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(54) **A REFRIGERATOR COMPRISING A WATER DISPENSER**

KÜHLSCHRANK MIT EINEM WASSERSPENDER

RÉFRIGÉRATEUR COMPRENANT UN DISTRIBUTEUR D'EAU

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Description

[0001] The present invention relates to a water dispenser lock, especially the lock of the trigger lever of the water dispenser in a refrigerator.

[0002] Refrigerators with water dispensers mounted on the door which store cold drinking water for the user are widely known in the art. Said refrigerators comprise a water dispenser area in the form of a cut-out in the door panel. The connection and mounting parts at the top of the trigger lever in the dispenser mechanism of the water dispenser are covered with a lid, and by means of a spigot which is triggered by pressing a glass on the exposed part of the trigger lever or by applying an appropriate force, the water in the water tank is enabled to be filled into the glass, etc.

[0003] Said refrigerators having a water dispenser are preferred especially in summer months to meet the cold water needs of users. The trigger lever is easily pushed back by pressing a filling container such as a glass thereon, and water is filled into the glass. The trigger lever can also be easily pushed by hand without the need to pressing with a glass, and if there is no locking mechanism, may cause water to spill. This situation creates problems especially for children's access. Children may constantly press the trigger lever, causing the water to spill and the surroundings to get wet. Therefore, the users especially prefer a lock structure in the water dispensers.

[0004] Many types of child lock structures are known in the refrigerators having a water dispenser or in the standalone water dispensers. The aim of all these locks is to ensure that water is taken from the water dispenser in a controlled manner, especially to prevent children from operating the water dispenser outside of parental control.

[0005] In the state of the art Korean Patent Document No. KR20120091532, a water dispenser lock mechanism is disclosed, comprising a stopper disposed between two arms.

[0006] In the state of the art Chinese Utility Model Document No. CN211582681U, a water dispenser lock structure is disclosed, comprising a sliding mechanism, an opening and a stopper which is disposed on the sliding mechanism.

[0007] In the state of the art Chinese Patent Document No. CN105300019, a water dispenser structure for a refrigerator is disclosed, wherein the water dispenser structure comprises a water box and a water box joint, wherein the water box is mounted at the inner side of a refrigerator door body; the water box joint extends outside the door body from the water box; a decoration plate is arranged on the door body; a switch poking piece and a small turning rod are mounted on the decoration plate; the switch poking piece comprises a push plate and a switch part; the small turning rod is joined on the switch part; a moving end of the small turning rod is butted against the water box joint; and when the push plate is inwards pressed, the switch part upwards supports the moving end of the

small turning rod to open a valve of the water box joint, so that water of the water box flows out from a water outlet of the water box joint.

[0008] In the state of the art Chinese Patent Document No. CN103919468, an anti-scald faucet and a water dispenser is disclosed, wherein the anti-scald faucet comprises a faucet body, a push plate and a locking mechanism, wherein the faucet body is provided with a valve element for controlling water discharge, the push plate is rotatably arranged on the faucet body and connected with the valve element for driving the valve element to move, and the locking mechanism is arranged on the faucet body and switches between a locking position and a release position for locking or releasing the push plate.

[0009] The state of the art water dispenser locks break down after a certain period of time due to their complex structure, and especially the sliding and multi-part locks break down after a while and become inoperable.

[0010] The aim of the present invention is the realization of a refrigerator wherein the water dispenser trigger lever is locked by means of a practical and simple mechanism.

[0011] Another aim of the present invention is the realization of a refrigerator comprising a water dispenser wherein the locked and free position of the trigger lever can be easily seen and adjusted through the refrigerator door.

[0012] The refrigerator of the present invention comprises a trigger lever which enables the spigot on the water dispenser to be moved between an open position and a closed position and which triggers the emptying of the water from the receptacle. The trigger lever comprises mounting components on the upper side thereof used for being mounted to the water dispenser. The surface of the trigger lever which is pressed by a glass, etc. is the front surface thereof. The surface facing the water dispenser housing is the rear surface.

[0013] In the present invention, there is a lid having at least one side wall which leaves the trigger lever open, but covers the upper region which is the mounting part of the trigger lever. Said side wall extends towards the rear side of the trigger lever and comprises a first housing thereon.

[0014] The refrigerator of the present invention, comprises a locking mechanism having a shaft, a lock body in the form of a bar extending from the shaft, and a locking tab which enables the lock body to be rotated around the shaft and which is connected to at least one end of the shaft.

[0015] In an embodiment of the present invention, the shaft and the lock body can be a single piece or separate pieces which can be assembled.

[0016] The end of said shaft in contact with the locking tab is attached to the first housing on the side wall. Thus, the locking mechanism is positioned behind the trigger lever. The lock body is preferably a bar-shaped body which extends between the shaft and the rear part of the trigger lever in the lock position of the trigger lever and

which has a width that can push the trigger lever.

[0017] By means of the present invention, a water dispenser having a practical child lock mechanism and a refrigerator comprising the water dispenser are realized.

[0018] Additional features and additional advantageous effects of the water dispenser lock of the present invention and the refrigerator of the present invention will become more apparent with the detailed description of the embodiments with reference to the accompanying drawings in which said figures are:

Figure 1: is the perspective view of the refrigerator comprising a water dispenser having a locking mechanism in an embodiment of the present invention.

Figure 2: is the exploded view showing the door, the water dispenser and the trigger unit in an embodiment of the present invention.

Figure 3: is the perspective view of the assembled state of the water dispenser and the receptacle in an embodiment of the present invention.

Figure 4: is the exploded view of Figure 3.

Figure 5: is the view showing the rear side of the trigger lever and the locked position of the locking mechanism in an embodiment of the present invention.

Figure 6: is the view showing the components of the locking mechanism in an embodiment of the present invention.

Figure 7: is the sideways view showing the state where the locking tab moves the trigger lever to the free position in an embodiment of the present invention.

Figure 8: is the sideways view showing the state where the locking tab moves the trigger lever to the locked position in an embodiment of the present invention.

[0019] The following numerals are referred to in the description of the present invention:

1. Refrigerator
2. Body
3. Door
4. Water dispenser
5. Receptacle
6. Channel
7. Spigot
8. Trigger lever
9. Lid

10. Side wall
11. First housing
12. Guide path
13. Protrusion
14. Locking mechanism
15. Shaft
16. Lock body
17. Locking tab
18. Recess
19. Second housing
20. Second side wall

[0020] The refrigerator (1) comprises a body (2) which is suitable for placing the foodstuffs therein; a door (3) which provides access into the body (2); and a water dispenser (4) having a receptacle (5) which is provided on the door (3) and wherein water is stored, a channel (6) which is provided on the lower side of the receptacle (5) and which allows the water to exit the receptacle (5), a spigot (7) which provides the flow of water from the channel (6) and a trigger lever (8) which triggers the movement of the spigot (7).

[0021] The refrigerator (1) of the present invention comprises a locking mechanism (14) having a shaft (15), a lock body (16) extending from the shaft (15) and a locking tab (17) attached to at least one end of the shaft (15); a lid (9) having at least one side wall (10) extending towards behind the trigger lever (8) and a first housing (11) which is provided on the side wall (10) so as to remain behind the trigger lever (8) wherein the shaft (15) is fitted; and the locking tab (17) which moves the lock body (16) between a lock position where the lock body (16) almost bears against the trigger lever (8) and a free position where the lock body (16) does not bear against the trigger lever (8).

[0022] The refrigerator (1) of the present invention comprises a lid (9) which covers the claw and mounting mechanisms which enable the trigger lever (8) to be attached to the water dispenser (4) in the form of a cut-out on the door (3) panel. Said lid (9) comprises at least one side wall (10) so as to cover said connection components located on the upper part of the trigger lever (8). The side wall (10) extends to the rear part of the trigger lever (8) where the latter is attached to the door (3). The side where the trigger lever (8) is visible through the front panel of the door (3) is the front part of the trigger lever (8). In other words, the part against which the glass is pressed is the front part. The side of the trigger lever (8) facing

the water dispenser (4) housing on the door (3) panel is the rear part. The side wall (10) comprises the first housing (11) so as to remain behind the trigger lever (8). The refrigerator (1) of the present invention comprises the locking mechanism (14) having a shaft (15), a lock body (16) extending from the shaft (15) and a locking tab (17) providing the horizontal and vertical movement of the lock body (16) with respect to the side wall (10). One end of the shaft (15) in said locking mechanism (14) is fitted into the first housing (11) on the side wall (10). Thus, the shaft (15) is attached to the side wall (10) so as to remain behind the trigger lever (8). At the end of the shaft (15), which is fitted into the first housing (11), there is a locking tab (17) in connection with the shaft (15). The locking tab (17) moves the lock body (16) on the side wall (10) with a horizontal-vertical movement of 90 degrees with respect to the side wall (10). The lock body (16) is a bar-shaped body extending from the shaft (15). With said movement of the locking tab (17), the lock body (16) switches between a locked position where the lock body (16) almost bears against the rear part of the trigger lever (8) and a free position where the lock body (16) does not bear against the trigger lever (8). The lock body (16) almost bears against the trigger lever (8) so as to push the rear part of the trigger arm (8) in the locked position. Thus, even if the user puts the glass against the front of the trigger lever (8) or applies force by hand, the trigger lever (8) is not triggered to move the spigot (7).

[0023] In an embodiment of the present invention, the refrigerator (1) comprises the lid (9) with a second side wall (20) having a second housing (19) wherein the other end of the shaft (15) is fitted and fixed. Thus, since the other end of the shaft (15) is fixed to the second side wall (20), a much stronger locking is achieved. The second side wall (20) is equivalent to the side wall (10) and extends towards the rear part of the trigger lever (8). The second housing (19) is provided on the second side wall (20) in parallel with the first housing (11) so as to remain behind the trigger lever (8).

[0024] In an embodiment of the present invention, the refrigerator (1) comprises the locking mechanism (14) having the lock body (16) with a length at least as much as the width of the trigger lever (8). In this embodiment, the lock body (16) is as wide as the distance between the rightmost and leftmost ends of the trigger lever (8). Thus, the minimum force required to push the trigger lever (8) is easily applied when the locking tab (17) is rotated in the locked position.

[0025] In an embodiment of the present invention, the refrigerator (1) comprises the locking mechanism (14) having the lock body (16) which extends along the length of the shaft (15). Thus, the force applied to the trigger lever (8) in the locked position increases and a much stronger pushing force is applied.

[0026] According to the present invention, the refrigerator (1) comprises a guide path (12) which is provided on the side wall (10) and which facilitates the movement of the locking tab (17) between the locked position and

the free position. In one embodiment, the guide path (12) is a quadrant-shaped cavity on the side wall (10). Thus, the locking tab (17) is easily slid and moved between the locked position and the free position in the guide path (12).

[0027] According to of the present invention, the refrigerator (1) comprises the locking tab (17) having a protrusion (13) arranged on the guide path (12) and a recess (18) fitted over the protrusion (13) to enable the locking tab (17) to be fixed when the trigger lever (8) is in the free or locked position. Thus, if the user wants the trigger lever (8) to remain in the free position, he/she can shift the locking mechanism (14) to the passive position. On the contrary, if the user wants to keep the trigger lever (8) in the locked position all the time, he/she leaves the locking mechanism (14) in the active position.

[0028] In an embodiment of the present invention, the refrigerator (1) comprises the locking mechanism (14) having the locking tab (17) with a width equal to that of the lock body (16). Thus, the lock body (16) and the locking tab (17) have a balanced form, and the user can move the lock body (16) by turning the locking tab (17) without much difficulty. In an embodiment of the present invention, the locking tab (17) is equivalent to the cross-section of the lock body (16). For example, if there is a bar-shaped lock body (16) with an oval end, the locking tab (17) has also a rectangular form with an oval end.

[0029] In an embodiment of the present invention, the refrigerator (1) comprises a written and/or illuminated indicator on the side wall (10) showing the locked and free positions of the trigger lever (8). Thus, the user can quickly realize in which position the trigger lever (8) is left.

Claims

1. A refrigerator (1) comprising: a body which is suitable for placing the foodstuffs therein; a door (3) which provides access into the body (2); a water dispenser (4) having a receptacle (5), which is provided on the door (3) and wherein water is stored;

a channel (6) which is provided on the lower side of the receptacle (5) and which allows the water to exit the receptacle (5); a spigot (7) which provides the flow of water from the channel (6);

a trigger lever (8) which triggers the movement of the spigot (7); a locking mechanism (14) having a shaft (15);

a lock body (16) extending from the shaft (15); a locking tab (17) attached to at least one end of the shaft (15); a lid (9) having at least one side wall (10) extending towards behind the trigger lever (8);

a first housing (11) which is provided on the side wall (10) so as to remain behind the trigger lever (8) wherein the shaft (15) is fitted, wherein the locking tab (17) moves the lock body (16) be-

- tween the shaft (15) and the trigger lever (8) between a lock position, where the lock body (16) almost bears against the trigger lever (8) and a free position, where the lock body (16) does not bear against the trigger lever (8); a guide path (12) which is provided on the side wall (10) and which facilitates the movement of the locking tab (17) between the locked position and the free position, **characterized by** the locking tab (17) having a protrusion (13) arranged on the guide path (12) and a recess (18) fitted over the protrusion (13) to enable the locking tab (17) to be fixed when the trigger lever (8) is in the free or locked position.
2. A refrigerator (1) as in claim 1, **characterized by** the lid (9) with a second side wall (20) having a second housing (19) wherein the other end of the shaft (15) is fitted and fixed.
 3. A refrigerator (1) as in claim 1 or 2, **characterized by** the locking mechanism (14) having the lock body (16) with a length at least as much as the width of the trigger lever (8).
 4. A refrigerator (1) as in any one of claims 1 to 3, **characterized by** the locking mechanism (14) having the lock body (16) which extends along the length of the shaft (15).
 5. A refrigerator (1) as in any one of the above claims, **characterized by** the locking mechanism (14) having the locking tab (17) with a width equal to that of the lock body (16).
 6. A refrigerator (1) as in any one of the above claims, **characterized by** a written and/or illuminated indicator on the side wall (10) showing the locked and free positions of the trigger lever (8).
2. Ein Kühlschrank (1), wie in Anspruch 1 aufgeführt, **ist dadurch gekennzeichnet, dass** der Deckel (9) mit einer zweiten Seitenwand (20) ein zweites Gehäuse (19) aufweist, in das das andere Ende des Schafts (15) eingepasst und befestigt ist.
 3. Ein Kühlschrank (1), wie in Anspruch 1 oder 2 aufgeführt, **ist dadurch gekennzeichnet, dass** der Verriegelungsmechanismus (14) einen Verriegelungskörper (16) aufweist, dessen Länge mindestens der Breite des Auslösehebels (8) entspricht.
 4. Ein Kühlschrank (1), wie in einem der Ansprüche 1 bis 3 aufgeführt, **ist dadurch gekennzeichnet, dass** der Verriegelungsmechanismus (14) einen Verriegelungskörper (16) aufweist, der sich entlang der Länge der Welle (15) erstreckt.
 5. Ein Kühlschrank (1), wie in einem der vorherigen Ansprüche aufgeführt, **ist dadurch gekennzeichnet, dass** der Verriegelungsmechanismus (14) eine Verriegelungslasche (17) aufweist, deren Breite der des Schlosskörpers (16) entspricht.
 6. Ein Kühlschrank (1), wie in einem der vorherigen Ansprüche aufgeführt, **ist dadurch gekennzeichnet, dass** eine schriftliche und/oder beleuchtete Anzeige auf der Seitenwand (10) die verriegelte und freie Stellung des Abzugshebels (8) anzeigt.

Patentansprüche

1. Ein Kühlschrank (1) **umfasst:** einen Körper (2), der zum Einlegen der Lebensmittel geeignet ist; eine Tür (3), die den Zugang zum Körper (2) ermöglicht; einen Wasserspender (4) mit einem Behälter (5), der an der Tür (3) vorgesehen ist und in dem Wasser gespeichert wird; einen Kanal (6), der an der Unterseite des Behälters (5) vorgesehen ist und der es dem Wasser ermöglicht, aus dem Behälter (5) auszutreten; einen Zapfhahn (7), der den Wasserfluss aus dem Kanal (6) bereitstellt; einen Auslösehebel (8), der die Bewegung des Zapfhahns (7) auslöst; einen Verriegelungsmechanismus (14) mit einem Schaft (15); einen Verriegelungskörper (16), der sich von dem Schaft (15) aus erstreckt; eine Verriegelungs-

Revendications

1. Un réfrigérateur (1) **comprenant** : un corps (2), adapté pour y placer les denrées alimentaires ; une porte (3) qui donne accès à l'intérieur du corps (2) ; un distributeur d'eau (4) ayant un réceptacle (5), disposé sur la porte (3) et dans lequel l'eau est stockée ; un canal (6) qui est disposé sur le côté inférieur du réceptacle (5) et qui permet à l'eau de sortir du réceptacle (5) ; un robinet (7) qui permet l'écoulement de l'eau depuis le canal (6) ; un levier de déclenchement (8) qui déclenche le mouvement du robinet (7) ; un mécanisme de verrouillage (14) comportant un axe (15) ; un corps de verrouillage (16) s'étendant à partir de l'axe (15) ; une languette de verrouillage (17) fixée à au moins une extrémité de l'axe (15) ; un couvercle (9) ayant au moins une paroi latérale (10) s'étendant vers l'arrière du levier de déclenchement (8) ; un premier logement (11) qui est disposé sur la paroi latérale (10) de manière à rester derrière le levier de déclenchement (8) dans lequel l'axe (15) est monté, où la languette de verrouillage (17) déplace le corps de verrouillage (16) entre l'axe (15) et le levier de déclenchement (8) entre une position de verrouillage, où le corps de verrouillage (16) est presque en appui contre le levier de déclenchement (8) et une position libre, où le corps de verrouillage (16) n'est pas en appui contre le levier de déclenchement (8) ; un chemin de guidage (12) qui est disposé sur la paroi latérale (10) et qui facilite le mouvement de la languette de verrouillage (17) entre la position verrouillée et la position libre, **caractérisé par** la languette de verrouillage (17) qui présente une saillie (13) agencée sur le chemin de guidage (12) et un renforcement (18) monté sur la saillie (13) pour permettre à la languette de verrouillage (17) d'être fixée lorsque le levier de déclenchement (8) est en position libre ou verrouillée.
2. Un réfrigérateur (1) selon la revendication 1, **caractérisé par** le couvercle (9) qui comporte une deuxième paroi latérale (20) ayant un deuxième logement (19) dans lequel l'autre extrémité de l'axe (15) est montée et fixée.
3. Un réfrigérateur (1) selon la revendication 1 ou 2, **caractérisé par** le mécanisme de verrouillage (14) qui possède un corps de verrouillage (16) d'une longueur au moins égale à la largeur du levier de déclenchement (8).
4. Un réfrigérateur (1) selon l'une quelconque des revendications 1 à 3, **caractérisé par** le mécanisme de verrouillage (14) qui possède un corps de verrouillage (16) qui s'étend sur la longueur de l'axe (15).
5. Un réfrigérateur (1) selon l'une quelconque des revendications précédentes, **caractérisé par** le mécanisme de verrouillage (14) qui possède une languette de verrouillage (17) d'une largeur égale à celle du corps de verrouillage (16).
6. Un réfrigérateur (1) selon l'une quelconque des revendications précédentes, **caractérisé par** un indicateur écrit et/ou lumineux sur la paroi latérale (10) qui montre les positions verrouillée et libre du levier de déclenchement (8).

Figure 1

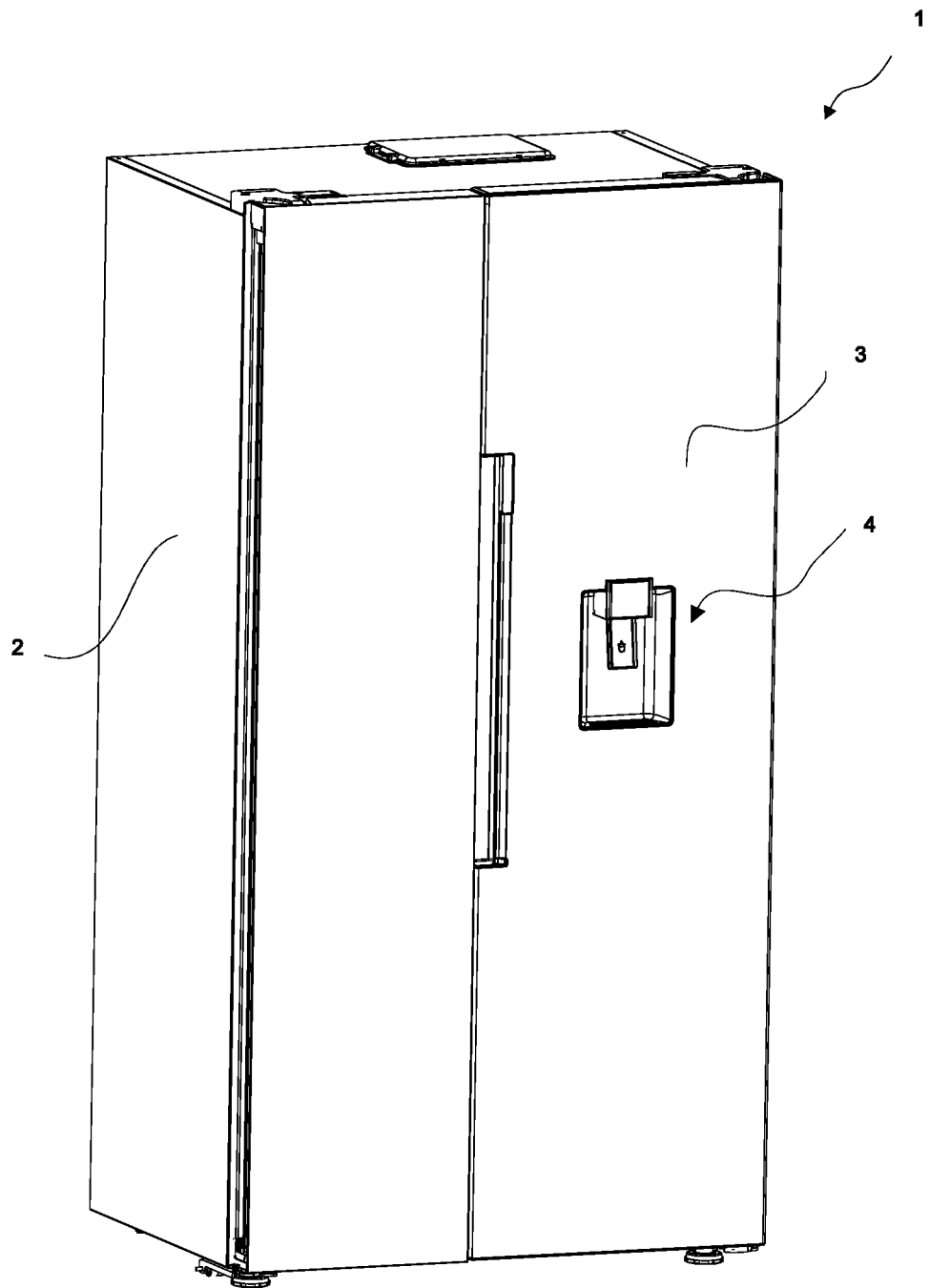


Figure 2

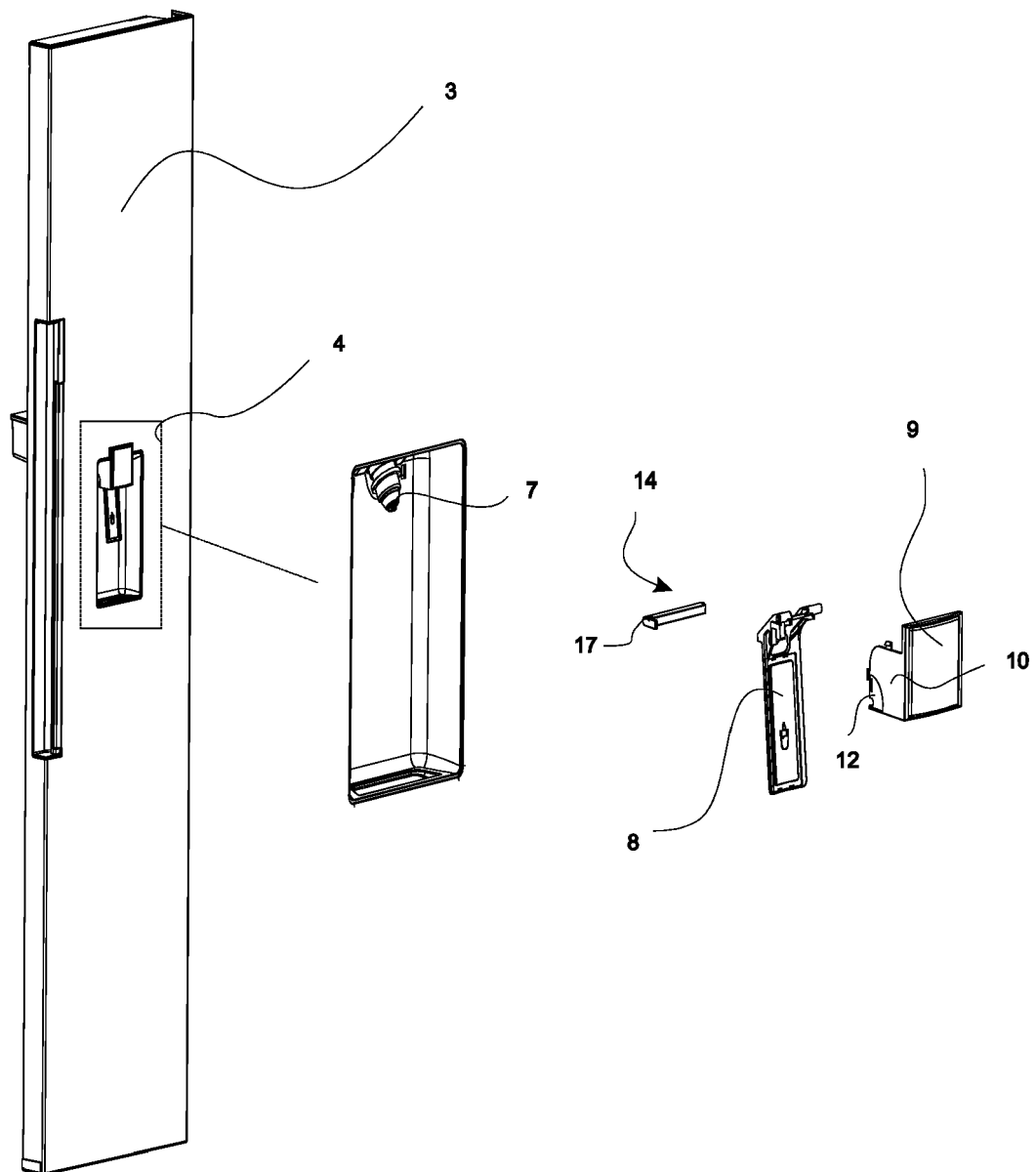


Figure 3

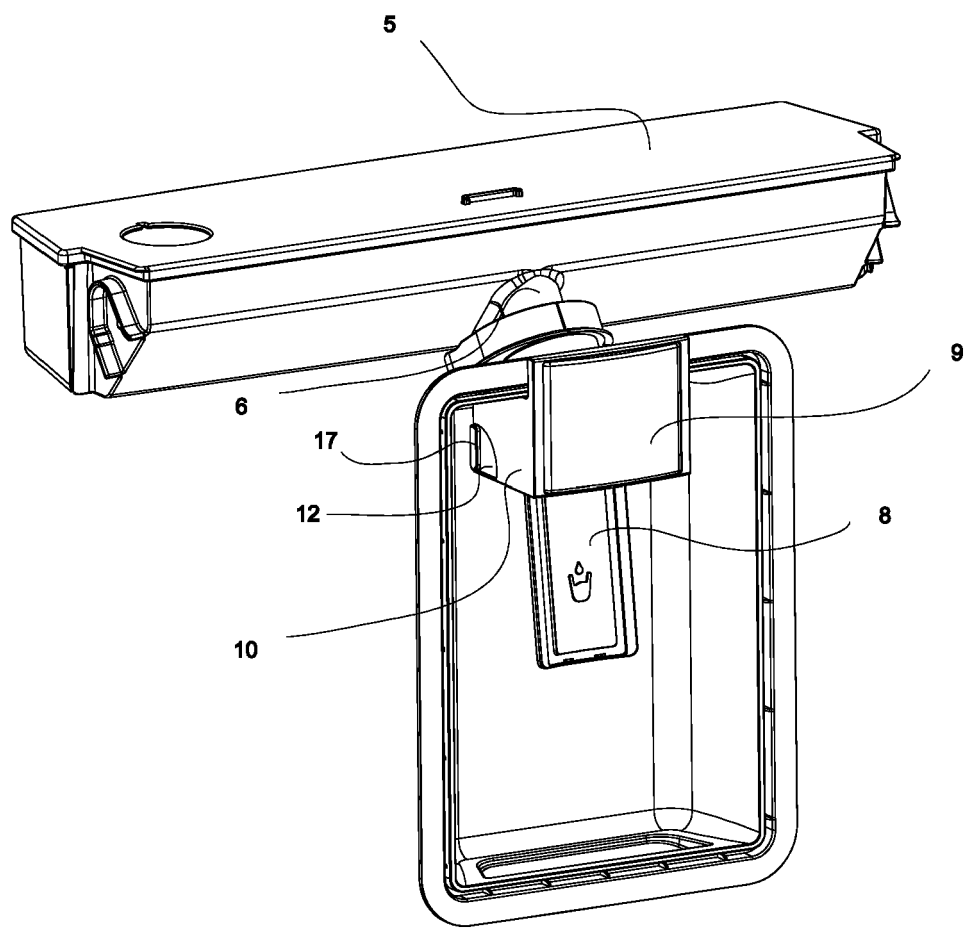


Figure 4

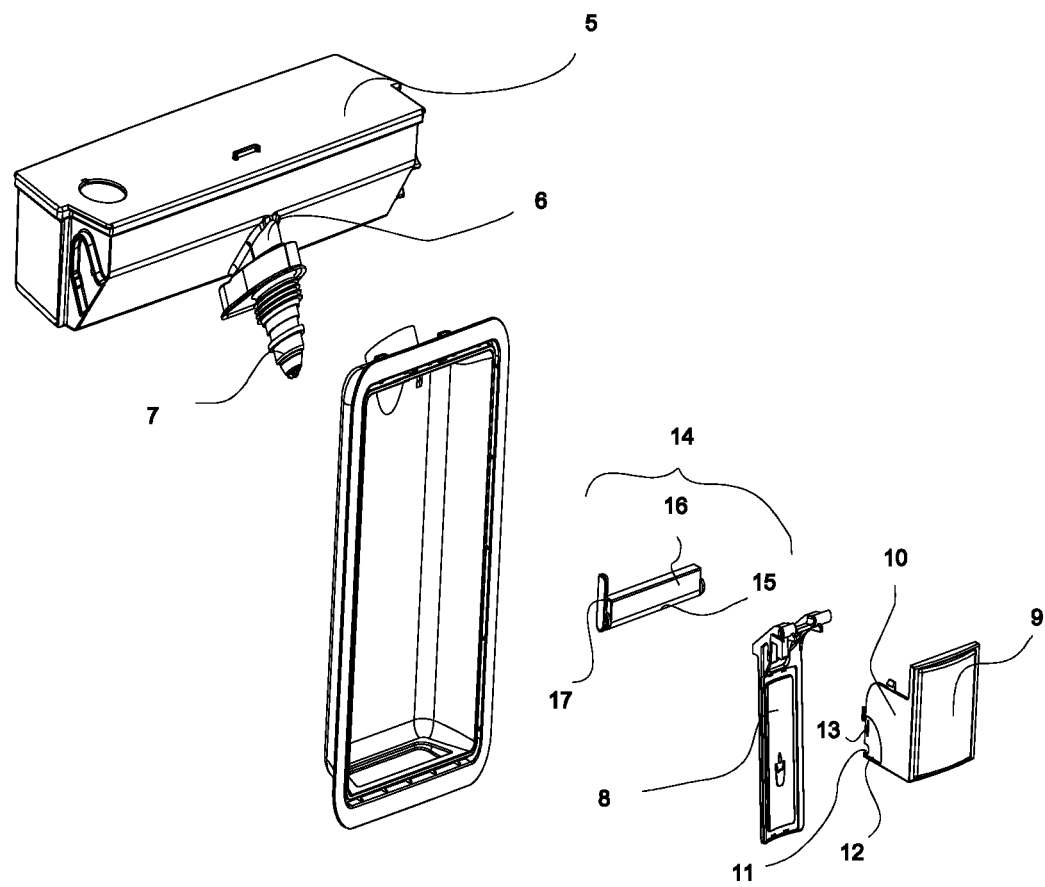


Figure 5

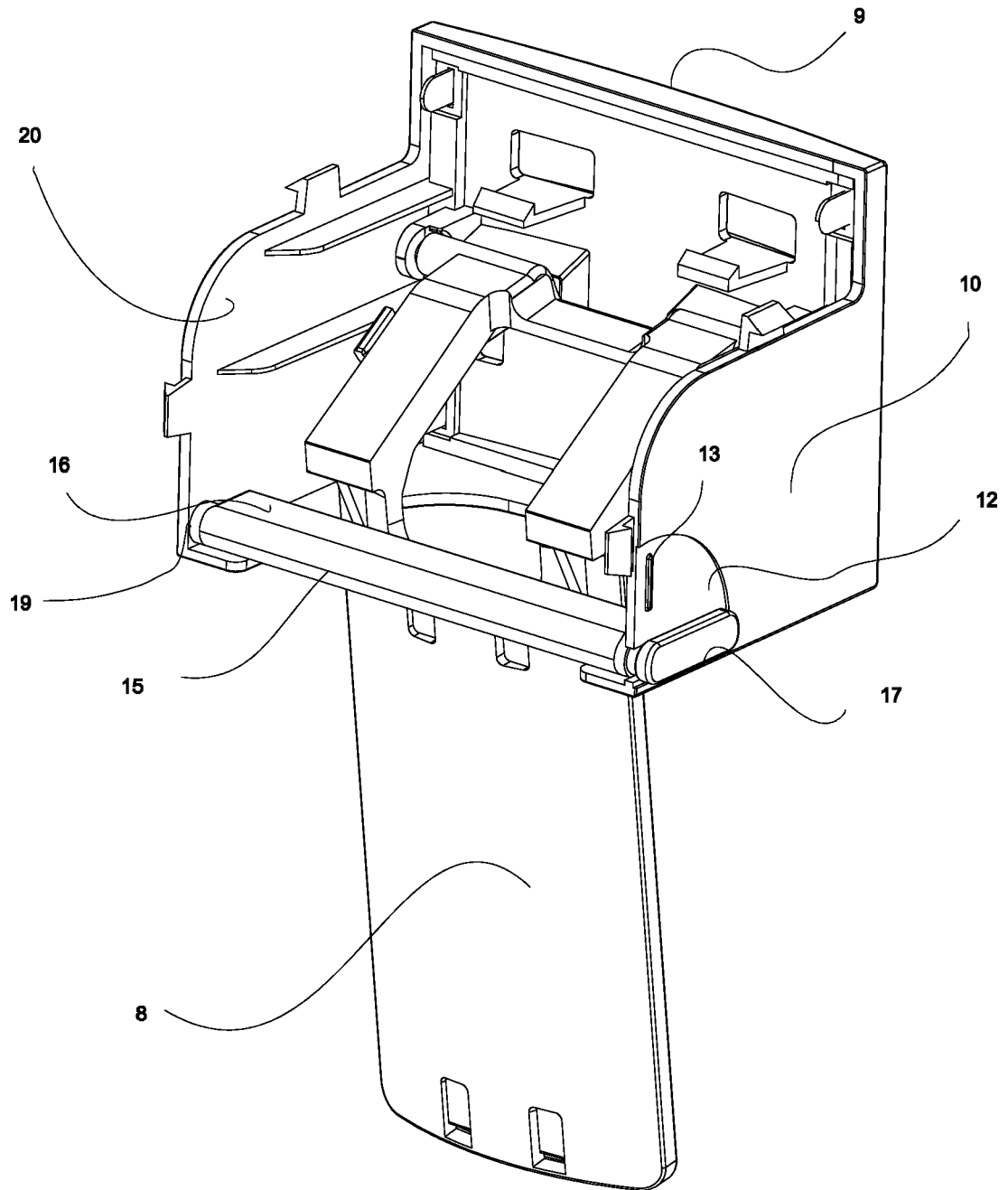


Figure 6

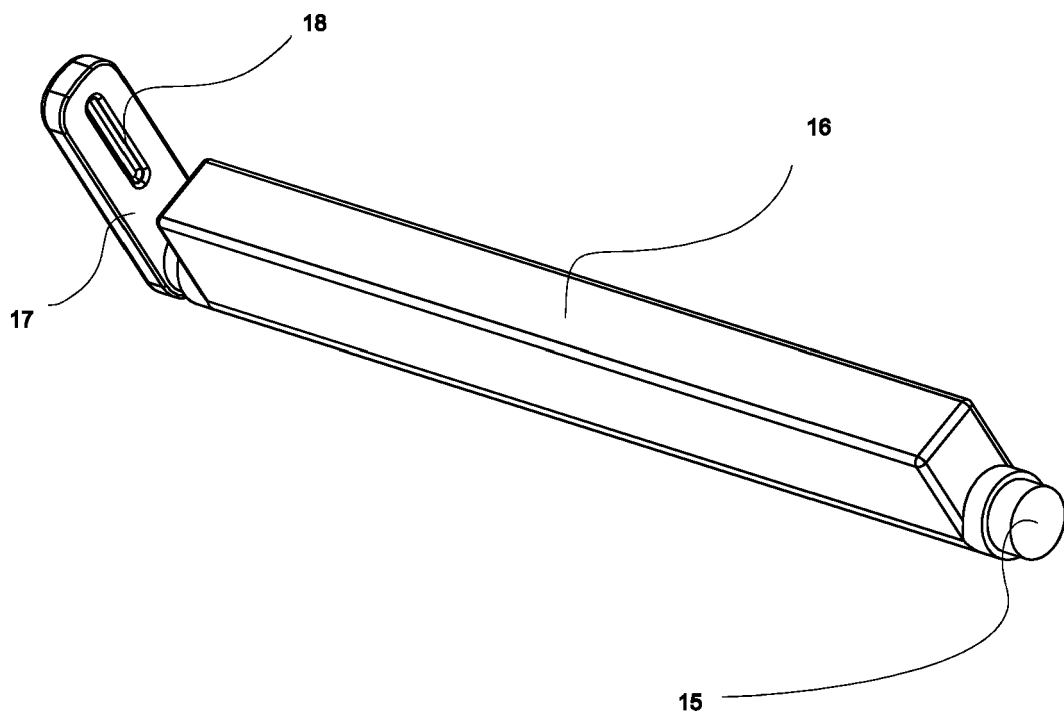


Figure 7

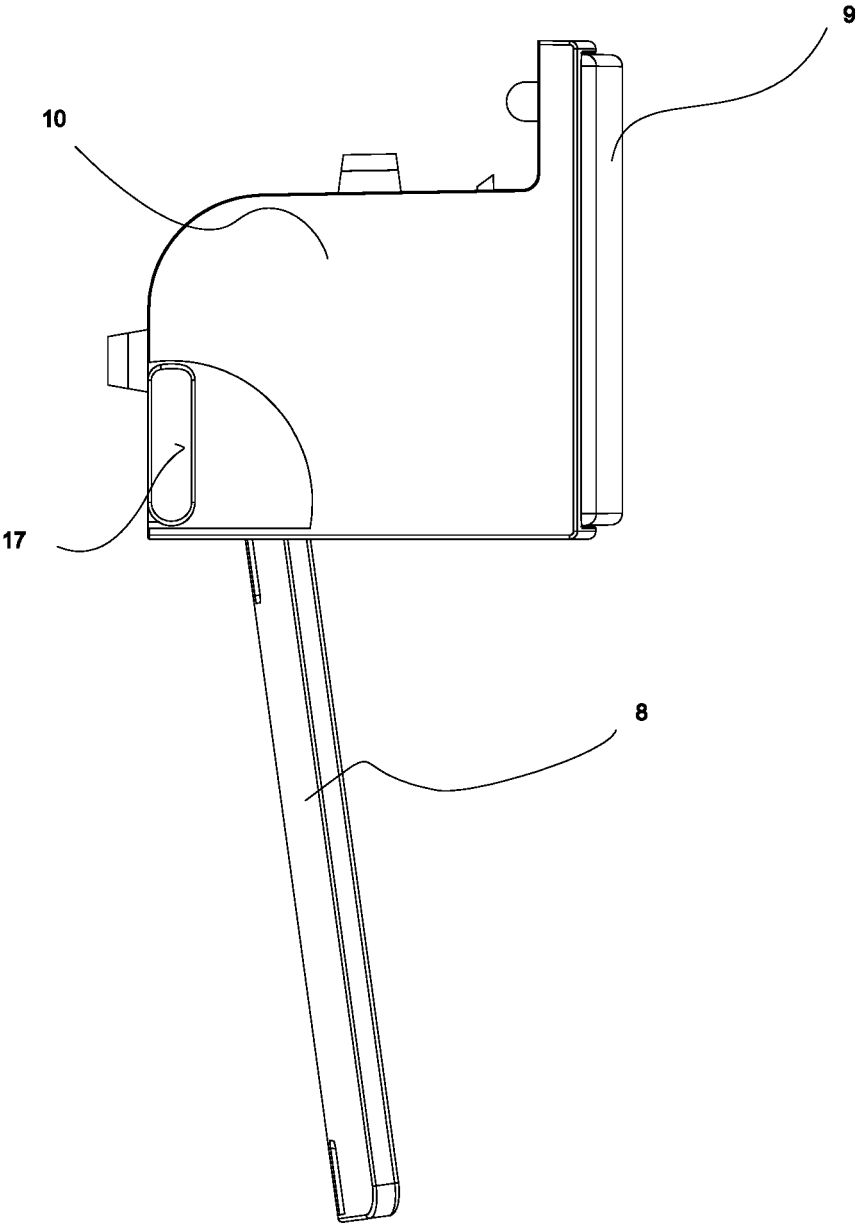
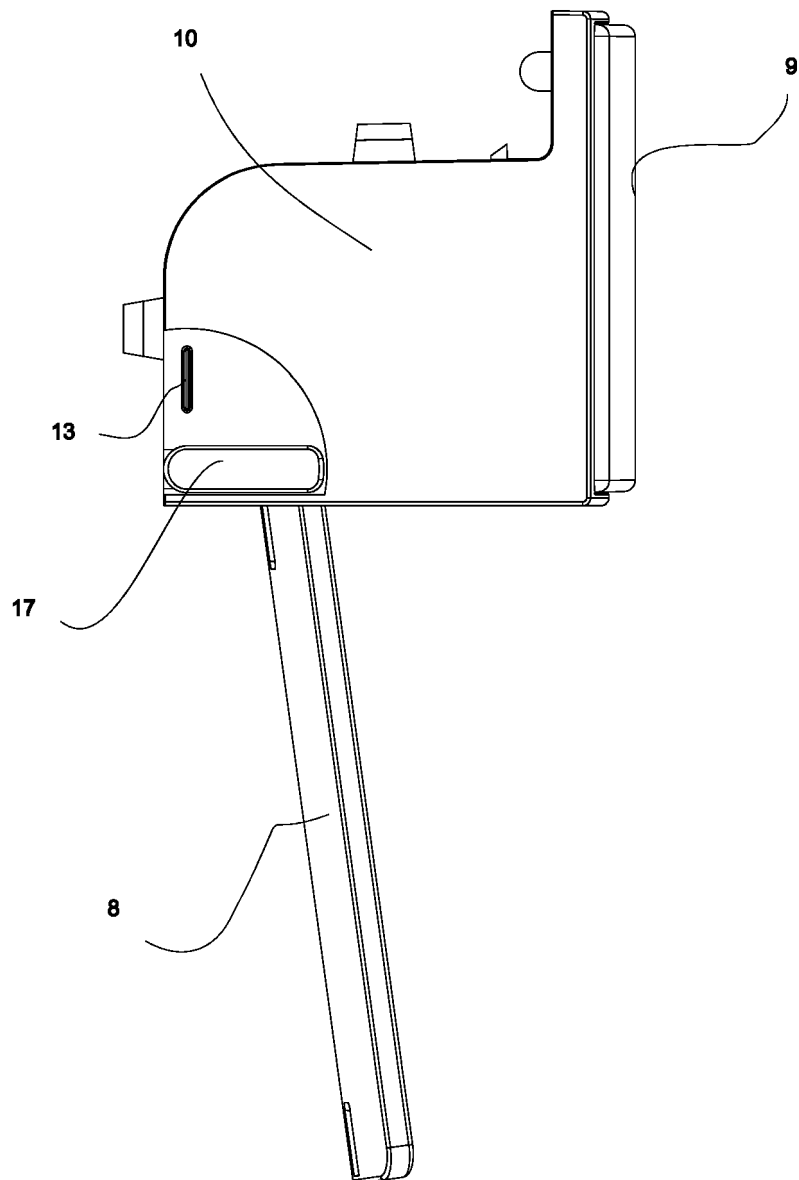


Figure 8



REFERENCES CITED IN THE DESCRIPTION

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