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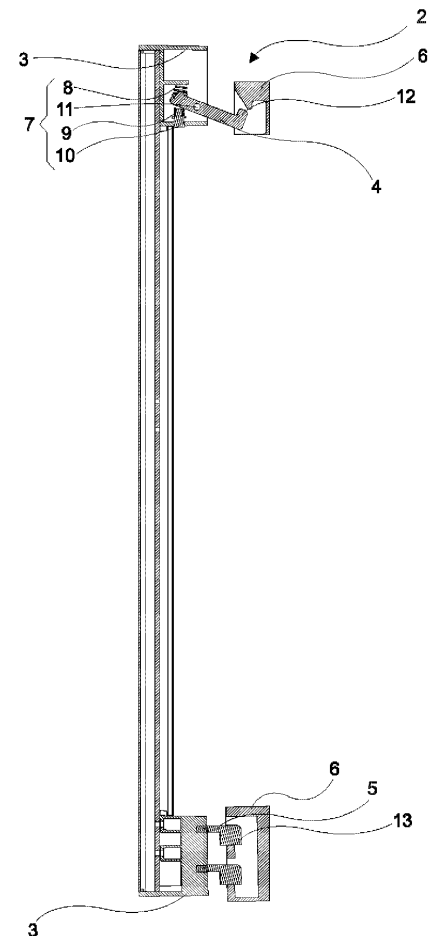
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(54) **A COOLING APPLIANCE HAVING AN IMPROVED HANDLE MECHANISM**

(57) The present invention relates to a cooling appliance comprising; a body and a door (1) attached to the body between a closed position and an open position; a handle (2) attached onto an edge of the door (1) having a pair of supports (3) distanced apart from one another on the handle (2);
a first connecting tab (4) and a second connecting tab (5) extending away from each of the supports (3); a pair of seating members (6) provided on the door (1) into which the connecting tabs (4,5) are placed, wherein one of the supports (3) comprises a locking mechanism (7) configured to releasable attach the handle onto the door (1) between a locked and an open position.

Figure 3



Description

[0001] The present invention relates to a cooling appliance, in particular to a cooling appliance having an improved handle mechanism.

[0002] The cooling devices are provided with a wide variety of door handles. The handles contain many features so as to meet the demand of the customers. In the event of changing the location of the cooling appliance inside the kitchen or moving to a new house, the necessity of changing the swing direction of the door may arise. In such cases, the handle must be switched to the opposing side of the door. Such a procedure requires the attendance of a skilled worker which is unwanted as it causes additional costs. Another problem caused by the handles during transportation is that the handle generally protrudes outwards from the door therefore increasing the projectional area and therefore the volume of the cooling appliance. This additional increase in the volume increases the volume of the cooling appliance during transportation.

[0003] A prior art publication in the technical field of the present invention may be referred to as KR20070065743A among others, the document disclosing a cooling appliance having an handle having simplified assembly and structure.

[0004] A prior art publication in the technical field of the present invention may be referred to as US2010005631A1 among others, the document disclosing a cooling appliance having a handle wherein the handle is mounted to a front face of the door through inter-engagement of fasteners with clips

[0005] A prior art publication in the technical field of the present invention may be referred to as WO2015144247A1 among others, the document disclosing a cooling appliance having a handle wherein the handle has a simplified assembly and structure.

[0006] A prior art publication in the technical field of the present invention may be referred to as WO2016177428A1 among others, the document relating to a handle assembly for use in a household assembly, in particular a cooling appliance.

[0007] An objective of the present invention is to provide a handle having simplified assembly.

[0008] Another objective of the present invention is to provide a handle helping reduce the volume of the cardboard boxes during the transport.

[0009] Another objective of the present invention is to provide a handle wherein the handle is easy to assemble and disassemble but is impossible to remove from the door by accident.

[0010] 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. The cooling appliance comprises a body and a door pivotably attached onto the body between a closed and an open position. The handle is attached onto the door by a pair of supports wherein the supports are provided at the ends

of the handle, distanced apart by a predetermined length. The length depends on the length of the handle. Each of the supports, comprise at least a connecting tab. The support located above the other one comprises the first connecting tab. The other support comprises the second connecting tab. The connecting tabs extend away from the supports and are seated inside the seating members provided on the door. One of the supports, in a preferred embodiment is located above with respect to the other one and comprises a locking mechanism. The locking mechanism can be switched to a locked position and an open position. During locked position, the locking mechanism ensures that the handle, supports and the connecting tabs remain on the door. During the open position, the user may simply hold and pull the handle, releasing the handle from the door. By means of the locking means, the handle is attached to the door in a convenient manner which eliminates the need to call for a maintenance personal if the user needs to replace the handle to the opposing edge of the door.

[0011] In an embodiment of the invention, the locking mechanism comprises a first biasing means and a second biasing means wherein the first biasing means biases the first connecting tab towards the locked position.

On the other hand, the second biasing means biases the second connecting tab towards the open position. The first connecting tab remains in balance between the said biasing means. The biasing means act on an end of the first connecting tab. The locking means comprises an element, which upon being activated by the user, effects on the biasing means and forces the locking mechanism towards the open position. Therefore, the handle can be removed from the door. By means of the element, the handle can be assembled and disassembled to and from the door conveniently.

[0012] In an embodiment of the invention, the locking mechanism comprises a link. The link passes through the first connecting tab and acts as a pivot or rotation point for the first connecting tab. The biasing means act on the first connecting tab and thanks to the link, the first connecting tab moves easily, changing the position of the locking mechanism towards the open position.

[0013] In an embodiment of the invention, the first connecting tab comprises a first lug configured to be seated inside a recess provided on the seating member. The first lug seats inside the recess during the locked position of the locking mechanism. The recess and the first lug provide a rigid structure.

[0014] In an embodiment of the invention, the second connecting tab comprises a second lug configured to be seated inside a recess provided on the seating member. The second lug seats inside the recess during the locked position of the locking mechanism. The recess and the second lug provide a rigid structure.

[0015] In an embodiment of the invention, the first lug and the second lug point away from each other with an angle almost equal to 180 degrees. Therefore, during the locked position, the first lug points upwards whereas the

second lug points downwards while seated inside their respective recesses. This helps create a rigid handle and door assembly.

[0016] In an embodiment of the invention, the seating members are embedded inside the door.

[0017] By means of the present invention, the handle can be attached onto the door in a convenient manner reducing maintenance related costs.

[0018] Another advantageous effect provided by means of this invention is that the structure of the handle and the locking mechanism is simplified reducing the overall costs of the cooling appliance.

[0019] 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 perspective view of the cooling appliance

Figure 2 - is an isolated view of the handle along dashed A-A lines in Figure 1 wherein the locking mechanism is in locked position

Figure 3 - is an isolated view of the handle along dashed A-A lines in Figure 1 wherein the locking mechanism is in open position

[0020] The following numerals are assigned to different parts demonstrated in the drawings and referred to in the present detailed description of the invention:

1. Door
2. Handle
3. Support
4. First connecting tab
5. Second connecting tab
6. Seating member
7. Locking mechanism
8. First biasing means
9. Second biasing means
10. Element
11. Link
12. First lug
13. Second lug

[0021] The present invention relates to a cooling appliance comprising; a body and a door (1) attached to the body between a closed position and an open position; a handle (2) attached onto an edge of the door (1) having a pair of supports (3) distanced apart from one another on the handle (2);

[0022] a first connecting tab (4) and a second connecting tab (5) extending away from each of the supports (3); a pair of seating members (6) provided on the door (1) into which the connecting tabs (4,5) are placed.

[0023] The present invention relates to a cooling appliance wherein one of the supports (3) comprises a locking mechanism (7) that is configured to releasably attach

the handle onto the door (1) between a locked and an open position. The handle (2) is attached to an edge of the door (1) by means of the pair supports (3) provided on the handle (2). The supports (3) are at the ends of the handle (2) wherein the handle (2) is in the shape of a bar. The connecting tabs (4,5) are provided on the supports (3) and extend away from the supports (3) towards the seating members (6). The handle (2) is attached to the door (1) by seating the connecting tabs (4,5) inside the seating members (6). One of the supports (3) comprises the locking mechanism (7). The locking mechanism (7) is configured to be activated to release the connecting tabs (4,5) from the seating members (6). By means of the locking means (7), the handle (2) can be attached onto the door (1) in a convenient manner. Another advantageous effect provided by means of the locking mechanism (7) is that the handle (2) can be disassembled during transportation, decreasing the volume of the box and therefore transportation related costs.

[0024] The present invention relates to a cooling appliance wherein the locking mechanism (7) comprises a first biasing means (8) and a second biasing means (9), biasing the first connecting tab (4) to the locked position and the open position respectively and an element (10) which upon pressed or pushed is configured to effect on the biasing means (8,9) so as to force the locking mechanism (7) towards the open position. The first connecting tab (4) is biased by means of the first biasing means (8) and the second biasing means (9) and is in balance. The first biasing means (8) biases the first connecting tab (4) to the locked position and the second biasing means (9) biases the first connecting tab (4) to the open position. The element (10) is provided on the support (3) and effects the biasing means (8,9) upon being pressed or pushed. The biasing means (8,9) are preferably helical springs. Upon being pressed or pushed, the element (10) compresses the first biasing means (8) more than it does compress the second biasing means (9), releasing the first connecting tab (4) from the seating member (6). By means of the element (10), the users can easily remove the handle (2) from the door (1).

[0025] The present invention relates to a cooling appliance wherein the locking mechanism (7) comprises a link (11) allowing the first connecting tab (4) to pivot or rotate. The link (11) is used as a pivot or a rotation point for the first connecting tab (4) which in turn facilitates the release of the handle (2) from the seating members (6).

[0026] The present invention relates to a cooling appliance wherein the first connecting tab (4) comprises a first lug (12) configured to be seated into a recess provided on the seating member (6). The seating member (6) is provided with the recess wherein the first connecting tab (4) is seated by means of the first lug (12). The first lug (12) eliminates the possibility of accidental removal of the first connecting tab (4) from the recess and therefore from the seating member (6).

[0027] The present invention relates to a cooling ap-

pliance wherein the second connecting tab (5) comprises a second lug (13) configured to be seated into a recess provided on the seating member (6). The seating member (6) is provided with the recess wherein the second connecting tab (5) is seated by means of the second lug (13). The second lug (13) eliminates the possibility of accidental removal of the second connecting tab (5) from the recess and therefore from the seating member (6).

[0028] The present invention relates to a cooling appliance wherein the first lug (12) and the second lug (13) points away from each other. The lugs (12,13) point away from each other upon being seated inside the recesses provided on seating members (6). In a preferred embodiment, the lugs (12,13) point away from each other by 180 degrees. By means of the lugs (12,13) pointing away from each, the handle (2) can be attached onto the door (1) in a robust manner.

[0029] The present invention relates to a cooling appliance wherein the seating members (6) are embedded inside the door (1). The seating members (6) form a flush surface with the front panel of the door (1) which helps increase quality perception of the product.

[0030] An advantageous effect provided by means of the locking means (7) is that the handle (2) can be assembled onto the door (1) in a convenient manner.

[0031] Another advantageous effect provided by means of the locking means (7) is that the handle (2) can be easily removed from the door (1).

[0032] Another advantageous effect provided by means of the locking means (7) is that the handle (2) is rigidly attached onto the door (1), eliminating the possibility of accidental disconnecting of the handle (2) from the door (1), providing safety for the children.

[0033] Another advantageous effect provided by means of the locking means (7) is that the use of small details that are prone to wear out or even break in time such as clips, teeth or tabs are not used.

[0034] Another advantageous effect provided by means of handle (2) being easily disassembled from the door (1) provides the handle (2) to be stored inside the cooling appliance during transport, which in turn greatly reduces the dimensions of the card board box containing the cooling appliance and therefore the transportation related costs.

characterized in that

one of the supports (3) comprises a locking mechanism (7) configured to releasable attach the handle onto the door (1) between a locked and an open position.

2. A cooling appliance according to claim 1, **characterized in that** the locking mechanism (7) comprises a first biasing means (8) and a second biasing means (9), biasing the first connecting tab (4) to the locked position and the open position respectively and an element (10) which upon pressed or pushed is configured to effect on biasing means (8,9) so as to force the locking mechanism (7) towards the open position.
3. A cooling appliance according to any preceeding claim, **characterized in that** the locking mechanism (7) comprises a link (11) allowing the first connecting tab (4) to pivot or rotate.
4. A cooling appliance according to any preceeding claim, **characterized in that** the first connecting tab (4) comprises a first lug (12) configured to be seated into a recess provided on the seating member (6).
5. A cooling appliance according to any preceeding claim, **characterized in that** the second connecting tab (5) comprises a second lug (13) configured to be seated into a recess provided on the seating member (6).
6. A cooling appliance according to claim 5, **characterized in that** the first lug (12) and the second lug (13) points away from each other.
7. A cooling appliance according to any preceeding claim, **characterized in that** the seating members (6) are embedded inside the door (1).

Claims

1. A cooling appliance comprising;
a body and a door (1) attached to the body between a closed position and an open position;
a handle (2) attached onto an edge of the door (1) having a pair of supports (3) distanced apart from one another on the handle (2);
a first connecting tab (4) and a second connecting tab (5) extending away from each of the supports (3);
a pair of seating members (6) provided on the door (1) into which the connecting tabs (4,5) are placed;

Figure 1

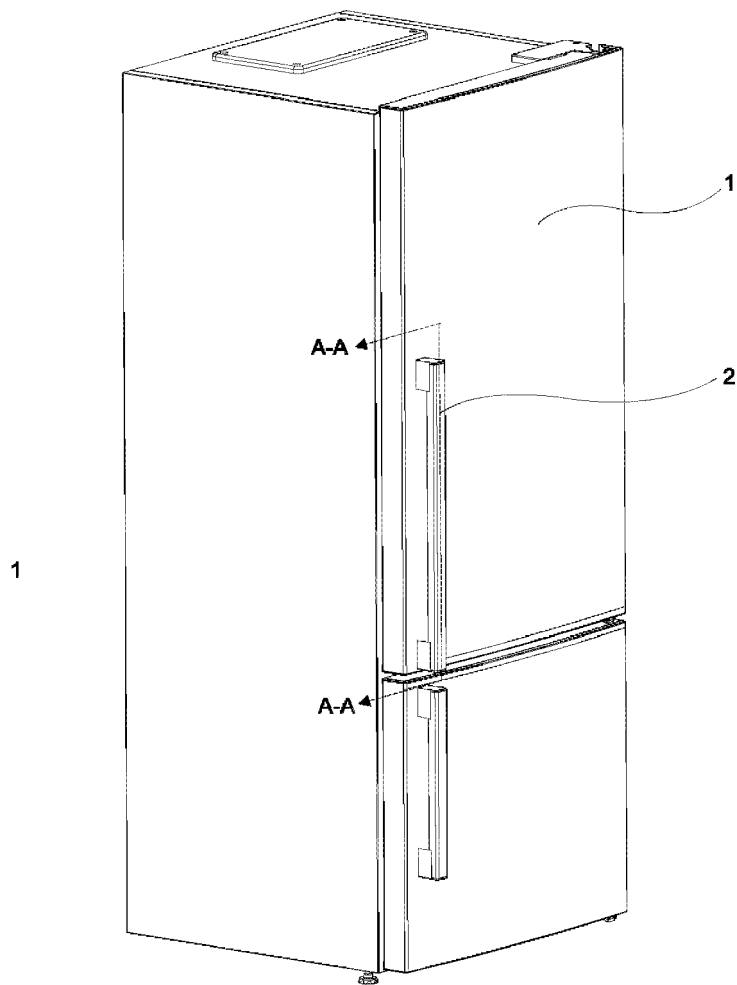


Figure 2

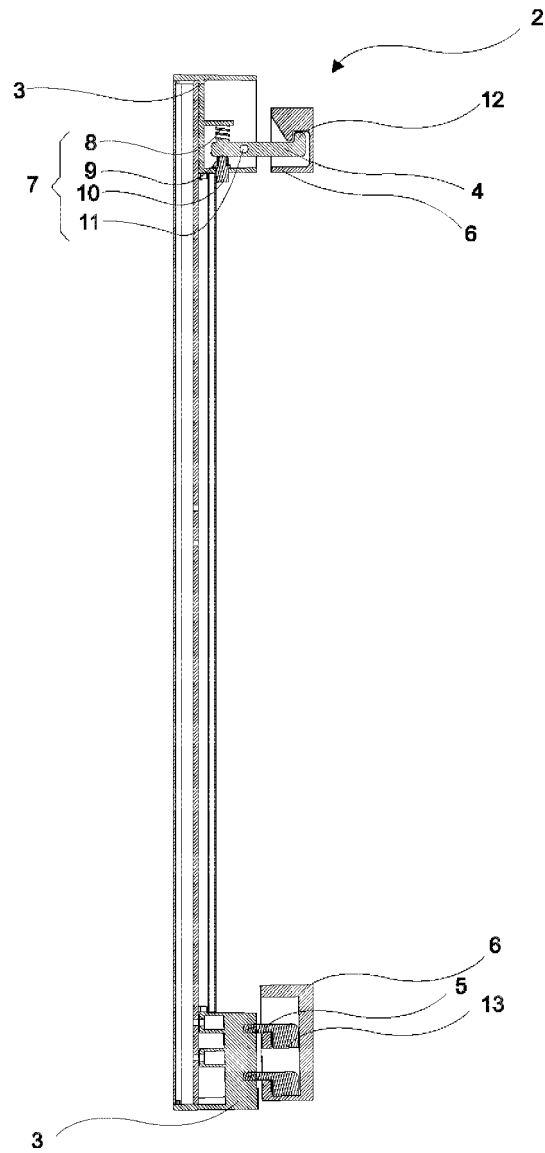
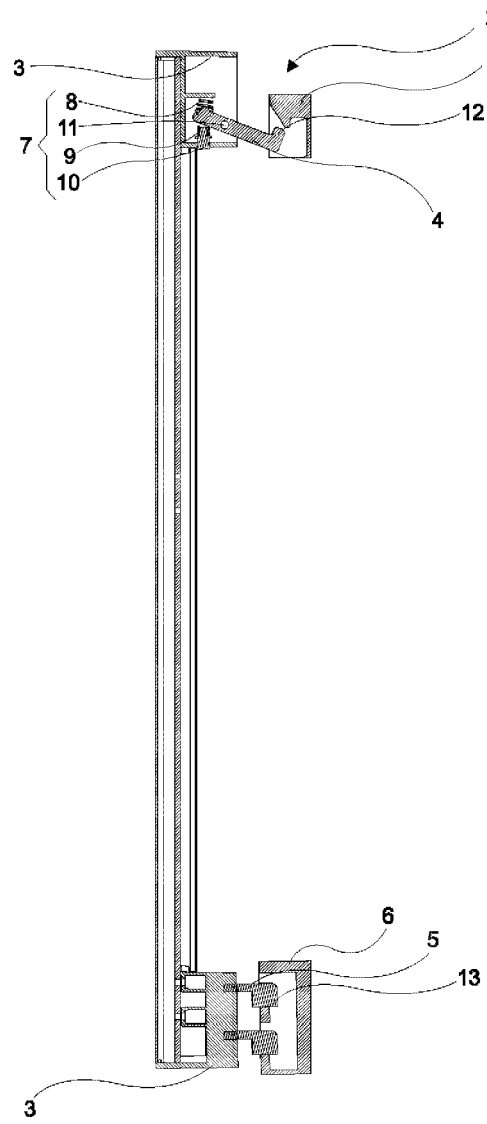


Figure 3





EUROPEAN SEARCH REPORT

 Application Number
 EP 21 17 6404

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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)
X A	WO 2019/114192 A1 (QINGDAO HAIER SPECIAL FREEZER [CN]) 20 June 2019 (2019-06-20) * figures 1-9 *	1,2,4-6 3	INV. F25D23/02 E05B1/00
X A	----- CN 109 881 974 A (HEFEI HUALING CO LTD; HEFEI MIDEA REFRIGERATOR CO; MIDEA GROUP CO LTD) 14 June 2019 (2019-06-14) * figures 1-8 *	1,2,4,5,7 3	
X A	----- KR 1999 0055586 A (SAMSUNG ELECTRONICS CO LTD) 15 July 1999 (1999-07-15) * figures 1-3 *	1,4,5,7 3	

			TECHNICAL FIELDS SEARCHED (IPC)
			F25D E05C E05B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 27 October 2021	Examiner Fest, Gilles
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.**

EP 21 17 6404

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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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27-10-2021

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2019114192 A1	20-06-2019	NONE	
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CN 109881974 A	14-06-2019	NONE	
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KR 19990055586 A	15-07-1999	NONE	
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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- KR 20070065743 A [0003]
- US 2010005631 A1 [0004]
- WO 2015144247 A1 [0005]
- WO 2016177428 A1 [0006]