orientations of the plate-like member.

13. The height adjustment means of claim 12, wherein the plate-like member (52) further comprises a though hole (58) for accommodating a bolt (60) for fixing the plate-like member at the receptacle (50), wherein the though hole is larger than the outer diameter of the bolt.

14. The height adjustment means of claim 5, 6, 12 or 13, comprising a set (66) of plate-like members (68, 70, 72, 74) of different dimensions.

15. The height adjustment means of any of the preceding claims, wherein the plate-like member (16) comprises markings to indicate a height adjustment level assigned to the plurality of orientations and/or positions in which the plate-like member can be mounted at the article (14).

16. A household appliance (14) comprising a housing and at least one height adjustment means, as defined in any of the preceding claims which is provided in a bottom region of the housing so as to downwardly project from the housing.

17. The household appliance of claim 16 comprising two height adjustment means, as defined in any of claims 1 to 15, which are provided in the corner regions of the front side or the rear side of the housing.

18. A cabinet for a household appliance comprising a bottom frame and at least one height adjustment means as defined in any claims 1 to 14 which is provided at the bottom frame so as to downwardly project from the bottom frame.

19. The cabinet of claim 18 comprising two height adjustment means, as defined in any of claims 1 to 15, which are provided in the corner regions of the front side or the rear side of the cabinet.

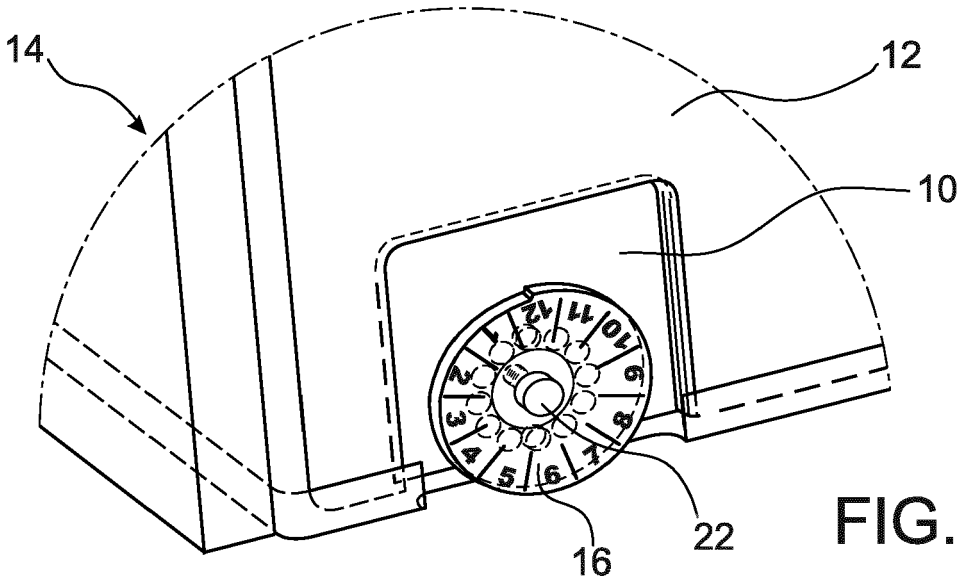

FIG. 1A

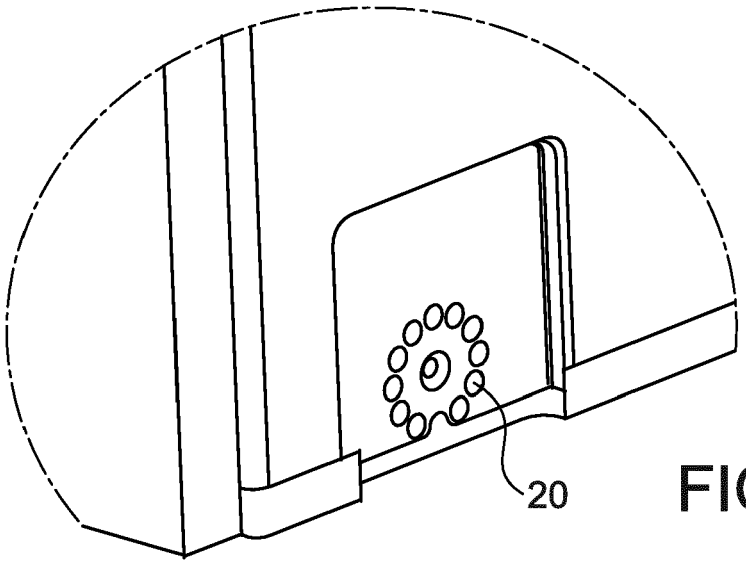

FIG. 1B

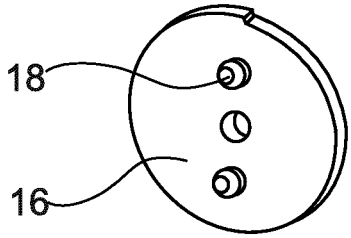

FIG. 1C

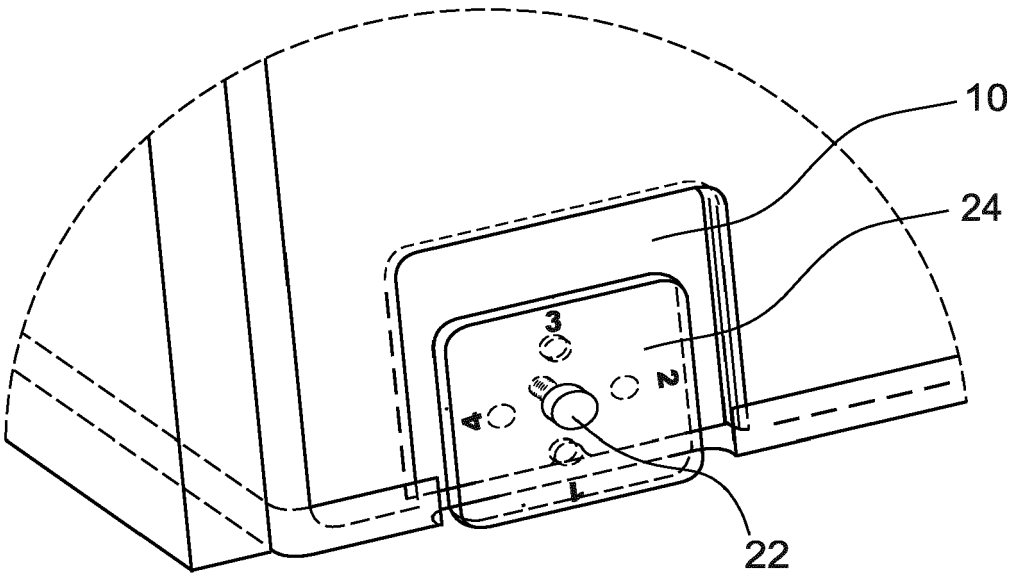

FIG. 2A

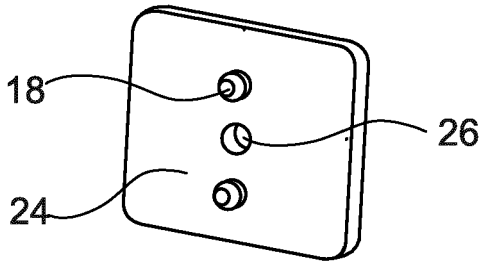

FIG. 2B

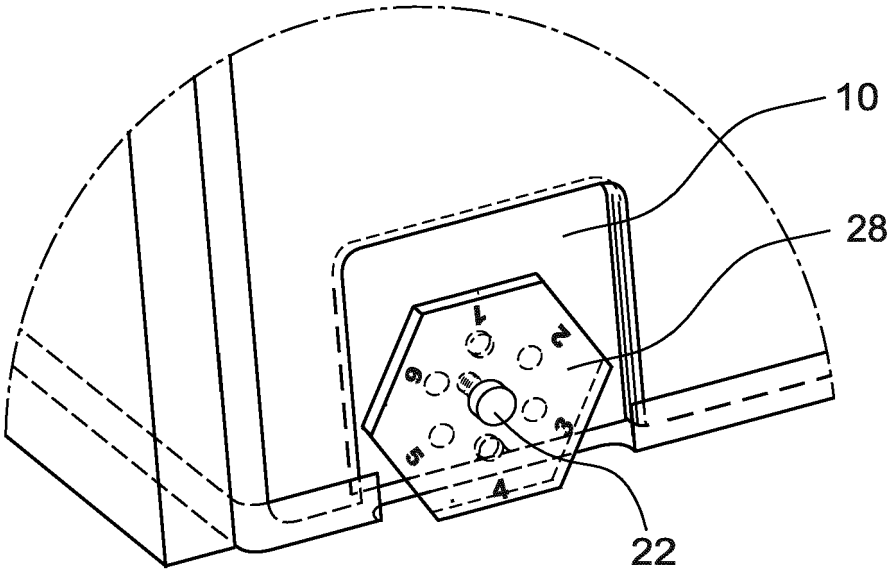

FIG. 3A

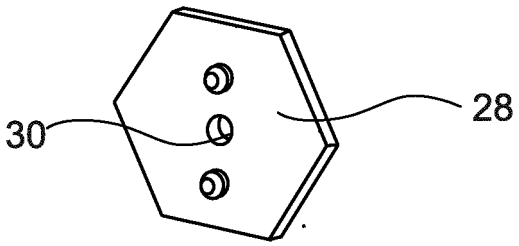

FIG.3B

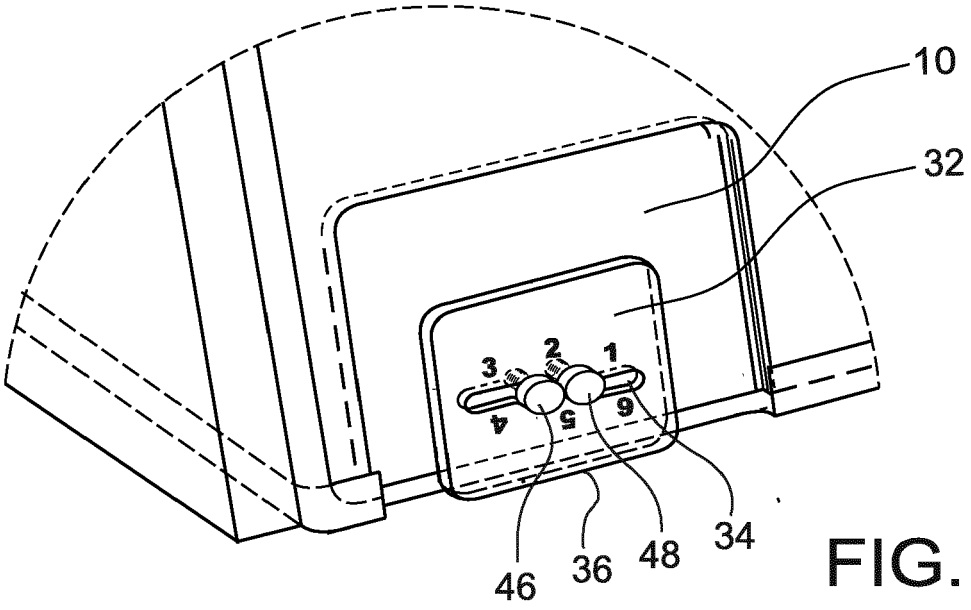

FIG. 4A

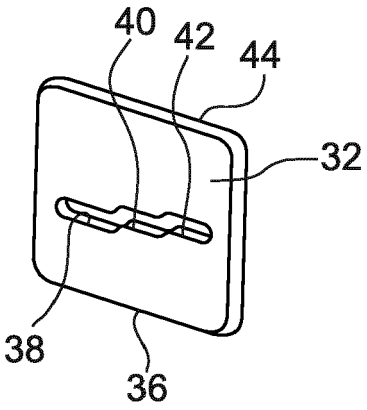

FIG. 4B

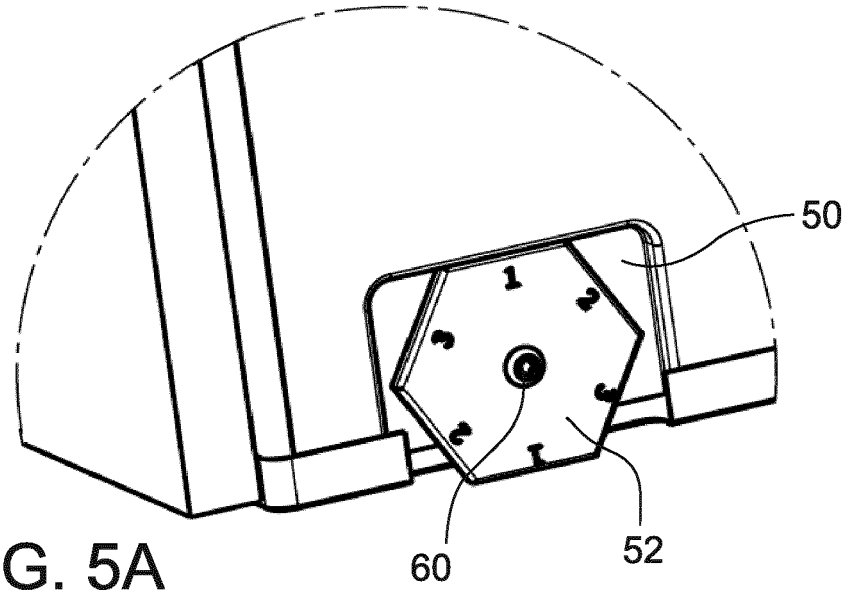

FIG. 5A

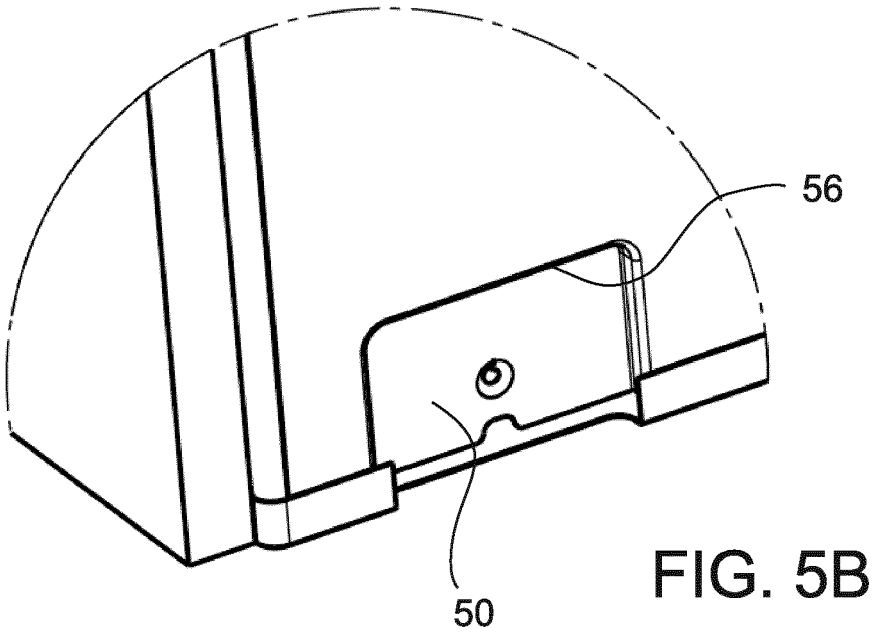

FIG. 5B

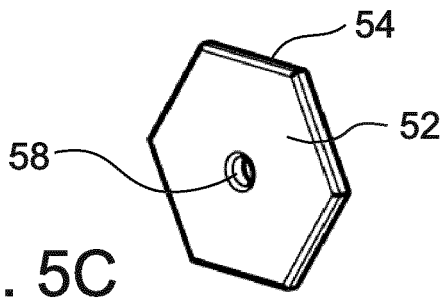

FIG. 5C

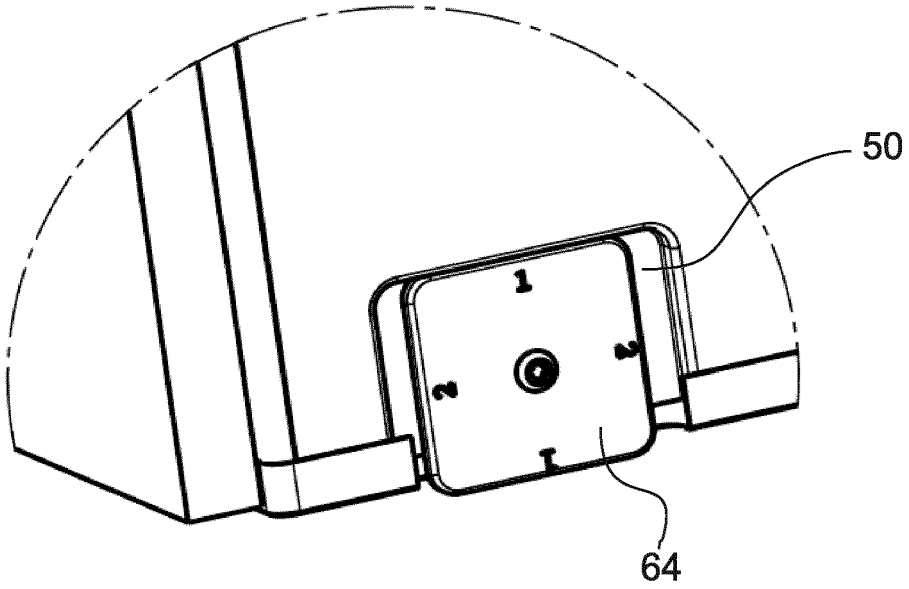

FIG. 6A

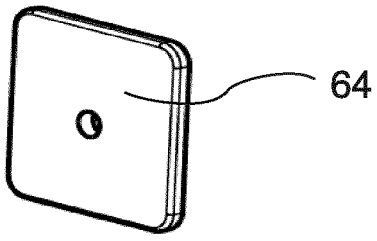

FIG. 6B

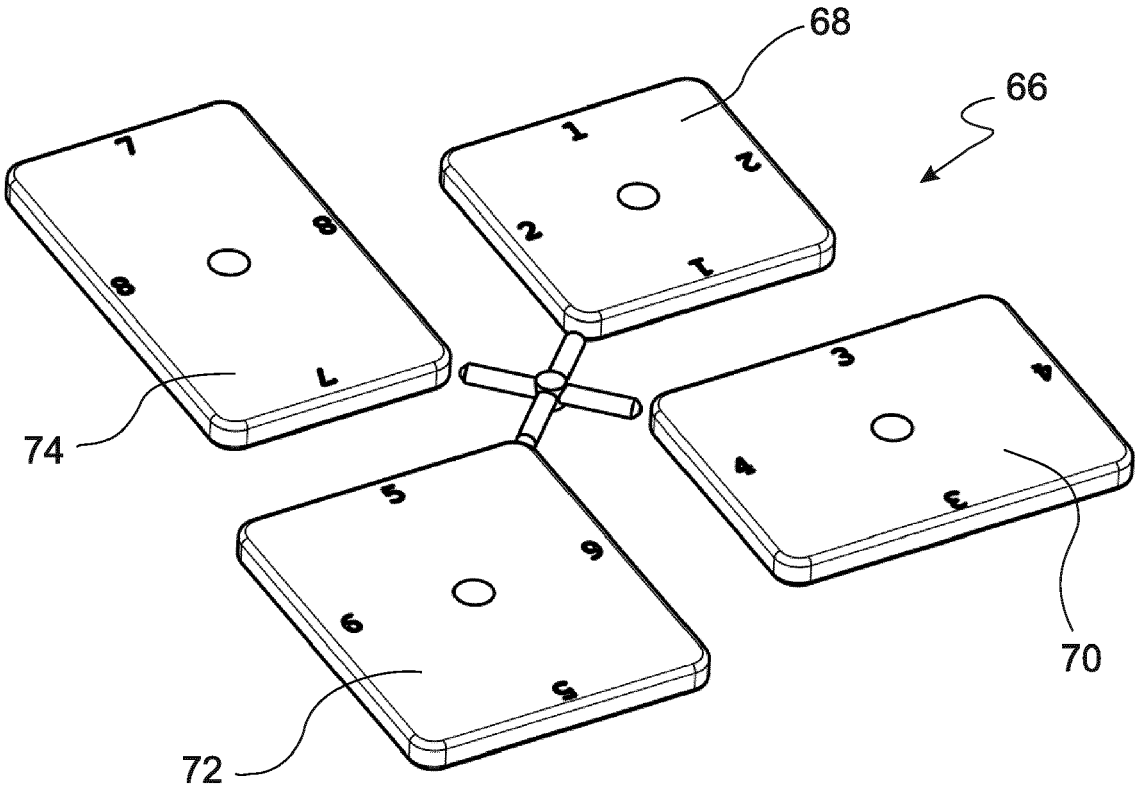

FIG. 7

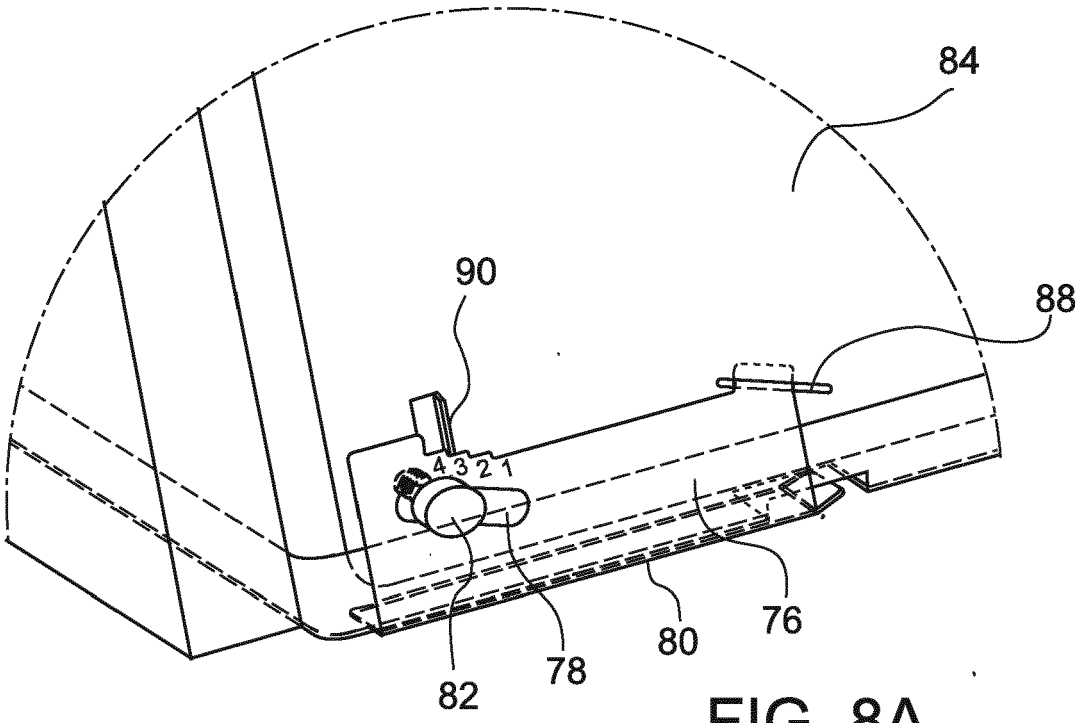

FIG. 8A

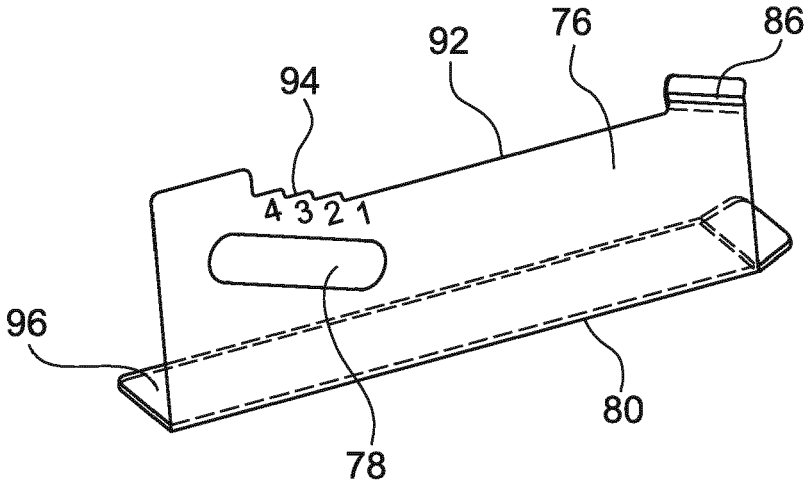

FIG. 8B

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EUROPEAN SEARCH REPORT

Application Number
EP 18 17 5985

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	25 September 2018	Ibarrondo, Borja

CATEGORY OF CITED DOCUMENTS

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