(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 466 234 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
20.06.2012 Bulletin 2012/25

(51) Int Cl.:
F25D 29/00 *(2006.01)* ***F25D 23/02*** *(2006.01)*

(21) Application number: **11192788.5**

(22) Date of filing: **09.12.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **15.12.2010 TR 201010468**

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(54) A cooling device having a door arm with safety arrangement

(57) The present invention relates to a home appliance comprising a door (10) and a handle (40) with a cavity (44) which is positioned on a lateral wall (12) of the door (10) so as to allow grabbing. The home appliance comprises at least one cover (50) which is adapted to the handle (40) and which closes an inlet (48) of the cavity (44) so as to block the handle (40) in a safety position (I) and which opens the cavity inlet (48) in a free position (II).

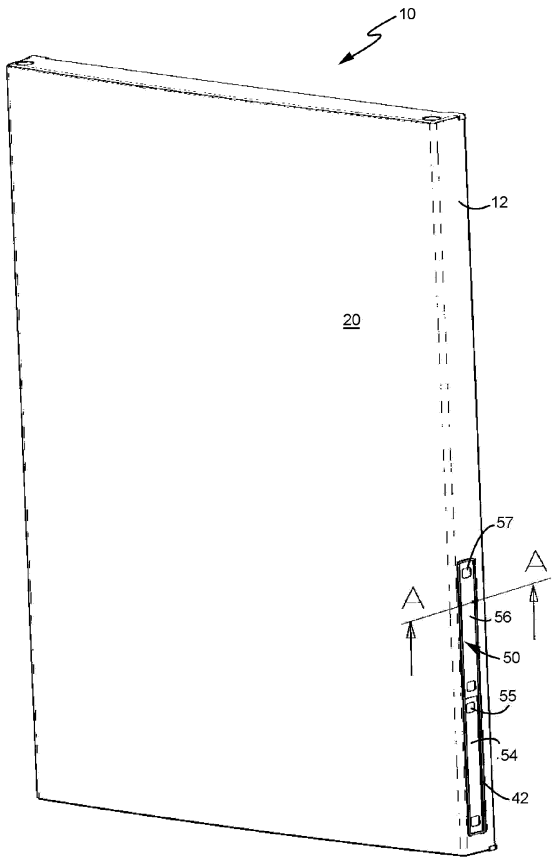

FIG. 1

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Description

TECHNICAL FIELD

[0001] The present invention relates to safety arrangements which make opening home appliance doors difficult which are hinged to a cabinet in an openable manner.

KNOWN STATE OF THE ART

[0002] In home appliances, a door is closed by being hinged onto a cabinet in an openable manner. In order to facilitate the opening or the closing of the door, door handles are fixed onto the front surface of the door. Door handles can be in the form of a bar which is assembled to the outer frame of the door. In this case, handles form a tab on the door body and this tab structure deteriorate the visual integrity and moreover, there become problems in the processes like packaging.

[0003] Therefore, handles in the form of cavity are provided on the lateral wall of the door. The inlet of the cavity, which is provided on the lateral wall, in other words, at the lateral, upper or lower edges and which extends inwards the door, is aligned correspondingly with the lateral wall. Thus, a user enters his/hand towards the cavity depth through the inlet and he/she grabs the handle and he/she pulls the handle and opens the door, or he/she pushes the handle and closes the door.

[0004] For safety purposes, opening the door of the home appliance may have to be made difficult. In this case, an electromechanical system which is to be placed to the door can keep the door closed by being controlled by an electronic circuit. However, the cost of such a system is high.

BRIEF DESCRIPTION OF THE INVENTION

[0005] The object of the invention is to provide a low-cost and practical safety position which makes opening of home appliance doors difficult.

[0006] Another object of the invention is to provide a door safety arrangement which preserves the visual integrity of the home appliance.

[0007] In order to realize the abovementioned objects, the present invention is a home appliance comprising a door and a handle with a cavity which is positioned on a lateral wall of the door so as to allow grabbing. In a preferred embodiment of the present invention, at least one cover is adapted to the handle, which closes an inlet of the cavity so as to block the handle in a safety position and which opens the cavity inlet in a free position. When the cover is in free position, a user can enter his/her hand to the handle and open the door, on the other hand, in the safety position, the cover blocks the cavity and the cover makes it difficult for the user to grab the handle by his/her hand.

[0008] In a preferred embodiment of the present invention, in the safety position, the cover completely covers the cavity inlet. In this case, the finger of a user, for instance the finger of a child is prevented from entering into the cavity. The door can not be grabbed since the handle is not active, and therefore the door can not be opened.

[0009] In a preferred embodiment of the present invention, the cover comprises a one piece plate form. When the plate form closes the cavity inlet, it forms a visual integrity with the lateral wall of the door.

[0010] In a preferred embodiment of the present invention, in order for the cover to move between the safety position and the free position on the inlet, there is a guide provided between the cover and the inlet and there is a rail corresponding to the guide. In a probable embodiment, the lateral edge of the cover forms the guide and correspondingly, a recess in the cavity, which is in a similar cross section form, forms the rail.

[0011] In a preferred embodiment of the present invention, the cover comprises a first flap and correspondingly at least one second flap, adjusted in a sliding manner towards each other in the inlet between the safety position and the free position.

[0012] In a preferred embodiment of the present invention, in the free position, the first flap is positioned on the second flap so as to cover the second flap at least partially. Thus, in the free position, the cavity inlet can be opened with the positioning of the flaps one above the other. Moreover, in case the door is opened from the right or from the left, the first or the second flap of the transversely positioned cover is positioned on the other one, and thereby the direction of the open cavity inlet can be changed. In the orthogonal position, the cover which is placed to the upper door or to the lower door can be adjusted so that the cavity inlet is at the upper position or at the lower position.

[0013] In a preferred embodiment of the present invention, the guide is the lateral edge surface of the cover. In this case, the edge of the cover is placed into the rail and thereby the cover moves.

[0014] In a preferred embodiment of the present invention, the rail comprises a first step and a second step, adjacent to each other, in order to provide the free sliding of the first and the second flap along the inlet. In this case, the first and the second flap can be positioned together in the vicinity of the inlet.

[0015] In a preferred embodiment of the present invention, the position of the handle on the lateral wall of the door is configured in an angled manner to the ground plane so as to provide the movement of the cover between the safety position and the free position by means of the gravitational force.

BRIEF DESCRIPTION OF THE FIGURES

[0016] The additional characteristics and the advantages of the subject matter invention can be obtained from the exemplary embodiments giving reference to the accompanied figures.

[0017] In Figure 1, the perspective view of a refrigerator door where a representative embodiment of the subject matter safety arrangement exists is given.

[0018] In Figure 2, the partial view of the refrigerator door illustrated in Figure 1 along the A-A cross section is given.

[0019] In Figure 3, the perspective view of a door which comprises a vertically placed cover and where the cavity inlet is open at the upper part in the free position is given.

[0020] In Figure 4, the perspective view of a door which comprises a vertically placed cover and where the cavity inlet is open at the lower part in the free position is given.

THE DETAILED DESCRIPTION OF THE INVENTION

[0021] In Figure 1, a cooling device door (10) is illustrated in a perspective manner so that the outer case (20) and the lateral wall (12) thereof can be seen. The outer case (20) has a convex metal panel form. In Figure 2, the door (10), which is illustrated along the A-A cross section from above, also has an inner liner (30). The inner liner (30) is positioned so as to face the inner chamber of a cabinet (not illustrated in the figure) in connection with the home appliance. The outer case (20) and the inner liner (30) are connected in a parallel and distanced manner to each other so as to form a space wherein a heat insulation layer (14) can be placed. The heat insulation layer (14) fills the space as an expanding material in polyurethane foam form. As orthogonal to the outer case (20) and to the inner liner (30), a handle (40) is provided on the lateral wall (12) which connects the outer case (20) and the inner liner (30). The handle (40) has a cavity (44) which provides a recess towards the insulation layer (14). The cavity (44) has an inlet (48) part which is adjacent to the lateral wall (12). The user accesses the cavity (44) depth through the inlet (48) using his/her hand and thereby he/she grabs the handle (40). A cover (50) is placed to the handle (40) in the part close to the inlet (48). The cover (50) blocks the inlet (48) so as to cover it and defines a safety position (I). When the cover (50) changes the position thereof and when the inlet (48) becomes accessible, a free position (II) is defined. In order for the cover (50) to be placed to the inlet (48), a rail (42) profile is provided at the inlet (48). The rail (42) comprises two recesses as a first step (46) and as a second step (47). The rail (42) extends along the inlet (48) surface.

[0022] The cover (50) has two pieces so as to form a first flap (54) and a second flap (56). The first and the second flap (54, 56) respectively seat onto the first step (46) and onto the second step (47) from the lateral sides thereof and so that the first and the second flap (54, 56) slides one above the other. In Figure 1, the first and the second flaps (54, 56) are seated at the inlet (48) so as to respectively cover the lower part and the upper part of the cavity (44). Thus, the safety position (I) is provided and the user is prevented from entering his/her hand into the inlet (48) in a grabbing manner.

[0023] In the application illustrated in Figure 2, the first flap (54) in the first step (46) is removed. Thus, a single and long second flap (56) can cover the inlet (48). In Figure 3 and Figure 4, the different positions of the first and the second flap (54, 56) are illustrated. In Figure 3, the door (10) which is in the left hand direction is in safety position (I). In the subject matter embodiment, the first flap (54) in panel form is at the lower part of the cavity (44). Again, the second flap (56) in panel form is at the upper part of the cavity (44). The first and the second flap (54, 56) cover the inlet (48) so as to be adjacent to the lateral wall (12). In the embodiment in the right hand direction, the lateral side, which is the second flap (56) guide (52), advances inwards the second step (47) in the downward movement direction (y) and it is taken in front of the first flap (54). Thus, the inlet (48) upper part of the cavity (44) is opened at an amount equal to the second flap (56) length. A user enters his/her hand into the inlet (48) part in the handle (40) which passes to the free position (II) and he/she grabs the handle (40).

[0024] In the embodiment in Figure 4 which is in left hand direction, both the first flap (54) and the second flap (56) seat on the lower and upper parts respectively so as to completely block the inlet (48). Thus, it provides the safety position (I). In the application which is in the right hand direction, the two long mutual lateral edges, which are the first flap (54) guide (52), advance inside the first step (46) in the opposite direction to the movement direction (y). Thus, the first flap (54) enters beneath the second flap (56), and by opening the lower part of the inlet (48), the handle (40) is taken to the free position (II).

[0025] In the present embodiments, an opening (57) is formed on the first and/or second flap (54, 56). A user enters his/her hand into the opening (57) and he/she moves the guide (52) on the rail (42), and thereby he/she takes it to the safety position (I) or to the free position (II). During the passage from the safety position (I) to the free position (II), the forward movement of the first flap (54) is towards the second flap (56). The same is valid for the second flap (56). The safety position (I) means that the inlet (48) is covered so that there is no access. In this case, in other words, in the safety position (I), children are prevented from entering their hands into the cavity (44) and from grabbing the handle (40). The free position (II) is the position where a user can access the inlet (48) and can grab the handle (40). In home appliances, particularly in cooling devices where it is difficult to open the door without grabbing because of the weight of the door and because of the vacuum applied to the door, by means of the cover (50) application, an efficient safety position (I) can be obtained.

REFERENCE NUMBERS

[0026]

10 Door

12 Lateral wall

14	Insulation layer
20	Outer case
30	Inner liner
40	Handle
42	Rail
44	Cavity
46	First step
47	Second step
48	Inlet
50	Cover
52	Guide
54	First flap
56	Second flap
57	Opening
y	movement direction
I	Safety position
II	Free position

Claims

1. A home appliance comprising a door (10) and a handle (40) with a cavity (44) which is positioned on a lateral wall (12) of the door (10) so as to allow grabbing, **characterized in that** at least one cover (50) is adapted to the handle (40), which closes an inlet (48) of the cavity (44) so as to block the handle (40) in a safety position (I) and which opens the cavity inlet (48) in a free position (II).

2. A home appliance according to claim 1, wherein in the safety position (I), the cover (50) completely covers the cavity (44) inlet (48).

3. A home appliance according to claim 2, wherein the cover (50) comprises a one piece plate form.

4. A home appliance according to any one of the preceding claims, wherein, in order for the cover (50) to move between the safety position (I) and the free position (II) on the inlet (48), there is a guide (52) provided between the cover (50) and the inlet (48) and a rail (42) corresponding to the guide (52).

5. A home appliance according to claim 4, wherein the cover (50) comprises a first flap (56) and correspondingly at least one second flap (54), adjusted in a sliding manner towards each other in the inlet (48) between the safety position (I) and the free position (II).

6. A home appliance according to claim 5, wherein in the free position (II), the first flap (54) is positioned on the second flap (56) so as to cover the second flap at least partially.

7. A home appliance according to claim 5 or 6, wherein the guide (52) is the lateral edge surface of the cover (50).

8. A home appliance according to claims 5-7, wherein the rail (42) comprises a first step (46) and a second step (47), adjacent to each other, in order to provide the free sliding of the first and the second flap (54) along the inlet (48).

9. A home appliance according to any one of the preceding claims, wherein the position of the handle (40) on the lateral wall (12) of the door (10) is configured in an angled manner to the ground plane so as to provide the movement of the cover (50) between the safety position (I) and the free position (II) by means of the gravitational force.

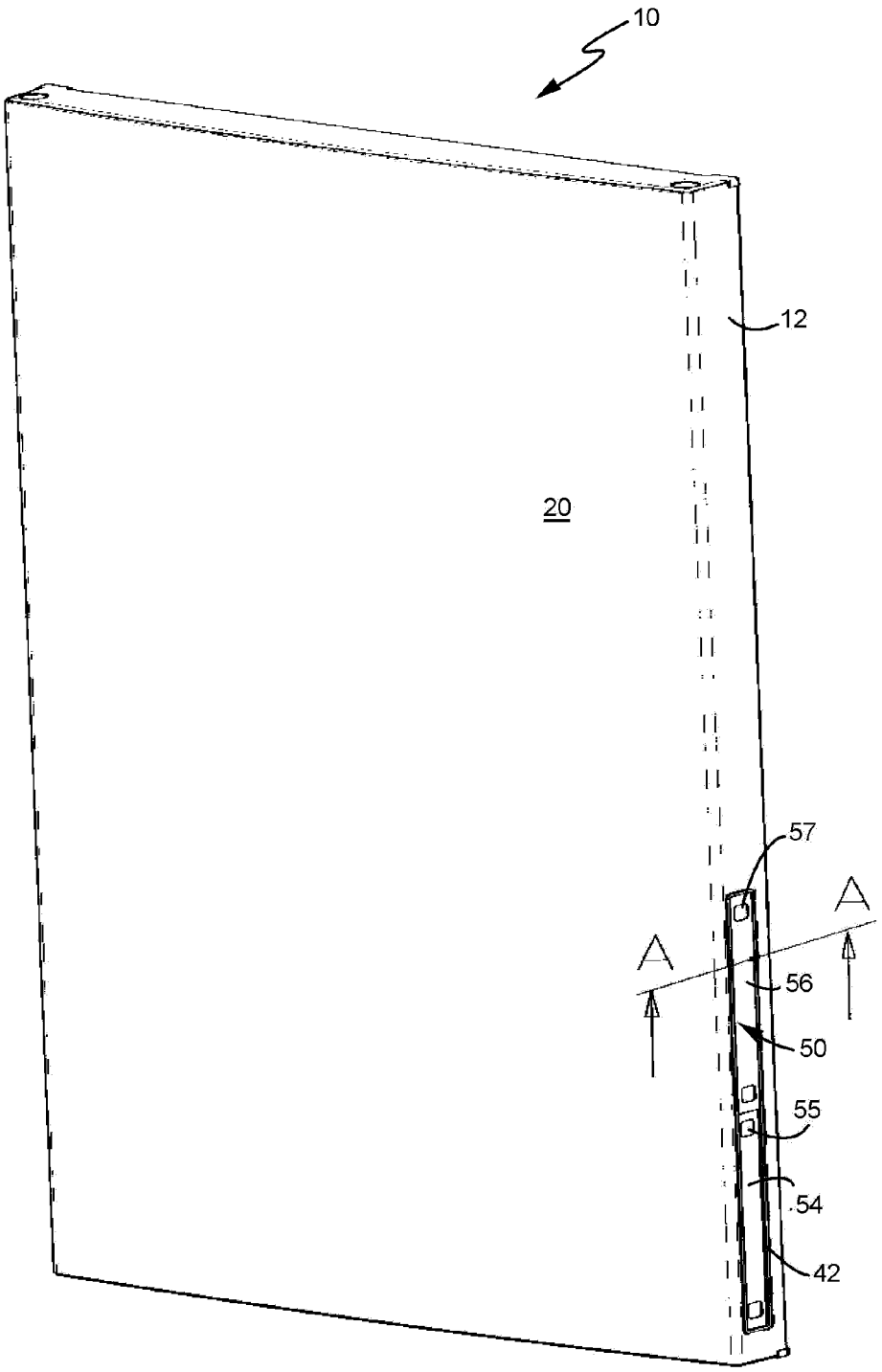

FIG. 1

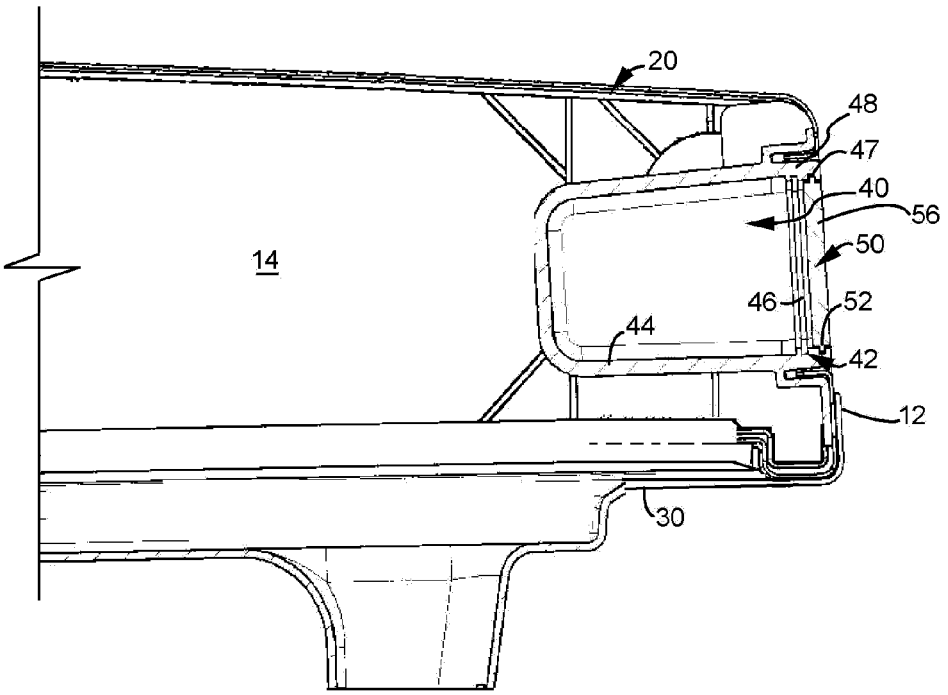

FIG. 2

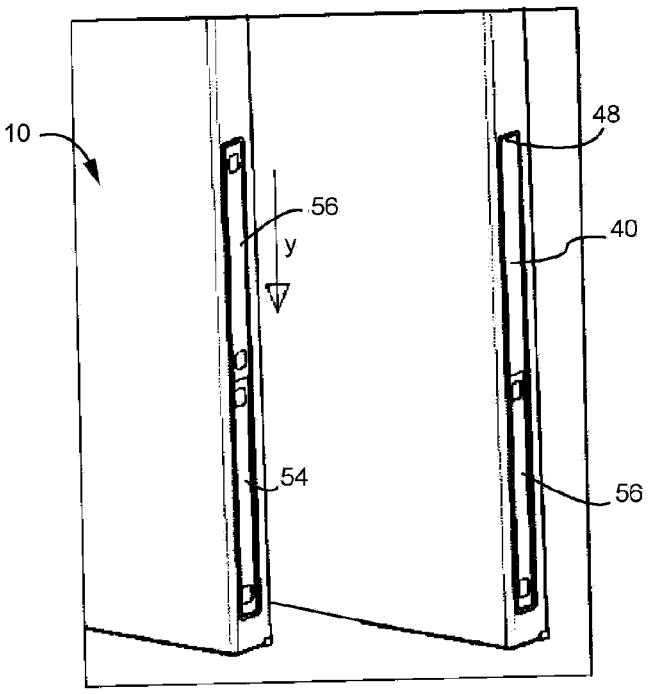

FIG. 3

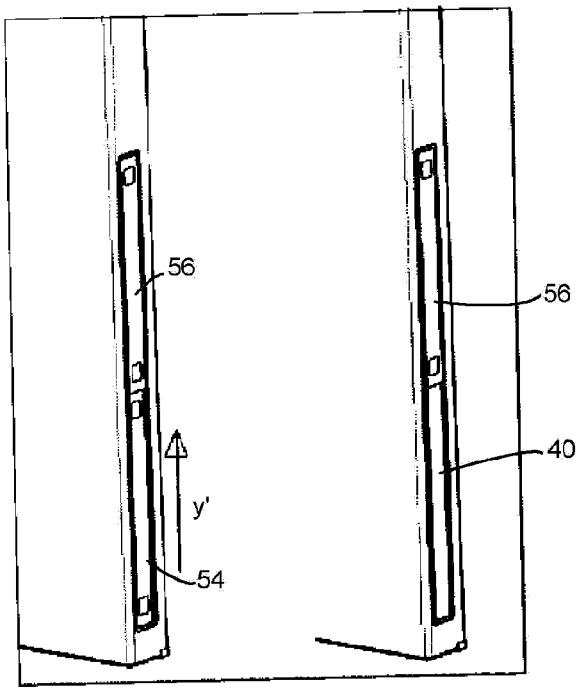

FIG. 4