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(54) **A REFRIGERATOR COMPRISING A DOOR WITH A HANDLE**

KÜHLSCHRANK MIT EINER TÜR MIT EINEM GRIFF

RÉFRIGÉRATEUR COMPRENANT UNE PORTE AVEC UNE POIGNÉE

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Description

[0001] The present invention relates to a refrigerator comprising a handle, the assembly of which on the door is facilitated.

[0002] For closing the interior volume of the cooling device, at least one door is disposed in the refrigerators and access into the interior volume of the cooling device is provided by the opening/closing of the door. The process of opening/closing of the door is provided by means of a handle disposed on the door. The state of the art door handles are fixed on the door generally by using more than one fixing element such as screw etc. Therefore, labor time increases and hence production costs increase.

[0003] In the state of the art Korean Patent Application No. KR20010061674, a refrigerator is described comprising a door handle wherein the number of the components used during the assembly is decreased and thus the costs in production are provided to be reduced.

[0004] In the state of the art Japanese Patent Application No. JP2004143793, a handle is described which can be mounted and dismounted without using a tool and assembled tightly on the surface it will be used.

[0005] US-A-2 731 662 describes an oven door handle which is assembled to the oven door panel by means of spring fasteners.

[0006] A refrigerator according to the preamble of claim 1 is known, for example, from US-A1-2006/0032023.

[0007] The aim of the present invention is the realization of a refrigerator comprising a handle, the assembly of which on the door is facilitated. The refrigerator realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a door providing access into the cabinet, having an inner wall and an outer wall, a handle fixed on the door and serves to open/close the door and a fixing element which serves to fasten the handle on the door. Two cut-outs, placed at intervals, are disposed on the outer wall. The fixing element comprises a body, two locking elements having two legs located in the body, rotating around the end whereat they are fastened to the body and oppositely facing each other and two feet disposed at the end of each leg and which extend between the outer wall and the inner wall by passing through the cut-out, a channel disposed on at least one leg and a locking housing disposed on at least one leg and which extends almost perpendicularly to the channel. The fixing element furthermore comprises a latch disposed between the legs, which seats into the channel in the free position and into the locking housing in the locking position whereto it is brought by being rotated. When the latch is in the free position, the legs are almost adjacent to each other. While being brought to the locking position, the latch pushes the legs and provides the legs to rotate around the point they are connected. Thus the legs move away from each other and the feet are provided to bear against the edge of the cut-outs through which they pass. By the bearing of the feet against the edge of the cut-outs, the feet are provided to grasp the outer wall. Thus, the handle is provided to be fixed on the door by means of the fixing element.

[0008] In an embodiment of the present invention, the fixing elements are situated on the body such that the feet face opposite directions to each other.

[0009] In another embodiment of the present invention, the cut-outs are situated on the outer wall so as to be one over the other. Therefore, while the latch is brought from the free position to the locking position, one of the feet moves upwards and the other downwards.

[0010] In another embodiment of the present invention, the refrigerator comprises a support which is mounted on the inner surface of the outer wall and on which at least some portion of the feet bear when the latch is brought to the locking position. The support is fastened to the inner surface of the outer wall before heat insulating material is injected between the inner wall and the outer wall.

[0011] In an embodiment of the present invention, the refrigerator comprises more than one pin which is disposed on the body and which provides each locking element to be fastened to the body. While the latch is brought from the free position to the locking position, the locking elements rotate around the pin.

[0012] In the refrigerator of the present invention, the assembly of the handle on the door is facilitated and thus advantage is provided in labor and production costs.

[0013] The refrigerator realized in order to attain the aim of the present invention is illustrated in the attached claims, where:

Figure 1 - is the perspective view of a refrigerator.
Figure 2 - is the perspective view of a door and a handle.
Figure 3 - is the sideways view of a handle and a locking element.
Figure 4 - is the perspective view of a handle and a body.
Figure 5 - is the cross-sectional view of the locking element and the door when the latch is in the free position.
Figure 6 - is the cross- sectional view of the locking element and the door when the latch is in the locking position.
Figure 7 - is the cross-sectional view of the locking element, the channel and the locking housing.

[0014] The elements illustrated in the figures are numbered as follows:

1. Refrigerator
2. Cabinet
3. Inner wall
4. Outer wall
5. Door
6. Handle

7. Cut-out
8. Body
9. Leg
10. Foot
11. Locking element
12. Channel
13. Locking housing
14. Latch
15. Fixing element
16. Support
17. Hole
18. Pin

[0015] The refrigerator (1) comprises a cabinet (2) wherein the foodstuffs to be cooled are placed, a door (5) that provides access into the cabinet (2), having an inner wall (3) and an outer wall (4) between which heat insulating material is injected and at least one handle (6) that provides the door (5) to be opened/closed.

[0016] The refrigerator (1) of the present invention comprises two cut-outs (7) situated on the outer wall (4) such that a distance remains therebetween.

[0017] The refrigerator (1) of the present invention furthermore comprises a fixing element (15) having

- a body (8) disposed between the handle (6) and the outerwall (4),
- two locking elements (11), each having a leg (9) disposed in the body (8), connected to the body (8) so as to rotate around the point to which it is connected and a foot (10) disposed at the end of the leg (9) and which extends towards between the outer wall (4) and the inner wall (3) by passing through the cut-out (7),
- a channel (12) disposed on at least one leg (9) and which extends in the same direction with the legs (9),
- a locking housing (13) disposed on at least one leg (9), connected to the channel (12) and which extends almost vertically to the channel (12) and
- a latch (14) situated on the body (8) so as to remain between the legs (9) and rotate around its own axis, having a free position wherein it is seated into the channel (12) and which allows the two opposite edges of the legs (9) to overlap and a locking position wherein it is seated into the locking housing (13) by being rotated and which provides the legs (9) to be opened by rotating around the point they are connected and each foot (10) to bear against the edge of the cut-out (7) through which it passes.

[0018] By means of the fixing element (15), the handle (6) is fastened on the outer wall (4). During the assembly of the handle (6) on the outer wall (4), the fixing element (15) is first fastened on the handle (6) and then the fixing element (15) is fixed on the outer wall (4).

[0019] When the latch (14) is in the free position, the feet (10) are passed through the cut-outs (7). The width of the cut-outs (7) is greater than the width of the feet (10). When the latch (14) is in the free position, the edges of the legs (9), which oppositely face each other, contact each other. The latch (14) is almost rectangular shaped and when in the free position, the long edge of the latch (14) extends parallel to the channel (12). The latch (14) is brought from the free position to the locking position by being rotated clockwise or counterclockwise around its own axis almost 90 degrees. The latch (14), which is seated into the channel (12) in the free position, is seated into the locking housing (13) when brought to the locking position. While the latch (14) is brought from the free position to the locking position, the walls of the latch (14) that contact the legs (9) push the legs (9). Since the legs (9) are situated so as to rotate around the point they are connected on the body (8), the legs (9) also move with the movement of the latch (14). With the rotation movement of the latch (14), the legs (9) move away from each other and the feet (10) bear against the edge of the cut-outs (7) by moving inside the cut-outs (7). When the latch (14) changes to the locking position, the short edge of the latch (14) bears against the legs (9).

[0020] Since the latch (14) is situated between the legs (9), the legs (9) move in the opposite directions to each other with the movement of the latch (14). Thus the feet (10) move away from each other and the distance therebetween is widened. The movement of the feet (10) ends by the feet (10) bearing against the edge of the cut-outs (7). When changed to the locking position, the latch (14) is compressed by being seated into the locking housing (13). The feet (10) also bear against the edge of the cut-outs (7) and remain motionless between the outer wall (4) and the inner wall (3). Thus, the handle (6) is provided to be fastened on the door (5) by means of the fixing element (15). Thus, since the assembly of the handle (6) on the door (5) is realized without requiring any additional tool such as screw etc., labor is facilitated and cost advantage is provided.

[0021] In an embodiment of the present invention, the fixing elements (11) are situated on the body (8) such that the feet (10) face opposite directions to each other. When the latch (14) is brought from the free position to the locking position, the feet (10) move in the opposite directions to each other.

[0022] In another embodiment of the present invention, the cut-outs (7) are situated on the outer wall (4) so as to be one over the other and such that a distance remains therebetween in the vertical axis. When the latch (14) is in the free position, one of the feet (10) is passed through the cut-out (7) situated below and the other foot (10) through the cut-out (7) situated above. While the latch (14) is brought to the locking position, the foot (10) that is situated into the cut-out (7) situated below moves downwards and the foot (10) that is situated into the cut-out (7) situated above moves upwards.

[0023] In another embodiment of the present invention, the refrigerator (1) comprises a support (16) which is fastened on the inner surface of the outer wall (4) and on which at least some portion of the feet (10) bear when

the latch (14) is brought to the locking position. The support (16) is fastened to the inner surface of the outer wall (4) before heat insulating material is injected between the inner wall (3) and the outer wall (4). Thus, a suitable volume is created wherein the feet (10) can extend between the inner wall (3) and the outer wall (4) by being passed through the cut-outs (7). On the other hand, the heat insulating material is prevented from protruding from the cut-outs (7) while being injected between inner wall (3) and the outer wall (4). Moreover, by means of the support (16) produced preferably from a metal material, the surface against which the feet (10) bear in the heat insulating material is strengthened. When the latch (14) is brought to the locking position, the feet (10) bear against the support (16). In another embodiment of the present invention, the refrigerator (1) comprises at least one hole (17) which provides the body (8) to be fastened to the handle (6). The body (8) is fixed on the handle (6) by passing a fixing means such as screw etc. through the hole (17).

[0024] In another embodiment of the present invention, the refrigerator (1) comprises a pin (18) which provides each locking element (11) to be fastened on the body (8). While the latch (14) is brought from the free position to the locking position, the legs (9) rotate around the pins (18). By means of the present invention, the handle (6) is easily assembled on the door (5) and labor and cost advantages are provided.

Claims

1. A refrigerator (1) comprising a cabinet (2) wherein the foodstuffs to be cooled are placed, a door (5) that provides access into the cabinet (2), having an inner wall (3) and an outer wall (4) between which heat insulating material is injected and at least one handle (6) that provides the door (5) to be opened/closed, **characterized by** two cut-outs (7) situated on the outer wall (4) such that a distance remains therebetween and a fixing element (15) having

   - a body (8) disposed between the handle (6) and the outer wall (4),
   - two locking elements (11), each having a leg (9) disposed in the body (8), connected to the body (8) so as to rotate around the point to which it is connected and a foot (10) disposed at the end of the leg (9) and which extends between the outer wall (4) and the inner wall (3) by passing through the cut-out (7),
   - a channel (12) disposed on at least one leg (9) and which extends in the same direction as the legs (9),
   - a locking housing (13) disposed on at least one leg (9), connected to the channel (12) and which extends almost perpendicularly to the channel (12) and
   - a latch (14) situated on the body (8) so as to remain between the legs (9) and rotate around its own axis, having a free position wherein it is seated into the channel (12) and which allows the two opposite edges of the legs (9) to overlap and a locking position wherein it is seated into the locking housing (13) by being rotated and which provides the legs (9) to be opened by rotating around the point they are connected and each foot (10) to bear against the edge of the cut-out (7) through which it passes.

2. A refrigerator (1) as in Claim 1, **characterized by** the locking elements (11) situated on the body (8) such that the feet (10) face opposite directions to each other.

3. A refrigerator (1) as in Claim 1 or 2, **characterized by** the cut-outs (7) situated on the outer wall (4) so as to be one over the over and such that a distance remains therebetween in the vertical axis.

4. A refrigerator (1) as in any one of the above claims, **characterized by** the support (16) which is fastened on the inner surface of the outer wall (4) and against which at least some portion of the feet (10) bear when the latch (14) is brought to the locking position.

5. A refrigerator (1) as in any one of the above claims, **characterized by** at least one hole (17) that provides the body (8) to be fastened to the handle (6).

6. A refrigerator (1) as in any one of the above claims, **characterized by** a pin (18) which provides each locking element (11) to be fastened on the body (8).

Patentansprüche

1. Kühlschrank (1), umfassend einen Schrank (2), in den zu kühlende Lebensmittel gelegt werden, eine Tür (5), die Zugriff auf das Innere des Schranks (2) bietet, aufweisend eine Innenwand (3) und eine Außenwand (4), zwischen die Wärme dämmendes Material gespritzt ist, und wenigstens einen Griff (6), der es ermöglicht, die Tür (5) zu öffnen/schließen, **gekennzeichnet durch** zwei Ausnehmungen (7), die an der Außenwand (4) angeordnet sind, derart, dass ein Abstand dazwischen verbleibt, und ein Befestigungselement (15) aufweisend

   • einen Körper (8), der zwischen dem Griff (6) und der Außenwand (4) angeordnet ist,
   • zwei Verriegelungselemente (11), die jeweils ein Bein (9) aufweisen, das am Körper (8) angeordnet sind und derart mit dem Körper (8) verbunden ist, dass es sich um den Punkt zu drehen, an dem es verbunden ist, und einen Fuß

(10), der am Ende des Beins (9) angeordnet ist und sich derart zwischen der Außenwand (4) und der Innenwand (3) erstreckt, dass er **durch** die Ausnehmung (7) verläuft,

• einen Kanal (12), der an wenigstens einem Bein (9) angeordnet ist und sich in derselben Richtung wie die Beine (9) erstreckt,

• ein Verriegelungsgehäuse (13), das an wenigstens einem Bein (9) angeordnet ist und mit dem Kanal (12) verbunden ist und sich nahezu senkrecht zum Kanal (12) erstreckt, und

• einen Riegel (14), der derart am Körper (8) angeordnet ist, dass er zwischen den Beinen (9) bleibt und sich um seine eigene Achse dreht und eine freie Stellung, in der er im Kanal (12) sitzt und in der die zwei gegneüberliegenden Kanten der Beine (9) einander überlagern können, und eine Verriegelungsstellung aufweist, in der er im Verriegelungsgehäuse (13) sitzt, indem er gedreht wird, und in der es ermöglicht wird, dass sich die Beine (9) öffnen, indem sie sich um den Punkt drehen, an dem sie verbunden sind, und die einzelnen Füße (10) an der Kante der Ausnehmung (7) anliegen, **durch** die sie hindurch treten.

2. Kühlschrank (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Verriegelungselemente (11) derart am Körper (8) angeordnet sind, dass die Füße (10) in zueinander entgegengesetzte Richtungen weisen.

3. Kühlschrank (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Ausnehmungen (7) derart an der Außenwand (4) angeordnet sind, dass sie eine über der anderen liegen, und derart, dass ein Abstand zwischen ihnen an der vertikalen Achse verbleibt.

4. Kühlschrank (1) nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** den Träger (16), der an der Innenfläche der Außenwand (4) befestigt ist und an dem wenigstens ein Abschnitt der Füße (10) anliegt, wenn der Riegel (14) in die Verriegelungsstellung gebracht wird.

5. Kühlschrank (1) nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** wenigstens eine Öffnung (17), die es ermöglicht, den Körper (8) am Griff (6) zu befestigen.

6. Kühlschrank (1) nach einem der vorangehenden Ansprüche, **gekennzeichnet durch** einen Zapfen (18), der es ermöglicht, das Verriegelungselement (11) am Körper (8) zu befestigen.

Revendications

1. Un réfrigérateur (1) comprenant une armoire (2) dans laquelle les aliments à refroidir sont placés, une porte (5) qui permet l'accès dans l'armoire (2) et qui présente une paroi intérieure (3) et une paroi extérieure (4) entre lesquelles un isolant thermique est injecté, et au moins une poignée (6) qui permet à la porte (5) d'être ouverte/fermée, **caractérisé par** deux découpes (7) situées sur la paroi extérieure (4) de telle sorte qu'une distance reste entre elles et un élément de fixation (15) qui présente

• un corps (8) disposé entre la poignée (6) et la paroi extérieure (4),

• deux éléments de verrouillage (11), chacun présentant une jambe (9) qui est disposée dans le corps (8) et connectée au corps (8) de manière à tourner autour du point auquel elle est connectée, et un pied (10) qui est disposé à l'extrémité de la jambe (9) et qui s'étend entre la paroi extérieure (4) et la paroi intérieure (3) en passant à travers la découpe (7),

• un canal (12) qui est disposé sur au moins une jambe (9) et qui s'étend dans la même direction que les jambes (9),

• un logement de verrouillage (13) qui est disposé sur au moins un pied (9), qui est connecté au canal (12) et qui s'étend presque perpendiculairement au canal (12) et

• un verrou (14) qui est situé sur le corps (8) de manière à rester entre les jambes (9) et tourner autour de son axe, qui présente une position libre où il est placé dans le canal (12) et qui permet aux deux bords opposés des jambes (9) de se chevaucher et une position de verrouillage où il est placé dans le logement de verrouillage (13) en étant tourné et qui permet aux jambes (9) d'être ouvertes en tournant autour du point auquel elles sont connectées et en outre permet à chaque pied (10) de s'appuyer sur le bord de découpe (7) à travers il passe.

2. Un réfrigérateur (1) selon la Revendication 1, **caractérisé par** les éléments de verrouillage (11) situés sur le corps (8) de telle sorte que les pieds (10) font face à des directions opposées.

3. Un réfrigérateur (1) selon la Revendication 1 ou 2, **caractérisé par** les découpes (7) situées sur la paroi extérieure (4) de manière à être l'une au-dessus de l'autre et de telle sorte qu'une distance reste entre elles dans l'axe vertical.

4. Un réfrigérateur (1) selon l'une quelconque des revendications précédentes, **caractérisé par** le support (16) qui est fixé sur la surface intérieure de la paroi extérieure (4) et sur lequel au moins une partie

des pieds (10) s'appuie lorsque le verrou (14) est changé à la position de verrouillage.

5. Un réfrigérateur (1) selon l'une quelconque des revendications précédentes, **caractérisé par** au moins un trou (17) qui permet la fixation du corps (8) à la poignée (6).

6. Un réfrigérateur (1) selon l'une quelconque des revendications précédentes, **caractérisé par** une goupille (18) qui permet la fixation de chaque élément de verrouillage (11) sur le corps (8).

Figure 1

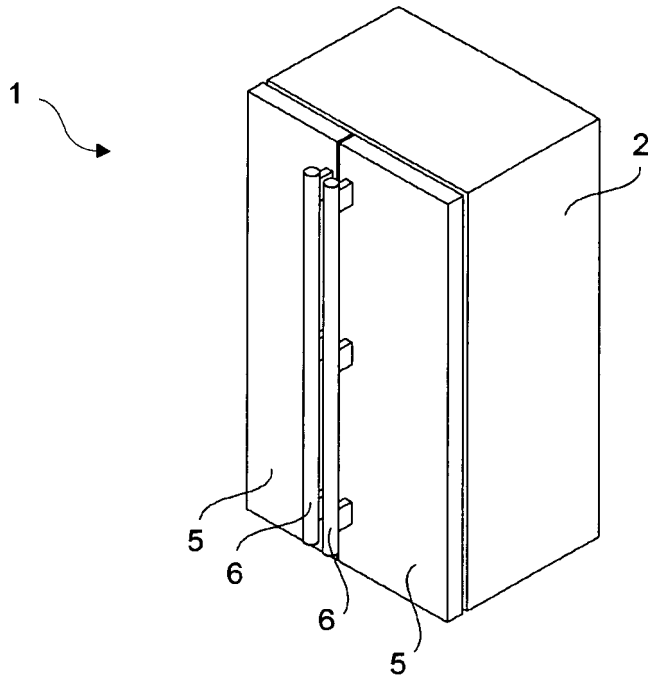


Figure 2

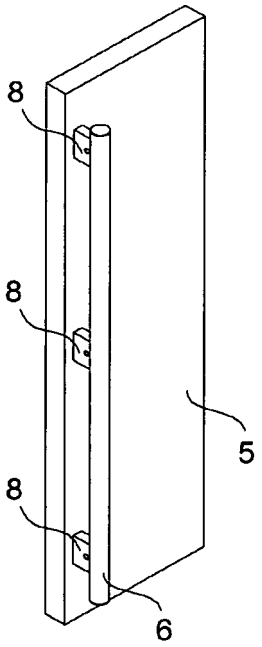


Figure 3

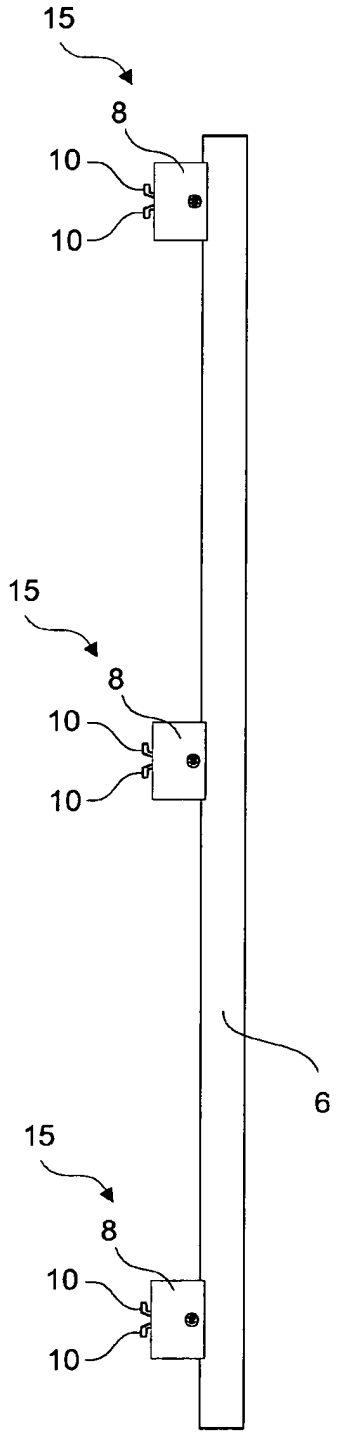


Figure 4

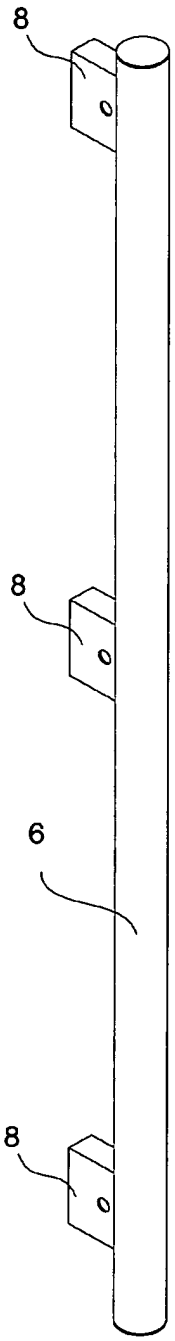


Figure 5

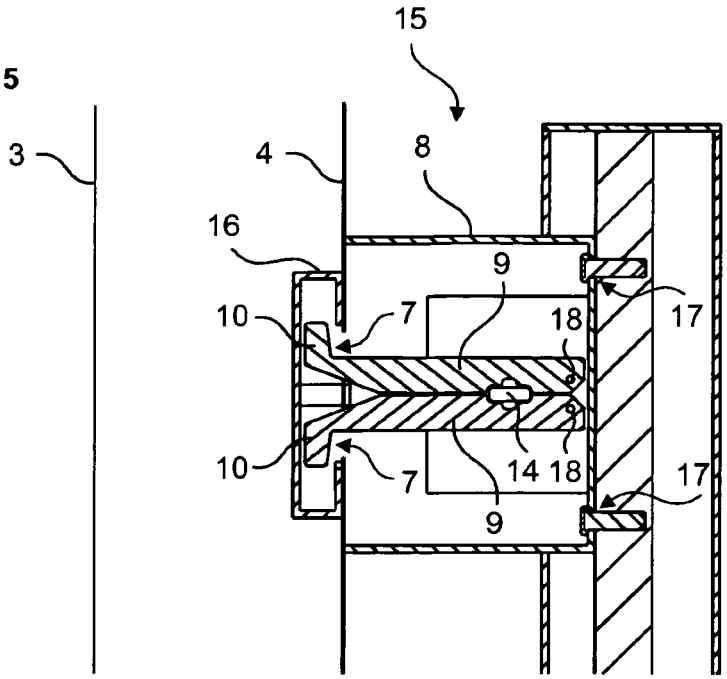


Figure 6

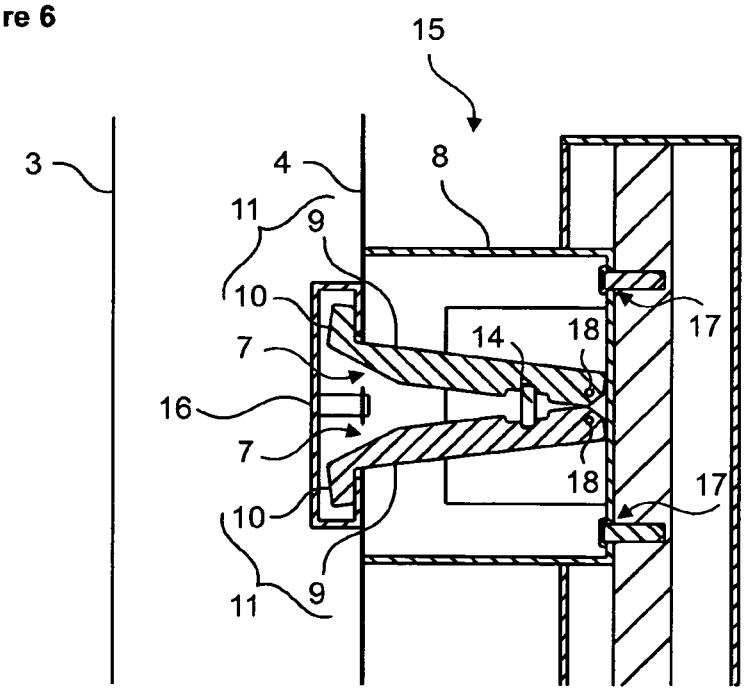
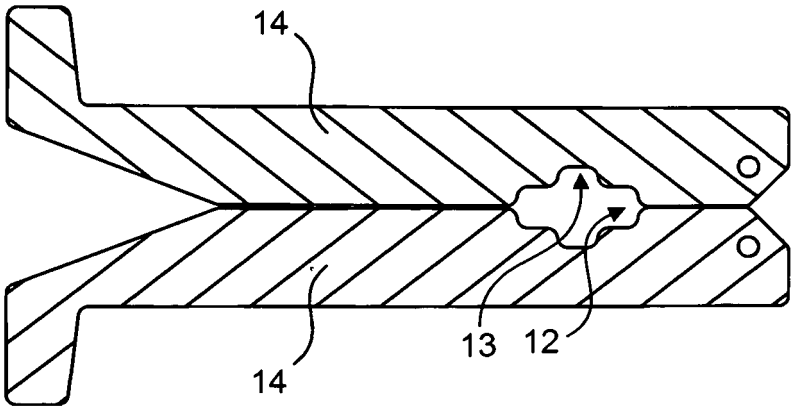


Figure 7



REFERENCES CITED IN THE DESCRIPTION

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