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(54) Height Adjustable Carrier

(57) The present invention provides a directing element (1) for the household goods (C) comprising a carrier (2) which has at least one moving element (3) thereon, with the aim of the height adjustment of the carrier (2) without reducing the size and by preventing the abrupt movements of it. In an household good (C) comprising a directing element (1) which is fixed to at least one inner walls of its internal part, and which adjusts the height of the carrier (2) by means of the moving element (3) moving therein; the said directing element (1) comprises at least one upper channel (6) inclined upwards and at least one lower channel (6') inclined downwards in which the moving element (3) moves, and at least one joint area (8) where one each end of said channels (6, 6') meet and at least one curve (7) located on at least one of the said channels (6, 6'), in which the moving element (3) is seated.

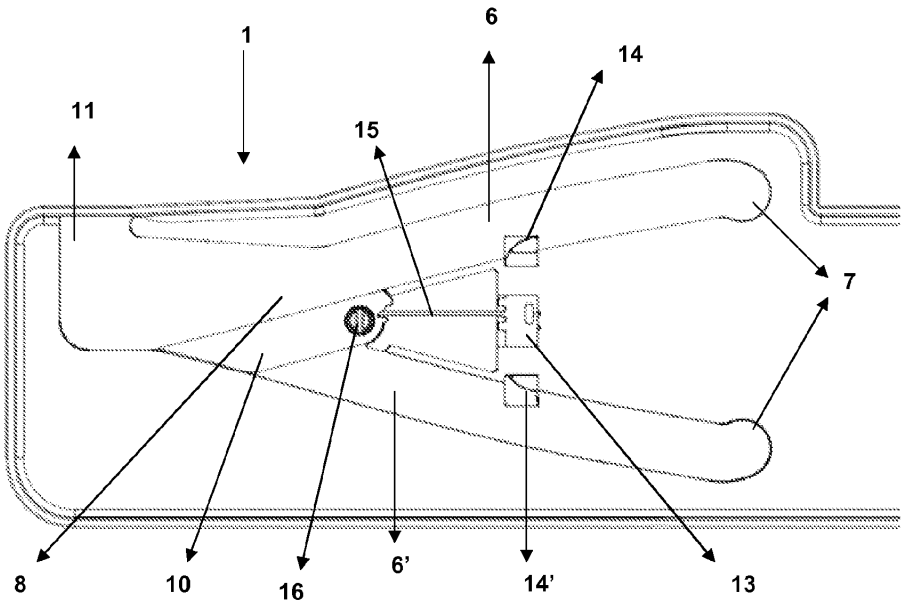

Figure 3

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Description

Technical Field

[0001] This invention relates to adjusting the height of shelf-like carriers in household goods.

Prior Art

[0002] When the carriers, which are used in household goods, located in inner surfaces of side walls of said good, and inserted into channels having a certain distance from each other, get in the said channels, their present positions are fixed. For this reason, the user cannot change the height of the carrier up and down even a bit and can only use the carrier at certain heights, as the carrier is fixed according to the location of the channels inside and thus, the user does not have the chance of adjusting the carrier to the needed height.

[0003] One of the methods used for solving this existent problem in the prior art is developed by using inclined plane principle. However, there are some problems with the inclined plane principle. For instance, if the lowering direction of a part, as well as the lifting direction, is developed by means of inclined plane principle in order to adjust the height of the carrier, the depth of the carrier may have to be decreased. Alternatively, if the lowering direction is designed to follow a perpendicular trajectory, the carrier may make an abrupt lowering movement.

[0004] The patent document US3516369 of prior art discloses a cooler shelf mechanism moving by means of a wheel and making use of the advantages that the inclined plane principle provides for lifting mechanisms. On the inner surfaces of the side walls of the cooler is located a mechanism comprising two channels parallel to each other, in which the shelf is inserted. These parallel channels are joined to channels in inclined plane form, thus providing a mechanism in the form of a parallelogram. Pins are provided on the spots these channels intersect. Therefore, the shelf moving by means of wheels is prevented from falling into the gaps at the intersection points. The above-mentioned shelf, when it is inserted in horizontal channel, can be moved backwards and forwards in the channel by means of its wheels. Due to this back and forth movement, the shelf, under the control of pins, can pass through the horizontal channels and through the channels in the form of inclined planes, thus allowing for the adjustment of height. However, in this mechanism, the horizontal route of the channel is prolonged and the shelf has to be reduced in depth.

[0005] In another patent document JP9250870 of the prior art, a mechanism for shelf height adjustment in cooler devices, utilizing inclined plane principle and using pins, is disclosed. In this mechanism, a shelf support part comprising elliptic channels thereon is located on the inner wall of the cooler device. Supplementary channels are provided to ensure the widening of channel along the horizontal and vertical axes of said channels. On the shelf itself, protrusions are provided to settle the shelf into the supplementary channels. When the shelf is positioned in the said channels on the support part, in accordance with the desired height, the protrusions on the shelf are placed in the supplementary channels.

[0006] In another prior art patent document WO03095912, a household appliance comprising a mechanism constituted by horizontal and vertical channels providing for the movement of shelf inside is described. The shelf is placed onto the horizontal channels of the mechanism in the desired height by means of the extensions located on it. When the height of the shelf is desired to be changed while in use, shelf is pulled towards the outer side of the device, and it is moved through the vertical channels by a perpendicular force applied thereon. When the shelf is at the desired height, it is moved towards the inner side, so that it gets in the horizontal channel at the desired level. In this invention, no solution is proposed for the intersection ends of vertical and horizontal channels. Thus, the balance of the shelf may be lost and the items thereon may fall down as a result of an undesired movement of the shelf during use.

[0007] In another prior art patent document US 2009308098, a shelf mechanism of a cooler device, comprising a support part movable inside the channel in the form of an inclined plane and a shelf mounted onto the said support part is disclosed. Said support part disclosed in the patent document US2009308098 is capable of moving forwards and backwards within the channels in the form of inclined planes. Therefore, the height of the self is adjusted.

Brief Disclosure of the Invention

[0008] With the present invention, in the household goods comprising a carrier, a directing element is developed for the adjustment of height by blocking the abrupt downward movement and without decreasing the depth of said carriers.

[0009] In the said household good comprising one carrier which has at least one moving element; and a directing element mounted on at least one of the inner walls of the inner body of the good, which adjusts the height of the carrier upon the movement of moving element inside; the said directing element comprises at least one upper channel inclined upwards and at least one lower channel inclined downwards in which the moving element moves, at least one joint area where one ends of these channels meet, at least one curve provided on at least one of the channels in which the moving element is inserted.

Objective of the invention

[0010] The aim of this invention is to provide a directing element for the height adjustment of carriers used in the household goods.

[0011] Another aim of this invention is to provide a di-

recting element ensuring the easy adjustment of height of the said carrier even when it is loaded.

[0012] A further aim of this invention is to provide a directing element for adjusting the height without decreasing the depth of the carrier.

[0013] Still a further aim of this invention is to provide a directing element which is intended to prevent abrupt lifting and lowering movements of moving elements during the movement.

Description of the Figures

[0014] As an example of the household good of the invention, an exemplary cooler device, an exemplary shelf used in the said device and directing element embodiments are illustrated in the accompanying figures; in which,

Figure 1 is a perspective view of directing element embodiment in a cooler device;

Figure 2 is a perspective view of an exemplary movable shelf which will be used with the directing element

Figure 3 is a side view of an exemplary directing element;

Figure 4 is a different view of the directing element in Figure 3;

Figure 5 is the view of "B" detail of the directing element given in Figure 4;

Figure 6 is a different view of the "B" detail of the directing element of Figure 4.

[0015] All the parts illustrated in figures are each assigned a reference numeral and the corresponding terms of these numbers are listed as below:

Household good	(C)
Directing element	(1)
Carrier	(2)
Moving element	(3)
Protrusion	(5)
Recession	(5')
Upper channel	(6)
Lower channel	(6')
Curve	(7)
Joint area	(8)
Arm	(10)
Space	(10')
Inlet Channel	(11)
Positioning Part	(13)
End part	(14, 14')

(continued)

Control part	(15)
Fixing bolt	(16)

Disclosure of the Invention

[0016] By this invention, a directing element, which developed for the height adjustment of carriers, used in the household goods, within the said good, is disclosed. On the edges of the carrier, which is intended to be placed in the directing element, moving elements, which ensure the adjustment of the height of the carrier by moving inside the directing element, are located.

[0017] In order to clarify the operation method of the directing element in the figures, household good is illustrated as a cooler device and the carrier is illustrated as a shelf of the cooler device on which food products are stored.

[0018] The directing element (1) of the invention is fixed to at least one wall of inner body of the exemplary household good (C) shown in Figure 1. At least one moving element (3) (shown in the form of a wheel in the accompanying figures) is located on the exemplary carrier (2) shown in Figure 2 (said carrier can be in the form of a shelf, rack, tray or basket). By placing the moving element (3) into the directing element (1), the carrier (2) is used in the good (C). When the user moves the carrier (2) by means of the moving element (3), the height of the carrier (2) can be changed.

[0019] An exemplary directing element (1), subject matter of the invention, is shown in Figure 3. Said directing element (1) comprises at least one upper channel (6) inclined upwards and at least one lower channel (6') inclined downwards. One each end of these channels (6, 6') is connected to each other at the joint area (8). A curve (7) in which the moving element (3) is seated is provided on at least one of these channels (6, 6'). (The carrier (2) can be placed into the good (C) by means of at least one inlet channel (11) located in the directing element (1)).

[0020] The directing element (1) shown in Figure 3 comprises at least one arm (10) supporting the movement of the moving element (3) between the channels (6, 6'). The arm (10) is fixed by a fixing bolt (16) at one end and angularly rotates around the axis of the said fixing bolt (16). The movement and the angle of the arm (10) is controlled by means of at least one positioning part (13) located on the directing element (1).

[0021] The positioning part (13) shown in detail in Figure 5 is linked to one end of the arm (10) by means of at least one control part (15) (the control part (15) can be in a flexible form). The said control part (15) adjusts the angle of the arm (10) by preventing the free movement of the arm (10). Besides, at least one end (14, 14') of the positioning part (13) is extended over the upper channel (6) or the lower channel (6') in accordance with the position of the arm (10).

[0022] At least one protrusion (5) is provided on the

positioning part (13), a different view of which is shown in Figure 6. The said protrusion (5) is inserted into a recession (5') located on the directing element (1) (in another embodiment of the positioning part (13), recession can be located on the positioning part (13) and protrusion on the directing element (1)). Upon application of pressure on the ends (14, 14') of the part (13) located in a way that extends towards one of the channels (6, 6'), the positioning part (13) can move from one channel (6, 6') to the other channel (6, 6'). This way, the other end (14, 14') of the part (13) can reach the other channel (6, 6'). In due course of the movement of the positioning part (13) towards the channels (6, 6'), the protrusion (5) located on this part (13) is inserted to another recession (5') located on the directing element (1). Thus, the position of the positioning part (13) is fixed.

[0023] The control part (15), linking the positioning part (13) and the arm (10), is seated in at least one space (10') on the said end of the arm (10). Thus, the position of the arm (10) is controlled only by the movement of the positioning part (13). To put it in other words, since the control part (15) which is settled to the space (10') on the said end of the arm (10) is linked to the positioning part (13), it is provided that the position of the arm (10) is changed only by the movement of the positioning part (13). The control part (15), as well as being in a single piece with the positioning part (13), can also be hot-plug.

[0024] When the moving element (3) is placed to the directing element (1), the arm (10) is at a position so as to close the end of the lower channel (6') linked with the joint area (8) as shown in Figure 3. In this position of the arm (10), one end (14) of the positioning part (13) is at a position extending towards the upper channel (6). While the moving element (3) moves in the upper channel (6), it pushes the positioning part (13) to the lower channel (6') by the pressure it applies on the end (14) extending towards this channel (6), thus, the control part (15) changes the angle of the arm (10). Therefore, the arm (10) gets such a position that it closes the end of the upper channel (6) linked with the joint area (8) (shown in Figure 4). The other end (14') of the positioning part (13) moved to the lower channel (6) gets such a position that it extends towards the lower channel (6'). When the moving element (3) is placed into the curve (7) located on the upper channel (6), the height of the carrier (2) is increased.

[0025] When the height of the carrier (2) is required to be decreased, the moving element (3) situated on the curve (7) located on the upper channel (6) is directed towards the joint area (8). The arm (10), which is positioned in such a way that it closes the end of the upper channel (6) linking to the joint area (8), can flexibly move on the axis of the fixing bolt (16) due to the pressure the moving element (3) has on it. The control part (15) linked to an end of the arm (10) works as a spring and supports the arm (10) in the said flexibility movement and makes the said end of the upper channel (6) to get back to the closed position. Thus, the moving element (3) removed from the upper channel (6) with this flexibility movement comes to the joint area (8) and the arm (10) stays at that position in which it closes the said end of the upper channel (6). Since the end of the lower channel (6') linking to the joint area (8) is open, the moving element (3) located on the joint area (8) moves through the lower channel (6') and pushes positioning part (13) to the upper channel (6) by applying pressure to the end (14') of the positioning part (13) which is extending towards this channel (6'). Thus, the control part (15) changes the angle of the arm (10) by moving it. In this way, the arm (10) closes the end of the lower channel (6') linking the joint area (8) (shown in Figure 3) and the other end (14) of the positioning part (13) gets the position extending to the upper channel (6). When the moving element (3) is placed onto the curve (7) located in the lower channel (6), the height of the carrier (2) is decreased.

Claims

1. A household good (C) comprising a carrier (2) which has at least one moving element (3); a directing element (1) adjusting the height of the carrier (2) through a moving element (3) moving inside and which is fixed onto at least one wall of its interior body, **characterized in that** the said directing element (1) comprises

   - at least one upper channel (6) inclined upwards and at least one lower channel (6') inclined downwards, in which the moving element (3) moves,
   - at least one joint area (8) where one each end of these channels (6, 6') join,
   - at least one curve (7) located on at least one of the said channels (6, 6') and in which the moving element (3) is seated.
   - at least one arm (10) fixed by means of at least one fixing bolt (16) on one end, which is movable angularly on the axis of said fixing bolt (16) and which closes the end of the upper channel (6) or lower channel (6') related to the joint area (8),
   - and a positioning part (13), one end (14, 14') of which is extending towards the upper channel (6) or towards lower channel (6') in accordance with the position of the arm (10); movable from one channel (6, 6') to the other (6', 6) by means of the pressure of the moving element (3) on the said end (14, 14'); comprising at least one control part (15) seated in at least one space (10') located on one end of the arm (10); at least one positioning element (13) adjusting the angular position of the said arm (10) through a move from one channel (6, 6') to the other (6, 6') and by means of the control part (15).

2. A household good (C) according to the Claim 1, **characterized in that** it comprises at least one pro-

trusion (5) on the positioning part (13), for fixing the position of positioning part (13).

3. A household good (C) according to the Claim 2, **characterized in that** it comprises at least one recession (5') in which the said protrusion is seated, on the directing element (1).

4. A household good (C) according to the Claim 1, **characterized in that** arm (10) is in such a position that it closes the end of upper channel (6) related to joint area (8) and the end (14') of the part (13) extending towards the lower channel (6) when the moving element (3) is settled in the curve (7) located on the upper channel (6).

5. A household good (C) according to the Claim 1, **characterized in that** the arm (10) is in a position to close the end of lower channel (6') related to joint area (8) and the other end (14) of the part (13) extending towards the upper channel (6) when the moving element (3) is settled in the curve (7) located on the lower channel (6').

6. A household good (C) according to the Claim 1, **characterized in that** the control part (15) is in a single piece with the positioning part (13).

7. A household good (C) according to the Claim 1, **characterized in that** the control part (15) is in a form of mountable and demountable.

8. A household good (C) according to the Claim 1, **characterized in that** the control part (15) is in an elastic form.

9. A household good (C) according to the Claim 1, **characterized in that** the directing element (1) comprises at least one inlet channel (11) through which the carrier (2) is inserted into the good (C).

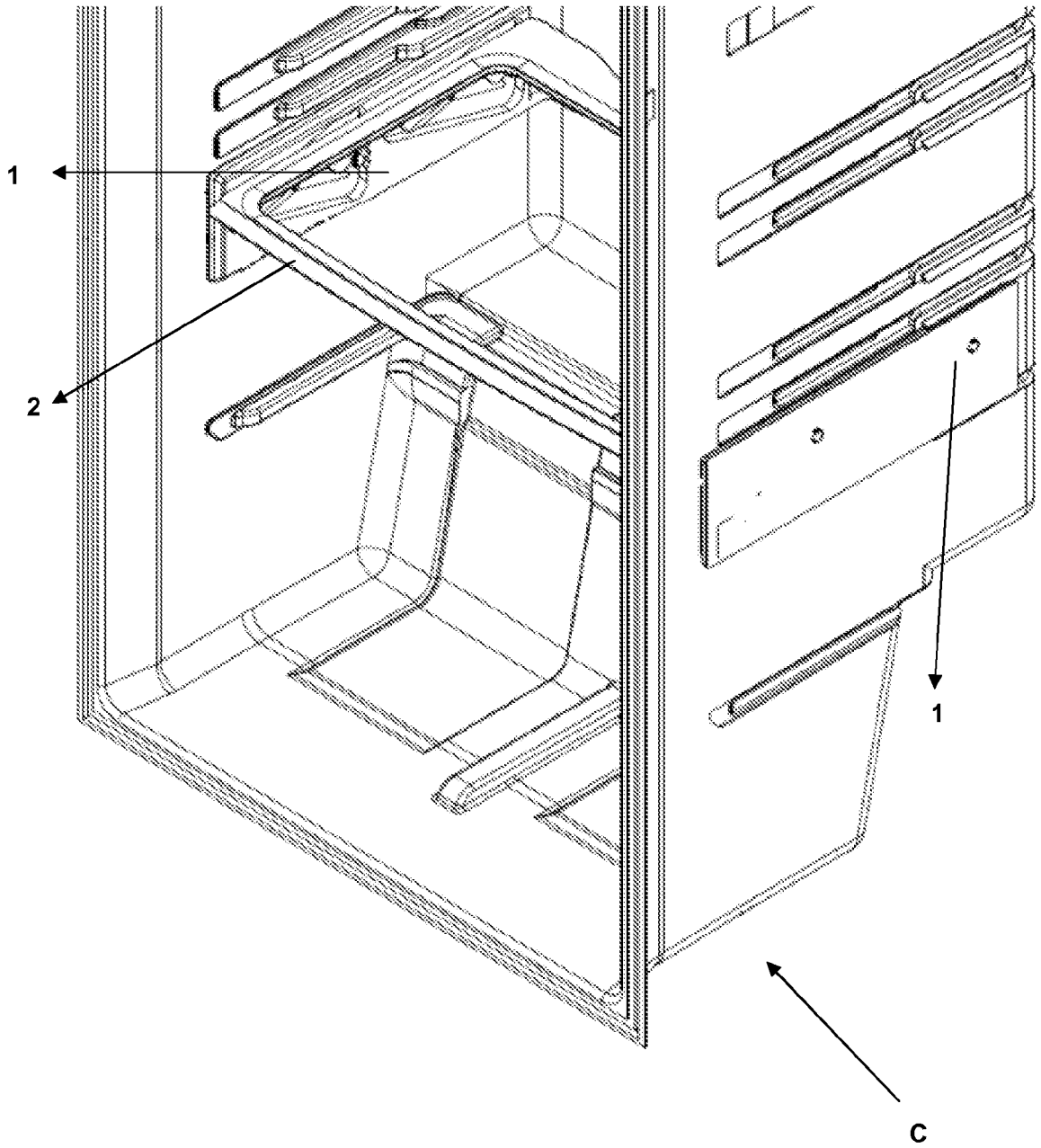

Figure 1

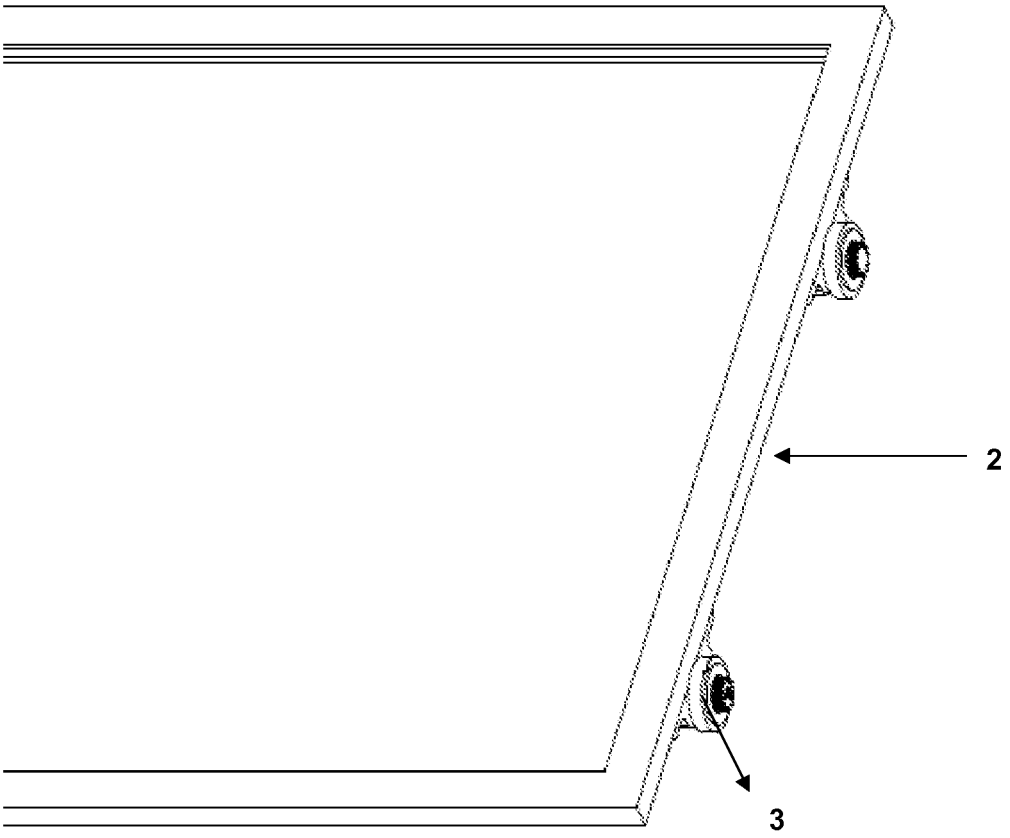

Figure 2

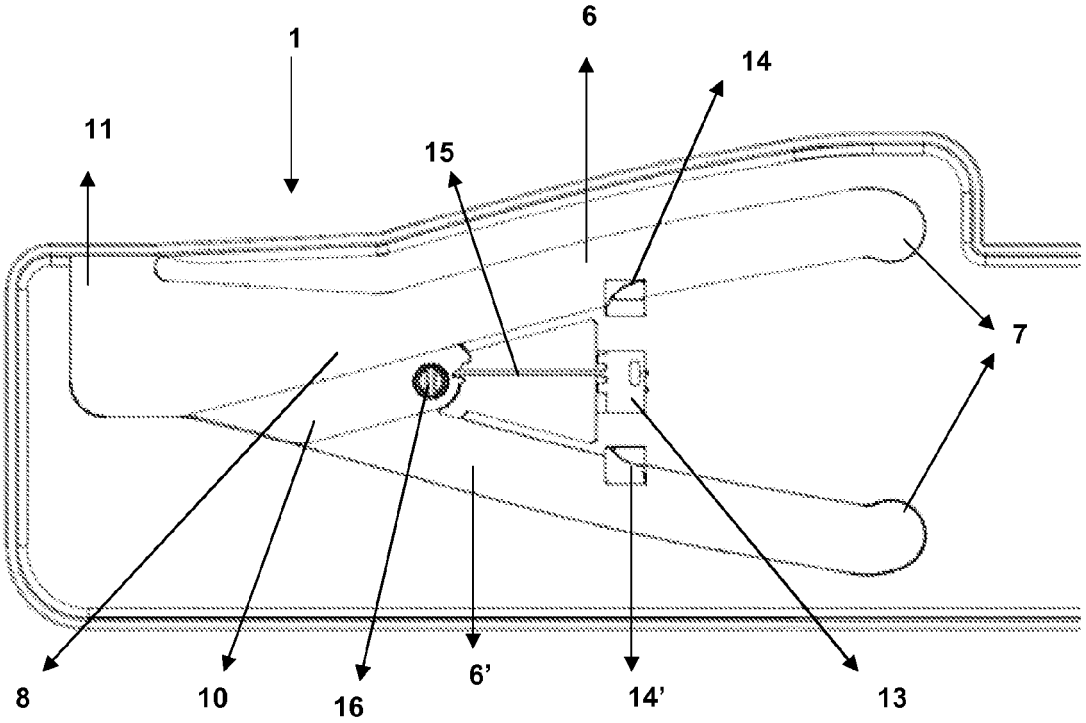

Figure 3

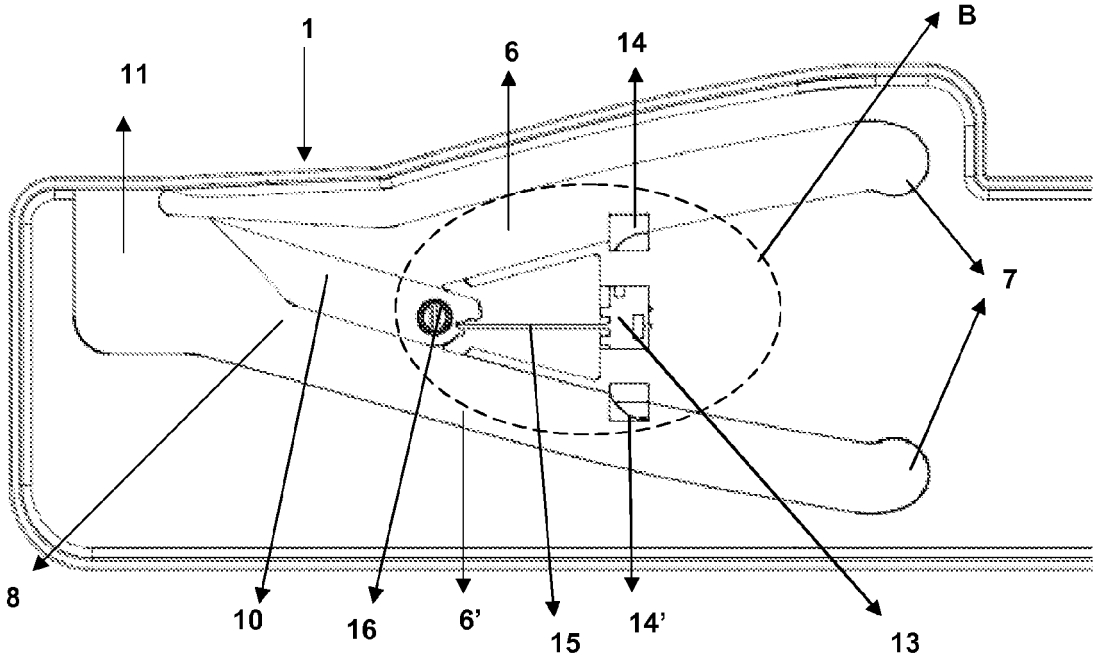

Figure 4

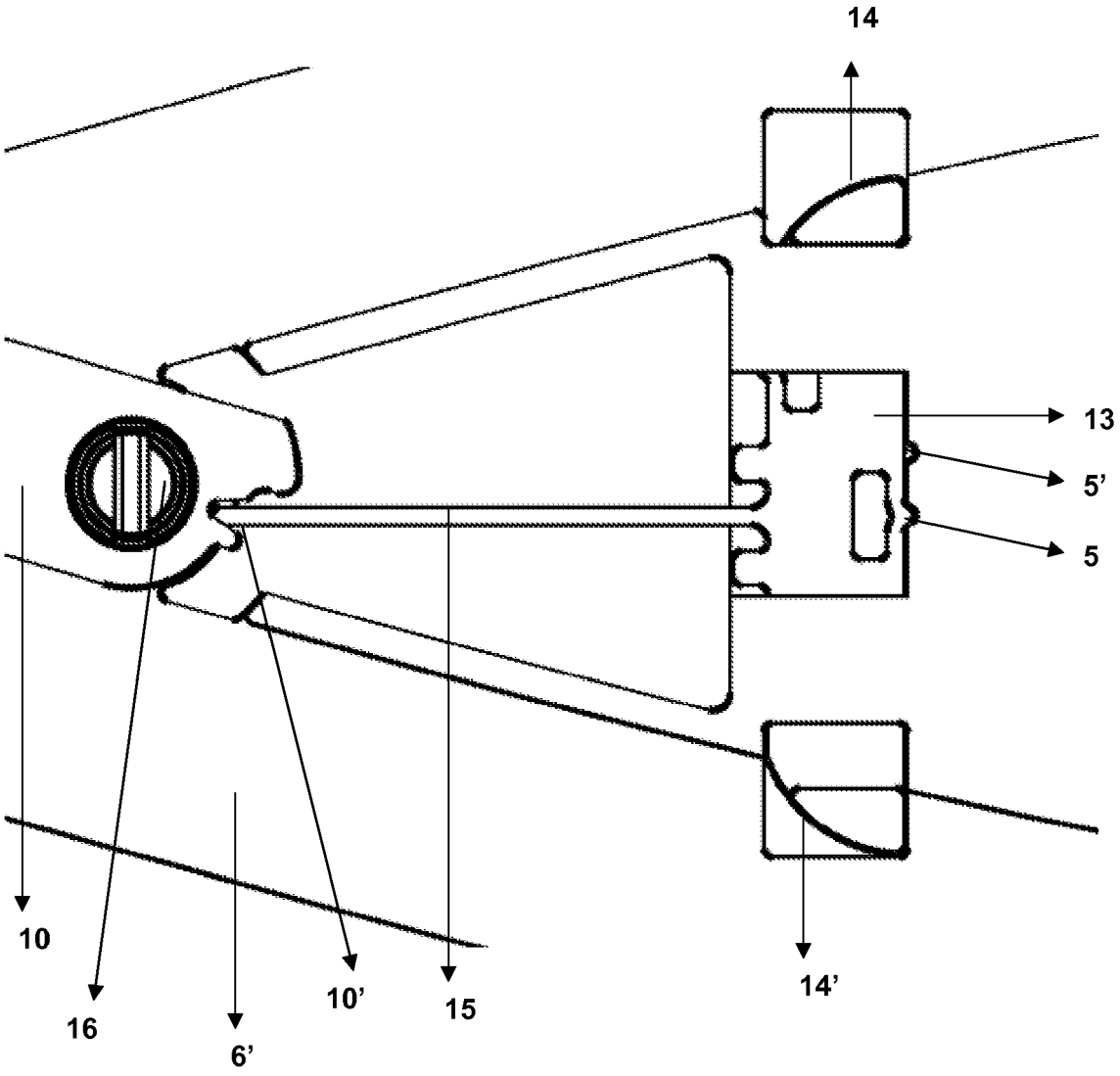

Figure 5

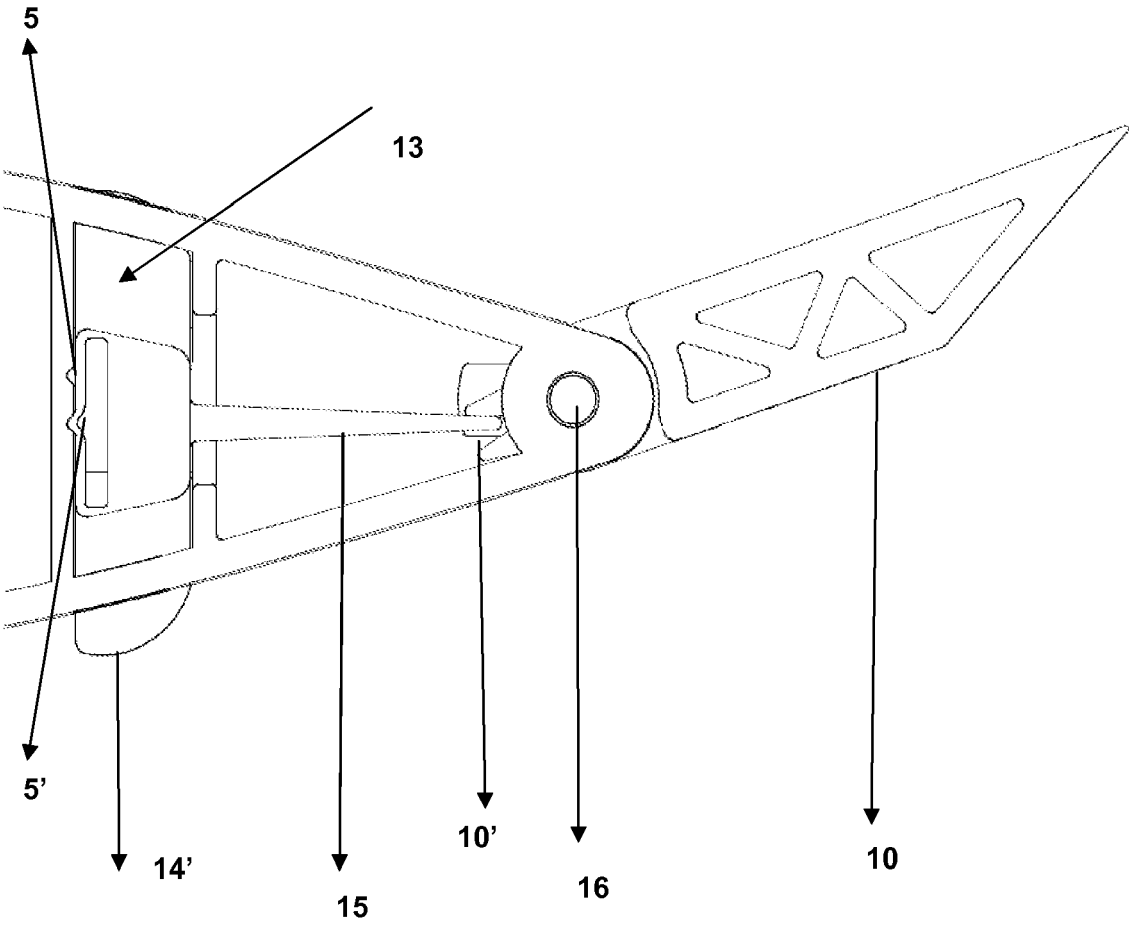

Figure 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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