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(54) **HOUSEHOLD APPLIANCE AND GUIDE RAIL ASSEMBLY**

(57) Embodiments of this application provide a household appliance and a guide rail assembly. The household appliance includes a storage compartment, a container, and a pair of guide rail assemblies. The storage compartment has a front opening and a pair of side walls; the container includes an accommodating cavity and a cover used for closing an upwardly open access opening of the accommodating cavity, where the cover may slide from front to back to expose the access open-

ing; the pair of guide rail assemblies respectively include a first rail and a second rail, where the second rail is adapted to slide relative to the first rail; and the guide rail assembly includes a locking mechanism. When the container is pulled out and reaches a predetermined position, the locking mechanism locks the first rail and the second rail to prevent the container from moving backward driven by the cover pushed backward.

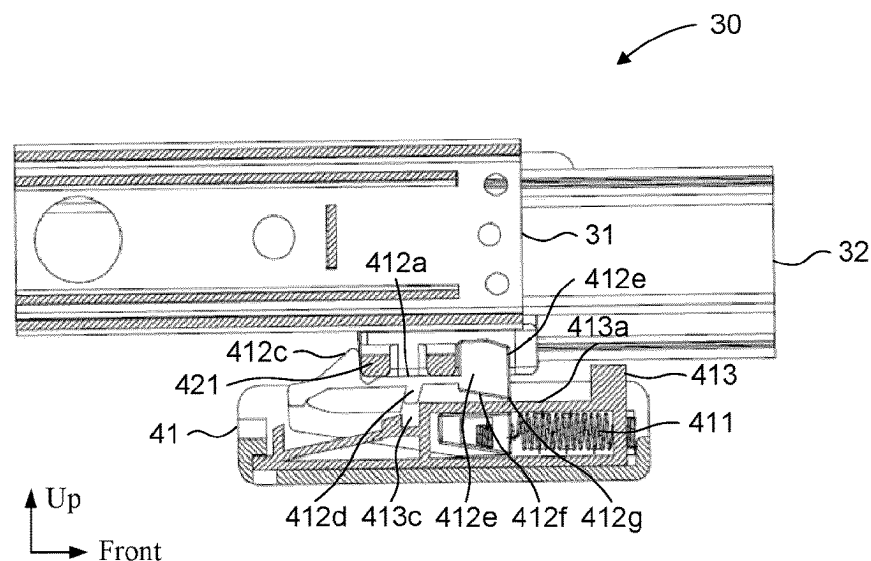


FIG. 21

Description

BACKGROUND

Technical Field

[0001] An aspect of embodiments of the present invention relates to a household appliance and a guide rail assembly.

Related Art

[0002] In the related art, a drawer guide rail for a household appliance does not have a function of locking at a maximum pull-out stroke position or a certain stroke position in the middle. The drawer guide rail may be freely pulled out and reset. The drawer guide rail, after pulled out, is in a free state and very unstable.

SUMMARY

[0003] An objective of embodiments of the present invention is to provide an improved household appliance and guide rail assembly. An aspect of the embodiments of the present invention relates to a household appliance, including: a storage compartment, where the storage compartment has a front opening and a pair of side walls; a container, including an accommodating cavity and a cover used for closing an upwardly open access opening of the accommodating cavity, where the cover may slide from front to back to expose the access opening; and a pair of guide rail assemblies, respectively including a first rail and a second rail, where the second rail is adapted to slide relative to the first rail. The guide rail assembly includes a locking mechanism, and when the container is pulled out and reaches a predetermined position, the locking mechanism locks the first rail and the second rail to prevent the container from moving backward driven by the cover pushed backward.

[0004] Optionally, the locking mechanism locks the first rail and the second rail to prevent the container from moving backward driven by the cover pushed backward.

[0005] Optionally, the locking mechanism is adapted to release locked states of the first rail and the second rail when the container is pushed backward.

[0006] The locking mechanism includes a first matching portion fixed to the first rail and a second matching portion fixed to the second rail, and at the predetermined position, the first matching portion and the second matching portion are engaged to lock the first rail and the second rail.

[0007] Another aspect of the embodiments of the present invention relates to a household appliance, including: a storage compartment, where the storage compartment has a front opening and a pair of side walls; a container, including an accommodating cavity and a cover used for closing an upwardly open access opening of the accommodating cavity, where the cover may slide

from front to back to expose the access opening; and a pair of guide rail assemblies, respectively including a first rail and a second rail, where the second rail is adapted to slide relative to the first rail. The guide rail assembly includes a locking mechanism, the locking mechanism includes a first matching portion fixed to the first rail and a second matching portion fixed to the second rail, and when the container is pulled out and reaches a predetermined position, the first matching portion and the second matching portion are engaged to lock the first rail and the second rail.

[0008] Optionally, a sealing ring is provided between the cover and an edge of the access opening, the sealing ring is fixed to the edge or the cover, when the cover closes the access opening, the sealing ring is adapted to bear the gravity of the cover to be squeezed, and a locking force of the locking mechanism on the first rail and the second rail is greater than a friction force generated by the sealing ring on the edge or the cover when the cover is opened.

[0009] Optionally, the first matching portion is fixed to a front portion of the first rail, and the second matching portion is fixed to a rear portion of the second rail, where the first rail is fixed to a corresponding side wall, and the second rail is fixed to a corresponding side of the container.

[0010] Optionally, the first matching portion includes a mounting portion located between the first rail and the corresponding side wall, and a lock that is located below the first rail and is used for being engaged with the second matching portion.

[0011] Optionally, the first matching portion includes a housing, the housing includes the mounting portion and an accommodating groove located below the first rail, and the lock is accommodated in the accommodating groove.

[0012] Optionally, the housing includes a fixing hole located on and exposed to the accommodating groove, and the lock includes a fixing elastic piece snapped into the fixing hole; and/or, the housing includes a snap-in groove at a rear portion of the housing, and the lock includes a buckle snapped into the snap-in groove.

[0013] Optionally, the second matching portion includes a locking portion, and the locking portion may move with the second rail and is adapted to be elastically received in the first matching portion, so that the guide rail assembly is in a locked state.

[0014] Optionally, the first matching portion includes a base and a movable lock member, and the second matching portion is adapted to drive the lock member to move and/or rotate in a front-to-back direction relative to the base, so that the lock member and a locking portion located at the second matching portion form or release a locked state.

[0015] Optionally, the lock member is adapted to be driven by the second matching portion to rotate, so that at least one part of the lock member is displaced in a vertical direction relative to the first rail.

[0016] Optionally, the base includes a brake groove, the lock member includes a brake portion, and the lock member is adapted to slide from back to front to separate the brake portion from the brake groove, or the lock member is adapted to slide from front to back to make the brake portion enter the brake groove.

[0017] Optionally, the lock member includes a stop portion, when the brake portion is located in the brake groove, the locking portion may pass over the stop portion and move relative to the stop portion, and when the first rail and the second rail are locked, the brake portion separates from the brake groove, and the stop portion stops the locking portion from moving backward.

[0018] Optionally, the lock member includes a push block, the push block is adapted to be pushed to move from back to front to separate the brake portion from the brake groove, and in a locked state, the locking portion is locked between the push block and the stop portion.

[0019] Optionally, the locking portion is adapted to engage the push block and the stop portion in the locked state and is locked between the push block and the stop portion.

[0020] Optionally, the base includes a rail portion, the rail portion is higher than the brake groove in a vertical direction, the lock member includes a joint portion that may slide along the rail portion, in a locked state, the joint portion and the brake portion are supported on the rail portion, and when the brake portion falls into the brake groove, the joint portion is supported on the rail portion, and a rear portion of the lock member moves down, so that the second matching portion may separate from the first matching portion.

[0021] Optionally, the rail portion is horizontal.

[0022] Optionally, the joint portion inclines downward from back to front, and when the brake portion falls into the brake groove or separates from the brake groove, the lock member rotates around a joint between the joint portion and the rail portion.

[0023] Optionally, the household appliance includes an elastic member mounted between the base and the lock member, where the elastic member is adapted to provide an elastic force between the base and the lock member when a locked state is formed or released.

[0024] Optionally, the first matching portion includes a locking groove, the second matching portion includes a locking member, and at least one of the locking member and the locking groove is made of an elastic material, so that the locking member is adapted to be elastically received in the locking groove.

[0025] Optionally, the second matching portion includes a block wall, the block wall and the locking member are spaced to form a fixing groove, the first matching portion includes a wall portion forming the locking groove, and the wall portion is accommodated in the fixing groove.

[0026] Compared with the related art, the technical solutions of the embodiments of the present invention have the following beneficial effects. For example, after pulled

out relative to the storage compartment, the container can be locked at a maximum pull-out stroke position or a certain stroke position in the middle, to facilitate a user to open an upper cover of the container to take and place stored items.

[0027] For another example, the locked state may be released by applying a particular pushing force to reset the container.

[0028] Another aspect of the embodiments of the present invention may relate to a guide rail assembly. The guide rail assembly includes a first rail and a second rail that is adapted to slide relative to the first rail, the guide rail assembly includes a locking mechanism, the locking mechanism includes a first matching portion fixed to the first rail and a second matching portion fixed to the second rail, and when the second rail is pulled out relative to the first rail and reaches a predetermined position, the first matching portion and the second matching portion are engaged to lock the first rail and the second rail.

[0029] Optionally, the first matching portion may be fixed to a front portion of the first rail, and the second matching portion may be fixed to a rear portion of the second rail. The first rail is adapted to be fixed to a side wall, and the second rail is adapted to be mounted on a container that may slide relative to the side wall.

[0030] Optionally, the first matching portion may include a mounting portion located at a side of the second rail facing away from the first rail, and a lock that is located below the first rail and is used for being engaged with the second matching portion.

[0031] Optionally, the first matching portion may include a housing, the housing may include the mounting portion and an accommodating groove located below the first rail, and the lock is accommodated in the accommodating groove.

[0032] Optionally, the housing may include a fixing hole located on and exposed to the accommodating groove, and the lock may include a fixing elastic piece snapped into the fixing hole; and/or, the housing may include a snap-in groove at a rear portion of the housing, and the lock may include a buckle snapped into the snap-in groove.

[0033] Optionally, the second matching portion may include a locking portion, and the locking portion may move with the second rail and is adapted to be elastically received in the first matching portion, so that the guide rail assembly is in a locked state.

[0034] Optionally, the first matching portion may include a base and a movable lock member, and the second matching portion is adapted to drive the lock member to move and/or rotate in a front-to-back direction relative to the base, so that the lock member and a locking portion located at the second matching portion form or release a locked state.

[0035] Optionally, the lock member is adapted to be driven by the second matching portion to rotate so that at least one part of the lock member is displaced in a vertical direction relative to the first rail.

[0036] Optionally, the base may include a brake groove, the lock member may include a brake portion, and the lock member is adapted to slide from back to front to separate the brake portion from the brake groove, or the lock member is adapted to slide from front to back to make the brake portion enter the brake groove.

[0037] Optionally, the lock member may include a stop portion, when the brake portion is located in the brake groove, the locking portion may pass over the stop portion and move relative to the stop portion, and when the first rail and the second rail are locked, the brake portion separates from the brake groove, and the stop portion stops the locking portion from moving backward.

[0038] Optionally, the lock member may include a push block, the push block is adapted to be pushed to move from back to front to separate the brake portion from the brake groove, and in a locked state, the locking portion is locked between the push block and the stop portion.

[0039] Optionally, the locking portion may be adapted to engage the push block and the stop portion in the locked state and is locked between the push block and the stop portion.

[0040] Optionally, the base may include a rail portion, the rail portion is higher than the brake groove in a vertical direction, the lock member includes a joint portion that may slide along the rail portion, in a locked state, the joint portion and the brake portion are supported on the rail portion, and when the brake portion falls into the brake groove, the joint portion is supported on the rail portion, and a rear portion of the lock member moves down, so that the second matching portion may separate from the first matching portion.

[0041] Optionally, the rail portion may be horizontal.

[0042] Optionally, the joint portion may incline downward from back to front, and when the brake portion falls into the brake groove or separates from the brake groove, the lock member rotates around a joint between the joint portion and the rail portion.

[0043] Optionally, the household appliance may include an elastic member mounted between the base and the lock member, where the elastic member is adapted to provide an elastic force between the base and the lock when a locked state is formed or released.

[0044] Optionally, the first matching portion may include a locking groove, the second matching portion may include a locking member, and at least one of the locking member and the locking groove is made of an elastic material, so that the locking member is adapted to be elastically received in the locking groove.

[0045] Optionally, the second matching portion may include a block wall, the block wall and the locking member are spaced to form a fixing groove, the first matching portion includes a wall portion forming the locking groove, and the wall portion is accommodated in the fixing groove.

[0046] Optionally, the guide rail assembly may be used in a household appliance such as a refrigerator and a dishwasher, or in another cabinet with a supporting

plate/frame for placing items.

BRIEF DESCRIPTION OF THE DRAWINGS

5 **[0047]**

FIG. 1 is a partial schematic diagram of a household appliance according to an embodiment of the present invention.

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FIG. 2 is a schematic exploded view of a container according to an embodiment of the present invention.

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FIG. 3 is a schematic diagram of a guide rail assembly according to an embodiment of the present invention.

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FIG. 4 is a schematic diagram of a guide rail assembly in a closed state according to an embodiment of the present invention.

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FIG. 5 is a schematic diagram of a guide rail assembly in an open state according to an embodiment of the present invention.

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FIG. 6 is a schematic exploded view of a guide rail assembly in an open state according to an embodiment of the present invention.

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FIG. 7 is a schematic diagram of a lock catch according to an embodiment of the present invention.

FIG. 8 is a schematic diagram of a housing according to an embodiment of the present invention.

FIG. 9 is another schematic diagram of a housing according to an embodiment of the present invention.

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FIG. 10 is a schematic diagram of a lock according to an embodiment of the present invention.

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FIG. 11 is a cross-sectional view of a lock according to an embodiment of the present invention.

FIG. 12 is a schematic diagram of an elastic member according to an embodiment of the present invention.

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FIG. 13 is a schematic diagram of a lock member according to an embodiment of the present invention.

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FIG. 14 is another schematic diagram of a lock member according to an embodiment of the present invention.

FIG. 15 is a schematic diagram of a base according to an embodiment of the present invention.

FIG. 16 is another schematic diagram of a base according to an embodiment of the present invention.

FIG. 17 is a schematic diagram of a lock catch matching member according to an embodiment of the present invention.

FIG. 18 is a side view of a guide rail assembly in an unlocked state according to an embodiment of the present invention.

FIG. 19 is a cross-sectional view along A-A in FIG. 18.

FIG. 20 is a schematic diagram of a state of a guide rail assembly in a locking process according to an embodiment of the present invention.

FIG. 21 is a schematic diagram of another state of a guide rail assembly in a locking process according to an embodiment of the present invention.

FIG. 22 is a side view of a guide rail assembly in a locked state according to an embodiment of the present invention.

FIG. 23 is a cross-sectional view along A-A in FIG. 22.

FIG. 24 is another schematic diagram of a guide rail assembly in an open state according to an embodiment of the present invention.

FIG. 25 is another schematic exploded view of a guide rail assembly in an open state according to an embodiment of the present invention.

FIG. 26 is a schematic diagram of a locking groove member according to an embodiment of the present invention.

FIG. 27 is a schematic diagram of a locking groove matching member according to an embodiment of the present invention.

FIG. 28 is a schematic diagram of a locking groove member and a locking groove matching member in an engaged state according to an embodiment of the present invention.

DETAILED DESCRIPTION

[0048] In the related art, a drawer guide rail does not have a function of locking at a maximum pull-out stroke position or a certain stroke position in the middle.

[0049] Different from the related art, an aspect of embodiments of the present invention provides an improved household appliance. The household appliance may include: a storage compartment, where the storage compartment has a front opening and a pair of side walls; a container, including an accommodating cavity and a cover used for closing an upwardly open access opening of the accommodating cavity, where the cover may slide from front to back to expose the access opening; and a pair of guide rail assemblies, respectively including a first rail and a second rail, where the second rail is adapted to slide relative to the first rail. The guide rail assembly includes a locking mechanism, and when the container is pulled out and reaches a predetermined position, the locking mechanism locks the first rail and the second rail to prevent the container from moving backward driven by the cover pushed backward.

[0050] Compared with the related art, by using the technical solution provided in the embodiments of the present invention, when the container is pulled out and reaches a predetermined position, the locking mechanism may lock the first rail and the second rail to prevent the second rail from sliding relative to the first rail, and especially, to prevent the second rail from sliding relative to the first rail, which is caused by the container moving backward driven by the cover pushed backward.

[0051] In order to facilitate description of the household appliance provided in the embodiments of the present invention, some accompanying drawings provided in the embodiments of the present invention show six directions that are up, down, left, right, front, and back. The six directions are determined from a perspective of the household appliance facing a user in a normal use state. "Front" represents a direction in which the household appliance is close to a side of a user, "back" represents a direction in which the household appliance is away from the side of the user, and "up", "down", "left", and "right" are determined based on the foregoing "front" and "back" directions according to a natural orientation division. It should be understood that, from another perspective of the household appliance, there are also directions of up, down, left, right, front, and back corresponding to the corresponding perspective. The directions of up, down, left, right, front, and back shown in some accompanying drawings provided in the embodiments of the present invention are merely used for ease of description of the technical solutions provided in the embodiments of the present invention, but do not limit description of the solutions.

[0052] To make the objectives, features, and beneficial effects of the embodiments of the present invention more comprehensible, the specific embodiments of the present invention are described in detail with reference to the accompanying drawings.

[0053] FIG. 1 is a partial schematic diagram of a household appliance according to an embodiment of the present invention.

[0054] As shown in FIG. 1, a household appliance 1

provided in this embodiment of the present invention includes a storage compartment 10, a container 20, and a pair of guide rail assemblies 30. In this embodiment, an exemplary example in which a refrigerator is used as the household appliance is used for description.

[0055] The storage compartment 10 has a front opening 12 and a pair of side walls 11.

[0056] The container 20 is connected to the pair of side walls 11 of the storage compartment 10 by using the pair of guide rail assemblies 30, and may move back and forth relative to the storage compartment 10 to be pulled out of or pushed in the storage compartment 10.

[0057] Specifically, when pulled out, the container 20 moves forward relative to the storage compartment 10 and is at least partially located outside the storage compartment 10. Specifically, when pulled in, the container 20 moves backward relative to the storage compartment 10 and is at least partially located inside the storage compartment 10.

[0058] FIG. 2 is a schematic exploded view of a container according to an embodiment of the present invention.

[0059] As shown in FIG. 2, the container 20 includes an accommodating cavity 21 and a cover 23. The accommodating cavity 21 has an upwardly open access opening 22. The cover 23 is adapted to close the access opening 22 of the accommodating cavity 21 and may slide from front to back to expose the access opening 22.

[0060] Specifically, the cover 23 slides from front to back to expose (that is, to open) the access opening 22, and the cover 23 slides from back to front to close the access opening 22.

[0061] A sealing ring 25 may be further provided between the cover 23 and an edge 24 of the access opening 22. The sealing ring 25 may be fixed to one of the edge 24 of the access opening 22 or the cover 23. When the cover 23 closes the access opening 22, the sealing ring 25 is adapted to bear the gravity of the cover 23 to be squeezed to seal the accommodating cavity 21.

[0062] In some specific examples, the cover 23 may include a frame 231 and a cover plate 232 disposed in the frame 231.

[0063] Specifically, the frame 231 may be made of materials such as plastics or silica gels. The cover plate 232 may be made of tempered glass or other materials with a sufficient weight to enhance the gravity applied by the cover 23 to the sealing ring 25 and to enable the sealing ring 25 to be squeezed to seal the accommodating cavity 21.

[0064] In some preferred specific examples, the sealing ring 25 may be mounted on a side of the cover 23 facing the access opening 22. When the cover 23 slides from back to front to close the access opening 22, the sealing ring 25 is pressed on the edge 24 of the access opening 22 along with the cover 23 and is squeezed to seal the accommodating cavity 21.

[0065] Specifically, the sealing ring 25 may be made of deformable materials that are elastic and compressi-

ble. When the cover 23 slides from back to front to close the access opening 22, the sealing ring 25 is abutted against the edge 24 of the access opening 22 by using a bottom of the sealing ring, and is squeezed and deformed under the gravity of the cover 23, to discharge at least a part of air between the sealing ring 25 and the edge 24 of the access opening 22, thereby sealing the accommodating cavity 21.

[0066] Compared with that the sealing ring 25 is mounted on the edge 24 of the access opening 22, the sealing ring 25 is mounted on the side of the cover 23 facing the access opening 22, which is beneficial to hide the sealing ring 25, so that a probability that the sealing ring 25 is contaminated may be effectively reduced.

[0067] In the technical solutions provided in the embodiments of the present invention, when the cover 23 closes the access opening 22, the cover 23 is supported on the edge 24 of the access opening 22. When the cover 23 slides from front to back or from back to front, there may be a gap between the sealing ring 25 and the edge 24 of the access opening 22 in a gravity direction, so that the cover 23 may slide relative to the edge 24.

[0068] A roller 26 may also be provided between the cover 23 and the edge 24 of the access opening 22. When the cover 23 slides from front to back or from back to front, the roller 26 may roll from front to back or from back to front along the edge 24 of the access opening 22, so that there is a gap between the sealing ring 25 and the edge 24 of the access opening 22 in the gravity direction.

[0069] In some specific examples, the roller 26 may be mounted on the side of the cover 23 facing the access opening 22. Corresponding to the position of the roller 26, a groove 27 is provided on the edge 24 of the access opening 22. When the cover 23 closes the access opening 22, the cover 23 sinks, and the roller 26 enters the groove 27 to eliminate the gap between the sealing ring 25 and the edge 24. When the cover 23 opens the access opening 22, the cover 23 rises, and the roller 26 slides out of the groove 27 to form the gap between the sealing ring 25 and the edge 24.

[0070] To ensure that when the cover 23 slides back and forth under the support of the roller 26, there is the gap between the sealing ring 25 and the edge 24, a lowest point of the roller 26 mounted on the cover 23 may be lower than a lowest point of the sealing ring 25 in a free state. The free state is a state when the sealing ring 25 is not squeezed by the gravity of the cover 23.

[0071] To prevent the impact of the sealing ring 25 on the rolling of the roller 26 and the abrasion of the rolling of the roller 26 on the sealing ring 25, the roller 26 and the sealing ring 25 may not be in contact in an axial direction of the roller 26 and have a certain interval.

[0072] In other specific examples, the roller 26 may also be mounted on a side portion of the edge 24. Corresponding to the position of the roller 26, there is a groove 27 at a corresponding position of the cover 23.

[0073] To make the cover 23 slide back and forth smoothly, the rollers 26 may be disposed symmetrically

on left and right sides of the cover 23 respectively. Further, a plurality of the rollers 26 may also be disposed on one side of the cover 23 simultaneously.

[0074] One of the pair of guide rail assemblies 30 is located between the side wall 11 on the left side of the storage compartment 10 and the container 20, and the other of the pair of guide rail assemblies 30 is located between the side wall 11 on the right side of the storage compartment 20 and the container 20.

[0075] FIG. 3 is a schematic diagram of a guide rail assembly according to an embodiment of the present invention.

[0076] As shown in FIG. 3, a pair of guide rail assemblies 30 form a set, including a first rail 31 and a second rail 32.

[0077] Specifically, the first rail 31 may be a fixed rail and is fixed to the corresponding side wall 11 of the storage compartment 10.

[0078] The second rail 32 may be a slide rail and is fixed to the corresponding side of the container 20 (the side of the container 20 close to the first rail 31 in the same assembly). The second rail 32 is slidably connected to the first rail 31, and the second rail 32 is adapted to slide back and forth relative to the first rail 31.

[0079] When the second rail 32 slides forward relative to the first rail 31, the container 20 moves forward relative to the storage compartment 10, so that the container is at least partially pulled out of the storage compartment 10. When the second rail 32 slides backward relative to the first rail 31, the container 20 moves backward relative to the storage compartment 10, so that the container 20 is at least partially pushed into the storage compartment 10.

[0080] After the container 20 is at least partially pulled out of the storage compartment 10, a pushing force from front to back may be applied to the cover 23 to open the access opening 22 of the accommodating cavity 21, thereby facilitating a user to take and place stored items by using the access opening 22.

[0081] When the pushing force from front to back is applied to the cover 23, a friction force generated between the cover 23 and the access opening 22 of the accommodating cavity 21, or a friction force between the sealing ring 25 and the edge 24 of the access opening 22 or the cover 23 makes the container 20 move backward along with the cover 23, so that the access opening 22 is difficult to be opened, or an opened opening is relatively small, which is inconvenient for the user to take and place the stored items.

[0082] In the technical solutions provided in the embodiments of the present invention, the guide rail assembly 30 further includes a locking mechanism.

[0083] When the container 20 is pulled out and reaches a predetermined position, the locking mechanism is adapted to lock the first rail 31 and the second rail 32 to prevent the second rail 32 from sliding relative to the first rail 31, and especially, to prevent the second rail 32 from sliding relative to the first rail 31, which is caused by the

container 20 moving backward driven by the cover 23 pushed backward.

[0084] Further, a locking force of the locking mechanism on the first rail 31 and the second rail 32 should be greater than a friction force generated by the sealing ring 25 on the edge 24 of the access opening 22 or the cover 23 when the cover 23 is opened.

[0085] The locking mechanism may include a first matching portion fixed to the first rail 31 and a second matching portion fixed to the second rail 32. When the container 20 is pulled out and reaches the predetermined position, the first matching portion and the second matching portion are engaged to lock the first rail 31 and the second rail 32.

[0086] The predetermined position may be a position where the container 20 is located when the container is pulled out to a maximum stroke, or a position where the container 20 is located when the container is pulled out to a certain stroke in the middle. The certain stroke in the middle may be determined according to factors such as usage habits or needs of the user.

[0087] The locking mechanism is also adapted to release locked states of the first rail 31 and the second rail 32 when a pushing force from front to back and greater than the locking force of the locking mechanism is applied to the container 20.

[0088] The locking mechanism provided in the embodiments of the present invention is described below in different specific implementations.

Embodiment 1

[0089] FIG. 4 is a schematic diagram of a guide rail assembly in a closed state according to an embodiment of the present invention. FIG. 5 is a schematic diagram of a guide rail assembly in an open state according to an embodiment of the present invention. FIG. 6 is a schematic exploded view of a guide rail assembly in an open state according to an embodiment of the present invention.

[0090] As shown in FIG. 4 to FIG. 6, in this embodiment, the locking mechanism 40 includes a lock catch 41 (that is, the first matching portion) fixed to the first rail 31 and a lock catch matching member 42 (that is, the second matching portion) fixed to the second rail 32.

[0091] In some preferred specific examples, the lock catch 41 is fixed to a front portion of the first rail 31, and the lock catch matching member 42 is fixed to a rear portion of the second rail 32. In this case, the locking mechanism 40 may lock the first rail 31 and the second rail 32 when the container 20 is pulled out to a certain stroke.

[0092] FIG. 7 is a schematic diagram of a lock catch according to this embodiment.

[0093] As shown in FIG. 7, the lock catch 41 may include a housing 414 and a lock 410 received in the housing 414.

[0094] FIG. 8 is a schematic diagram of a housing ac-

cording to this embodiment. FIG. 9 is another schematic diagram of a housing according to this embodiment. FIG. 8 and FIG. 9 respectively show the housing in this embodiment from two different perspectives.

[0095] As shown in FIG. 8 and FIG. 9, the housing 414 may include a mounting portion 414a, an accommodating groove 414b located below the mounting portion 414a, a fixing hole 414c exposed in the accommodating groove 414b, and a snap-in groove 414d located at a rear portion of the housing 414.

[0096] The mounting portion 414a is provided with a housing mounting hole 414e. The mounting portion 414a may be riveted to the first rail 31 through the housing mounting hole 414e, so that the mounting portion 414a is located between the first rail 31 and the corresponding side wall 11.

[0097] The accommodating groove 414b may be connected to the mounting portion 414a or may be formed integrally. The accommodating groove is located below the first rail 31 and is adapted to accommodating the lock 410.

[0098] In this embodiment, the lock 410 is located below the first rail 31, and is used for being engaged with the lock catch matching member 42.

[0099] FIG. 10 is a schematic diagram of a lock according to this embodiment. FIG. 11 is a cross-sectional view of a lock according to this embodiment.

[0100] As shown in FIG. 10 and FIG. 11, the lock 410 includes an elastic member 411, a movable lock member 412, and a base 413.

[0101] FIG. 12 is a schematic diagram of an elastic member according to this embodiment.

[0102] As shown in FIG. 12, the elastic member 411 may be in a form of a spring.

[0103] Specifically, the elastic member 411 may include two spring heads 411a, two spring necks 411b, and one spring body 411c. Both ends of the spring body 411c are connected to a spring neck 411b, and an end of each spring neck 411b away from the spring body 411c is connected to a spring head 411a.

[0104] In this embodiment, the elastic member 411 is connected between the lock member 412 and the base 413, and the elastic member is adapted to provide an elastic force between the base 413 and the lock member 412 when the lock catch 41 and the lock catch matching member 42 form or release a locked state.

[0105] FIG. 13 is a schematic diagram of a lock member according to this embodiment. FIG. 14 is another schematic diagram of a lock member according to this embodiment. FIG. 13 and FIG. 14 respectively show the lock member in this embodiment from two different perspectives.

[0106] As shown in FIG. 13 and FIG. 14, the lock member 412 may include a first spring groove 412b for mounting one spring head 411a of the elastic member 411. The first spring groove 412b may be located at a front end of the lock member 412

[0107] The lock member 412 may include a stop por-

tion 412c, a brake portion 412d, and a push block 412e. The stop portion 412c, the brake portion 412d, and the push block 412e may be connected by using a connecting portion 412a.

[0108] The push block 412e and the stop portion 412c are spaced apart from each other. Specifically, the push block 412e is located in front of the stop portion 412c.

[0109] The push block 412e and the stop portion 412c may be located at both ends of the connecting portion 412a. The brake portion 412d may be located between the push block 412e and the stop portion 412c.

[0110] The push block 412e and the stop portion 412c may be located at an upper portion of the lock member 412. The connecting portion 412a is located at a side of a middle portion of the lock member 412 facing the side wall 11, and may have a slide groove structure 412h facing the side wall 11. The brake portion 412d may extend downward from the connecting portion 412a.

[0111] The lock member 412 may include a joint portion 412f for sliding on the base 413. The joint portion 412f may be formed by using a bottom surface of the push block 412e. In an alternative embodiment, the joint portion 412f may also be formed by using a part separating from the push block 412e.

[0112] FIG. 15 is a schematic diagram of a base according to this embodiment. FIG. 16 is another schematic diagram of a base according to this embodiment. FIG. 15 and FIG. 16 respectively show the base in this embodiment from two different perspectives.

[0113] As shown in FIG. 15 and FIG. 16, the base 413 may include a second spring groove 413b, and the other spring head 411a in the elastic member 411 is adapted to be snapped into the second spring groove 413b.

[0114] The base 413 may include a rail portion 413a. The lock member 412 is adapted to slide along the rail portion 413a. The rail portion 413a may be a slide rail structure matching with the joint portion 412f of the lock member 412. A front end of the rail portion 413a may be closed to prevent the lock member 412 from sliding forward out of the rail portion 413a by using the joint portion 412f of the lock member 412.

[0115] The lock member 412 may rotate relative to the base 413. In an embodiment, the rail portion 413a may extend horizontally, and the joint portion 412f adapted to slide on the rail portion 413a inclines downward from back to front when a locked state is formed or released. In this case, the joint portion 412f may rotate relative to the rail portion 413a while always being engaged with the rail portion 413a. For example, a lowest point (see 412g shown in FIG. 21 and FIG. 23) formed by the joint portion 412f when a locked state is formed or released may be abutted against the rail portion 413 to form a rotation pivot, so that the lock member 412 may rotate relative to the base 413. The second spring groove 413b may be located below the rail portion 413a.

[0116] The base 413 may include a brake groove for accommodating the brake portion 412d. The brake groove 413c may be located behind the rail portion 413a.

[0117] The rail portion 413a may be higher than the brake groove 413c in a vertical direction.

[0118] The base 413 may include a fixing elastic piece 413d. The fixing elastic piece 413d may protrude from a side of the base 413 facing away from the container 20.

[0119] The base 413 may include a buckle 413e. The buckle 413e may be located at a rear end of the base 413. In this embodiment, an assembly manner of each component in the lock catch 41 is as follows:

[0120] First, the rail portion 413a of the base 413 is put into the joint portion 412f of the lock member 412, one spring head 411a in the elastic member 411 is snapped into the first spring groove 412b of the lock member 412, and the other spring head 411a in the elastic member 411 is snapped into the second spring groove 413b of the base 413, to complete the assembly of the lock 410.

[0121] Then, the buckle 413e of the base 413 is snapped into the snap-in groove 414d of the housing 414, and the fixing elastic piece 413d of the base 413 is snapped into the fixing hole 414c of the housing 414, to complete the assembly of the entire lock catch 41.

[0122] In this embodiment, the lock member 412 may slide back and forth relative to the base 413.

[0123] The lock member 412 may slide from back to front to separate the brake portion 412d from the brake groove 413c, or may slide from front to back to make the brake portion 412d enter the brake groove 413c.

[0124] In this embodiment, the joint portion 412f may slide along the rail portion 413a. In the locked state, the joint portion 412f and the brake portion 412d are supported on the rail portion 413a.

[0125] In some specific examples, the rail portion 413a may be horizontal.

[0126] The joint portion 412f may incline downward from back to front when a locked state is formed or released. When the brake portion 412d falls into the brake groove 413c or separates from the brake groove 413c, the lock member 412 may rotate around a joint 412g between the joint portion 412f and the rail portion 413a.

[0127] FIG. 17 is a schematic diagram of a lock catch matching member according to this embodiment.

[0128] As shown in FIG. 17, the lock catch matching member 42 includes a locking portion 421 and a matching member mounting hole 422.

[0129] The lock catch matching member 42 may be riveted to the second rail 32 through the matching member mounting hole 422.

[0130] The locking portion 421 may move with the second rail 32 and is adapted to be elastically received in the lock catch 41, so that the guide rail assembly 30 is in a locked state.

[0131] Specifically, the locking portion 421 is adapted to drive the lock member 412 to move and/or rotate in a front-to-back direction relative to the base 413, so that the lock member 412 and the locking portion 421 form or release a locked state.

[0132] The lock member 412 is adapted to be driven by the locking portion 421 to rotate, so that at least one

part (including the brake portion 412d) of the lock member is displaced in a vertical direction relative to the first rail 31.

[0133] FIG. 18 is a side view of a guide rail assembly in an unlocked state. FIG. 19 is a cross-sectional view along A-A in FIG. 18.

[0134] Referring to FIG. 18 and FIG. 19, when the guide rail assembly 30 is in the unlocked state, the lock catch matching member 42 and the lock catch 41 are not in contact, the lock member 412 in the lock catch 41 is in an initial state, the brake portion 412d of the lock member 412 is located in the brake groove 413c of the base 413, the elastic member 411 is in a stretched state, and the second rail 32 and the first rail 31 are not locked. When the container 20 is pulled forward relative to the storage compartment 10, the lock catch matching member 42 mounted on the second rail 32 slides forward relative to the first rail 31 along with the second rail 32.

[0135] FIG. 20 is a schematic diagram of a state of a guide rail assembly in a locking process according to an embodiment of the present invention. FIG. 21 is a schematic diagram of another state of the guide rail assembly in a locking process according to an embodiment of the present invention. FIG. 20 shows a state when the locking portion 421 of the lock catch matching member 42 is about to move the push block 412e of the lock member 412. FIG. 21 shows a state when the brake portion 412d of the lock member 412 just separates from the brake groove 413c of the base 413.

[0136] Referring to FIG. 20 and FIG. 21, when the locking portion 421 of the lock catch matching member 42 slides forward and reaches a predetermined position, the locking portion 421 may move the push block 412e and make the lock member 412 rotate around the joint portion 412g, to separate the brake portion 412d of the lock member 412 from the brake groove 413c of the base 413, and make the lock member 412 slide forward relative to the base 413.

[0137] When the brake portion 412d separates from the brake groove 413c, the joint portion 412f may rotate around the joint 412g between the joint portion 412f and the rail portion 413a, so that a part of the lock member 412 including at least the brake portion 412d is displaced upward in a vertical direction, thereby separating the brake portion 412d from the brake groove 413c.

[0138] When the lock member 412 slides forward relative to the base 413, the lock member 412 is pulled by the elastic member 411 to raise the stop portion 412c from bottom to top. The elastic member 411 may always be in a stretched state. The elastic member 411 pulls the lock member 412 by using a pulling force, so that the stop portion 412c is in a tight contact with the locking portion 421 and moves forward with the locking portion, and the locking portion 421 is located between the stop portion 412c and the push block 412e of the lock member 412.

[0139] FIG. 22 is a side view of a guide rail assembly in a locked state. FIG. 23 is a cross-sectional view along

A-A in FIG. 22.

[0140] Referring to FIG. 22 and FIG. 23, when the guide rail assembly 30 is in the locked state, the brake portion 412d of the lock member 412 separates from the brake groove 413c of the base 413. The joint portion 412f and the brake portion 412d of the lock member 412 may be supported on the rail portion 413a of the base 413. The locking portion 421 of the lock catch matching member 42 may be snapped between the push block 412e and the stop portion 412c of the lock member 412, to lock the second rail 32 and the first rail 31.

[0141] In this embodiment, when the brake portion 412d is located in the brake groove 413c, the locking portion 421 may pass over the stop portion 412c and move forward relative to the stop portion. When the brake portion 412d separates from the brake groove 413c, the stop portion 412c may be raised to stop the locking portion 421 from moving backward.

[0142] In some specific examples, the locking portion 421 is adapted to be engaged with the push block 412e and the stop portion 412c respectively in the locked state to be locked between the push block 412e and the stop portion 412c, and the elastic member 411 is in a stretched state, so that the lock catch matching member 42 and the lock catch 41 are tightly engaged, to improve the locking stability of the guide rail assembly 30.

[0143] In some other specific examples, the lock catch matching member 42 may include a plurality of locking portions 421 arranged at intervals in sequence. All the locking portions 421 in the locked state are located between the push block 412e and the stop portion 412c of the lock member 412, so that the lock catch matching member 42 and the lock catch 41 are tightly engaged, to improve the locking stability of the guide rail assembly 30.

[0144] In this embodiment, the locking mechanism 40 is also adapted to release locked states of the first rail 31 and the second rail 32 when a pushing force from front to back and greater than the locking force of the locking mechanism 40 is applied to the container 20.

[0145] When the pushing force from front to back and greater than the locking force of the locking mechanism 40 is applied to the container 20, the locking portion 421 of the lock catch matching member 42 slides from front to back along with the second rail 32 and drives the lock member 412 to move and/or rotate backward relative to the base 413, so that the brake portion 412d falls into the brake groove 413c.

[0146] When the brake portion 412d falls into the brake groove 413c, the joint portion 412f may rotate around the joint 412g between the joint portion 412f and the rail portion 413a, so that a part of the lock member 412 including at least the brake portion 412d is displaced downward in a vertical direction, thereby making the brake portion 412d fall into the brake groove 413c.

[0147] When the brake portion 412d falls into the brake groove 413c, the joint portion 412f is supported on the rail portion 413a, and the stop portion 412c located at a rear portion of the lock member 412 moves down, so that

the locking portion 421 of the lock catch matching member 42 separates from the lock catch 41, to unlock the second rail 32 and the first rail 31.

5 Embodiment 2

[0148] FIG. 24 is another schematic diagram of a guide rail assembly in an open state according to this embodiment. FIG. 25 is another schematic exploded view of a guide rail assembly in an open state according to this embodiment.

[0149] As shown in FIG. 24 and FIG. 25, in this embodiment, the locking mechanism 50 includes a locking groove member 51 (that is, the first matching portion) fixed to the first rail 31 and a locking groove matching member 52 (that is, the second matching portion) fixed to the second rail 32.

[0150] In some preferred specific examples, the locking groove member 51 is fixed to a front portion of the first rail 31, and the locking groove matching member 52 is fixed to a rear portion of the second rail 32. In this case, the locking mechanism 50 may lock the first rail 31 and the second rail 32 when the container 20 is pulled out to a maximum stroke. FIG. 26 is a schematic diagram of a locking groove member according to this embodiment.

[0151] As shown in FIG. 26, the locking groove member 51 includes a locking groove 511, a wall portion 512, and a locking groove member mounting hole 513.

[0152] The locking groove member 51 may be riveted to the first rail 31 through the locking groove member mounting hole 513.

[0153] The wall portion 512 is adapted to forming a boundary of the locking groove 511.

[0154] The locking groove 511 is adapted to be engaged with the locking groove matching member 52 to lock the guide rail assembly 30.

[0155] FIG. 27 is a schematic diagram of a locking groove matching member according to this embodiment.

[0156] As shown in FIG. 27, the locking groove matching member 52 includes a locking member 521, a block wall 522, a fixing groove 523, and a locking groove matching member mounting hole 524.

[0157] The locking groove matching member 52 may be riveted to the second rail 32 through the locking groove matching member mounting hole 524.

[0158] The block wall 522 and the locking member 521 are spaced apart from each other, and the space between the block wall and the locking member forms the fixing groove 523.

[0159] In this embodiment, at least one of the locking member 521 and the locking groove 511 is made of an elastic material, so that the locking member is adapted to be elastically received in the locking groove.

[0160] When the container 20 is pulled forward relative to the storage compartment 10, the locking groove matching member 52 mounted on the second rail 32 slides forward relative to the first rail 31 along with the second rail 32.

[0161] When the locking groove matching member 52 slides forward and reaches a predetermined position, because at least one of the locking member 521 and the locking groove 511 is made of an elastic material, the locking member 521 may be elastically received in the locking groove 511. In this case, the locking groove member 51 is engaged with the locking groove matching member 52, and the guide rail assembly 30 is locked.

[0162] FIG. 28 is a schematic diagram of a locking groove member and a locking groove matching member in an engaged state according to this embodiment.

[0163] As shown in FIG. 28, when the locking groove member 51 is engaged with the locking groove matching member 52, the wall portion 512 of the locking groove member 51 may be accommodated in the fixing groove 523 of the locking groove matching member 52. In this case, the locking groove member 51 is engaged more tightly with the locking groove matching member 52, which is beneficial to improve the locking stability of the guide rail assembly 30.

[0164] In this embodiment, the locking mechanism 50 is also adapted to release locked states of the first rail 31 and the second rail 32 when a pushing force from front to back and greater than the locking force of the locking mechanism 50 is applied to the container 20.

[0165] When the pushing force from front to back and greater than the locking force of the locking mechanism 50 is applied to the container 20, the locking member 521 of the locking groove matching member 52 slides backward relative to the first rail 31 along with the second rail 32. Because at least one of the locking member 521 and the locking groove 511 is made of an elastic material, the locking member 521 separates from the locking groove 511 to unlock the guide rail assembly 30.

[0166] In the technical solutions provided in the foregoing embodiments of the present invention, when the container 20 is pulled out and reaches a predetermined position, the locking mechanism may lock the first rail 31 and the second rail 32 to prevent the second rail 32 from sliding relative to the first rail 31, and especially, to prevent the second rail 32 from sliding relative to the first rail 31, which is caused by the container 20 moving backward driven by the cover 23 pushed backward.

[0167] In the technical solutions provided in the foregoing embodiments of the present invention, the locking mechanism is also adapted to release locked states of the first rail 31 and the second rail 32 when a pushing force from front to back and greater than the locking force of the locking mechanism is applied to the container 20.

[0168] In the foregoing embodiments, the guide rail assembly is used in a refrigerator to connect a container with a cover. It should be understood that the principle of the present invention should not be limited to this. The guide rail assembly according to the embodiments of the present invention may also be used in another scenario, for example, a scenario in which a guide rail is required in a household appliance such as a dishwasher and a disinfection cabinet, or a cabinet with a push-pull storage

apparatus.

[0169] In the foregoing embodiments, a double-section guide rail assembly having a first rail and a second rail is used as an exemplary example. It should be understood that the locking mechanism according to the foregoing embodiments is also adapted to a multi-section guide rail assembly, for example, a three-section guide rail assembly.

[0170] Although specific embodiments are described above, the embodiments are not intended to limit the scope disclosed in the present invention, even if only a single embodiment is described relative to specific features. The feature examples provided in the present invention are intended to be illustrative rather than limiting, unless different expressions are made. In a specific implementation, according to an actual requirement, in a technically feasible case, the technical features of one or more dependent claims may be combined with the technical features of the independent claims, and the technical features from the corresponding independent claims may be combined in any appropriate way instead of using just specific combinations listed in the claims.

[0171] Although the present invention is disclosed above, the present invention is not limited thereto. A person skilled in the art can make various changes and modifications without departing from the spirit and the scope of the present invention. Therefore, the protection scope of the present invention should be subject to the scope defined by the claims.

Claims

1. A household appliance (1), comprising:

a storage compartment (10), wherein the storage compartment (10) has a front opening and a pair of side walls (11);
a container (20), comprising an accommodating cavity (21) and a cover (23) used for closing an upwardly open access opening (22) of the accommodating cavity (21), wherein the cover (23) may slide from front to back to expose the access opening (22); and
a pair of guide rail assemblies (30), respectively comprising a first rail (31) and a second rail (32), wherein the second rail (32) is adapted to slide relative to the first rail (31),

characterized in that

the guide rail assembly (30) comprises at least one locking mechanism (40, 50), and when the container (20) is pulled out and reaches a predetermined position, the locking mechanism (40, 50) locks the first rail (31) and the second rail (32).

2. The household appliance (1) according to claim 1, characterized in that the locking mechanism (40,

50) is adapted to release locked states of the first rail (31) and the second rail (32) when the container (20) is pushed backward; and/or, **characterized in that** the locking mechanism (40, 50) comprises a first matching portion (41, 51) fixed to the first rail (31) and a second matching portion (42, 52) fixed to the second rail (32), and at the predetermined position, the first matching portion (41, 51) and the second matching portion (42, 52) are engaged to lock the first rail (31) and the second rail (32).

3. The household appliance (1) according to any one of claims 1 or 2, **characterized in that** a sealing ring (25) is provided between the cover (23) and an edge (24) of the access opening (22), the sealing ring (25) is fixed to the edge (24) or the cover (23), when the cover (23) closes the access opening (22), the sealing ring (25) is adapted to bear the gravity of the cover (23) to be squeezed, and a locking force of the locking mechanism (40, 50) on the first rail (31) and the second rail (32) is greater than a friction force generated by the sealing ring (25) on the edge (24) or the cover (23) when the cover (23) is opened.
4. The household appliance (1) according to any of claims 2 or 3, **characterized in that** the first matching portion (41, 51) is fixed to a front portion of the first rail (31), and the second matching portion (42, 52) is fixed to a rear portion of the second rail (32), wherein the first rail (31) is fixed to a corresponding side wall (11), and the second rail (32) is fixed to a corresponding side of the container (20); and/or the first matching portion (41) comprises a mounting portion (414a) located between the first rail (31) and the corresponding side wall (11), and a lock (410) that is located below the first rail (31) and is used for being engaged with the second matching portion (42).
5. The household appliance (1) according to any one of claims 2 to 4, **characterized in that** the first matching portion (41) comprises a housing (414), the housing (414) comprises the mounting portion (414a) and an accommodating groove (414b) located below the first rail (31), and the lock (410) is accommodated in the accommodating groove (414b); or additionally that the housing (414) comprises a fixing hole (414c) located on and exposed to the accommodating groove (414b), and the lock (410) comprises a fixing elastic piece (413d) snapped into the fixing hole (414c); and/or, the housing (414) comprises a snap-in groove (414d) at a rear portion of the housing (414), and the lock (410) comprises a buckle (413e) snapped into the snap-in groove (414d).
6. The household appliance (1) according to any of claims 2 to 5, **characterized in that** the second matching portion (42) comprises a locking portion (421), and the locking portion (421) may move with

the second rail (32) and is adapted to be elastically received in the first matching portion (41), so that the guide rail assembly (30) is in a locked state.

7. The household appliance (1) according to any of claims 2 to 6, **characterized in that** the first matching portion (41) comprises a base (413) and a movable lock member (412), and the second matching portion (42) is adapted to drive the lock member (412) to move and/or rotate in a front-to-back direction relative to the base (413), so that the lock member (412) and a locking portion (421) located at the second matching portion (42) form or release a locked state.
8. The household appliance (1) according to claim 7, **characterized in that** the lock member (412) is adapted to be driven by the second matching portion (42) to rotate, so that at least one part of the lock member (412) is displaced in a vertical direction relative to the first rail (31).
9. The household appliance (1) according to any one of claims 7 or 8, **characterized in that** the base (413) comprises a brake groove (413c), the lock member (412) comprises a brake portion (412d), and the lock member (412) is adapted to slide from back to front to separate the brake portion (412d) from the brake groove (413c), or the lock member (412) is adapted to slide from front to back to make the brake portion (412d) enter the brake groove (413c).
10. The household appliance (1) according to claim 9, **characterized in that** the lock member (412) comprises a stop portion (412c), when the brake portion (412d) is located in the brake groove (413c), the locking portion (421) may pass over the stop portion (412c) and move relative to the stop portion (412c), and when the first rail (31) and the second rail (32) are locked, the brake portion (412d) separates from the brake groove (413c), and the stop portion (412c) stops the locking portion (421) from moving backward; and/or that the lock member (412) comprises a push block (412e), the push block (412e) is adapted to be pushed to move from back to front to separate the brake portion (412d) from the brake groove (413c), and in a locked state, the locking portion (421) is locked between the push block (412e) and the stop portion (412c); or additionally that the locking portion (421) is adapted to engage the push block (412e) and the stop portion (412c) in the locked state and is locked between the push block (412e) and the stop portion (412c).
11. The household appliance (1) according to any of claims 7 to 9, **characterized in that** the base (413) comprises a rail portion (413a), the rail portion (413a) is higher than the brake groove (413c) in a vertical

direction, the lock member (412) comprises a joint portion (412f) that may slide along the rail portion (413a), in a locked state, the joint portion (412f) and the brake portion (412d) are supported on the rail portion (413a), and when the brake portion (412d) falls into the brake groove (413c), the joint portion (412f) is supported on the rail portion (413a), and a rear portion of the lock member (412) moves down, so that the second matching portion (42) may separate from the first matching portion (41).

12. The household appliance (1) according to claim 11, **characterized in that** the rail portion (413a) is horizontal and/or that the joint portion (412f) inclines downward from back to front, and when the brake portion (412d) falls into the brake groove (413c) or separates from the brake groove (413c), the lock member (412) rotates around a joint (412g) between the joint portion (412f) and the rail portion (413a).
13. The household appliance (1) according to any of claims 7 to 12, **characterized by** comprising an elastic member (411) mounted between the base (413) and the lock member (412), wherein the elastic member (411) is adapted to provide an elastic force between the base (413) and the lock member (412) when a locked state is formed or released.
14. The household appliance (1) according to any of claims 2 to 13, **characterized in that** the first matching portion (51) comprises a locking groove (511), the second matching portion (52) comprises a locking member (521), and at least one of the locking member (521) and the locking groove (511) is made of an elastic material, so that the locking member is adapted to be elastically received in the locking groove; or additionally that the second matching portion (52) comprises a block wall (522), the block wall and the locking member (521) are spaced to form a fixing groove (523), the first matching portion (51) comprises a wall portion (512) forming the locking groove (511), and the wall portion (512) is accommodated in the fixing groove (523).
15. A guide rail assembly (30), comprising a first rail (31) and a second rail (32) that is adapted to slide relative to the first rail, **characterized in that** the guide rail assembly comprises a locking mechanism (40, 50), the locking mechanism comprises a first matching portion (41, 51) fixed to the first rail and a second matching portion (42, 52) fixed to the second rail, and when the second rail is pulled out relative to the first rail and reaches a predetermined position, the first matching portion and the second matching portion are engaged to lock the first rail and the second rail.

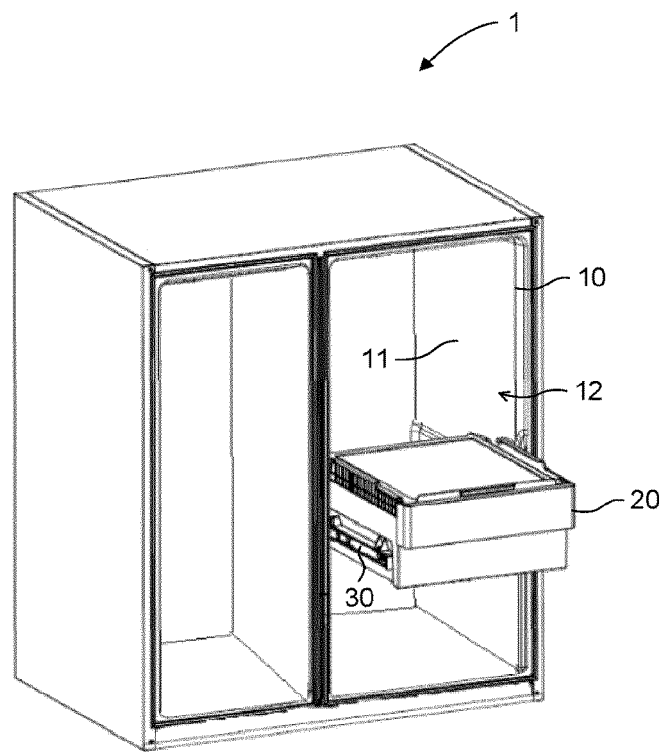


FIG. 1

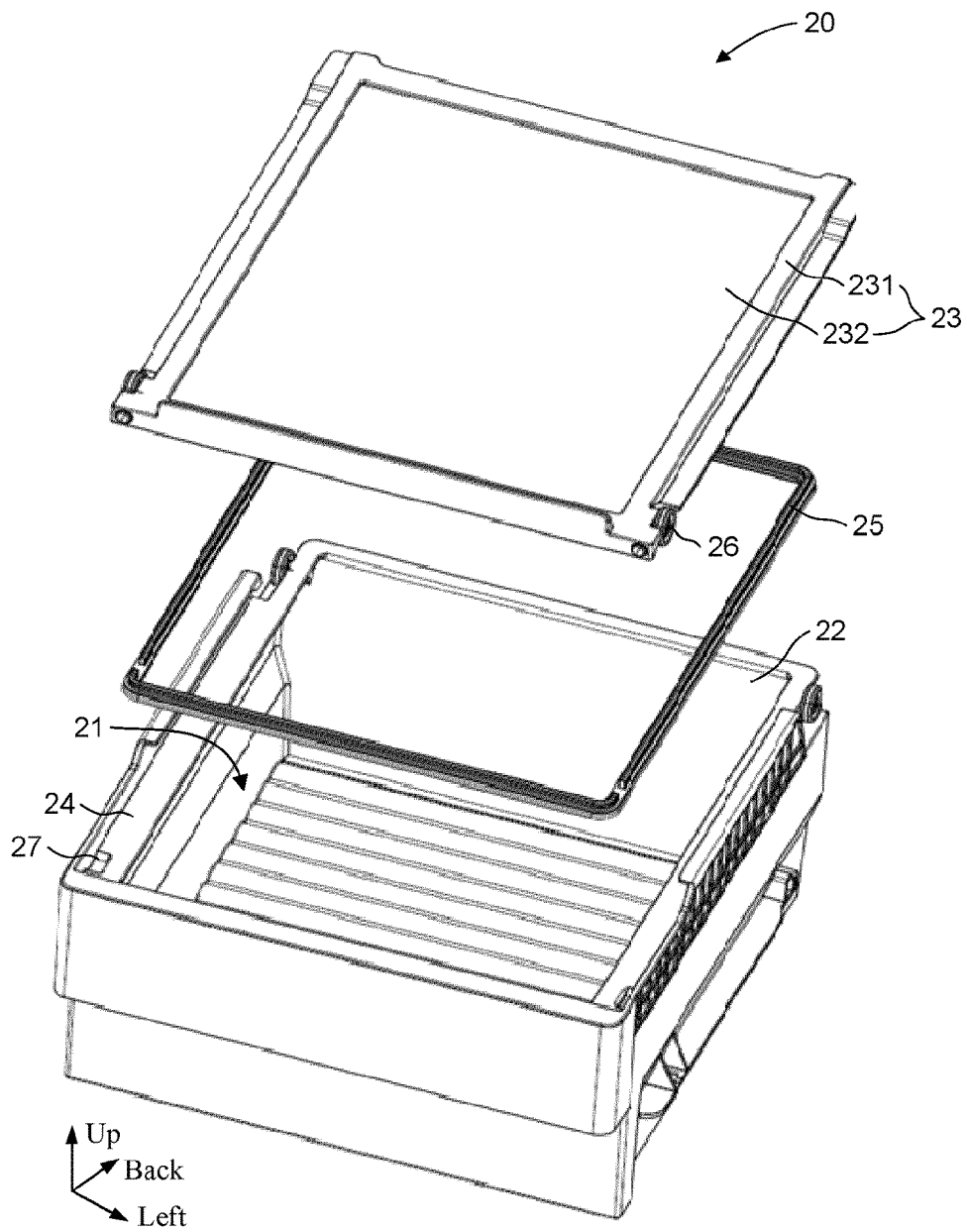


FIG. 2

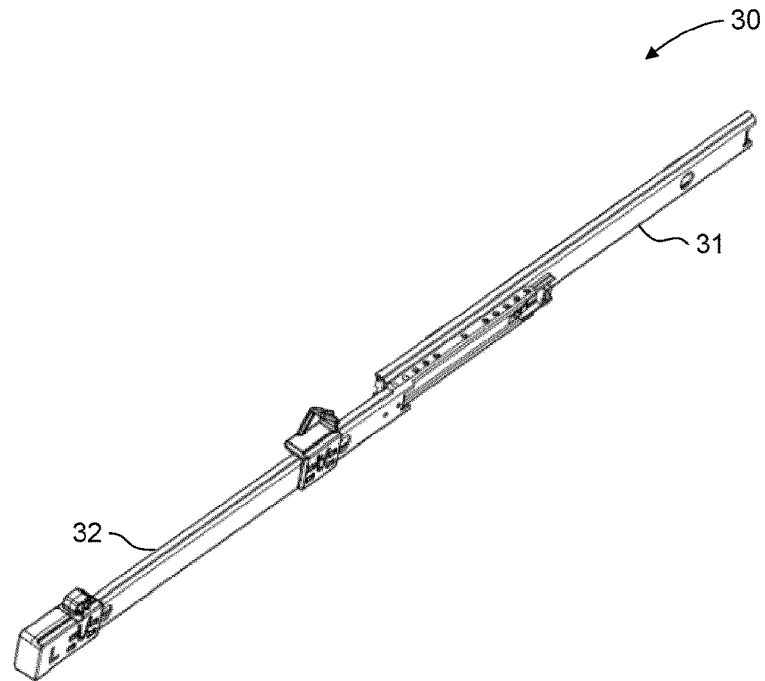


FIG. 3

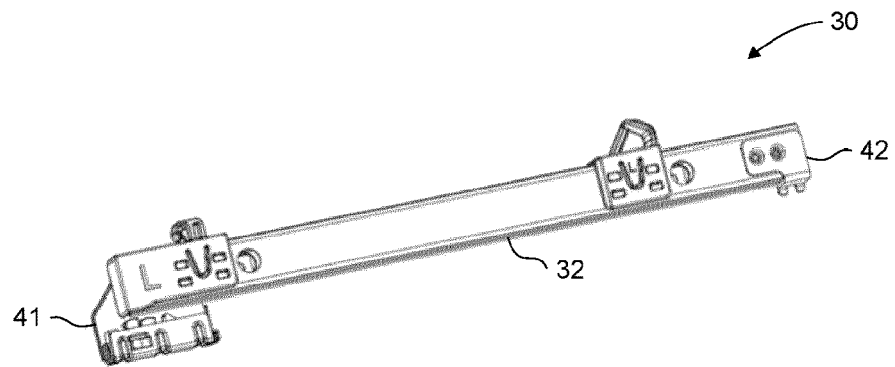


FIG. 4

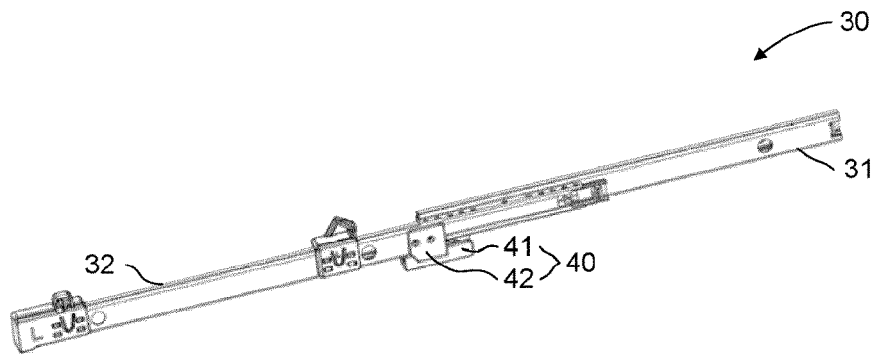


FIG. 5

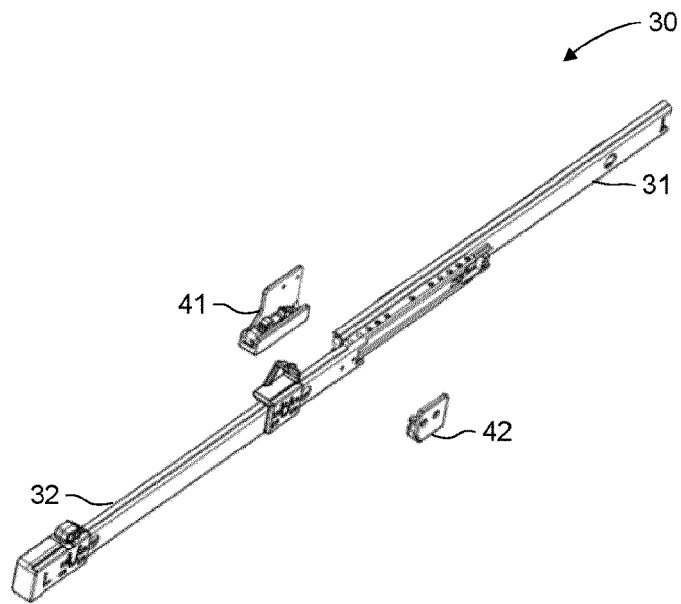


FIG. 6

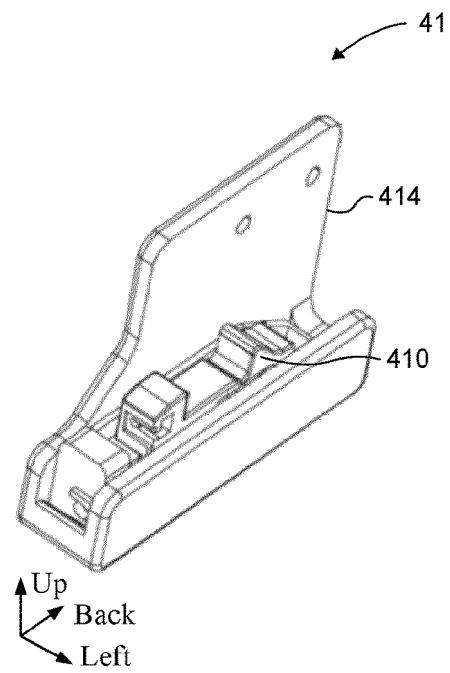


FIG. 7

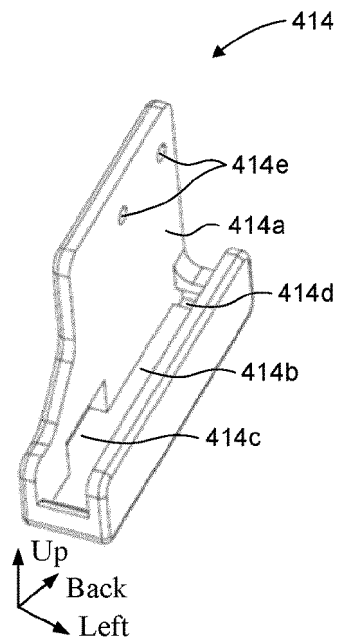


FIG. 8

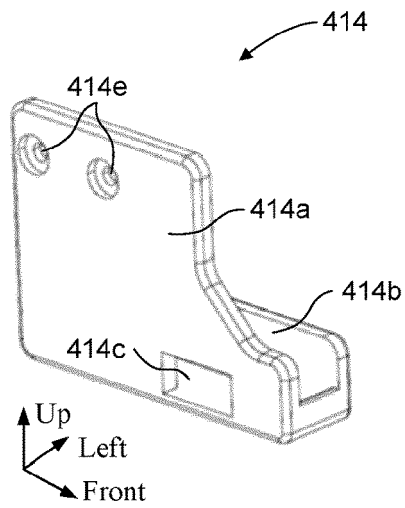


FIG. 9

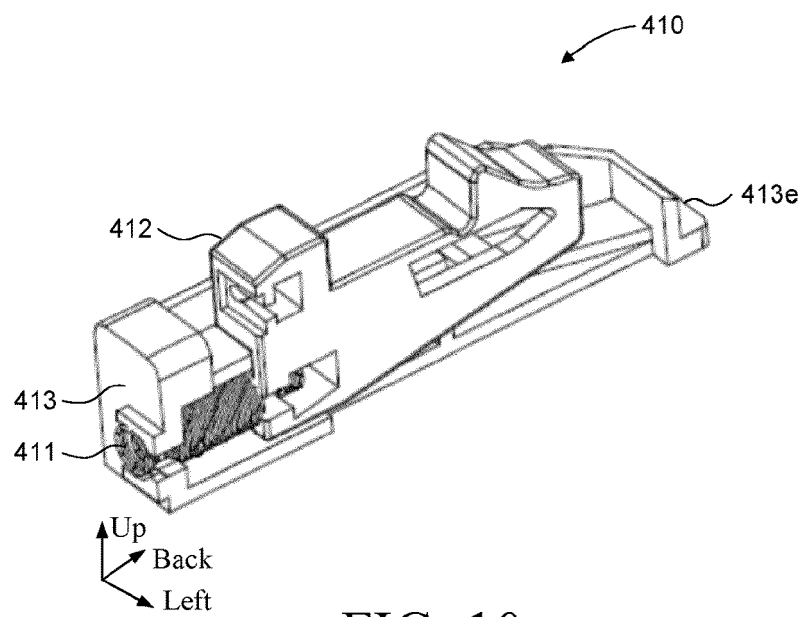


FIG. 10

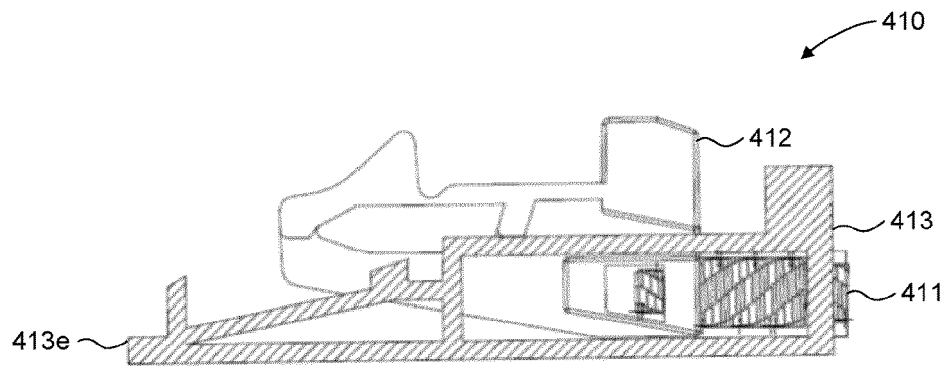


FIG. 11

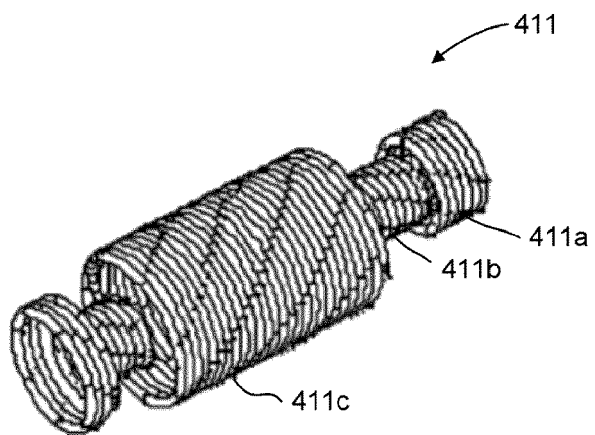


FIG. 12

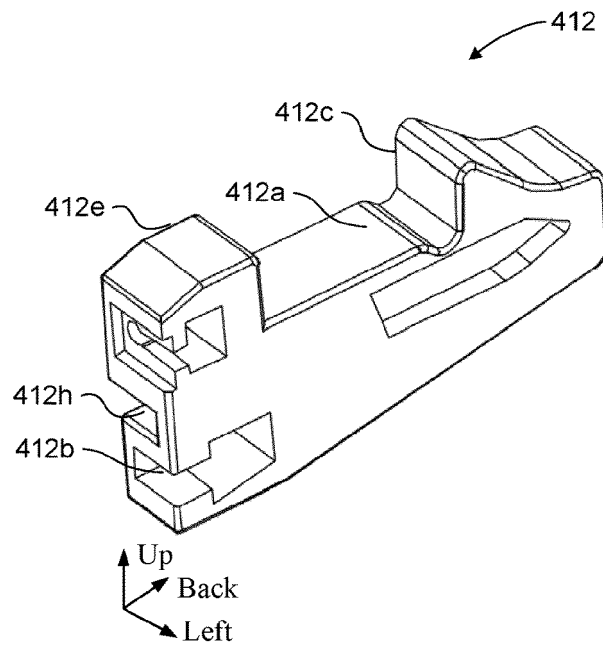


FIG. 13

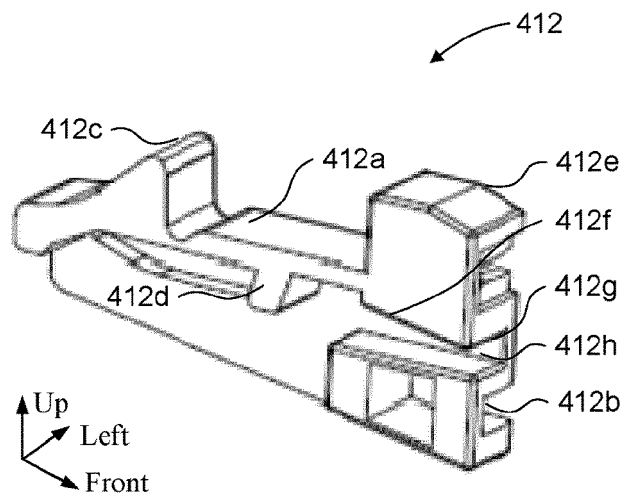


FIG. 14

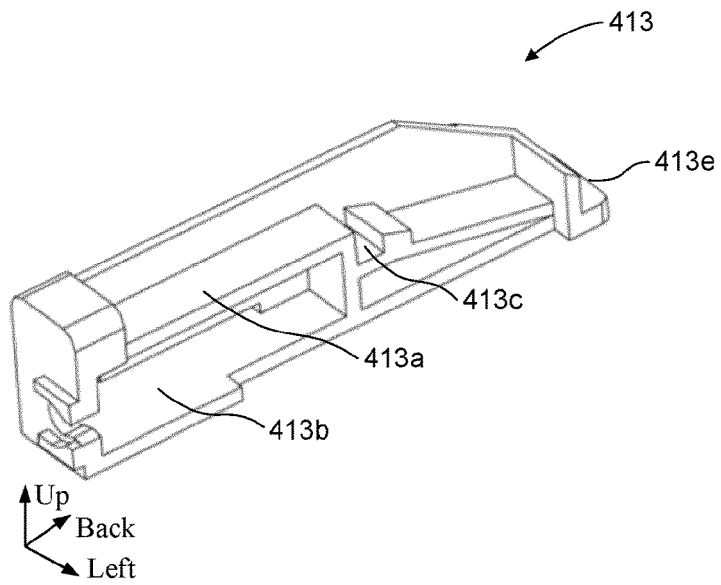


FIG. 15

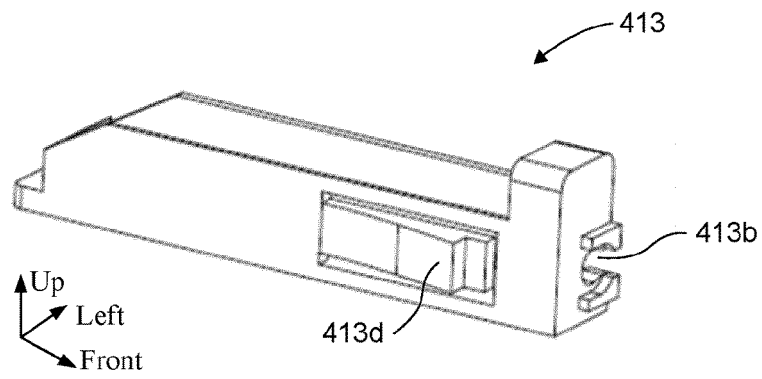


FIG. 16

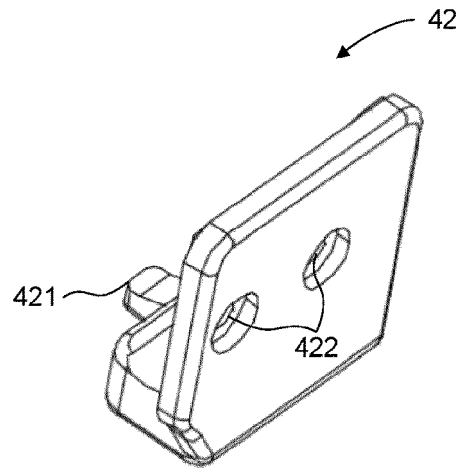


FIG. 17

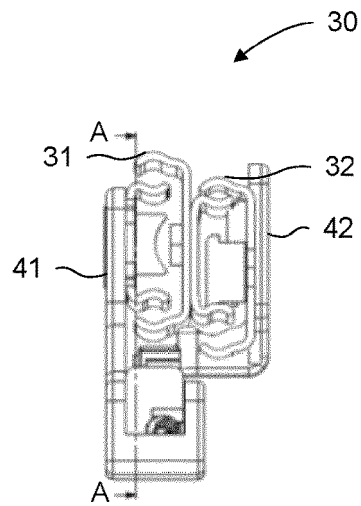


FIG. 18

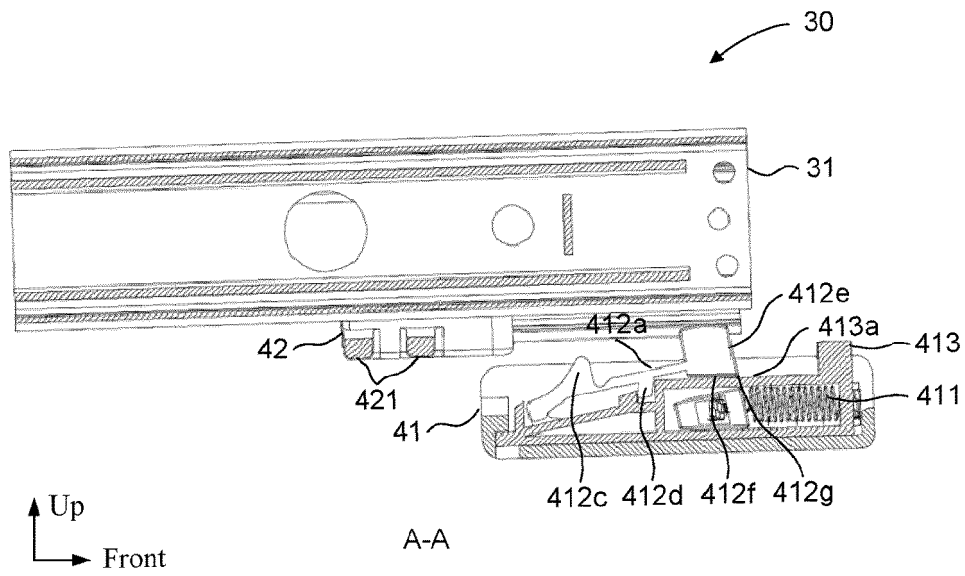


FIG. 19

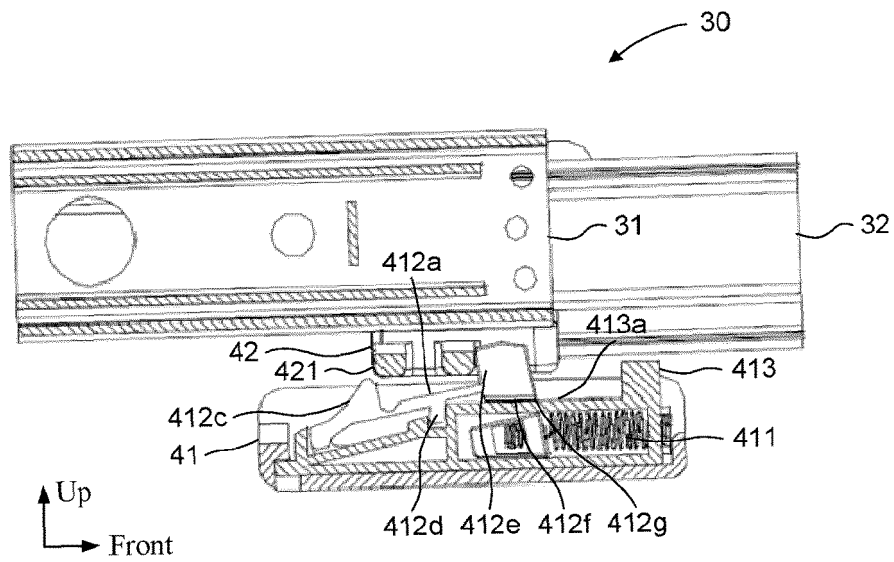


FIG. 20

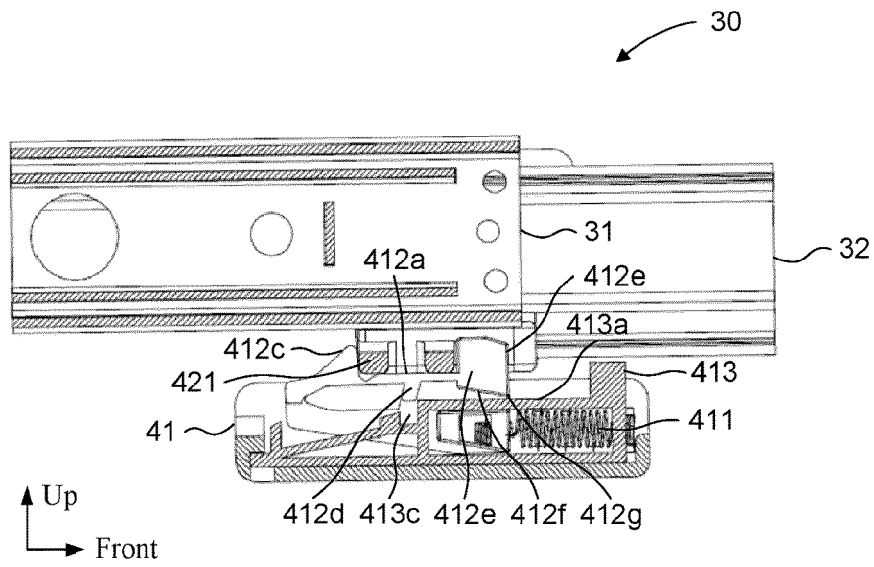


FIG. 21

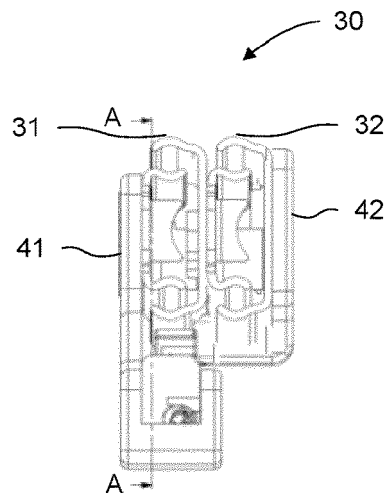


FIG. 22

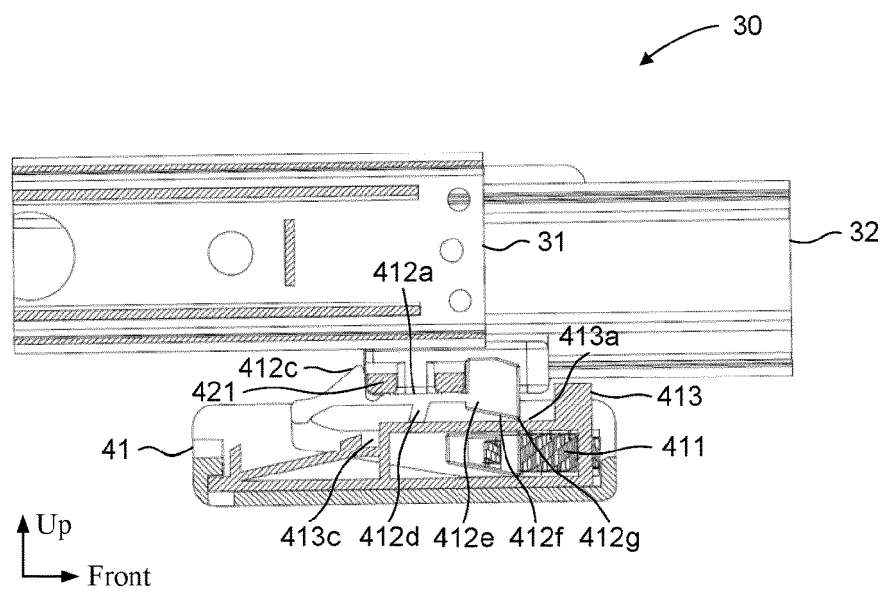


FIG. 23

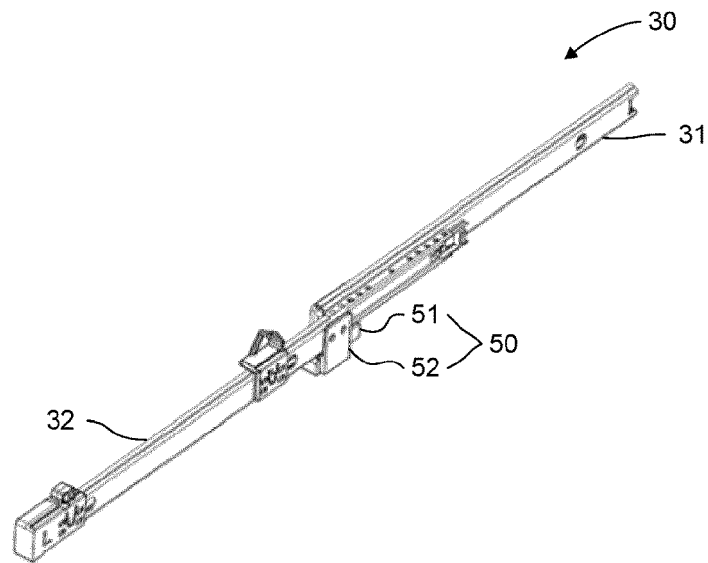


FIG. 24

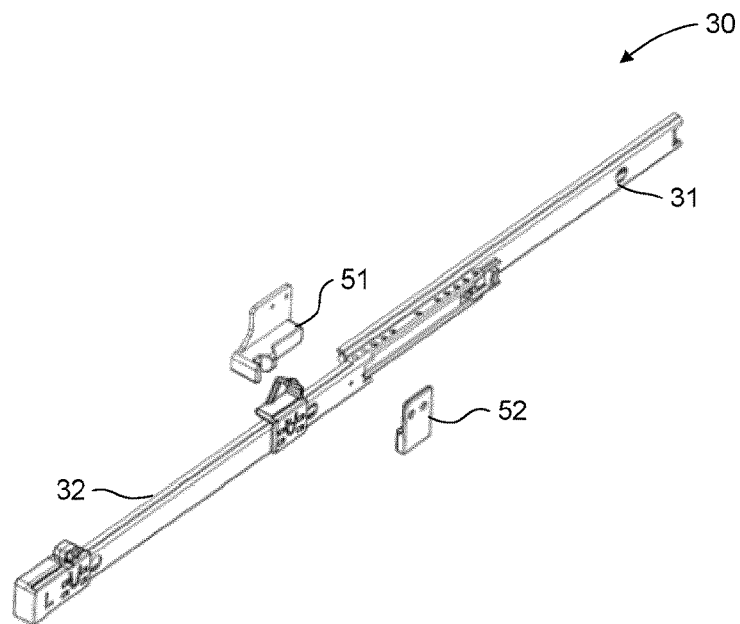


FIG. 25

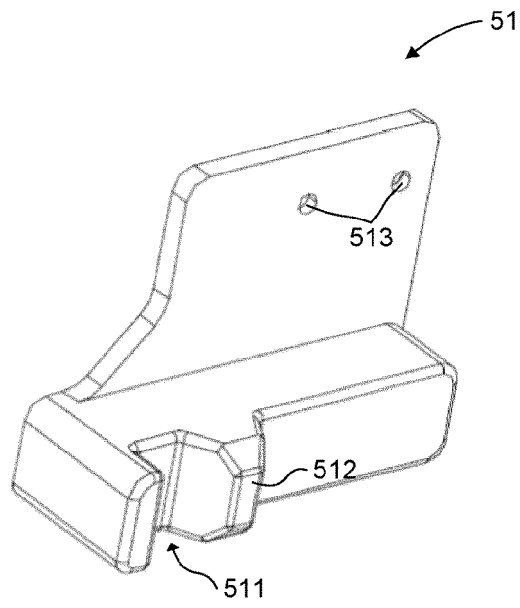


FIG. 26

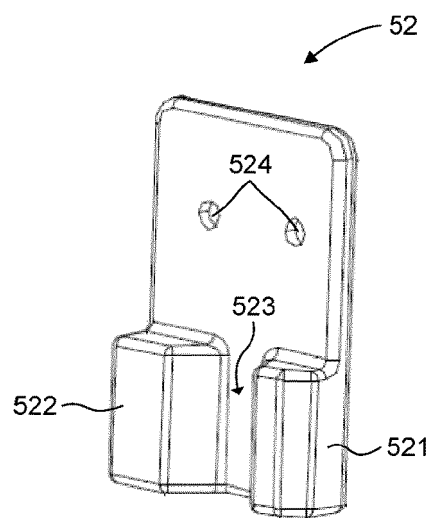


FIG. 27

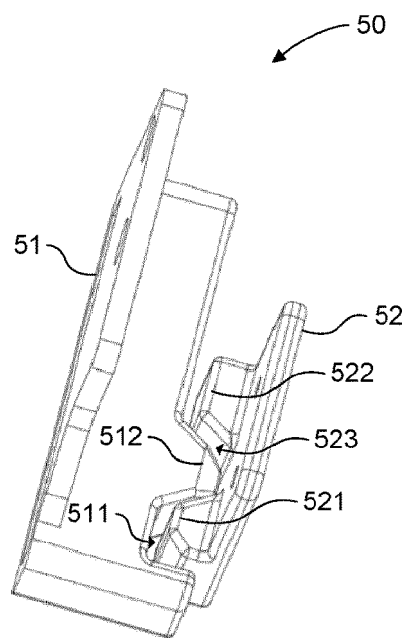


FIG. 28



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			F25D A47L A47B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 September 2021	Examiner Jacquemin, Martin
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