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(54) **A COOLING DEVICE COMPRISING AN EASILY MOUNTABLE HANDLE**

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APPAREIL FRIGORIQUE COMPRENANT UNE POIGNÉE DE PORTE FACILE À MONTER

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Description

[0001] The present invention relates to a cooling device comprising a handle that is mounted onto the door, providing it to be opened/closed.

[0002] In cooling devices, for example in refrigerators, doors, which allow access to the inside of the cooling device and which separate the cooling compartment from the outer environment, are located. The said doors are opened and closed by means of a handle. The state of the art handles are fixed on the door generally by using more than one fixing element such as screw etc. and an external tool. For this reason, both labor and component costs increase.

[0003] In the state of the art Korean Patent Application No. KR20010061674, a cooling device is described comprising a handle wherein the number of the components used during the assembly is decreased and thus the costs in production are provided to be reduced. In this embodiment, the handle is mounted to the door by means of a bidirectional intermediate member.

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

[0005] In the state of the art Korean Patent Application No. KR20070065743, a cooling device is described comprising a handle and a door which can be snap-fittingly mounted to each other by means of special structures on both.

[0006] In the state of the art Korean Patent Document No. KR100719254, a cooling device is described having at least one keyhole-shaped housing on the door thereof. The protrusion on the handle is inserted into the door through the part of the housing with bigger diameter and is slid into the part with smaller diameter. In this embodiment, the diameter of the end part of the protrusion is bigger than the part of the housing with smaller diameter, and the diameter of the lower part of the protrusion is smaller than the part of the housing with smaller diameter. Thus, while the protrusion may move from the part of the housing with bigger diameter towards the part with smaller diameter, it is prevented from getting out of the housing.

US 3 426 385 describes a member adapted to be secured to a panel surface by a screw element, said member having resilient tongues which can hold a headed stud. A handle that is mounted with a headed screw is also known from US 2 621 357. AU 2008 216 999 A1 discloses a door handle wherein a base member and a mounting member are adapted to be slidably assembled through corresponding holes.

The aim of the present invention is the realization of a cooling device comprising a handle, the assembly of which on the body is facilitated. The cooling device realized in order to attain the aim of the present invention, explicated in the first claim and respective claims thereof,

comprises a door providing access into the cabinet, a handle providing the opening/closing of the door and at least one locking mechanism providing the handle to be fixed to the door. In the locking mechanism, a ring-shaped retainer is provided at the end of the support member on the handle and a detent means entering into the retainer is provided in the housing on the door. According to the present invention, the locking mechanism furthermore comprises a carrier. The detent means is seated onto the carrier. When the handle is mounted to the door, the retainer bears against the carrier. According to the present invention, the detent means comprises two extensions that extend upwards from two sides of the carrier. The extensions apply pressure onto the sides of the retainer from their inner surfaces and prevent the retainer from moving in the horizontal direction.

In another embodiment of the present invention, a stopper is arranged between the extensions. In this embodiment, the stopper stretches backwards and thereby does not prevent the downward movement of the retainer while the detent means passes through the opening, and returns to its initial position and bears against the retainer when the detent means entirely grasps the detent means and is seated onto the carrier. In another embodiment of the present invention, the stopper is composed of two parts, an upright member and a barrier. The upright member extends upwards from the carrier along the extensions. One end of the barrier is attached to the upright member, while the other end thereof is free. During the mounting of the handle to the door, on one hand the retainer grasps the detent means from sides, on the other hand the retainer pushes the stopper backwards from the free end of the barrier. When the retainer entirely locks onto the detent means and is seated on the surface of the carrier, the stopper returns to its initial position and the barrier covers the retainer and prevents it from dislocating.

[0007] In another embodiment of the present invention, the barrier is formed as a right trapezoid. The retainer more easily pushes the stopper backwards by means of the inclined end of the barrier that is attached to the upright member from its other end.

[0008] In another embodiment of the present invention, the retainer is formed as a hollow half truncated cone. In this embodiment, the retainer widens from top to bottom and the distance between the extensions decreases from the carrier towards the ends. Thus, the locking process is more easily realized since the extensions do not touch the retainer until they entirely enter into the retainer.

[0009] In another embodiment of the present invention, a cavity is arranged on the surface of the support member facing the door so as to be right behind the retainer. The movement capacity of the detent means through the retainer by means of this cavity is increased and the mounting of the handle to the door is facilitated.

[0010] In another embodiment of the present invention, all the components of the locking mechanism are produced from plastic. Thus, the components touching each

other stretch more easily and the mounting is facilitated. Moreover, component costs decrease.

[0011] In another embodiment of the present invention, the cooling device comprises one support member on each of the lower and upper ends of the handle, two housings positioned so as to align with the support members and two locking mechanisms for each housing - support member pair. In this embodiment, a total of four locking mechanisms are used for each handle.

[0012] In the cooling device of the present invention, the handle is easily mounted onto the door. No fixing member is needed during the assembly process. Thus, component and labor costs are decreased.

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

Figure 1 - is the schematic view of a cooling device.

Figure 2 - is the perspective view of the door and the handle before the handle is mounted to the door.

Figure 3 - is the perspective view of the door and the handle.

Figure 4 - is the perspective view of the handle, the support member and the locking mechanism.

Figure 5 - is the view of detail A in Figure 4.

Figure 6 - is the perspective view of the handle and the support member.

Figure 7 - is the partial view of the handle, the support member and the locking mechanism.

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

1. Cooling device
2. Cabinet
3. Door
4. Handle
5. Housing
6. Support member
7. Locking mechanism
8. Retainer
9. Opening
10. Detent means
11. Extension
12. Stopper
13. Carrier
14. Upright member
15. Barrier
16. Cavity

[0015] The cooling device (1) comprises at least one cabinet (2) wherein the foodstuffs to be cooled are placed, at least one door (3) providing access into the cabinet (2), at least one handle (4) providing the opening/closing of the door (3), at least one housing (5) located on the door (3), at least one support member (6) that is arranged on the surface of the handle (4) facing the door (3) and that aligns with the housing (5) while the handle

(4) is being fixed to the door (3) and at least one locking mechanism (7) providing the assembly of the handle (4) to the door (3) (Figure 1, Figure 2, Figure 3).

[0016] The locking mechanism (7) comprises;

- a retainer (8) in bridge form that is attached to the support member (6) from both ends and that extends outwards from the support member (6),
- an opening (9) arranged between the support member (6) and the retainer (8) and
- a detent means (10) that is located inside the housing (5), that passes through the opening (9) to bear against the retainer (8) while the handle (4) is being mounted to the door (3) and that prevents the handle (4) from moving (Figure 4, Figure 6).

[0017] During the assembly of the handle (4) to the door (3), the support member (6) and the housing (5) are aligned and the retainer (8) extends into the housing (5). When the handle (4) is pulled downwards, the retainer (8) moves downwards so that the detent means (10) is seated into the opening (9). Upon being entirely seated into the opening (9), the detent means (10) contacts the retainer (8) and prevents the retainer (8) from moving. Thus the handle (4) is fixed to the door (3).

[0018] According to the present invention, the locking mechanism (7) comprises a carrier (13) whereon the detent means (10) is seated. In this embodiment, the retainer (8) is seated onto the carrier (13) after passing over the detent means (10) and the retainer (8) is prevented from moving downwards. Thus, a strong connection is obtained between the door (3) and the handle (4) (Figure 4, Figure 5).

[0019] According to the present invention, the locking mechanism (7) comprises at least two extensions (11) that extend from two sides of the carrier (13) so as to contact the retainer (8) from its opposite sides. In this embodiment there is a gap between the extensions (11). When the retainer (8) is placed onto the detent means (10), one of the extensions (11) prevents the retainer (8) from moving to the right and the other to the left. Moreover, since the extensions (11) enter into the opening (9) separately, the stretching capacity is increased and a stronger connection is obtained (Figure 5).

[0020] In another embodiment of the present invention, the detent means (10) comprises a stopper (12) that is arranged between the extensions (11) and that prevents the movement of the retainer (8) by bearing against the retainer (8) when the extensions (11) are placed into the opening (9). While the detent means (10) passes through the opening (9), the stopper (12) stretches to allow the movement of the retainer (8) in the downward direction and when the retainer (8) entirely grasps the detent means (10) returns to its initial position and applies pressure to the retainer (8). Thus, the retainer (8) is prevented from moving upwards (Figure 5).

[0021] In another embodiment of the present invention,

the stopper (12) comprises an upright member (14) extending along the extension (11) and a barrier (15) arranged at the upper end of the upright member (14), bearing against the retainer (8) when the retainer (8) is placed onto the detent means (10). When the detent means (10) starts entering into the opening (9), the retainer (8) contacts the barrier (15) and pushes the stopper (12) backwards. While the retainer (8) moves along the detent means (10), the stopper (12) is at a position behind its initial position due to the flexible structure of the upright member (14) and does not prevent the retainer (8) from moving. When the retainer (8) is seated onto the carrier (13), the barrier (15) is released from the retainer (8) and bears against the retainer (8) and prevents the retainer (8) from moving upwards (Figure 5, Figure 7).

[0022] In another embodiment of the present invention, the free end of the barrier (15) is inclined. Thus, the retainer (8) more easily pushes the barrier (15) and hence the stopper (12) backwards without preventing their movements, when the retainer (8) touches the barrier (15) for the first time.

[0023] In another embodiment of the present invention, the retainer (8) is formed as a hollow half truncated cone. In this embodiment, the retainer (8) widens from top to bottom and the distance between the extensions (11) decreases from the carrier (13) towards the ends. Thus, the locking process is more easily realized since the extensions (11) do not force the retainer (8) until they entirely enter into the retainer (8).

[0024] In another embodiment of the present invention, the locking mechanism (7) comprises a cavity (16) formed on the surface of the support member (6) so as to almost align with the retainer (8). Thus, the detent means (10) is provided to move more easily between the retainer (8) and the support member (6).

[0025] In another embodiment of the present invention, the locking mechanism (7) is produced from plastic material. Thus, the movement ability of the locking mechanism (7) is improved and the assembly process is provided to be realized more easily.

[0026] In another embodiment of the present invention, the cooling device (1) comprises one support member (6) on each of the lower and upper ends of the handle (4), two housings (5) positioned so as to align with the support members (6) and two locking mechanisms (7) located at each housing (5) - support member (6) pair. Thus, a strong connection is obtained between the handle (4) and the door (3).

[0027] By means of the present invention, the handle (4) is easily mounted onto the door (3) without requiring any tool. Thus, component and labor costs are decreased.

[0028] It is to be understood that the present invention is not limited by the embodiments disclosed above and a person skilled in the art can easily introduce different embodiments. These should be considered within the scope of the protection postulated by the claims of the present invention.

Claims

1. A cooling device (1) **comprising** at least one cabinet (2) wherein the foodstuffs to be cooled are placed, at least one door (3) providing access into the cabinet (2), at least one handle (4) providing the opening/closing of the door (3), at least one housing (5) located on the door (3), at least one support member (6) that is arranged on the surface of the handle (4) facing the door (3) and that aligns with the housing (5) while the handle (4) is being fixed to the door (3) and at least one locking mechanism (7) providing the mounting of the handle (4) to the door (3), the locking mechanism (7) having

- a ring-shaped retainer (8) in bridge form that is attached to the support member (6) from both ends and that extends outwards from the support member (6),

- an opening (9) arranged between the support member (6) and the retainer (8),

- a carrier (13),

- a detent means (10) that is located inside the housing (5) and seated on the carrier (13), that enters into the retainer and passes through the opening (9) to bear against the retainer (8) while the handle (4) is being mounted to the door (3) and that prevents the handle (4) from moving,

wherein the detent means (10) comprises at least two extensions (11) that extend from two sides of the carrier (13) so as to contact the retainer (8) from its opposite sides and that apply pressure onto the sides of the retainer (8) from their inner surfaces and thereby prevent the retainer (8) from moving in the horizontal direction.

2. The cooling device (1) as in Claim 1, **characterized by** the detent means (10) comprising a stopper (12) that is arranged between the extensions (11) and that prevents the movement of the retainer (8) by bearing against the retainer (8) when the extensions (11) are placed into the opening (9).

3. The cooling device (1) as in Claim 2, **characterized by** the stopper (12) comprising an upright member (14) extending along the extension (11) and a barrier (15) arranged at the upper end of the upright member (14), bearing against the retainer (8) when the retainer (8) is placed onto the detent means (10).

4. The cooling device (1) as in Claim 3, **characterized by** the barrier (15) the free end of which is inclined.

5. The cooling device (1) as in any one of the above Claims, **characterized by** the retainer (8) that is in form of a hollow half truncated cone.

6. The cooling device (1) as in any one of the above claims, **characterized by** a cavity (16) formed on the surface of the support member (6) so as to almost align with the retainer (8).
7. The cooling device (1) as in any one of the above Claims, **characterized by** the locking mechanism (7) that is produced from plastic material.
8. The cooling device (1) as in any one of the above claims, **characterized by** one support member (6) on each of the lower and upper ends of the handle (4), two housings (5) positioned so as to align with the support members (6) and two locking mechanisms (7) located at each housing (5) - support member (6) pair.

Patentansprüche

1. Kühlvorrichtung (1) **umfassend** mindestens einem Schrank (2), in dem die zu kühlenden Lebensmittel platziert sind, mindestens einer Tür (3), die den Zugang zum Schrank (2) vorsieht, mindestens einem Griff (4), der das Öffnen/Schließen der Tür (3) vorsieht, und mindestens einem Gehäuse (5), das an der Tür (3) liegt, mindestens ein Stützelement (6), das auf der Oberfläche des die Tür (3) belastenden Griffs (4) angeordnet ist und das mit dem Gehäuse (5) ausgerichtet ist, während der Griff (4) an der Tür (3) befestigt ist, und mindestens einen Verriegelungsmechanismus (7), der die Montage des Griffs (4) an der Tür (3) vorsieht, der Verriegelungsmechanismus (7) Folgendes aufweist

- einen ringförmigen Halter (8) in Brückenform, der von beiden Enden an dem Stützelement (6) angebracht ist und sich von dem Stützelement (6) nach außen erstreckt,
- eine Öffnung (9), die zwischen dem Stützelement (6) und dem Halter (8) angeordnet ist,
- einen Träger (13),
- ein Rastmittel (10), das sich innerhalb des Gehäuses (5) befindet und auf dem Träger (13) sitzt, das in die Halter eintritt und durch die Öffnung (9) hindurchgeht, um gegen die Halter (8) anzulegen, während der Griff (4) an der Tür (3) montiert ist, und das eine Bewegung des Griffs (4) verhindert,

wobei die Rastmittel (10) mindestens zwei Verlängerungen (11) umfassen, die sich von zwei Seiten des Trägers (13) erstrecken, um den Halter (8) von seinen gegenüberliegenden Seiten zu kontaktieren, und die Druck auf die Seiten des Halters (8) von ihren Innenflächen ausüben und dadurch verhindern, dass sich der Halter (8) in horizontaler Richtung bewegt.

2. Kühlvorrichtung (1) nach Anspruch 1, **gekennzeichnet durch dass** die Rastmittel (10) einen Anschlag (12) umfassen, der zwischen den Verlängerungen (11) angeordnet ist und die Bewegung des Halters (8) durch Abstützen gegen den Halter (8) verhindert, wenn die Verlängerungen (11) in die Öffnung (9) platziert sind.
3. Kühlvorrichtung (1) nach Anspruch 2, **dadurch gekennzeichnet dass** der Anschlag (12) ein aufrechtes Element (14), das sich entlang der Verlängerung (11) erstreckt, und eine Barriere (15) umfasst, die am oberen Ende des aufrecht stehenden Elements (14) angeordnet ist und sich gegen den Halter (8) abstützt, wenn der Halter (8) auf die Rastmittel (10) platziert wird.
4. Kühlvorrichtung (1) nach Anspruch 3, **gekennzeichnet durch dass** die Barriere (15), deren freies Ende geneigt ist.
5. Kühlvorrichtung (1) nach einem der vorstehenden Ansprüche, **gekennzeichnet durch dass** den Halter (8), der in Form eines hohlen, halb abgestumpften Kegels ist.
6. Kühlvorrichtung (1) nach einem der vorstehenden Ansprüche, **gekennzeichnet durch dass** einen Hohlraum (16), der auf der Oberfläche des Stützelements (6) so geformt ist, dass er nahezu mit dem Halter (8) ausgerichtet ist.
7. Kühlvorrichtung (1) nach einem der vorstehenden Ansprüche, **gekennzeichnet durch dass** den Verriegelungsmechanismus (7), der aus Kunststoffmaterial hergestellt ist.
8. Kühlvorrichtung (1) nach einem der vorstehenden Ansprüche, **gekennzeichnet durch dass** ein Stützelement (6) an jedem der unteren und oberen Enden des Griffs (4), zwei Gehäuse (5), die so positioniert sind, dass sie mit den Stützelementen (6) ausgerichtet sind, und zwei Verriegelungsmechanismen (7), die an jedem Gehäuse (5) - Stützelement (6) Paar liegt sind.

Revendications

1. Dispositif de refroidissement (1) **comprenant** au moins un cabinet (2) dans lequel les denrées alimentaires à refroidir sont placées, au moins une porte (3) donnant accès dans le cabinet (2), au moins une poignée (4) assurant l'ouverture/fermeture de la porte (3), au moins un logement (5) situé sur la porte (3), au moins un élément de support (6) qui est disposé sur la surface de la poignée (4) en direction de la porte (3) et qui s'aligne avec le logement (5) lors-

que la poignée (4) est fixée sur la porte (3) et au moins un mécanisme de verrouillage (7) assurant le montage de la poignée (4) sur la porte (3), le mécanisme de verrouillage (7) ayant

- un dispositif de retenue annulaire (8) en forme de pont qui est fixé à l'élément de support (6) par ses deux extrémités et qui s'étend vers l'extérieur depuis l'élément de support (6),
- une ouverture (9) disposée entre l'élément de support (6) et le dispositif de retenue (8),
- un transporteur (13),
- un moyen d'encliquetage (10) qui est situé à l'intérieur du logement (5) et assis sur le transporteur (13), qui entre dans le support et passe à travers l'ouverture (9) pour s'appuyer contre le dispositif de retenue (8) pendant que la poignée (4) est montée sur la porte (3) et qui empêche la poignée (4) de bouger,

dans lequel le moyen d'encliquetage (10) comprend au moins deux extensions (11) qui s'étendent à partir de deux côtés du transporteur (13) de manière à venir en contact avec le dispositif de retenue (8) depuis ses côtés opposés et qui appliquent une pression sur les côtés du dispositif de retenue (8) depuis leurs surfaces intérieures et empêchent ainsi le dispositif de retenue (8) de se déplacer dans la direction horizontale.

2. Dispositif de refroidissement (1) selon la revendication 1, **caractérisé par** le moyen d'encliquetage (10) comprenant un bouchon (12) qui est disposé entre les extensions (11) et qui empêche le mouvement du dispositif de retenue (8) en s'appuyant contre le dispositif de retenue (8) lorsque les extensions (11) sont placées dans l'ouverture (9).
3. Dispositif de refroidissement (1) selon la revendication 2, **caractérisé par** le bouchon (12) comprenant un élément vertical (14) s'étendant le long de l'extension (11) et une barrière (15) disposée à l'extrémité supérieure de l'élément vertical (14), s'appuyant contre le dispositif de retenue (8) lorsque le dispositif de retenue (8) est placé sur le moyen d'encliquetage (10).
4. Dispositif de refroidissement (1) selon la revendication 3, **caractérisé par** la barrière (15) dont l'extrémité libre est inclinée.
5. Dispositif de refroidissement (1) selon l'une quelconque des revendications précédentes, **caractérisé par** le dispositif de retenue (8) qui est en forme d'un demi-cône tronqué creux.
6. Dispositif de refroidissement (1) selon l'une quelconque des revendications précédentes, **caractérisé**

par une cavité (16) formée sur la surface de l'élément de support (6) de manière à s'aligner pratiquement avec le dispositif de retenue (8).

- 5 7. Dispositif de refroidissement (1) selon l'une quelconque des revendications précédentes, **caractérisé par** le mécanisme de verrouillage (7) qui est fabriqué en matière plastique.
- 10 8. Dispositif de refroidissement (1) selon l'une quelconque des revendications précédentes, **caractérisé par** un élément de support (6) sur chacune des extrémités inférieure et supérieure de la poignée (4), deux logements (5) positionnés de manière à s'aligner avec les éléments de support (6) et deux mécanismes de verrouillage (7) situés à chaque paire logement (5) - élément de support (6).

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Figure 1

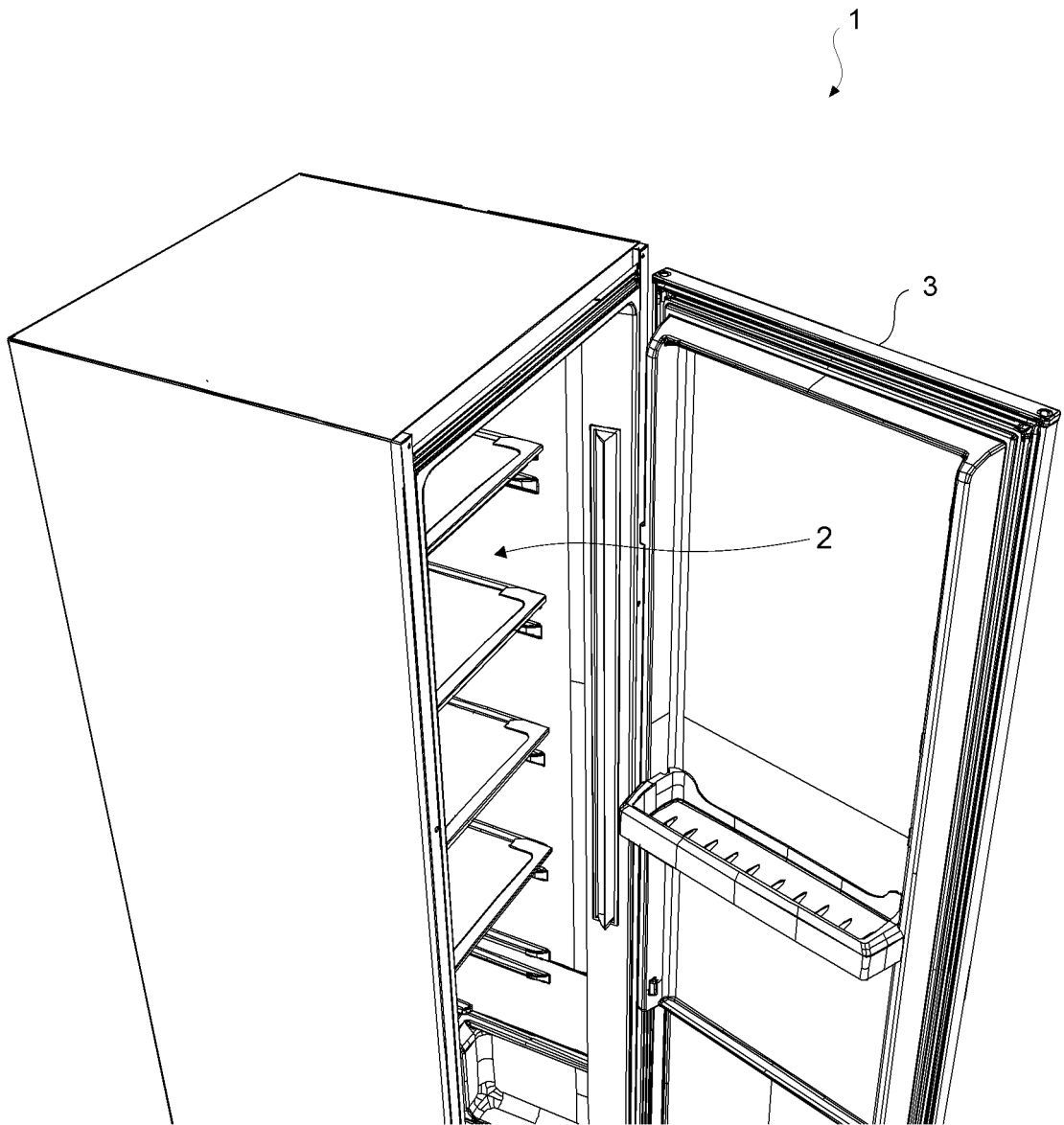


Figure 2

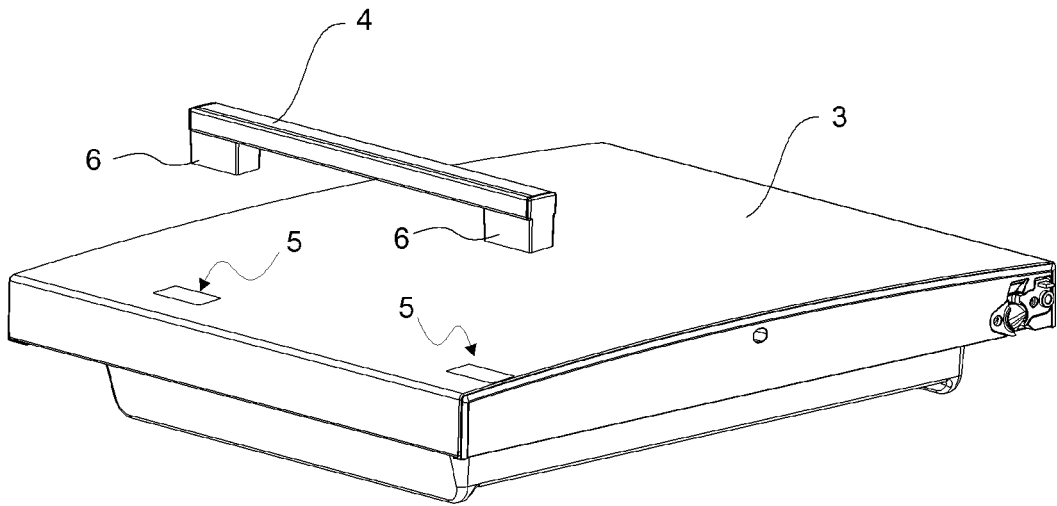


Figure 3

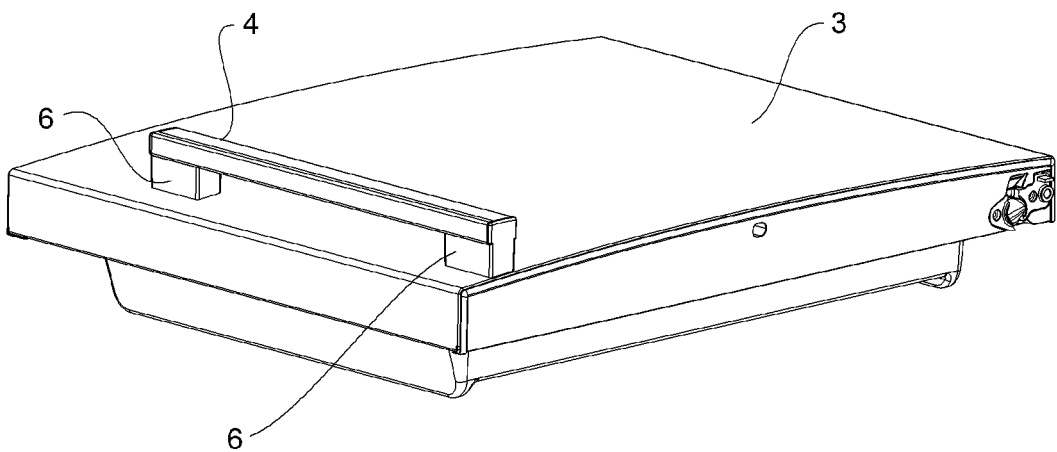


Figure 4

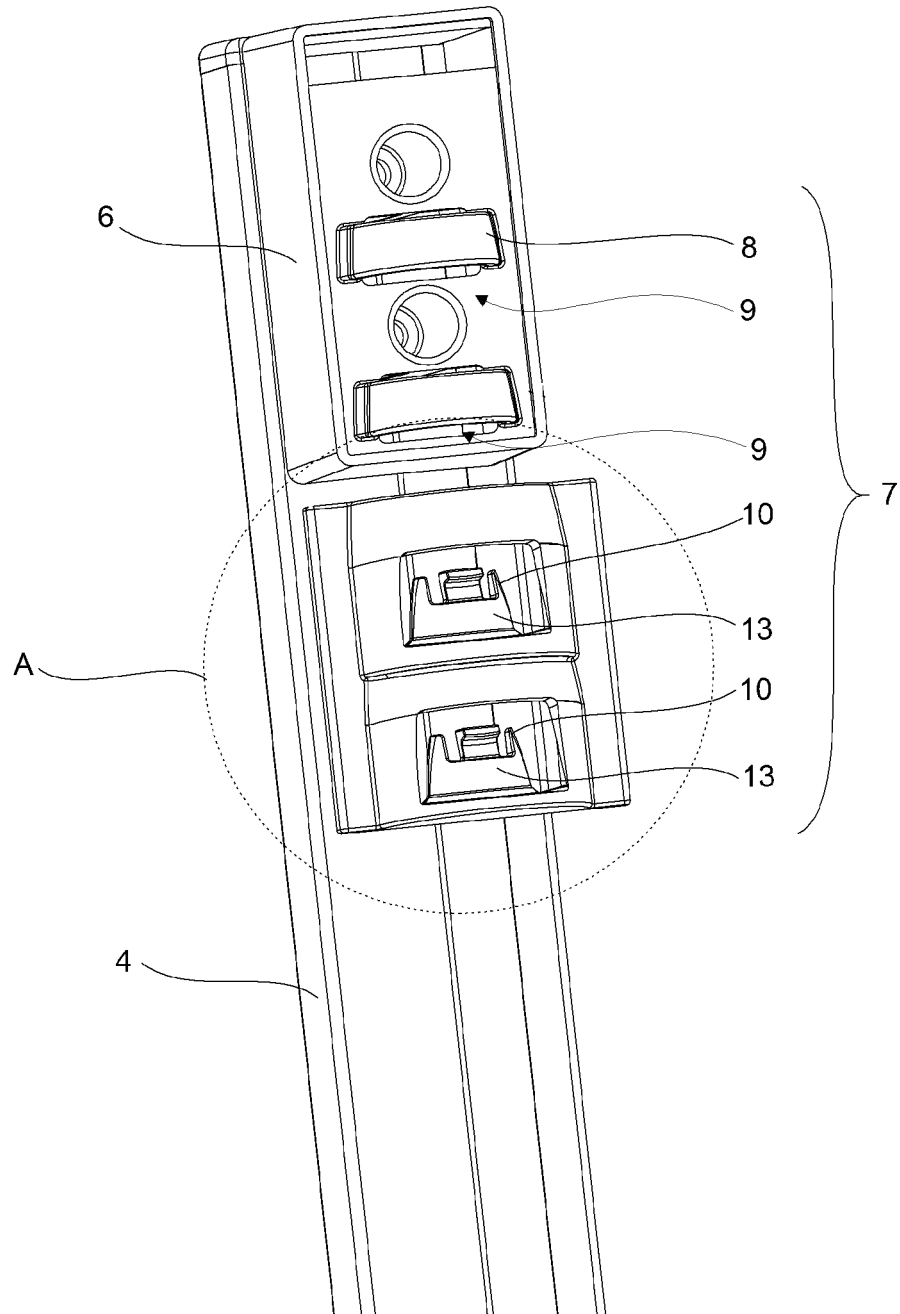


Figure 5

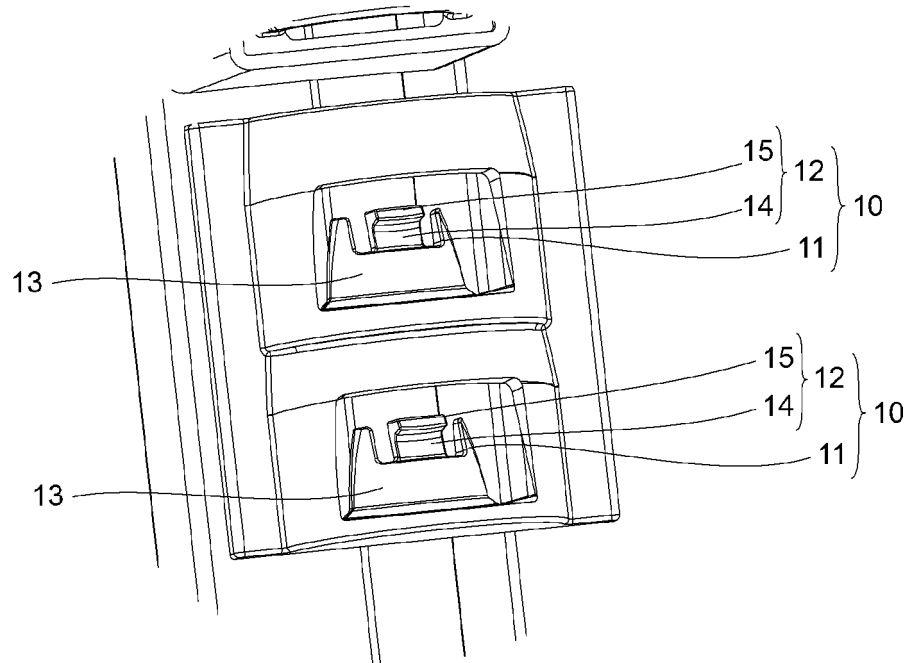


Figure 6

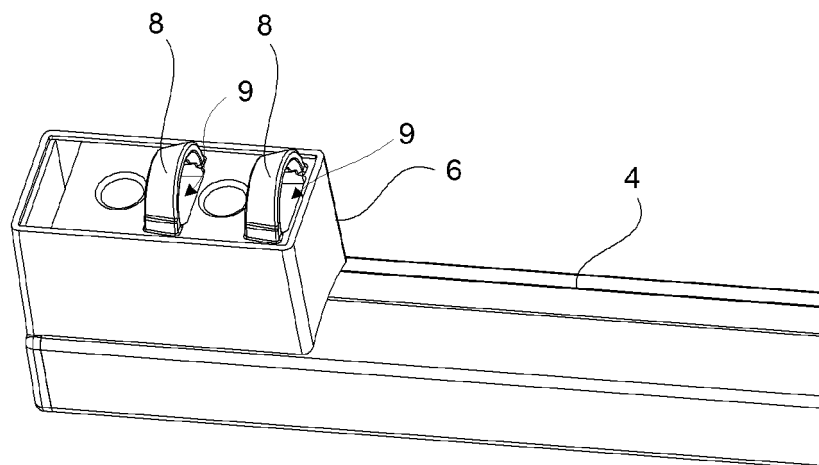
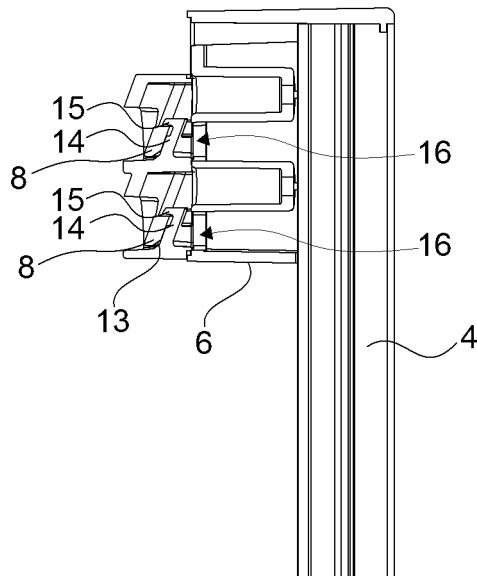


Figure 7



REFERENCES CITED IN THE DESCRIPTION

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