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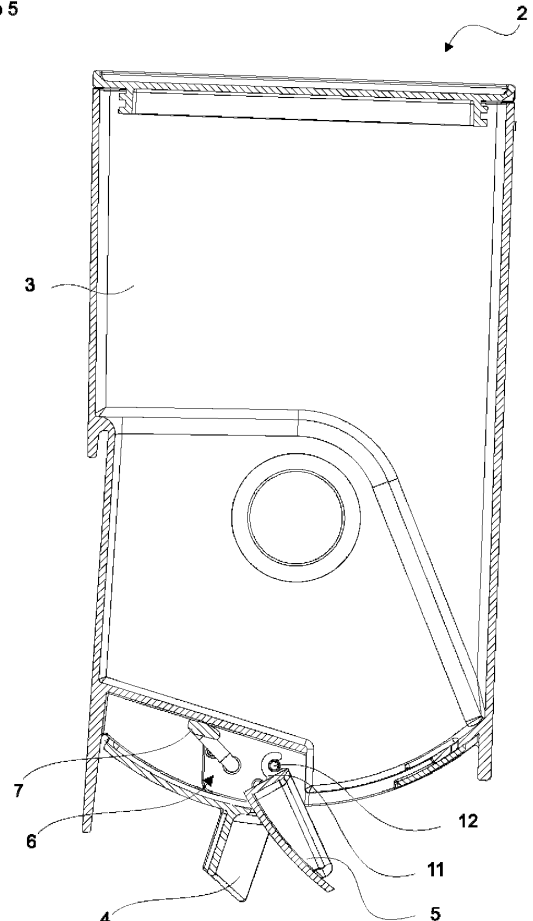
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(54) **A COOLING APPLIANCE HAVING A GRAIN DISPENSING UNIT WITH A LOCKING MECHANISM**

(57) Cooling appliance comprising; a body and a door having an inner liner (1), a grain dispensing unit (2) mounted onto the inner liner (1) comprising; a container (3) for storing the grain, a dispenser (4) pivotably attached on a lower portion of the container (3), wherein the dispenser (4) is pressed by means of force applied by a user to pivot between an open position allowing the grain to flow under the influence of gravity and a closed position inhibiting flow of the grain, a chute (5) provided under the container (3) configured to pivot outwards to transmit the grain in the open position and to pivot back underneath the container (3) to inhibit the flow of grain in the closed position, wherein a locking mechanism (6) blocks the movement of the chute (5).

Figure 5



Description

[0001] The present invention relates to a cooling appliance, in particular to a cooling appliance having a grain dispenser with a locking mechanism.

[0002] High relative humidity is a factor that needs to be taken into account when storing grain and legumes as it adversely affects their shelf life. Humidity increases the possibility of fungal or other bacterial growth on the grain and legumes causing possible health concerns. Apart from micro microbiological infections, it is observed that the average nutritional value loss is directly proportional to the high relative humidity. In regions having high relative humidity, the users are storing their grain and legumes inside cooling appliances to prolong the shelf life. Since the cooling appliances lack necessary storage containers, the users are storing their grain and legumes inside the cooling appliances via jars, and other containers that are mostly hermetically sealed from the inner volume of the cooling appliance. The said storage containers occupy the inner volume of the cooling appliances, decreasing the overall usage volume. Another problem with storing the grain and legumes inside hermetically sealed containers is that the grain and legumes are living organisms and continue their metabolic activities. Meaning that they continue to inhale and exhale and need to be aired every now then to keep their nutritional value high. Apart from this, the grain and legumes release water vapor during their metabolic activities. In the case wherein the users store their grain and legumes in an air tight container and inside the cooling appliances, the water vapor condenses inside the container causes further health issues. Additionally, the users must remove the said jars or containers from the cooling appliance, open them and pour the contents to a secondary and a smaller container to scale the amount before cooking. This is unfavorable from users' perspective as it causes additional work load. As a result, grain dispensing units are provided to users to store their grain or legumes inside the cooling appliances. However, the grain dispensing units, upon being unintentionally activated, causes the grain or legumes to flow inside the cooling appliance which is unfavorable.

[0003] A prior art publication in the technical field of the present invention may be referred to as JP5118698B2 among others, the document disclosing a cooling appliance having a container specialized for storing granular foodstuff such as grain and legumes.

[0004] A prior art publication in the technical field of the present invention may be referred to as KR101336894B1 among others, the document disclosing a cooling appliance having a container specialized for storing granular foodstuff such as grain and legumes.

[0005] An objective of the present invention is to provide a specialized grain dispensing unit inside the cooling appliance having a locking mechanism preventing accidental flow of the grain or legumes inside the cooling appliance.

[0006] Another objective of the present invention is to provide a locking mechanism which can be utilized independent of the dispenser lever of the grain dispensing unit therefore preventing breakage of the parts of the locking mechanism.

[0007] The method realized to achieve the aim of the present invention and disclosed in the first claim and the dependent claims comprises a cooling appliance having a body and a door pivotable attached onto the body. The door and the body has an inner liner facing the interior volume of the cooling appliance in the closed position of the door. A grain dispensing unit is detachably mounted onto the inner liner. The grain dispensing unit comprises a container wherein the grain, legume or similar granular foodstuff are stored. A dispenser is pivotable attached on to a lower portion of the container between a closed position and an open position. The dispenser is pressed by means of force exerted by a user and pivots from the closed position to the open position. A chute is provided on the dispenser and is configured to allow the grain to flow under the influence of gravity in the open position of the dispenser. The grain dispenser comprises a locking mechanism blocking the movement of the chute.

[0008] In an embodiment of the invention, the locking mechanism is pivotable between a first position and a second position. During the first position, the locking mechanism abuts against the chute blocking the movement of the chute. During second position, the locking mechanism pivots away from the chute freeing the movement of the chute.

[0009] In an embodiment of the invention, the locking mechanism comprises a grip portion. The grip portion facilitates the activation of the locking mechanism for the user.

[0010] In an embodiment of the invention, the locking mechanism comprises a slot into which the lug is seated in the first position. The slot provides a rigid structure.

[0011] In an embodiment of the invention, the locking mechanism comprises a protrusion via which the lug is rigidly fixed in the second position.

[0012] In an embodiment of the invention, the dispenser is freely pivotable irrespective of the position of the chute and the locking mechanism. As a result of this, even if the user presses the dispenser, the locking mechanism will not be damaged.

[0013] In an embodiment of the invention, the dispenser prevents access to the locking mechanism.

[0014] In an embodiment of the invention, the chute is attached to the container by means of a hook positioned on the chute and a retainer positioned on the container.

[0015] In an embodiment of the invention, the dispenser comprises a guide utilized to guide the chute as its position changes from first position to the second position or vice versa.

[0016] By means of the present invention, the users are provided with a grain dispensing unit with a locking mechanism which only limits the movement of the chute thereby preventing physical damages to the grain dis-

pensing unit should the users apply force on the dispenser.

[0017] Another advantage of the present invention is to provide the users a lockable grain dispensing unit

[0018] The drawings are not meant to delimit the scope of protection as identified in the claims nor should they be referred to alone in an effort to interpret the scope identified in the claims without recourse to the technical disclosure in the description of the present invention.

Figure 1 - is a front view of the cooling appliance

Figure 2 - is an isolated view of the door

Figure 3 - is an exploded view of the grain dispensing unit

Figure 4 - is a view of the grain dispensing unit from below

Figure 5 - is a side cross sectional view of the grain dispensing wherein the locking mechanism is in second position and wherein the dispenser is in open position

Figure 6 - is a side cross sectional view of the grain dispensing wherein the locking mechanism is in first position and wherein the dispenser is in closed position

Figure 7 - is a side cross sectional view of the grain dispensing wherein the locking mechanism is in first position and wherein the dispenser is in open position

[0019] The following numerals are assigned to different parts demonstrated in the drawings and referred to in the present detailed description of the invention:

1. Inner liner
2. Grain dispensing unit
3. Container
4. Dispenser
5. Chute
6. Locking mechanism
7. Lug
8. Grip portion
9. Slot
10. Protrusion
11. Hook
12. Retainer
13. Guide

[0020] The present invention relates to a cooling appliance comprising; a body and a door having an inner liner (1), a grain dispensing unit (2) mounted onto the inner liner (1) comprising; a container (3) for storing the grain, a dispenser (4) pivotably attached on a lower portion of the container (3), wherein the dispenser (4) is pressed by means of force applied by a user to pivot between an open position allowing the grain to flow under the influence of gravity and a closed position inhibiting flow of the grain, a chute (5) provided under the container (3) configured to pivot outwards to transmit the grain in

the open position and to pivot back underneath the container (3) to inhibit the flow of grain in the closed position.

[0021] The present invention further relates to a cooling appliance comprising a locking mechanism (6) blocking the movement of the chute (5). The container (3) is used as a volume to store granular foodstuff such as the grain and legumes. The dispenser (4) is pivotably attached on a lower portion of the container (3). The dispenser (4) pivots between the closed position and the open position and as the name suggests, during the open position, the grain and legumes are free to flow from the container (3) towards the chute (5) provided on the dispenser (4). Likewise, during the closed position, the grain and legumes are prevented to flow through the dispenser (4) via the chute (5). The lower surface of the container (3) is in conical shape to facilitate the flow of the grain and legumes. The lower most portion of the said conical structure which is an opening for allowing flow of grain is covered by the chute (5) in the closed position. As the dispenser (4) is pressed by means of force applied by a user, the chute (5) moves away from the lower most portion of the said conical structure thus forming a clearance for the grain to flow. The structure of the container (3) and the chute (5) is formed such that the weight of the grain stored inside the container (3) is not sufficient to force the dispenser (4) to the open position. The grain dispensing unit (2) is removably attached onto the inner liner (1). The user may easily remove the grain dispensing unit (2) from the inner liner (1). The chute (5) is provided under the container (3) and is configured to pivot outwards to transmit the grain or legumes stored inside the container (3) as the user presses the dispenser (4). A locking mechanism (8) is provided under the container (3) and behind the chute (5). The locking mechanism (8) allows or blocks the movement of the chute (5). By means of the locking mechanism (8), the users can lock the chute (5) which in turn eliminates the accidental activation of the chute (5) even if the user pushes the dispenser (4). Another advantageous effect provided by means of the locking mechanism (8) is that the locking mechanism (8) only locks the chute (5). Thus, the user may push the dispenser (5) towards the open position without damaging any parts of the locking mechanism (8), chute (5) or the dispenser (3).

[0022] The present invention further relates to a cooling appliance wherein the locking mechanism (6) comprises a lug (7) pivotable between a first position during which the lug (7) abuts against and chute (5), locking the movement of the chute (5), and a second position during which the lug (7) moves away from the chute (5), freeing the movement of the chute (5). The locking mechanism (6) comprises the lug (7) wherein the lug (7) is pivotable between said positions. During the position the lug (7) abuts against and chute (5) preventing the pivot movement of the chute (5) if the user presses the dispenser (4). In the case, the user wants to use the grain dispensing unit (2) to obtain the grain or legumes stored therein, the user pivots the lug (7) towards the second position. Dur-

ing the second position, the lug (7) does not contact the chute (5) and the chute (5) is free to pivot outwards if the dispenser (4) is pressed by means of force applied by the user. An advantageous effect provided by means of the lug (7) is that the user may easily pivot it between the said positions, locking and freeing the pivot movement of the chute (5).

[0023] The present invention further relates to a cooling appliance wherein the locking mechanism (6) comprises a grip portion (8) facilitating the movement of the locking mechanism (6). The locking mechanism (6) comprises a grip portion (8), provided on the lug (7), which facilitating the movement of the locking mechanism (6).

[0024] The present invention further relates to a cooling appliance wherein the locking mechanism (6) comprises a slot (9) into which the lug (7) is seated in the first position. As the user pivots the lug (7) towards the first position, the lug (7) becomes seated inside the slot (9) provided as a part of the locking mechanism (8). As a result, the lug (7) is rigidly fixed, eliminating the possibility of accidental pivot of the chute (5).

[0025] The present invention further relates to a cooling appliance wherein the locking mechanism (6) comprises a protrusion (10) onto which the lug (7) is seated in the second position, stabilizing the locking mechanism (6) in the second position. By means of the protrusion (10), the lug (7) is rigidly fixed in the second position, eliminating the possibility of the dispenser (4) hitting the lug (7) as the user presses the dispenser (4) in order to receive the grain or legumes stored inside the container (3).

[0026] The present invention further relates to a cooling appliance wherein the dispenser (4) is configured to be freely pivotable irrespective of the position of the locking mechanism (6). The dispenser (4) is free to pivot between the open position and the closed position. By means of the free movement of the dispenser (4), the user may force the dispenser (4) towards the open position even if the locking mechanism (8) is in locked position. As a result, accidental breakage of the parts of the grain dispensing unit (2) is prevented.

[0027] The present invention further relates to a cooling appliance wherein the dispenser (4) prevents access to the locking mechanism (6) in the open position. The dispenser (4), upon being pivoted towards the open position, almost completely covers the locking mechanism (6) from outside. In such case and if the locking mechanism (6) is in the second position, the grain or legumes freely flows through the chute (5). In the other case, wherein the dispenser (4) is pivoted towards the open position and the locking mechanism (6) is in the first position, grain or legumes are blocked from flowing through the chute (5). By means of the dispenser (4) preventing access to the locking mechanism (6) in the open position, the users, especially children, are prevented to interfere with the locking mechanism (6), preventing accidental flow of the grain or legumes even if the user tries to tamper with the locking mechanism (6).

[0028] The present invention further relates to a cooling appliance wherein the chute (5) is attached to the container (3) by a hook (11) and a retainer (12) provided on the chute (5) and the container (3) respectively. The retainer (12) is cylindrical shaped and the hook (11) is attached to the retainer (12). The retainer (12) is placed inside the hook (11).

[0029] The present invention further relates to a cooling appliance wherein the dispenser (4) comprises a guide (13) guiding the pivot movement of the chute (5). The dispenser (4) comprises a crescent shaped guide (13) guiding the pivot movement of the chute (5).

[0030] The present invention further relates to a cooling appliance wherein the dispenser (4) is biased towards the closed position by means of a helical spring.

[0031] In the cooling appliance (1) of the present invention, the users are provided with a grain dispensing unit (2) having a locking mechanism (6), wherein the locking mechanism (6) blocks only the movement of the chute (5) which helps eliminates the possibility of accidental flow of grain or legumes should the user or a child activates the dispenser (4).

[0032] Another advantageous effect provided by means of the present invention is that the locking mechanism (6) is not connected to the dispenser (4) eliminating the possibility of breakage of the parts of the locking mechanism (6) by the force applied by a user to pivot the dispenser (4) towards the open position.

Claims

1. A cooling appliance comprising;
a body and a door having an inner liner (1),
a grain dispensing unit (2) mounted onto the inner liner (1) comprising;
a container (3) for storing the grain,
a dispenser (4) pivotably attached on a lower portion of the container (3),
wherein the dispenser (4) is pressed by means of force applied by a user to pivot between an open position allowing the grain to flow under the influence of gravity and a closed position inhibiting flow of the grain,
a chute (5) provided under the container (3) configured to pivot outwards to transmit the grain in the open position and to pivot back underneath the container (3) to inhibit the flow of grain in the closed position,
characterized by
a locking mechanism (6) blocking the movement of the chute (5).
2. A cooling appliance (1) according to claim 1, **characterized in that** the locking mechanism (6) comprises a lug (7) pivotable between a first position during which the lug (7) abuts against and chute (5), locking the movement of the chute (5), and a second

position during which the lug (7) moves away from the chute (5), freeing the movement of the chute (5).

3. A cooling appliance (1) according to claim 2, **characterized in that** the locking mechanism (6) comprises a grip portion (8) facilitating the movement of the locking mechanism (6). 5
4. A cooling appliance (1) according to claims 2 or 3, **characterized in that** the locking mechanism (6) comprises a slot (9) into which the lug (7) is seated in the first position. 10
5. A cooling appliance (1) according to claims 2 to 4, **characterized in that** the locking mechanism (6) comprises a protrusion (10) onto which the lug (7) is seated in the second position, stabilizing the locking mechanism (6) in the second position. 15
6. A cooling appliance (1) according to any of preceding claims, **characterized in that** the dispenser (4) is configured to be freely pivotable irrespective of the position of the locking mechanism (6). 20
7. A cooling appliance (1) according to any of preceding claims, **characterized in that** the dispenser (4) prevents access to the locking mechanism (6) in the open position. 25
8. A cooling appliance (1) according to any of preceding claims, **characterized in that** the chute (5) is attached to the container (3) by a hook (11) and a retainer (12) provided on the chute (5) and the container (3) respectively. 30
9. A cooling appliance (1) according to any of preceding claims, **characterized in that** the dispenser (4) comprises a guide (13) guiding the pivot movement of the chute (5). 35

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Figure 1

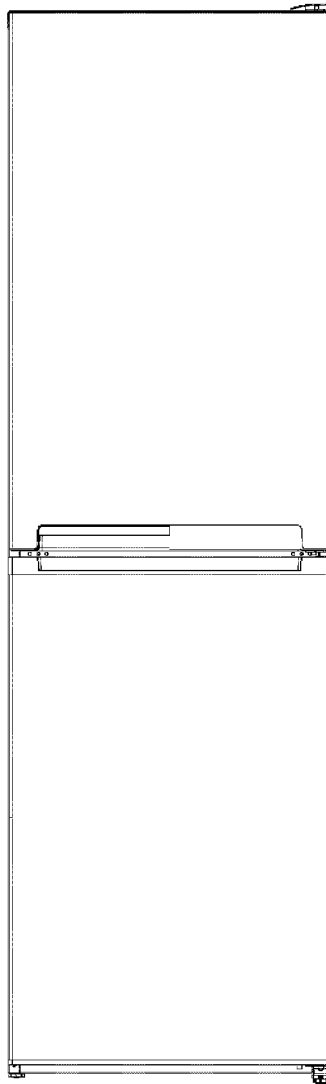


Figure 2

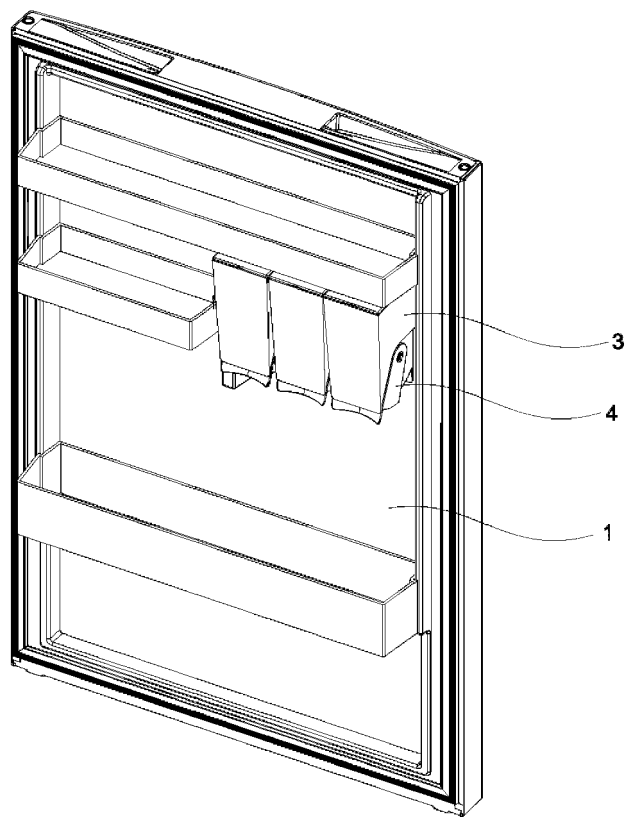


Figure 3

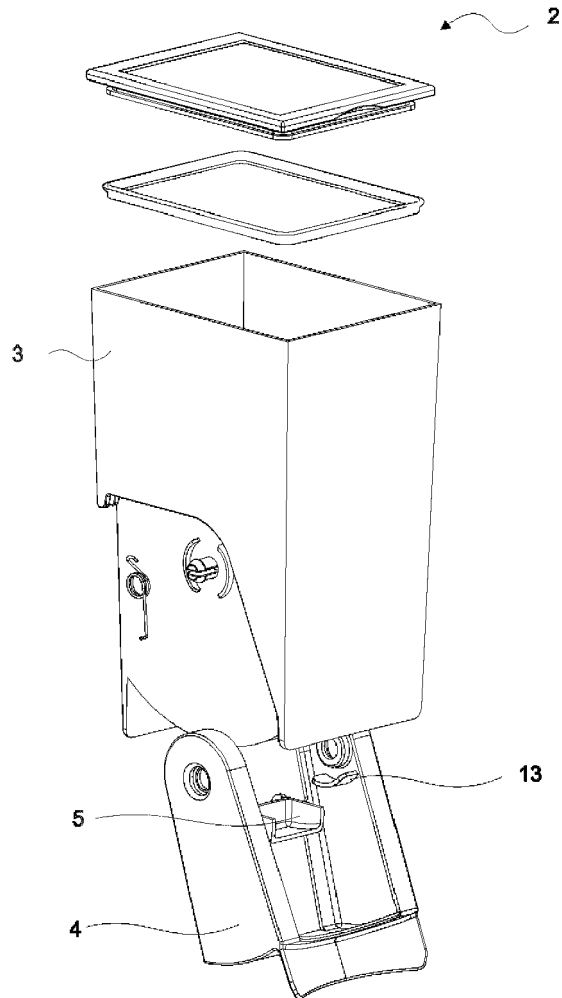


Figure 4

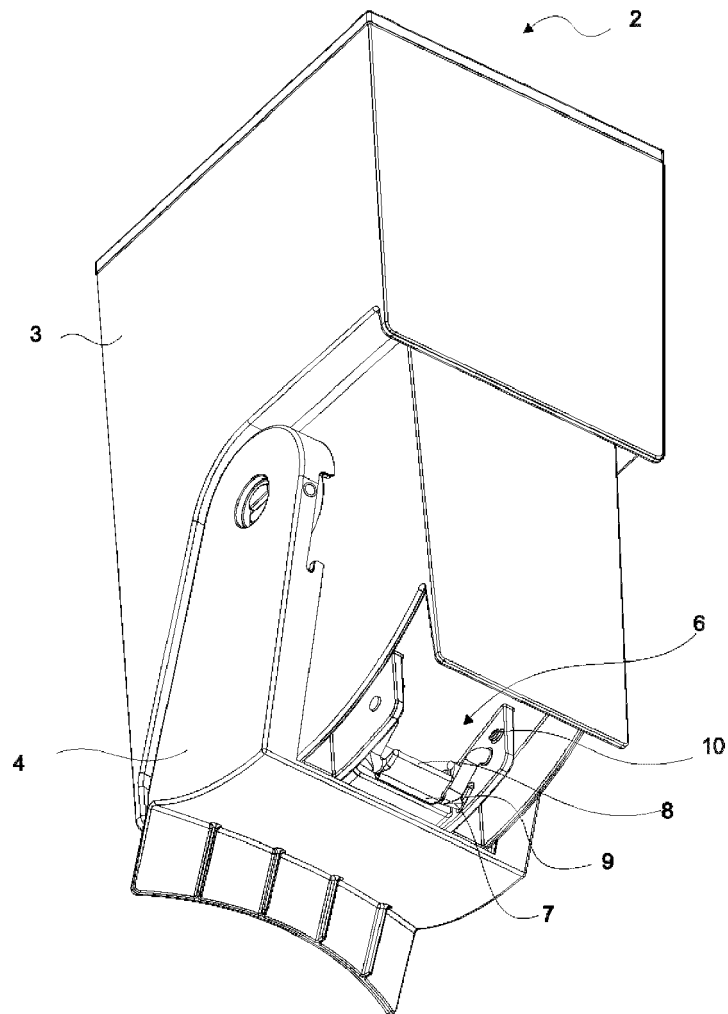


Figure 5

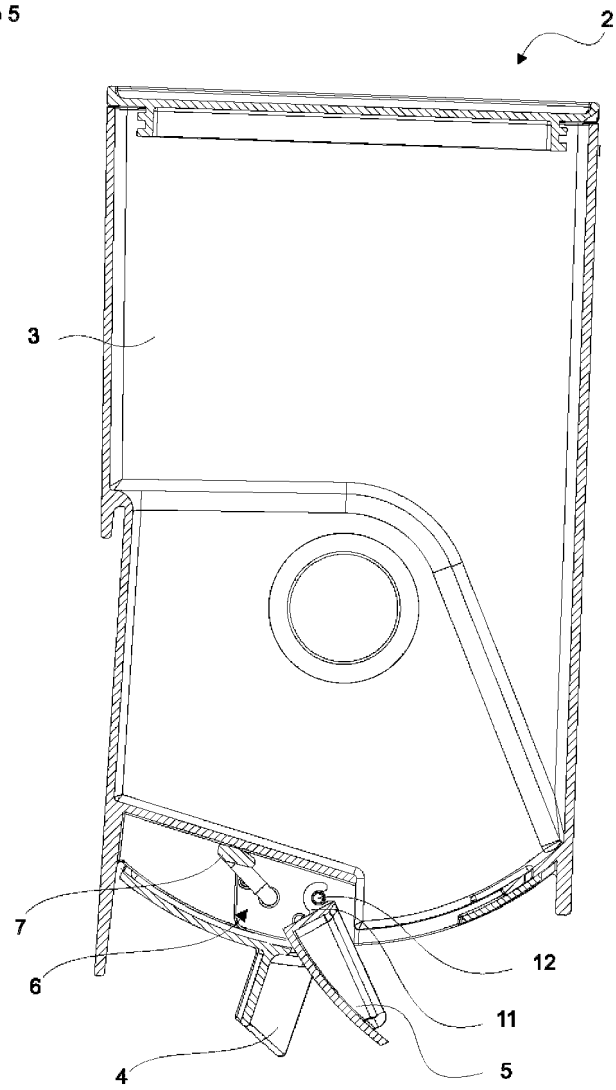


Figure 6

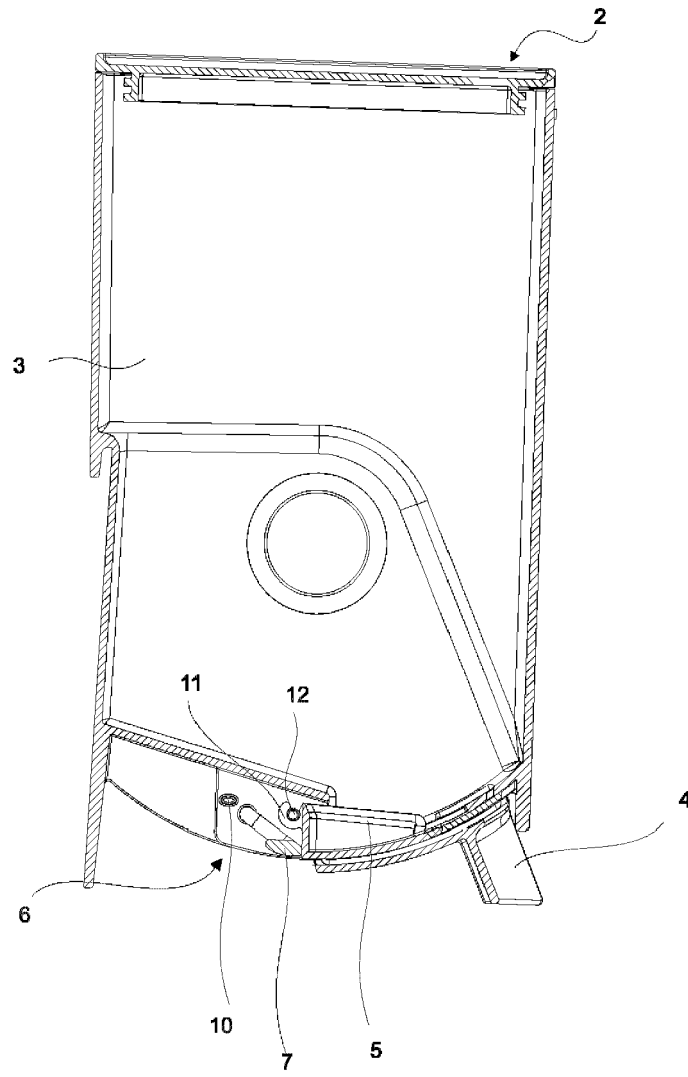
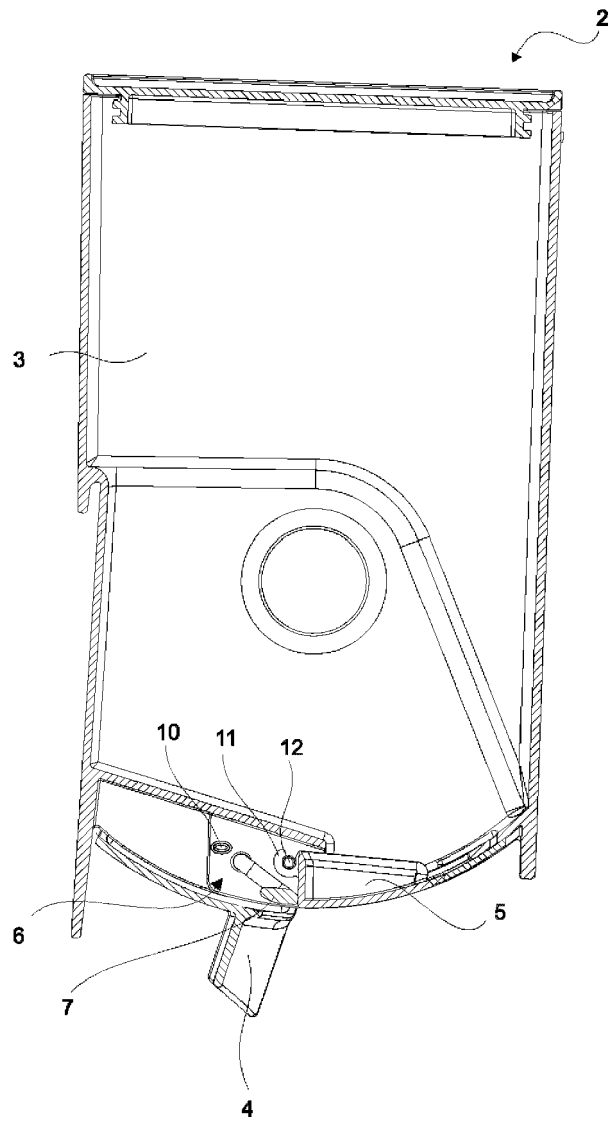


Figure 7





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Application Number

EP 21 18 2018

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EPO FORM 1503 03.82 (P04C01)

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			TECHNICAL FIELDS SEARCHED (IPC)
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1 The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 9 December 2021	Examiner Yousufi, Stefanie
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