(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 982 268 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
10.02.2016 Bulletin 2016/06

(51) Int Cl.:
A47B 88/00 *(2006.01)*

(21) Application number: **15000993.4**

(22) Date of filing: **08.04.2015**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA

(30) Priority: **05.08.2014 IT GE20140078**

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(54) **SNAP HOOK FOR BOTTOM DRAWERS**

(57) Drawer for furniture or the like, comprising a bottom wall (4), a front wall (2), two side walls (30) and a rear wall (3), characterized in that said bottom wall (4) is provided with at least one protrusion (40) and in that said front wall (2) is provided with at least one support (1) adapted to cooperate and coupling with said protrusion (40).

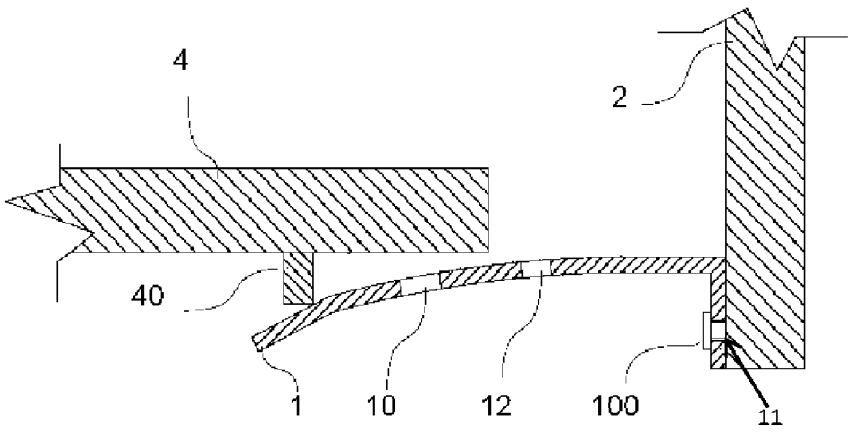

Fig. 6

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Description

[0001] The present invention relates to a support for drawers, in particular a support for the bottom of the drawers.

[0002] Currently there are different types of drawers, characterized by different shapes and sizes and with different applications and uses.

[0003] In particular, according to the type of objects that are introduced and their weight, the bottom of the drawer is subjected to a deformation which tends to bend it or to separate it from the remaining portion of the drawer.

[0004] Said deformation involves structural and functionality problems related to the drawer, as the bottom might collapse or break away from the drawer structure, rendering it unusable.

[0005] In fact, the bending of the bottom of the drawer may impair the normal use of said drawer, as the deformation may prevent the correct opening and closing of the drawer.

[0006] The drawer is provided with suitable sliding means which couple with the guide means disposed on the cabinet and the bottom deformation may impede the relative movement of the parts.

[0007] The problem appears to be more related to the solutions and proposals the prior art has found so far.

[0008] The quickest way to address the above problem is to strengthen the drawer, in particular its bottom part, by increasing the thickness or by using tougher materials.

[0009] If a component thickness increase is chosen, there is a consequent increase in the drawer weight which requires enhanced resistance of the guide means, which should then be increased.

[0010] This weight increase do aggravate the cabinet structure, which should be reviewed by a structural point of view according to the new loads which it is subjected to.

[0011] The use of more resistant materials implies production and processing cost increase, due to a higher raw material cost and to longer construction times.

[0012] In particular, the wood to metal transition, for example, involves the creation of a different production line, with different processing tools and machines.

[0013] A further problem arises during the cabinet assembly, in particular in aligning the drawers one each other.

[0014] Normally a drawer is realized by a bottom wall, two side walls, a rear wall and a front wall.

[0015] During the drawer assembly phases, the bottom wall, the rear wall and the side walls are joined together, then the guide and sliding means are mounted, and finally the front wall is joined thereto, obtaining a ready to use drawer.

[0016] Considering, for example, a chest of drawers, that is a cabinet comprising several stacked drawers: the arising problem is to vertically align said plurality of drawers.

[0017] The vertical misalignment of the front wall of the drawers is due to working inaccuracies, and it is also a functional problem in addition to be an aesthetic problem, in that it creates structural asymmetry and therefore load asymmetry.

[0018] The currently used solutions are not very effective or too elaborated during assembly or use.

[0019] For example, made of plastic material reinforcing elements, positioned between the drawer bottom wall and the front wall that allow the front wall to be moved with reference to the rear part in order to centre it, are known.

[0020] These reinforcing elements extend the production times during the drawer components assembly and tend to stiffen and break down over the time.

[0021] The object of the present invention is to provide a drawer provided with a support for the bottom wall able to ensure an effective support to said bottom wall, avoiding its deformation under the weight of the articles placed in said drawer.

[0022] Further object of the present invention is to provide a drawer provided with a support for the bottom wall allowing the position of the front wall of the drawer to be adjusted with respect to the rear portion of said drawer.

[0023] Subject of the present invention is therefore a drawer for furniture or the like, comprising a bottom wall, a front wall, two side walls and a rear wall, characterized in that said bottom wall is provided with at least one protrusion and in that said front wall is provided with at least one support adapted to cooperate and to couple with said protrusion.

[0024] These and other features of the invention, and the advantages derived therefrom, will be apparent in the following detailed description of a preferred embodiment thereof, taken by way of example and not of a limitation, with reference to the accompanying drawings, in which:

FIG 1 shows a sectional view of the support for bottom wall of drawers according to the present invention;

Figure 2 shows a sectional view of the support for bottom wall of drawers shown in Fig. 1;

Figure 3 shows the front wall of the drawer seen from the bottom;

Figure 4 shows the rear portion of the drawer;

Figure 5 shows in details the coupling between the front wall and the rear portion of the drawer;

Figure 6 shows a sectional view of the coupling phase between the front wall and the bottom wall of the drawer;

Figure 7 shows a perspective view of the coupling phase shown in figure 6 in the case wherein the protrusion is formed by a pin;

Figure 8 shows a sectional view of the completed coupling of figure 6 between the front wall and the bottom wall of the drawer;

Figure 9 shows a perspective view of the completed coupling of Figure 7 between the front wall and the bottom wall of the drawer;

Figure 10 shows a perspective view of the protrusion constituted by a wedge shaped abutment element;

Figure 11 shows a perspective view of the coupling phase between the front wall and the bottom wall of the drawer in the case where the protrusion is constituted by the wedge shaped abutment element of Figure 10;

Figure 12 shows a perspective view of the completed coupling of Figure 11 between the front wall and the bottom wall of the drawer.

FIG 1 shows a sectional view of the support 1 for bottom walls of the drawer according to the present invention.

[0025] Said support 1 has a substantially L-shaped section, constituted by a long flap L1 and by a short flap L2 which is substantially perpendicular and adjacent to said long flap L1, and which advantageously comprises a suitably bent plate.

[0026] The support 1 is advantageously provided with at least one slot 10 located on the long flap L1 of said "L" for the joint insertion in it of the protrusion element 40.

[0027] Preferably, the support 1 is provided with at least one through hole 11, more preferably with at least two through holes 11, placed onto the short flap L2 of said "L", so as to facilitate the support 1 to be secured to the front wall 2.

[0028] More preferably, the support 1 is also provided with at least a through hole 12 placed on the long flap L2 of said "L"; in such a way, the support 1 can be further secured to the bottom wall 4 by means of a screw (not shown in the figures) passing through said through hole 12.

[0029] In a preferred embodiment, the portion of said long flap L1 of the support 1 is tilted at its end L3 opposite to said short flap L2.

[0030] Preferably, the support 1 according to the present invention has certain mechanical properties, in particular flexibility and elasticity, in order to accommodate the deformation to which is subjected and to return to its original shape later on, once the stress that has caused such a deformation is ended over.

[0031] Indeed, as it will be perceived from the description of Figs. 5-12, said support 1 is subjected to a mechanical stress which bends it, and once said stress is over, said support 1 returns to its original shape to ensure the coupling of the parts.

[0032] In a preferred embodiment, said support 1 is realized with a metallic material, in particular steel.

[0033] Preferably, said used steel substantially comprises harmonic steel (the harmonic steel being a silicon steel with high carbon content, such as 0.80 - 0.90%), or steel for springs.

[0034] Figure 2 is a sectional view of the support for bottom wall of the drawer depicted in Fig. 1.

[0035] Assuming that to same parts correspond same numbers, in figure 2 the support 1 provided with the slot 10, a first through hole 12 and the second through hole 11 is shown.

[0036] From Figure 2 it appears more clearly how the ends of the long flap of said L is tilted.

[0037] Figure 3 shows the front wall of the drawer seen from the bottom.

[0038] The front wall 2 is the wall of the drawer which is visible from outside and which is normally provided with gripping means through which the user can open or close the drawer.

[0039] The front wall 2 comprises pads 20 that will couple with the side walls 30, in particular with the cavities present in said side walls 30.

[0040] Figure 4 shows the rear portion of the drawer.

[0041] The rear portion comprises the bottom wall 4, the side walls 30 and the rear wall 3.

[0042] The side walls 30 are provided with suitable cavities 300 made in such a way as to couple with the pads 20 of the front wall 2 of said drawer.

[0043] Said coupling allows, during assembly, to quickly and accurately join the front wall 2 to the remaining portion of the drawer.

[0044] The bottom wall 4 is provided with a protrusion 40 projecting outwardly of the drawer adapted to cooperate with the support 1 according to the present invention.

[0045] In a first embodiment, said protrusion 40 is integrally formed with the bottom wall 4 of the drawer.

[0046] In a second preferred embodiment, said protrusion 40 comprises a pin 40 (Figures 7 and 9), substantially cylindrical in shape, suitably secured to said bottom wall 4.

[0047] In a third preferred embodiment, said protrusion 40 comprises the protruding portion 41 of a wedge shaped abutment element 42 suitably secured to the bottom wall 4 of the drawer (Figures 10-12), preferably by means of a pin and of a screw.

[0048] The interaction between the protrusion 40, anyhow it is represented, and the support 1 will be clearer and better illustrated in the following drawings.

[0049] Figure 5 shows in detail the coupling between the front wall 2 and the rear portion of the drawer.

[0050] From Figure 5 it appears how the support 1 according to the present invention is preferably secured to the front wall 2 by suitable fastening means 100, which include the screws, and that pass through said through holes 11.

[0051] During the assembly phase, the operator takes

the front wall 2 and gradually approaches it to the rear portion, entering the pads 20 in the respective cavities 300 of the side walls 30.

[0052] In the movement of joining the parts, the protrusion 40 cooperates with the support 1 according to the present invention and when the parts are joined, said protrusion 40 is inserted into the slot 10 of the support 1.

[0053] The coupling between the protrusion 40 and the slot 10 is automatic, and the operator has only to accost the parts and to insert the pads 20 into the cavity 300.

[0054] The support 1 for the bottom wall 4 of the drawers according to the present invention allows a simple and quick component mounting and, at the same time, allows the position of the front wall 2 to be adjusted with respect to the rear portion of the drawer, so as to centre it.

[0055] For example, if a chest of drawers is taken into consideration, that is a cabinet comprising several stacked drawers, the arising problem is that one of ensuring that all the drawers are well aligned one each other.

[0056] From the above description, it appears that the protrusion 40 (whether it is realized in one piece with the bottom wall 4 of the drawer, or it is represented by the above described pin or wedge-shaped element abutment) can longitudinally and transversely slide along the slot 10; in this way it is possible to tolerate the looseness and tolerances of the guide means, of the housings, and of all the components forming the drawer, so as to obtain a perfect alignment of the drawers.

[0057] This is not possible with the currently used supports for the production of drawers and, where different solutions are provided aiming to solve said problem, they are not very effective and not practical in the installation.

[0058] For example, if the bottom wall 4 and the front wall 2 are secured one each other through joints or fixed anchoring means, such as screws, or if supports not allowing any relative movement of the parts are used, it would not be possible to obtain such tolerances and properly alignment of the drawers one each other.

[0059] Figure 6 shows a sectional view of the coupling phase between the front wall 2 and the bottom wall 4 of the drawer, while Figure 7 shows a perspective view of the same coupling phase shown in figure 6.

[0060] From Figures 6 and 7 appears that the protrusion 40, as represented in these embodiments by the substantially cylindrical pin 40, cooperates with the support 1 up to couple with it.

[0061] During the joining of the front wall 2 with the bottom wall 4 of the drawer, the pin 40 bends the support 1 and slides along its surface until reaching the slot 10.

[0062] The support 1 presses on the pin 40 and the coupling of the pin 40 into the slot 10 is automatic; in fact, when the pin 40 enters the slot 10, the support 1, being flexible, is able to come back to its natural position thus realizing the coupling between the parts, as shown in Fig. 8 and 9.

[0063] Figure 8 is a sectional view of the completed coupling between the front wall 2 and the bottom wall 4 of the drawer, while Figure 9 is a perspective view of the same completed coupling shown in figure 8, wherein the protrusion is represented by the pin 40.

[0064] From Figures 8 and 9 appears that the front wall 2 is well secured to the rear portion 3, in particular to the bottom wall 4 of the drawer.

[0065] In particular, there are no gaps or openings between the bottom wall 4 of the drawer and said front wall 2, and the support 1 for the bottom wall 4 of the drawer, in addition to ensuring a correct joining between the parts, provides a support to the bottom wall 4 of the drawer avoiding that it bends under the weight of the objects that are stored in the drawer.

[0066] Figure 10 is a perspective view of a further embodiment of the protrusion 40 formed by the projecting part 41 of a wedge shaped abutment element 42, whereby the surface of the abutment element 42 has a constant gradual slope.

[0067] Similarly to what has been disclosed with reference to Figures 6 and 7 wherein the protrusion 40 is constituted by the pin 40, Figure 11 shows the coupling phase between the front wall 2 and the bottom wall 4 of the drawer in the case in which the protrusion 40 is constituted by the protruding part 41 of the wedge shaped abutment element 42 of figure 10.

[0068] From such Figure 11 it appears that, during the joining and locking movement of the front wall 2 with the bottom wall 4 of the drawer, the support 1 according to the present invention is able, first, to raise up the abutment element 42 in a gradual, smooth and progressive manner, and thereafter, to descend from the abutment element 42 itself to complete the coupling (Figure 12), obtaining the same result of a non-permanent joining obtained when the protrusion 40 is represented by the pin, as shown in Figures 7 and 9.

[0069] Furthermore, by such an embodiment, wherein the protrusion 40 is formed by the projecting part 41 of the wedge shaped abutment element 42, a further advantage of a gradual impact with the support 1 during the coupling phase is obtained, thus reducing the wear that occurs in the protrusion 40 for its constant rigid friction against the support 1, when the coupling is realized by means of the pin 40 of Figures 7 and 9.

[0070] In this way, the possibility of both vertically and horizontally adjustment in the tooth of the wedge shaped abutment element 42 is also obtained. Such an adjustment, while being only of the order of few millimetres, both in one direction or another, however, is able to achieve the purpose of tolerating the looseness and tolerances of the guide means, of the housings, and of all the components that contribute to realize the drawer.

Claims

1. Drawer for furniture or the like, comprising a bottom wall (4), a front wall (2), two side walls (30) and a rear wall (3), **characterized in that** said bottom wall

(4) is provided with at least a protrusion (40) protruding outwards with respect to its surface, and **in that** said front wall (2) is provided with at least one support (1), protruding from said front wall (2), and disposed on a plane substantially parallel to that one of said bottom wall (4), said support (1) being able to cooperate and coupling with said protrusion (40).

2. Drawer for furniture or the like according to claim 1, in which said support (1) is suitably fixed in removable way to said front wall (2).

3. Drawer for furniture or the like according to claim 1 or 2, in which said support (1) comprises a plate having a substantially L-shaped section provided with at least one through hole (11) which opens onto one (L2) of the two flaps (L1,L2) of said support (1), and a slot (10) formed in the other one flap (L1), allowing said support (1) to be coupled to the bottom wall (4).

4. Drawer for furniture or the like according to any one of the preceding claims 1 to 3, in which said protrusion (40) is realized in one piece with said bottom wall (4) of the drawer.

5. Drawer for furniture or the like according to any one of the preceding claims 1 to 3, in which said protrusion (40) comprises a pin suitably fixed to the bottom wall (4) of the drawer.

6. Drawer for furniture or the like according to any one of claims 1 to 3, in which said protrusion (40) comprises the projecting portion (41) of a wedge-shaped abutment element (42) suitably fixed to the bottom wall (4) of the drawer.

7. Drawer for furniture or the like according to any one of claims 1 to 6, in which during the joining and locking movement of the front wall (2) with the bottom wall (4) of the drawer, the protrusion (40), protruding from said bottom wall (4), bends the support (1) and slides along its surface until it reaches the slot (10) coupling with it.

8. Drawer for furniture or the like according to any one of claims 1 to 7, in which said support (1) is realized in metal alloy.

9. Drawer for furniture or the like according to any one of claims 1 to 8, in which said support (1) is realized in harmonic steel.

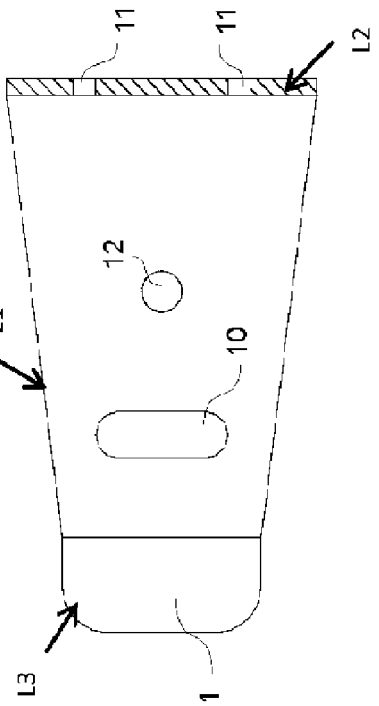


Fig. 1

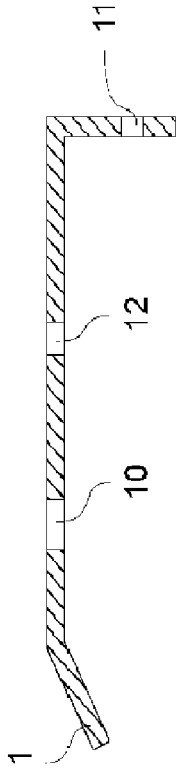


Fig. 2

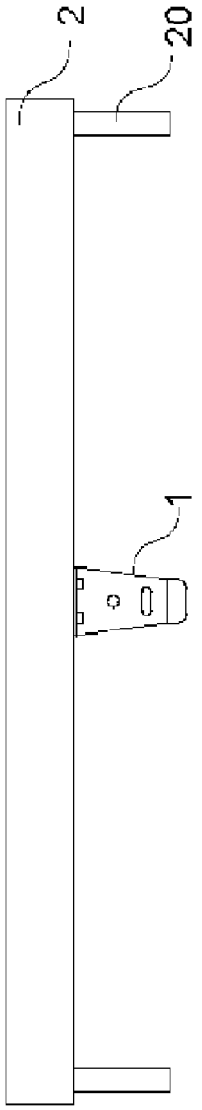


Fig. 3

Fig. 4

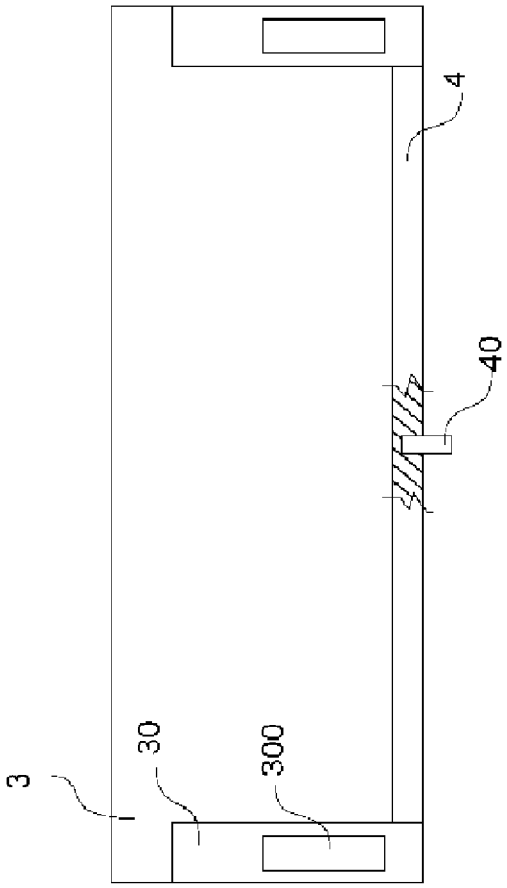


Fig. 5

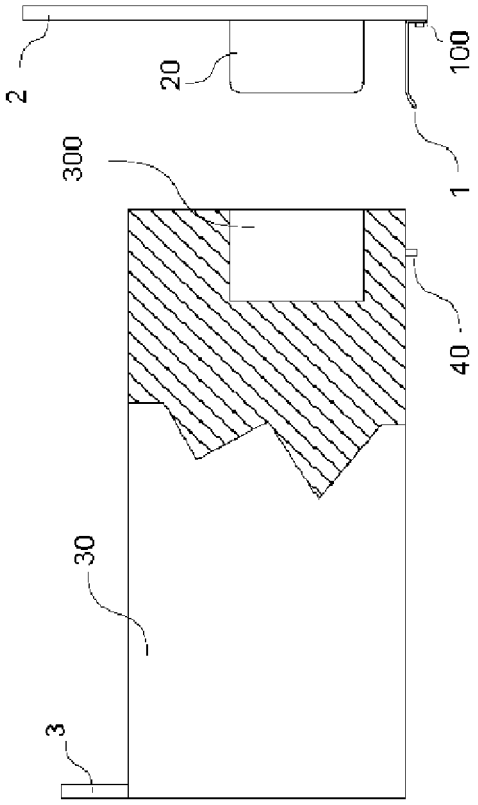


Fig. 6

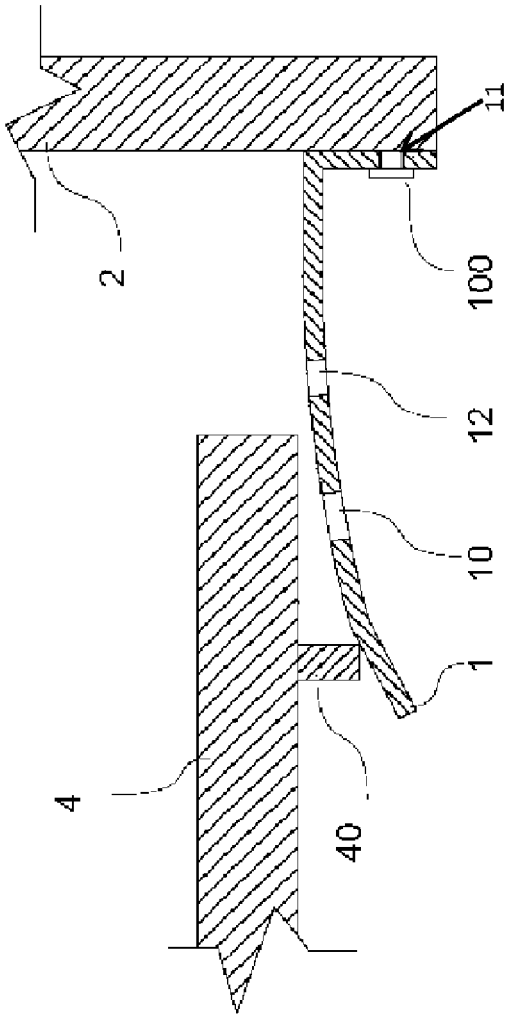


Fig. 7

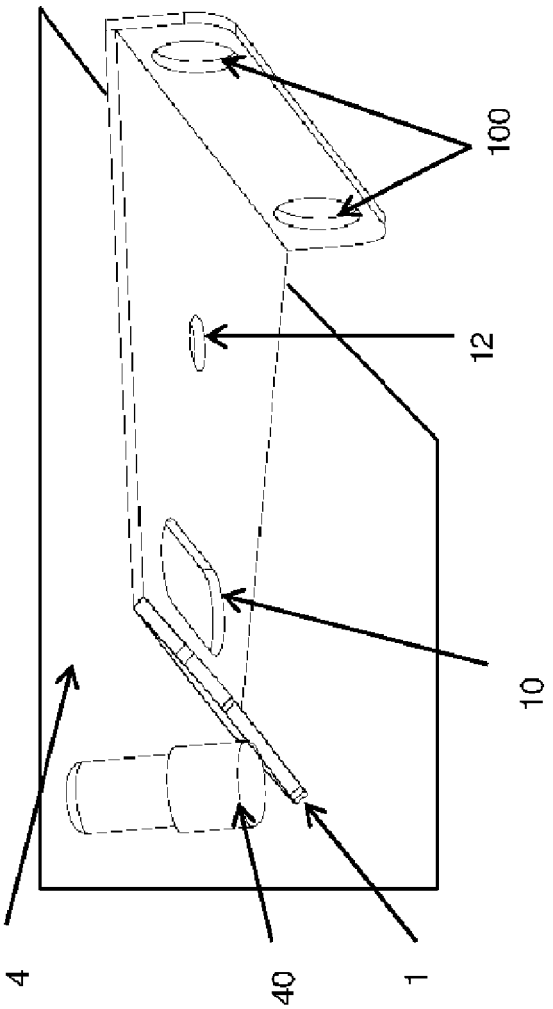


Fig. 8

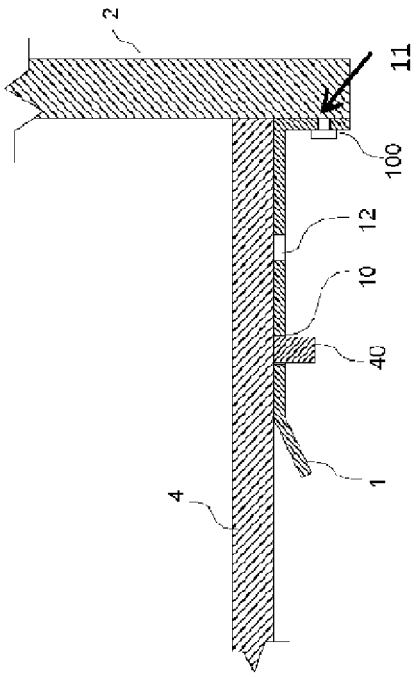
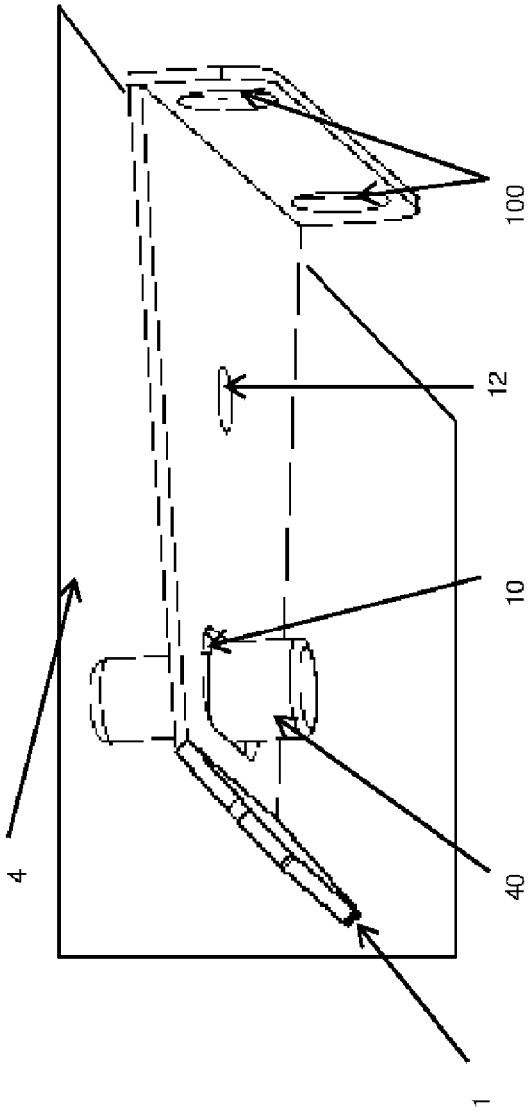


Fig. 9



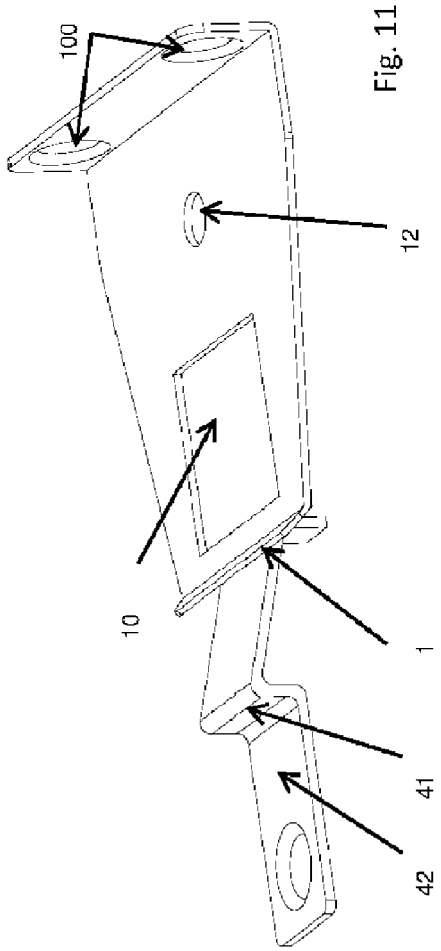


Fig. 11

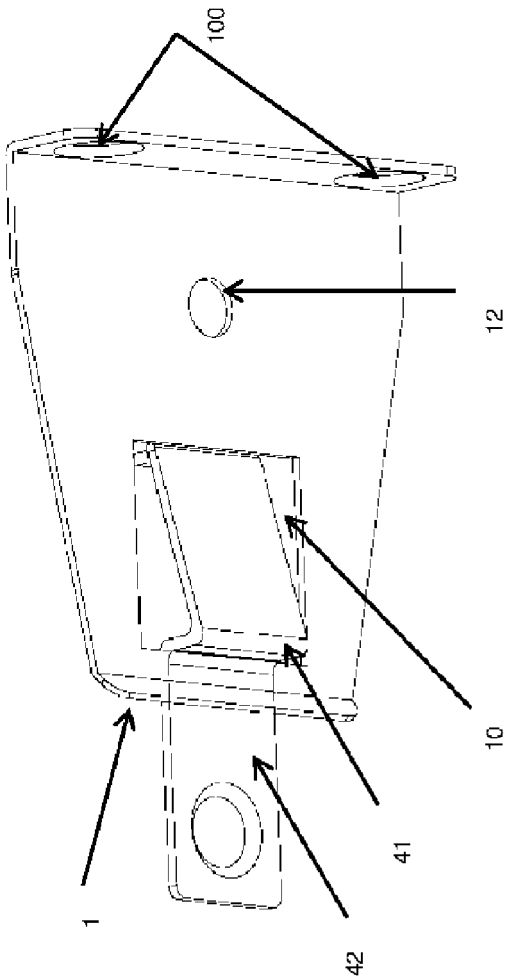


Fig. 12

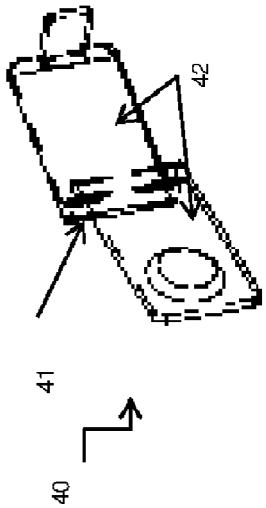


Fig. 10

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EUROPEAN SEARCH REPORT

Application Number
EP 15 00 0993

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A	GB 2 477 577 A (BARR ANDREW JOHN [GB]) 10 August 2011 (2011-08-10) * figure 8 *	1	TECHNICAL FIELDS SEARCHED (IPC) A47B F16B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	18 December 2015	Martinez Valero, J

CATEGORY OF CITED DOCUMENTS

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18-12-2015

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