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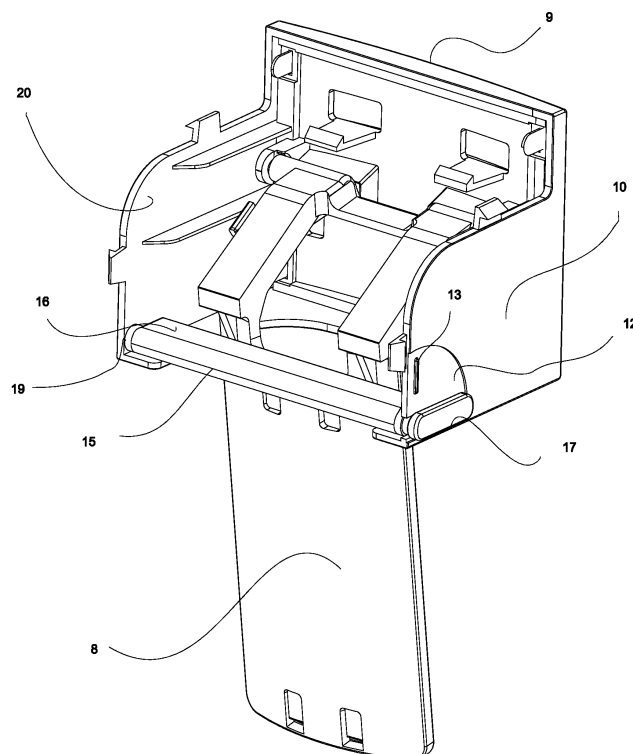
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(54) **A REFRIGERATOR COMPRISING A WATER DISPENSER**

(57) The present invention relates to a refrigerator (1) comprising 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).

Figure 5



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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] 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.

[0008] 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.

[0009] 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.

[0010] The refrigerator of the present invention com-

prises 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.

[0011] 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.

[0012] 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.

[0013] 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.

[0014] 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.

[0015] By means of the present invention, a water dispenser having a practical child lock mechanism and a refrigerator comprising the water dispenser are realized.

[0016] 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 inven-

tion.

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.

[0017] 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

[0018] 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).

[0019] 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 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)

[0020] 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).

[0021] 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).

[0022] In an embodiment of the present invention, the

refrigerator (1) comprises a 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.

[0023] In an embodiment of the present invention, the refrigerator (1) comprises a 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.

[0024] In an embodiment of 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).

[0025] In an embodiment 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.

[0026] In an embodiment of the present invention, the refrigerator (1) comprises the locking mechanism (14) having a 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.

[0027] 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 (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 pro-

vided 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), **characterized by** 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 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)

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** a 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** a 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 Claims 1 to 4, **characterized by** 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.

6. A refrigerator (1) as in Claim 5, **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.

7. A refrigerator (1) as in any one of the above claims, **characterized by** the locking mechanism (14) having a locking tab (17) with a width equal to that of the lock body (16).

8. 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).

Figure 1

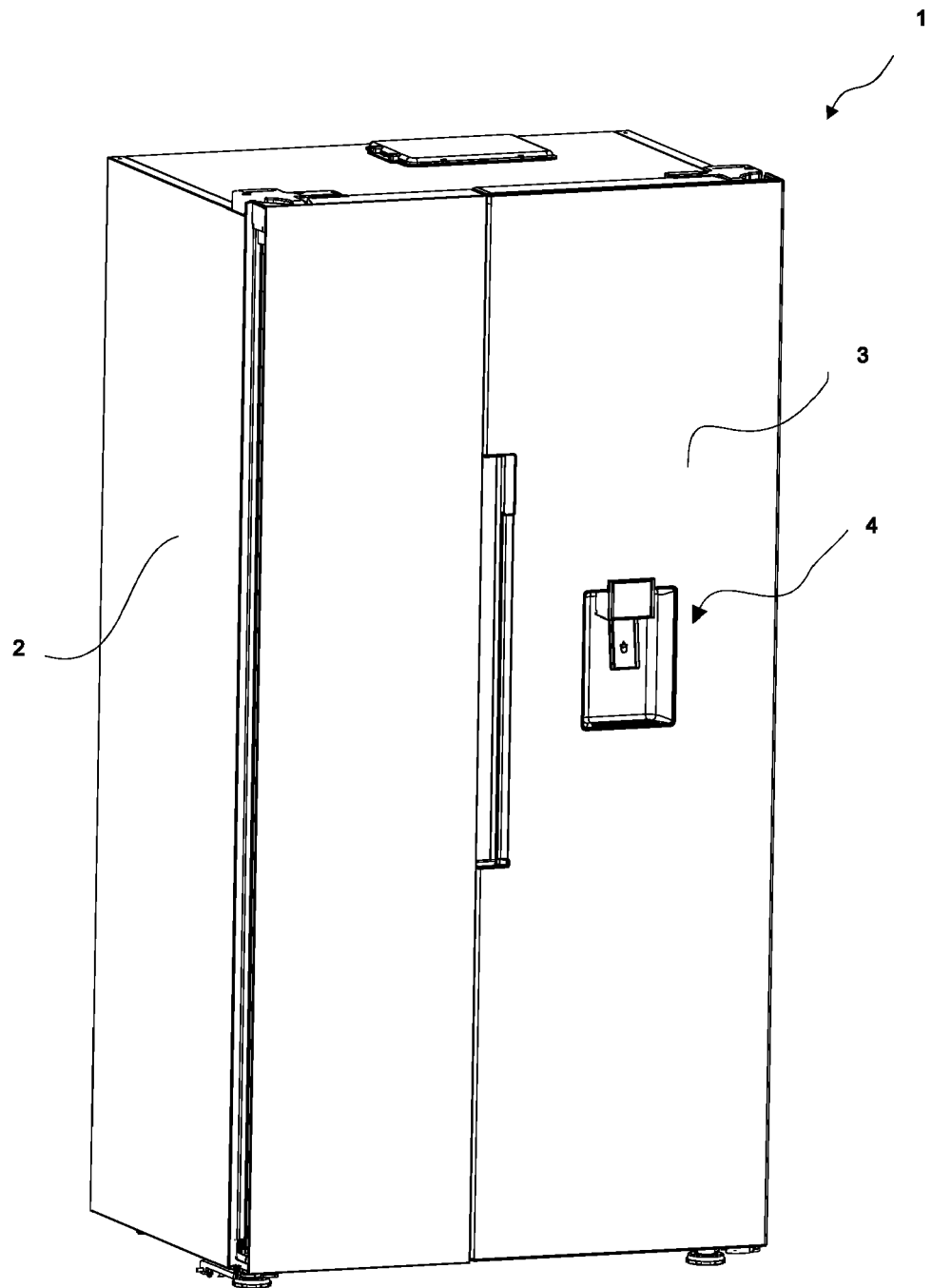


Figure 2

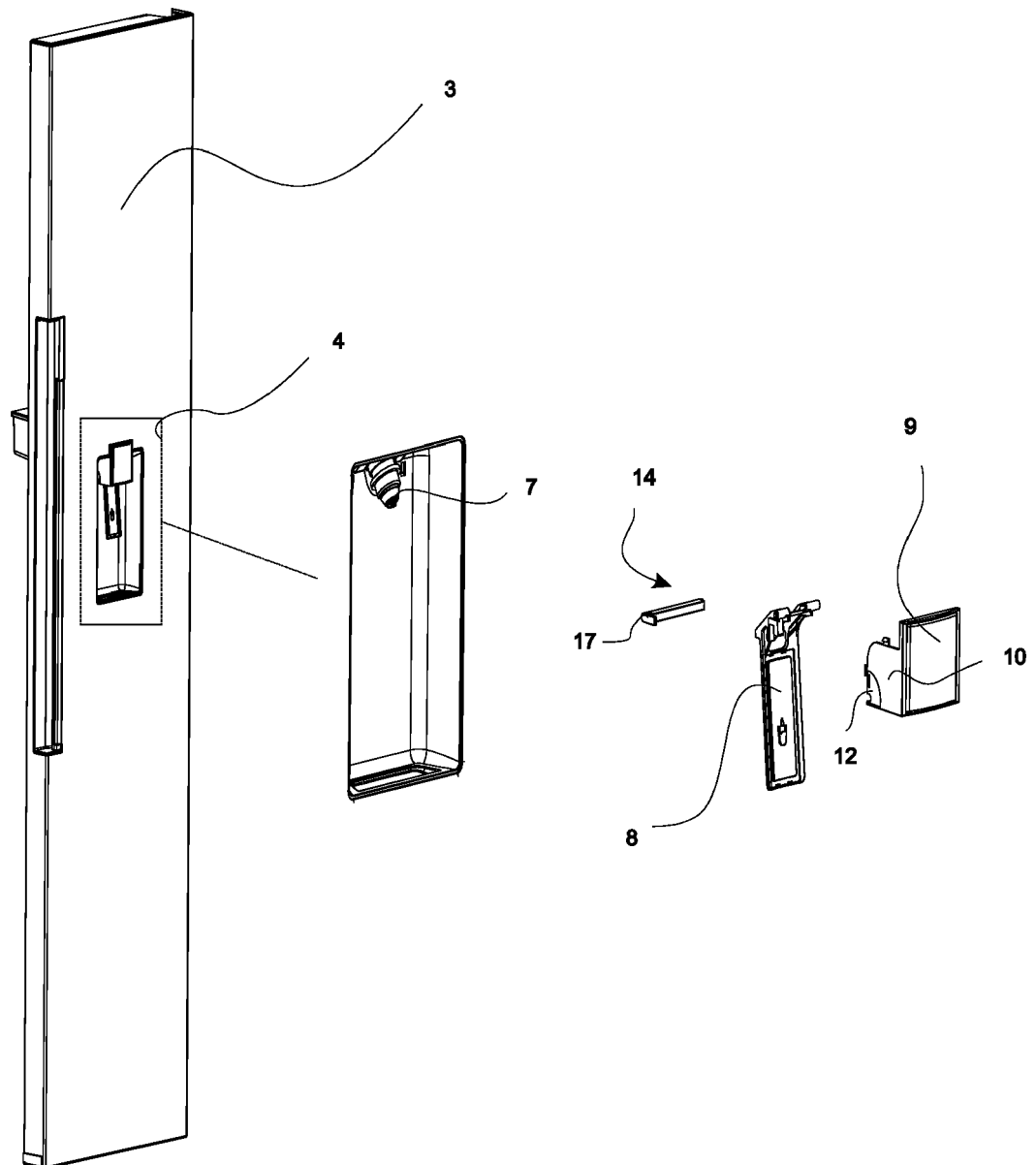


Figure 3

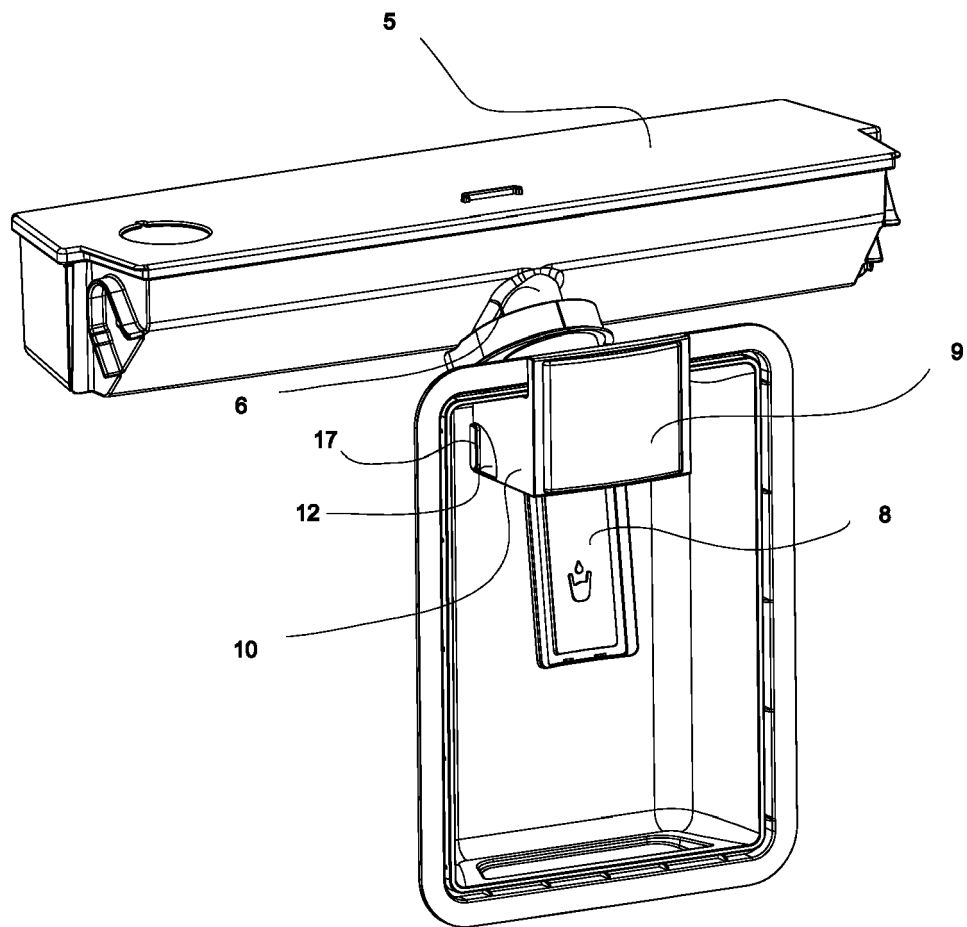


Figure 4

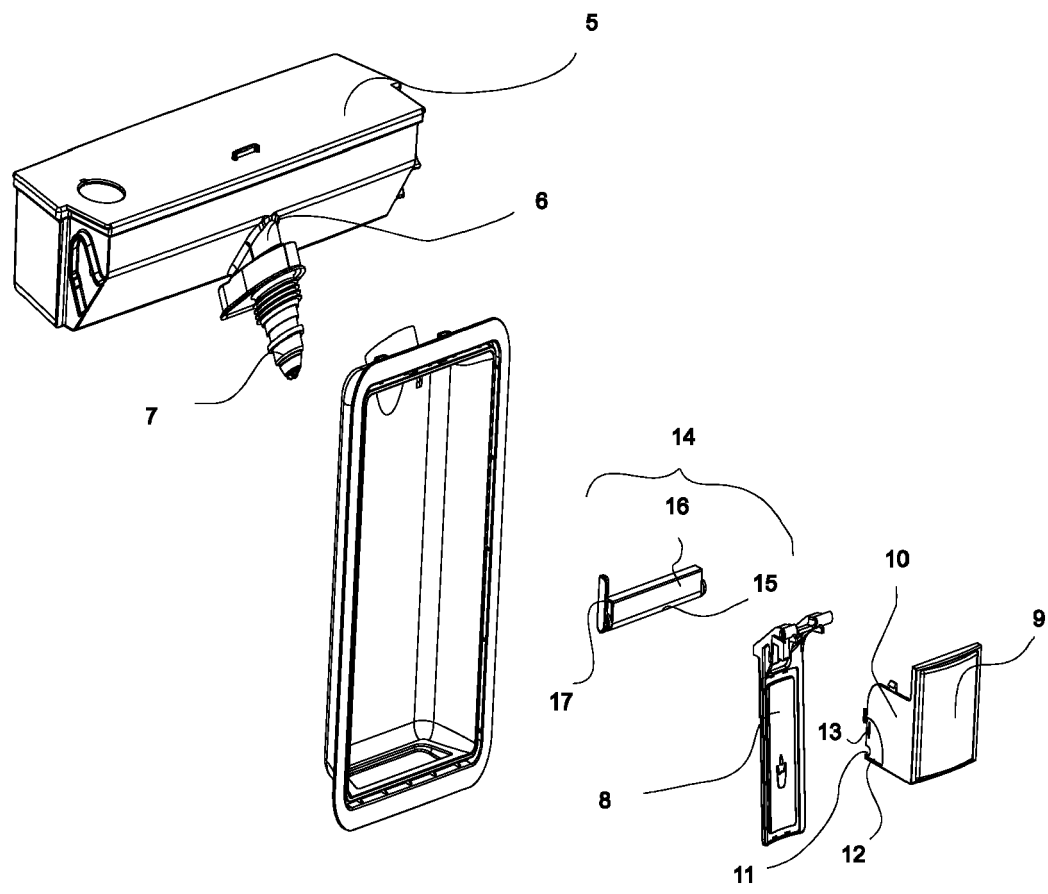


Figure 5

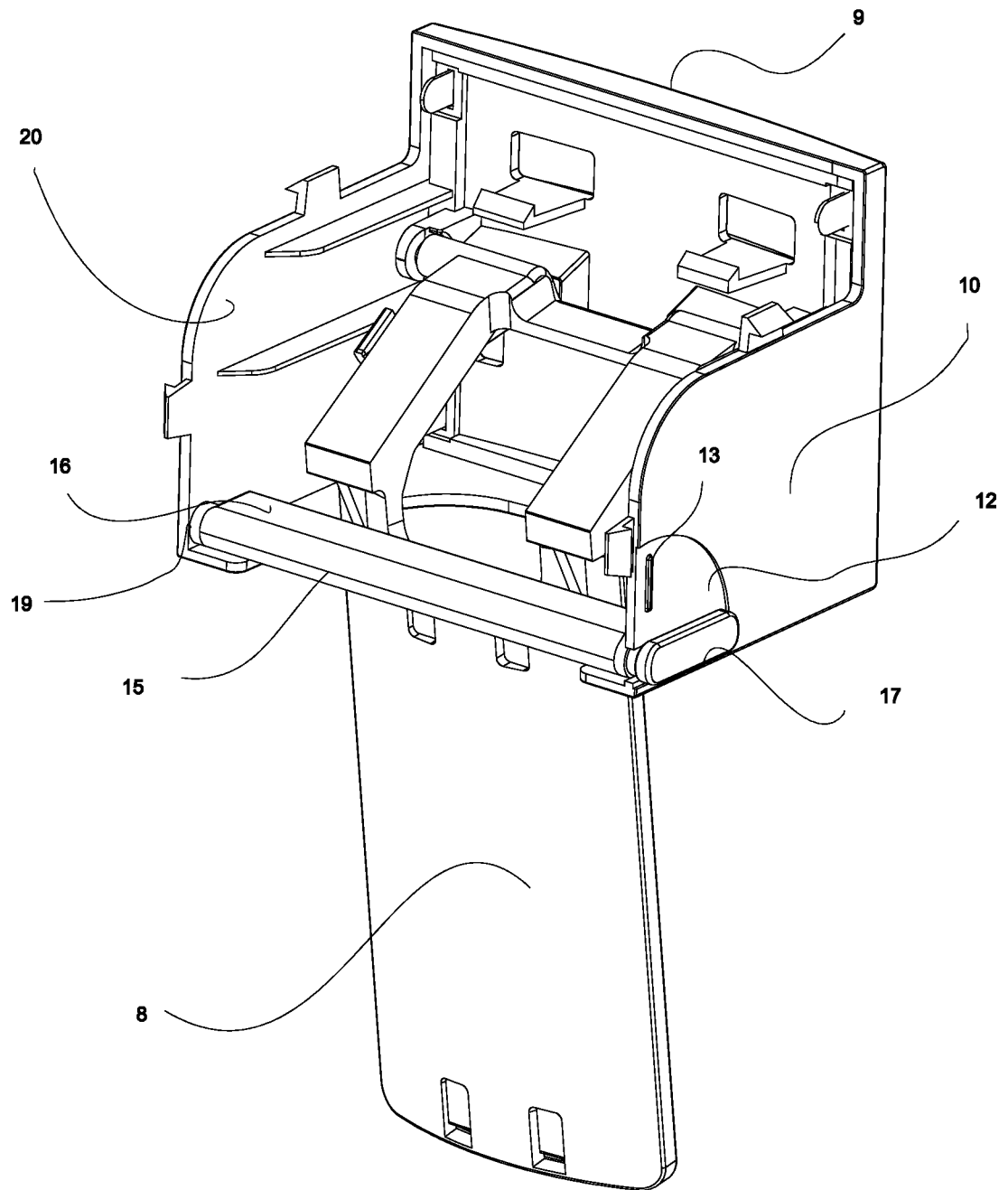


Figure 6

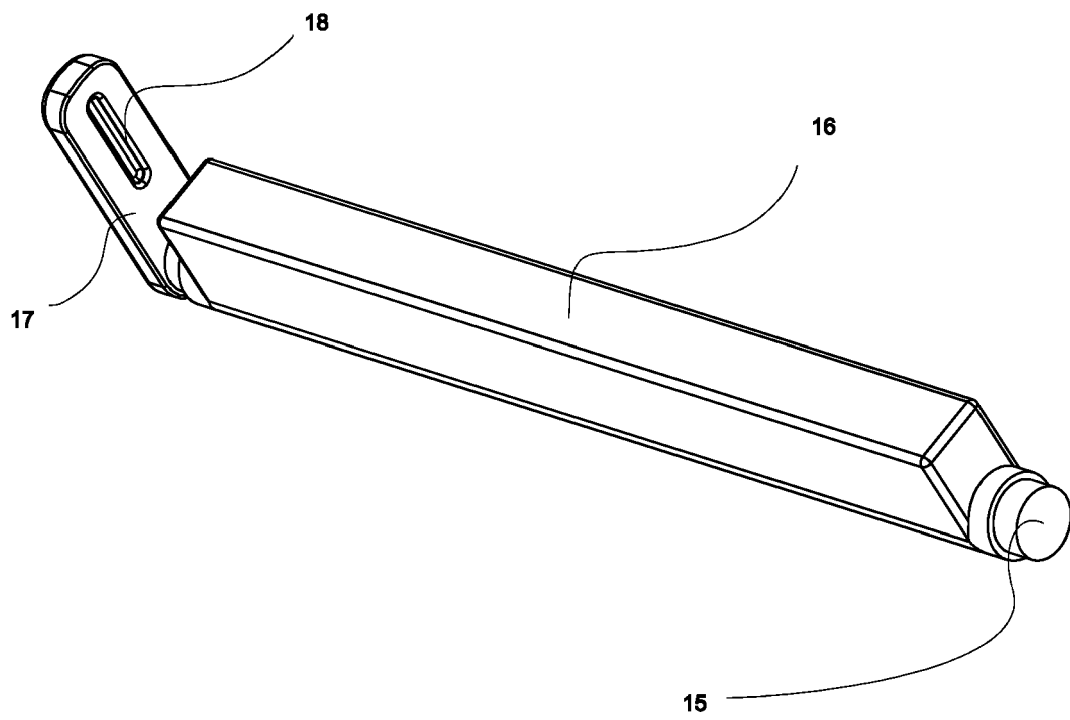


Figure 7

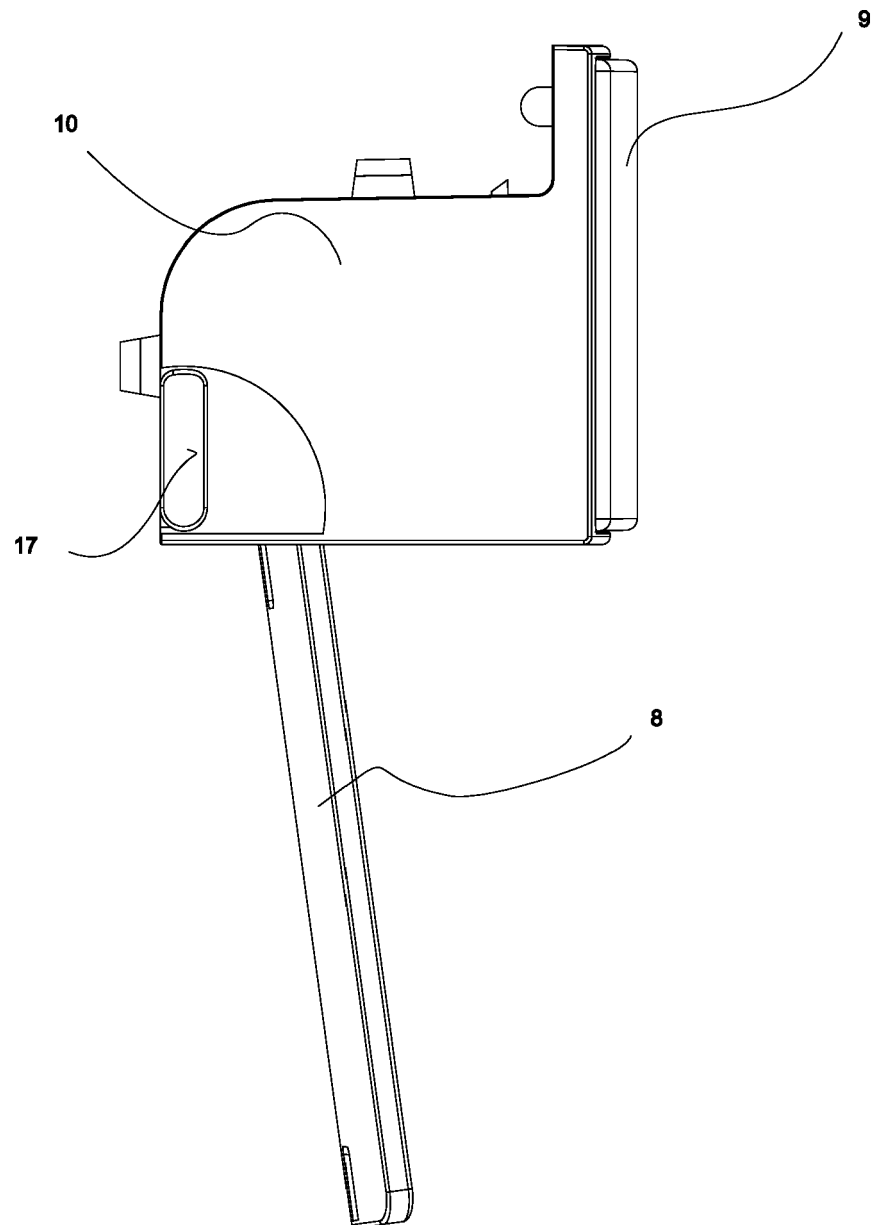
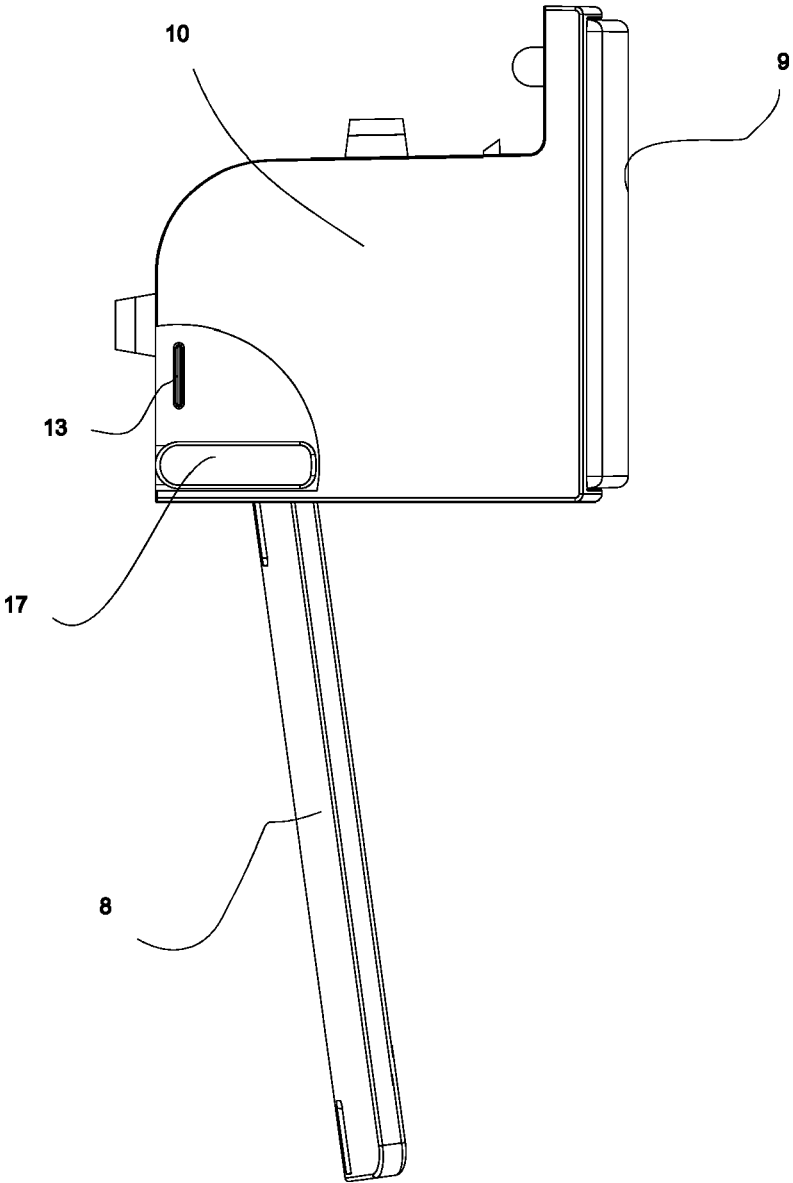


Figure 8





EUROPEAN SEARCH REPORT

Application Number

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EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	CN 105 300 019 A (GUANGDONG HOMA APPLIANCES CO) 3 February 2016 (2016-02-03) * figures 1-4 *	1-5, 7	INV. F25D23/12 B67D3/00
A	----- CN 103 919 468 B (MIDEA GROUP CO LTD; FOSHAN SHUNDE MIDEA WATER DISPENSER MFG CO LTD) 1 June 2016 (2016-06-01) * figures 1-8 *	6, 8	
Y	----- WO 2020/200581 A1 (ARCELIK AS [TR]) 8 October 2020 (2020-10-08) * figures 1-7 *	1	
A	----- US 2013/118203 A1 (SEO WOONKYU [KR] ET AL) 16 May 2013 (2013-05-16) * figures 1-5b *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			F25D B67D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 14 September 2023	Examiner Dezso, Gabor
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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14-09-2023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 105300019 A	03-02-2016	NONE	
CN 103919468 B	01-06-2016	NONE	
WO 2020200581 A1	08-10-2020	EP 3948118 A1	09-02-2022
		TR 201905011 A2	21-10-2020
		WO 2020200581 A1	08-10-2020
US 2013118203 A1	16-05-2013	KR 20130053920 A	24-05-2013
		US 2013118203 A1	16-05-2013

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- KR 20120091532 [0005]
- CN 211582681 U [0006]