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(54) REFRIGERATOR AND STOPPING ARRANGEMENT OF REFRIGERATOR SHELF

KÜHLSCHRANK UND STOPPANORDNUNG FÜR KÜHLSCHRANKREGAL

RÉFRIGÉRATEUR ET AGENCEMENT DE BLOCAGE DE CLAYETTE DE RÉFRIGÉRATEUR

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Description

Technical Field

[0001] The present invention relates to the technical field of refrigerator and, in particular, to a refrigerator and a stopping arrangement of refrigerator shelf.

Background Art

[0002] A cabinet of a refrigerator includes an outer shell, an inner shell, and thermal insulation material such as polyurethane foam filled between the outer shell and the inner shell. The cabinet is divided by a central separator longitudinally or transversely formed into a freezing compartment and a refrigerating compartment that are separated from each other, wherein the freezing compartment and the refrigerating compartment are arranged one on top of the other or side by side. The freezing compartment is provided with an ice tray and a shelf, and the refrigerating compartment is provided with a vegetable box and a shelf. In addition, additional shelves are provided on the doors of the refrigerating compartment and the freezing compartment.

[0003] As disclosed in US. Patent Publication 5,299,863, the shelves of the refrigerating compartment and the freezing compartment can be moved back and forth on a corresponding pair of slide rails formed on two sidewall plates of the inner shell. According to US. Patent Publication 5,299,863, these shelves can be moved as a whole on the slide rails provided above and below in a manner of all being connected together, or each shelf can be moved on a pair of slide rails provided for itself. However, in this case, the shelf will slide off the slide rail if the shelf is pulled towards too much.

[0004] In order to solve the problem mentioned above, it is a common solution to provide a stop 11 on a shelf 1 (Figure 1) and to provide a limit groove in a slide rail slot on an inner shell. Thus, the longitudinal movement of the shelf 1 on the slide rail is limited through accommodating the stop 11 into the limit groove.

[0005] The foregoing method prevents the shelf from sliding off its slide rail easily. However, the fact that the stop is on the shelf substantively destroys the appearance of the shelf, causes the manufacturing of the shelf very difficult, and reduces the structural reliability of the shelf.

[0006] Patent US 2,550,980 discloses a refrigerator cabinet having sliding shelves and shelf guides therefore.

[0007] Patent US 6,422,673 discloses a refrigerator compartment, which includes opposite side walls having vertically spaced shelf-supporting ledges along the side walls in horizontally aligned pairs.

[0008] Patent US 2,033,861 relates to compartments such as refrigerator cabinets and more particularly to shelving designed to permit either partial or full extension of the provision shelves with reference to the provision compartment thereof.

[0009] Patent US 5,735,589 discloses a shelf assembly for a refrigerator compartment such as a refrigerator for food products, which includes a shelf member slidably supported for extension and retraction on a shelf support.

[0010] Patent AU 584 907 B discloses a refrigerator with a slidable shelf assembly comprising a stop formed by the inner shell of the refrigerator.

Summary of Invention

[0011] In order to overcome the above problem, the present invention provides a refrigerator having a stopping arrangement of refrigerator shelf, which solves the problem that the refrigerator shelf slides off a slide rail easily with guaranteeing a good appearance and high reliability of the refrigerator shelf. the above problem is solved by a refrigerator according to claim 1. Preferred embodiments are subject-matter of the dependent claims.

[0012] To this end, the present invention provides the following technical solutions:

A stopping arrangement of the refrigerator shelf comprises:

a refrigerator shelf which is provided with a slide channel, wherein the slide channel is configured for mating with a slide rail on an inner shell of a refrigerator; and

a stop which is formed by the inner shell of the refrigerator and located proximate to the slide rail of the inner shell, wherein the movement of the refrigerator shelf is limited by the stop when the slide channel of the refrigerator shelf is moved to the stop along the slide rail.

[0013] Preferably, the slide channel is provided at the bottom of an edge of the refrigerator shelf.

[0014] The refrigerator shelf comprises a limiting boss an end of an edge of it.

[0015] The refrigerator shelf comprises a panel, and a front strip and a rear strip provided on opposite edges of the panel, wherein both the slide channel and the limiting boss are provided on the rear strip.

[0016] Preferably, two limiting bosses are provided on opposite ends of the rear strip respectively.

[0017] In other words, a refrigerator comprises an inner shell, wherein the inner shell is provided with a slide rail thereon, and a refrigerator shelf is slidably supported on the slide rail. The refrigerator shelf has a slide channel which is configured for mating with the slide rail on the inner shell of the refrigerator; and

the inner shell comprises a stop which is proximate to the slide rail, wherein the movement of the refrigerator shelf is limited by the stop when the slide channel of the refrigerator shelf is moved to the stop along the slide rail.

[0018] From the technical solutions above, through being provided on the inner shell, the stop can come into contact with the slide channel when the refrigerator shelf

is drawn outwardly, which prevents the refrigerator shelf from being drawing out un-obstructively. The refrigerator shelf can be drawn out through inclining upwardly a front edge of it and causing the slide channel to pass across the stop. Because there is no stop on the refrigerator shelf, a simple and good appearance, a convenient manufacturing process and a reliable configuration are obtained.

Brief Description of Drawings

[0019] In the following, the drawings, which are necessary to describe technical solutions of embodiments according to the present invention or of prior art clearly and comprehensively, are described simply. Obviously, the following described drawings are merely some of embodiments of the invention, and other drawings can be made according to these drawings by any skilled in the art without any inventive effort.

Figure 1 is a schematically structural illustration of a refrigerator shelf according to the prior art.

Figure 2 is a schematically structural illustration of a refrigerator according to the present invention.

Figure 3 is a partially structural illustration of an inner shell of the refrigerator according to the present invention.

Figure 4 is a schematic view of the refrigerator shelf according to the present invention in a drawn-out state.

Detailed Description of Preferred Embodiments

[0020] The present invention discloses a refrigerator and a stopping arrangement of refrigerator shelf, in order to overcome the defect that the refrigerator shelf slides off its slide rail easily with maintaining a good appearance and high reliability of the refrigerator shelf.

[0021] Technical solutions of embodiments according to the present invention are described clearly and comprehensively in combination with the drawings of the present invention in the following.

[0022] With reference to Figures 2 and 3, Figure 2 is a schematically structural illustration of a refrigerator according to the present invention, and Figure 3 is a partially structural illustration of an inner shell of the refrigerator according to the present invention.

[0023] Figure 4 is a schematic view of the refrigerator shelf according to the present invention in a drawn-out state.

[0024] A refrigerator according to the present invention comprises:

a refrigerator shelf 1 having a slide channel 151 which is configured to be mated with a slide rail provided on an inner shell of a refrigerator, the slide channel 151 being configured for guiding the refrigerator shelf 1 to move longitudinally on the slide rail, preventing it from sliding off the slide rail. The slide rail on the inner shell acts as

a support member of the refrigerator shelf 1 to support the refrigerator shelf 1.

[0025] The stopping arrangement further comprises a stop 23 provided on the inner shell 2 of the refrigerator and positioned on a location proximate to the slide rail on the inner shell 2, in order to guarantee that the movement of the refrigerator shelf 1 can be limited by the stop 23 when the slide channel 151 of the refrigerator shelf 1 is moved along the slide rail to the stop 23. It is required that the pulled or pushed edge of the refrigerator shelf 1 be inclined upwardly by an angle to cause the slide channel 151 to pass across the stop 23 when the refrigerator shelf 1 is drawn from inside to outside and when the slide channel 151 reaches the location of the stop 23. In this way, the refrigerator shelf 1 can be drawn out. Contrarily, the pulled or pushed edge of the refrigerator shelf 1 needs to be inclined downwardly by an angle to cause the slide channel 151 to pass across the stop 23 when the refrigerator shelf 1 is pushed from outside to inside and when the slide channel 151 reaches the location of the stop 23. In this way, the refrigerator shelf 1 can be pushed in.

[0026] The stop 23 is formed by the inner shell 2, in order to limit the longitudinal movement of the refrigerator shelf 1 on the slide rail. In this embodiment, two slide rails are provided, i.e. a long slide rail 22 which is located inside the inner shell 2 and on a relative inner side and a short slide rail 21 which is located inside the inner shell 2 and on a relative outer side in relation to the long slide rail 21. The refrigerator shelf 1 is supported by means of the long slide rail 21 and the short slide rail 22. The long slide rail 21 is configured for mating with the slide channel 151 on the refrigerator shelf 1, that is, the slide channel 151 can be slid back and forth along the long slide rail 21 when mounted on it.

[0027] As can be seen in Figure 2, the stop 23 is located proximately to the long slide rail 21, at a vertical height that is slightly lower than the height of the long slide rail 21. The height of the stop 23 is configured such that the stop 23 can limit the movement of the refrigerator shelf 1 when the refrigerator shelf 1 is drawn outwardly horizontally, and, however, the stop 23 can be passed across by the slide channel 151 and the refrigerator shelf 1 can be drawn out when a front edge of the refrigerator shelf 1 is lifted up. The stop 23 can be designed to have a cylindrical shape or other streamlined shape in order that it can be passed across easily by the slide channel 151 when the front edge of the refrigerator shelf 1 is lifted up. The slide channel 151 can pass across the stop 23 smoothly along its tangent direction when the front edge of the refrigerator shelf 1 is lifted up.

[0028] As shown in Figure 4, in this embodiment of the present invention, through being provided on the inner shell 2, the stop 23 can come into contact with the slide channel 151 when the refrigerator shelf 1 is drawn outwardly, which prevents the refrigerator shelf 1 from being drawing out un-obstructively. In this case, it is required that the front edge of the refrigerator shelf 1 be lifted up so that the slide channel 151 can pass across the stop

23 when the refrigerator shelf 1 needs to be drawn out. Because there is no stop 23 provided on the refrigerator shelf 1, a simple and good appearance, a convenient manufacturing process and a reliable configuration are obtained.

[0029] As shown in Figures 2 and 4, the refrigerator shelf 1 generally comprises a panel 13, and a front strip 14 and a rear strip 15 provided on opposite edges of the panel 13. The front strip 14 and the rear strip 15 act as closure sides of the panel 13. Mostly, the panel 13 is a glass panel. The front strip 14 can come into contact with fingers of a person when the refrigerator shelf 1 is pulled or pushed. In particular, drawing the refrigerator shelf 1 requires enough frictional force of the front strip 14. Therefore, the front strip 14 is generally provided with frictional texture that is capable of providing the frictional force. The slide channel 151 is provided at the bottom of an edge of the refrigerator shelf 1, preferably at the bottom of the rear strip 15. It is also possible to directly bend the rear strip 15 to form the slide channel 151.

[0030] As shown in Figure 3, the refrigerator shelf 1 comprises a limiting boss 152 at an end of an edge of it, which limiting boss 152 being configured for limiting the pushed-in position of the refrigerator shelf 1. There are two limiting bosses 152 provided on opposite ends of the rear strip 15 respectively in this embodiment. Preferably, the limiting bosses 152 are provided on the rear strip 15, or they can be formed by directly bending the rear strip 15. When the refrigerator shelf 1 is pushed in, the limiting bosses 152 on the back of the rear strip 15 come into contact with the inner shell 2 or a cover plate first, and thus the pushed-in position of the refrigerator shelf 1 can be limited.

[0031] The present invention is not intended to be limited to the embodiments illustrated herein, and should be defined by the scope of the claims.

Claims

1. A refrigerator, comprising an inner shell, wherein the inner shell is provided with a slide rail thereon, and a refrigerator shelf (1) is slidably supported on the slide rail, wherein the refrigerator shelf (1) has a slide channel (151) which is configured for mating with the slide rail, when mounted on it, wherein the slide channel (151) is configured for guiding the refrigerator shelf (1) to move longitudinally on the slide rail; and a stop (23) is formed by the inner shell (2) and is proximate to the slide rail, wherein the movement of the refrigerator shelf (1) is limited by the stop (23) when the slide channel of the refrigerator shelf (1) is moved to the stop (23) along the slide rail, wherein the refrigerator shelf (1) comprises, at an end of an edge of it, a limiting boss (152) configured for limiting the pushed-in position of the refrigerator shelf (1), and wherein the refrigerator shelf (1) comprises a panel (13), and a front strip (14) and a rear strip (15)

provided on opposite edges of the panel (13), wherein both the slide channel (151) and the limiting boss (152) are provided on the rear strip (15).

2. The refrigerator according to claim 1, **characterized in that** the slide channel (151) is provided at the bottom of an edge of the refrigerator shelf (1).
3. The refrigerator according to anyone of claims 1 or 2, **characterized in that** two limiting bosses (152) are provided on opposite ends of the rear strip (15) respectively.

Patentansprüche

1. Kühlschrank mit einem Innenmantel, wobei der Innenmantel mit einer Gleitschiene versehen ist und eine Kühlschrankablage (1) verschiebbar an der Gleitschiene gehalten wird, wobei die Kühlschrankablage (1) einen Gleitkanal (151) aufweist, der so konfiguriert ist, dass er mit der Gleitschiene zusammenpasst, wenn diese daran installiert ist, wobei der Gleitkanal (151) so konfiguriert ist, dass er die Kühlschrankablage (1) in Längsrichtung an der Gleitschiene entlangführt, und wobei der Innenmantel (2) in der Nähe der Gleitschiene einen Anschlag (23) bildet, wobei die Bewegung der Kühlschrankablage (1) von dem Anschlag (23) eingeschränkt wird, wenn der Gleitkanal der Kühlschrankablage (1) an der Gleitschiene entlang zu dem Anschlag (23) bewegt wird, wobei die Kühlschrankablage (1) an einem Ende eines Randes einen runden Begrenzungsvorsprung (152) umfasst, der so konfiguriert ist, dass er die Einschiebeposition der Kühlschrankablage (1) begrenzt, und wobei die Kühlschrankablage (1) eine Platte (13) sowie einen vorderen Streifen (14) und einen hinteren Streifen (15) umfasst, die an gegenüberliegenden Kanten der Platte (13) vorgesehen sind, wobei sowohl der Gleitkanal (151) als auch der runde Begrenzungsvorsprung (152) an dem hinteren Streifen (15) vorgesehen sind.
2. Kühlschrank nach Anspruch 1, **dadurch gekennzeichnet, dass** der Gleitkanal (151) unten an einer Kante der Kühlschrankablage (1) vorgesehen ist.
3. Kühlschrank nach einem der Ansprüche 1 und 2, **dadurch gekennzeichnet, dass** jeweils an gegenüberliegenden Enden des hinteren Streifens (15) zwei runde Begrenzungsvorsprünge (152) vorgesehen sind.

Revendications

1. Réfrigérateur comprenant une coque intérieure,

dans lequel la coque intérieure porte un rail de coulis-
sement, et une étagère de réfrigérateur (1) est
supportée à coulissement sur le rail de coulissement,
dans lequel l'étagère de réfrigérateur (1) est pourvu
d'une glissière (151), laquelle est configurée pour 5
correspondre au rail de coulissement, lorsqu'il est
monté dessus, dans lequel la glissière (151) est con-
figurée pour guider l'étagère de réfrigérateur (1) pour
un déplacement longitudinal sur le rail de coulisse-
ment; et 10
un arrêt (23) est formé par la coque intérieure (2) et
se trouve à proximité du rail de coulissement, dans
lequel le mouvement de l'étagère de réfrigérateur
(1) est limitée par l'arrêt (23) quand la glissière de 15
l'étagère de réfrigérateur (1) est déplacée jusqu'à
l'arrêt (23) le long du rail de coulissement, dans le-
quel l'étagère de réfrigérateur (1) comprend, sur une
extrémité d'un bord de celle-ci, un bossage limitatif
(152) dont la configuration limite la position enfoncée 20
de l'étagère de réfrigérateur (1),
et dans lequel
l'étagère de réfrigérateur (1) comprend un panneau
(13) et une bande avant (14) ainsi qu'une bande ar-
rière (15) prévues sur les bords opposés du panneau 25
(13), dans lequel à la fois la glissière (151) et le bos-
sage limitatif (152) sont prévus sur la bande arrière
(15).

2. Réfrigérateur selon la revendication 1, **caractérisé**
en ce que la glissière (151) est prévue au fond d'un 30
bord de l'étagère de réfrigérateur (1).
3. Réfrigérateur selon l'une quelconque des revendi-
cations 1 ou 2, **caractérisé en ce que** deux bossa-
ges limitatifs (152) sont respectivement prévus sur 35
les extrémités opposées de la bande arrière (15).

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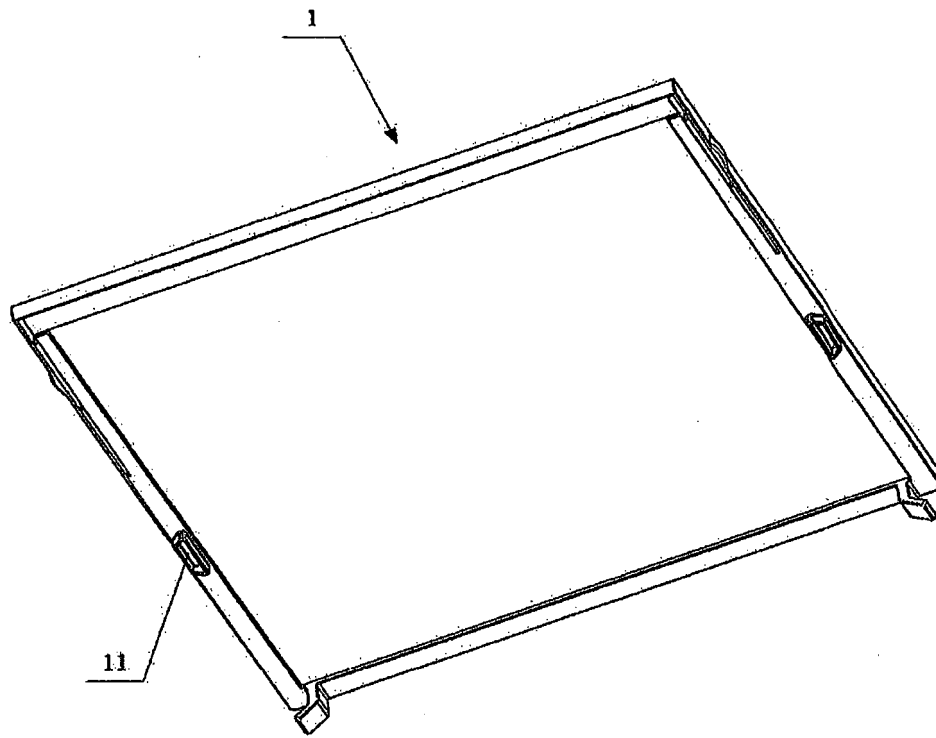


Figure 1

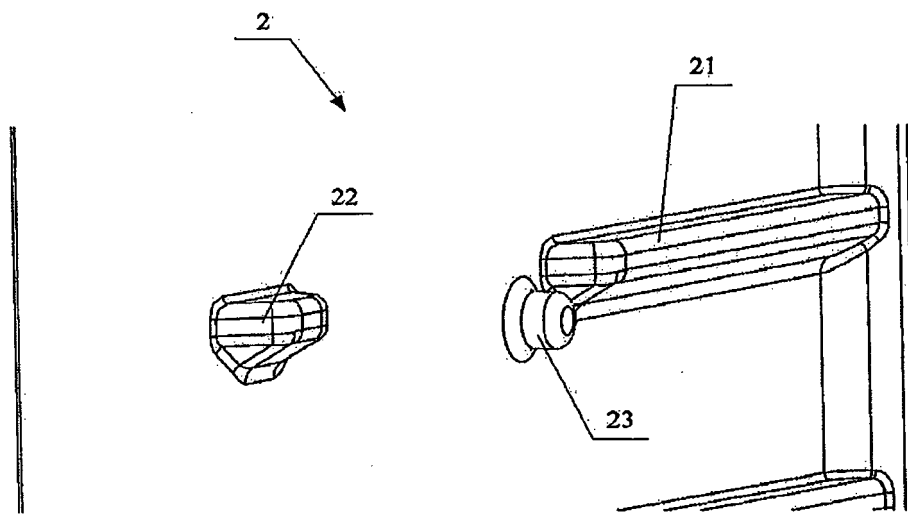


Figure 2

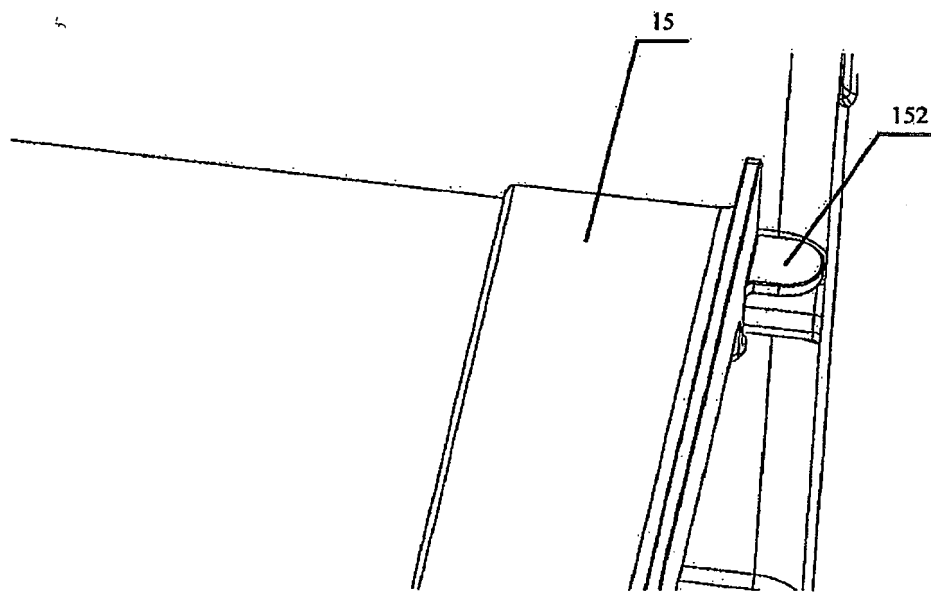


Figure 3

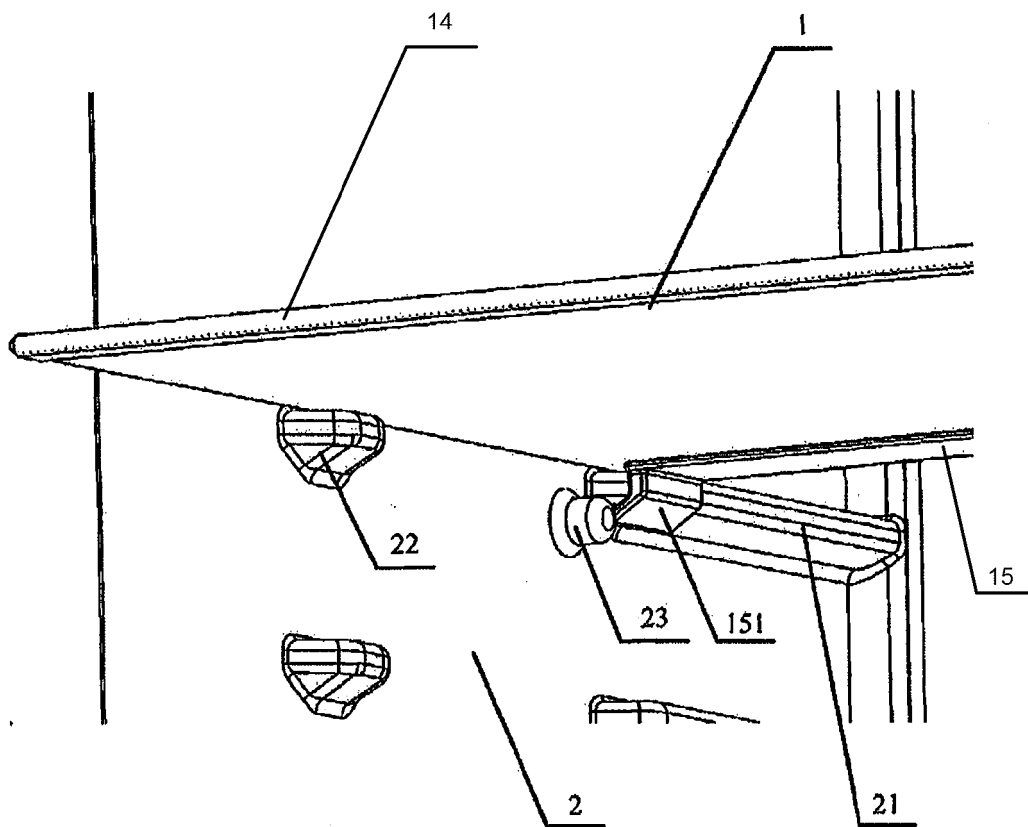


Figure 4

REFERENCES CITED IN THE DESCRIPTION

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