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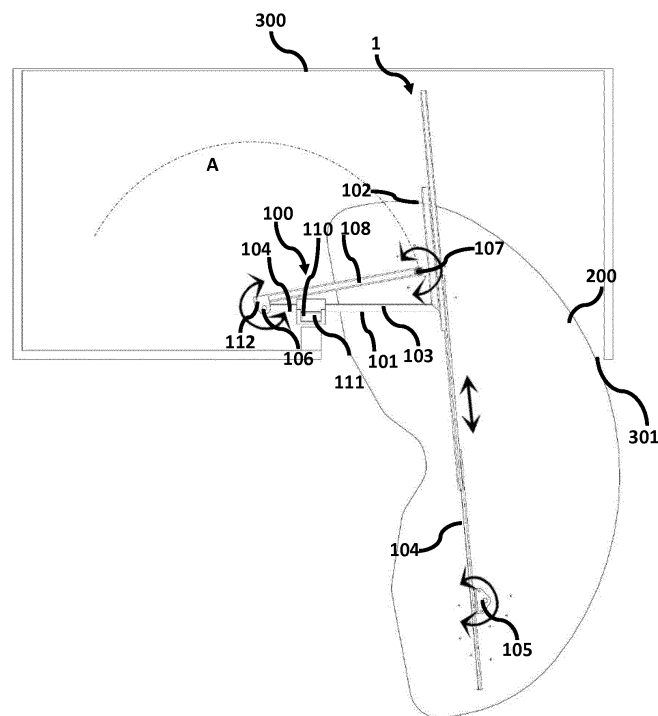
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(54) STORAGE CAROUSEL

(57) A storage carousel (1) for a cabinet (300), the storage carousel (1) comprising a bracket (100) in partially pivotable connection to a shelf (200), the bracket (100) comprises a first supporting arm (101), at a first end of the first supporting arm (101) a pivoting fixture (105) is provided for connection between the shelf (200)

and the supporting arm (101) for enabling the shelf (200) to pivot around at the first end of the first supporting arm (101), the pivoting fixture (105) is furthermore arranged on a slidable rail (104) such that the shelf (200) can be linearly displaced with respect to the first supporting arm (101).

**Fig. 2****EP 3 403 528 A1**

Description

Field of the Invention

[0001] The present disclosure relates to a storage carousel for the storage of articles in cabinet. More particularly the disclosure relates to a storage carousel comprising a bracket enabling pivoting displacement of a shelf and linear displacement of a shelf.

Background of the invention

[0002] Cabinets, for example those used in kitchens, typically comprise a shelf, or a plurality of shelves provided for the storage of articles. Accessing objects which are towards the rear of each respective shelf is difficult and generally requires the movement of articles on the shelf. This is time consuming and leads to disorganized storage spaces, the potential of breakage of articles and the like.

[0003] Previously known storage carousels often have circular and rotatable shelves around a central post. Some varieties are half-circular or three quarters of a circle, with the post positioned as for a full circle.

[0004] Although the different shapes of the prior art shelves accommodate different shapes of storage spaces, they may not be useful if the limited opening to the storage space does not allow for a rotation which makes all of the shelf accessible. Conversely, if the whole shelf is accessible, then the available space in the storage space is not used efficiently.

Summary of the invention

[0005] Accordingly, the present invention preferably seeks to mitigate, alleviate or eliminate one or more of the above-identified deficiencies in the art and disadvantages singly or in any combination and solves at least the above mentioned problems by providing a storage carousel for a cabinet, the storage carousel comprises a bracket in pivotable connection to a shelf. The bracket comprises a first supporting arm. At a first end of the first supporting arm a pivoting fixture is provided for connection between the shelf and the supporting arm. This enables the shelf to pivot at the first end of the first supporting arm, the pivoting fixture is furthermore arranged on a slidable rail such that the shelf can be linearly displaced with respect to the first supporting arm.

[0006] Further advantageous embodiments are disclosed in the appended and dependent patent claims.

Brief description of the drawings

[0007] These and other aspects, features and advantages of which the invention is capable will be apparent and elucidated from the following description of embodiments of the present invention, reference being made to the accompanying drawings, in which

Fig. 1 is a top-down schematic view of a carousel according to an aspect of the invention wherein the carousel is entirely comprised within a cabinet.

Fig. 2 is a top-down schematic view of a carousel according to an aspect of the invention wherein the carousel is partially extended from a cabinet.

Fig. 3a is a perspective view of a carousel according to an aspect of the invention.

Fig. 3b is a perspective view of a carousel according to an aspect of the invention.

Fig. 4 is a schematic top-down view of a carousel according to an aspect of the invention.

Detailed description

[0008] The present invention relates to a storage carousel for a cabinet 1, the storage carousel 1 comprises a bracket 100 in partially pivotable connection to a shelf 200. The bracket 100 comprises a first supporting arm 101. At a first end of the first supporting arm 101 a pivoting fixture 105 is provided for connection between the shelf 200 and the supporting arm 101. This enables the shelf 200 to pivot at the first end of the first supporting arm 101, the pivoting fixture 105 is furthermore arranged on a slidable rail 104 such that the shelf 200 can be linearly displaced with respect to the first supporting arm 101.

[0009] Figure 1 shows a storage carousel 1 comprising a bracket 100 in partially pivotable connection to a shelf 200. The bracket comprises a first supporting arm 101 for connecting the bracket to the shelf 200. At a first end of the first supporting arm 101 a pivoting fixture 105 is provided for connection between the shelf 200 and the supporting arm 101. The pivoting fixture 105 enables the shelf to pivot around an axis formed at first end of the first supporting arm 101. The pivoting fixture 105 is arranged on a slidable rail 104. The slidable rail 104 enables rectilinear movement of the shelf 200 with respect to the first supporting arm 101. In such a way the shelf 200 can be pivoted such that it partially exits an opening 301 provided in the cabinet 300, and subsequently linearly extended from the opening such that a greater portion of the shelf exists the opening 310 in the cabinet 300.

[0010] The first supporting arm 101 may be a substantially rigid, longitudinally extending member. The first supporting arm 101 may have a rectangular cross section. In some instances the first supporting arm 101 has a hollow cross section.

[0011] The bracket 100 may comprise a sleeve 110 arranged to receive the first supporting arm 101. The sleeve 110 may be arranged on a guide rail 111 enabling displacement of the sleeve 110 along the guide rail 111. The displacement may be substantially perpendicular to the plane of pivoting and linear movement of the shelf 200 described above. Generally the plane of pivoting and linear movement of the shelf 200 is horizontal. The guide rail 111 and sleeve 110 allow the shelf to be adjusted vertically within the cabinet 300.

[0012] The sleeve 110 may receive the first supporting

arm 101 such that a portion 103 of the first supporting arm 101 is provided on a first lateral side of the sleeve 110 and a second portion 104 is provided on an opposite lateral side of the sleeve 110. The first portion 103 may be distal to the pivoting fixture 105. The second portion 104 may be proximal to the pivoting fixture 105.

[0013] The sleeve 110 may slidably receive the first supporting arm 101 such that the first supporting arm can slide within the sleeve. The sliding of the first supporting arm 101 within the sleeve 110 is generally substantially aligned with the longitudinal extension of the first supporting arm 101.

[0014] The first supporting arm 101 is fixed with respect to the sleeve 110. The first supporting arm 101 is also generally fixed with respect to the cabinet 300.

[0015] At a second end 106 of the first supporting arm 101, distal to the pivoting fixture 105, a guide arm 108 may be provided. The guide arm 108 is provided in pivotable connection to the first supporting arm 101 at a first end. At a second end of the guide arm 108 a pivotable connection 107 to the shelf 200 is provided. The pivotable connection of the guide arm 108 to the shelf 200 is laterally displaced from the pivotable fixture 105 between the first supporting arm 101 and the shelf 200. That is, the two pivotable connections are provided at distal points on the shelf 200. The pivotable connection of the guide arm 108 to the shelf 200 may be provided at a first lateral region of the shelf 200. The pivotable fixture 105 may be provided at an opposite lateral region of the shelf 200. The two pivotable connections to the shelf 200 are separated by a sufficient distance such that on removal of the carousel 1 from the cabinet 300 the guide arm 108 does not collide with the first supporting arm 101. The guide arm 108 enables the controlled movement of the shelf 200 such that the shelf moves in a substantially arc-shaped path A. The arc-shaped path A of the shelf is an arc having a centre point near the sleeve 110. The guide arm 108 furthermore provides additionally structural rigidity to the bracket 100 allowing the shelf 200 to hold a heavier load.

[0016] The shelf 200 has a length and a width wherein the length is greater than the width. In Figure 1 the shelf 200 is substantially semi-circular. The shelf may be provided with a recess in the vicinity of the sleeve 110, when the shelf 200 is stored fully within the cabinet 300. When arranged within the cabinet 300 the semi-circular shelf 200 has a diameter slightly less than the internal width of the cabinet 300. The radius of the semi-circular shelf 200 is slightly less than the width of the opening provided in the cabinet 300. As can be seen in Figure 1 this enables the shelf 200 to provide an increased surface area for the storage of articles. Other shapes of the shelf 200 are possible, however, the dimensions of the length and width of the shelf must be adjusted such that on traversal of the shelf along the arc-shaped path any corners do not collide with the internal surfaces of the cabinet 300.

[0017] The length of the shelf 200 is greater than the width of the opening 301 in the cabinet 300. Generally,

the largest dimension of the shelf 200 is greater than the width of the opening 301 in the cabinet 300.

[0018] As stated above, a pivoting fixture 105 is arranged on a slidable rail 104. The slidable rail 104 may be arranged at an angle, such as approximately perpendicular, to the first supporting arm 101. The slidable rail 104 may comprise a plurality of sliding members such that each may slide linearly with respect to each other and therein enable a significant degree of linear movement of the shelf 200. This enables even large shelves 200 to exit the opening 301 in the cabinet 300. Such a slidable rail 104 may be a telescopic rail.

[0019] The slidable rail 104 may be fixed to a rigid support member 102 provided at the first end of the supporting arm 101. The rigid support member 102 may be arranged substantially parallel to the slidable rail 104, and perpendicular to the first supporting arm 101. In such an arrangement the rigid support member 102 and the first supporting arm 101 may form an L-shaped or an arc-shaped support. The rigid support member 102 and the slidable rail 104 may be fixed to each other at one, or a plurality of positions along their respective lengths. This provides an increased strength at the connection between the first support member 101 and the slidable rail 104.

[0020] The shelf 200 may be a substantially planar support having a substantially flat upper surface 201 suitable for storing articles. A bottom surface 202 of the shelf 200 is provided with attachment points for the bracket 100. The shelf 200 may be formed by a solid sheet of material, such as a solid sheet of timber or metal. The shelf 200 may be formed by a wire mesh. The shelf 200 may be provided with a circumferential rail 203 extending at least partially around the perimeter of the shelf 200. As can be seen in Figure 3a,b the circumferential rail 203 may extend along the entire perimeter of the shelf 200. The circumferential rail is provided at a height above the upper surface 201 of the shelf 200. In such a way articles on the shelf are prevented from falling from the shelf 200 during storage, or during displacement of the shelf 200.

[0021] The guide arm 108, as described above, may be rigid. The guide arm 108 may be a longitudinally extending member. The guide arm 108 may attach to the second end 106 of the first support arm 101 via a pivotable hinge 112. The pivotable hinge enables pivoting movement of the guide arm 108 with respect to the first supporting arm 101. The pivoting movement is parallel to the plane of the shelf 200. The hinge 112 may be fixedly connected to the guide arm 108 and pivotably connected to the first supporting arm 101. However, the hinge 112 may be pivotably connected to the guide arm 108 and fixedly connected to the first supporting arm 101. As can be seen in Figure 1, the hinge 112 may laterally offset the guide arm 108 from the second end 106 of the first supporting arm 101 such that the guide arm 108 and the first supporting arm 101 do not intersect at their respective ends. As can be seen in Figure 2, this arrangement allows the guide arm 108 to pivot close to the first sup-

porting arm 101, such that the two are almost parallel and in the same lateral plane, without colliding with each other. It also enables the guide arm 108 to pivot without colliding with the sleeve 110. A first region of the guide arm 108, in the vicinity of the hinge 112, may be provided at an angle to the second region of the guide arm, distal to the pivotable hinge 112. The guide arm 108 may have a rectangular cross section. In some instances the guide arm 108 has a hollow cross section.

[0022] As described above, to enable the shelf 200 to move along the arc-shaped path A the guide arm is pivotably connected to the shelf 200 at its second end 107. To secure the guide arm 108 to the shelf at the second end 107 a plate 113 comprising a socket 114 may be provided. The socket 114 may receive a pin which is also received in the second end 107 of the guide arm 108. In such a way the pivotable connection is formed between the guide arm 108 and the shelf 200.

[0023] At least some of the members of the bracket 100 as described herein may comprise such as be formed of a metal.

[0024] A typical use of the carousel 1 will now be described with reference to Figure 4. During storage the carousel 1 is positioned completely within the cabinet 300, such that a cabinet door at the opening 301 can be closed. On accessing the carousel 1 the carousel 1 is first pivoted (path of movement shown by the dotted line A) partially out of the opening 301 such that a portion extends outside of the cabinet 300 through the opening 301. During the pivoting portion of traversal the guide arm 108 pivots with respect to the first supporting arm 101. At the end of the pivoting motion, when the carousel 1 is positioned at least partially outside the cabinet 300, the guide arm 108 is closer to the first supporting arm 101 as can be seen in Figure 2. The pivoting of the carousel 1 is approximately a quarter turn, that is, approximately, 90°.

[0025] The carousel 1 can then be linearly extended further out of the opening 301 (path of movement shown by the dotted line B) such that a greater portion of the carousel 1 is accessible from the area outside of the cabinet 300. The linear extension of the carousel is achieved via the slidable rail 104 sliding with respect to the first supporting arm 101. The linear extension moves the pivoting fixture 105 linearly with respect to the first supporting arm 101. As a greater area of the shelf 200 is accessible from outside the cabinet 300, articles on the shelf 200 can be more easily accessed.

[0026] In order to again store the carousel 1 in the cabinet 300 the carousel 1 is first displaced linearly such that it only partially extends from the opening 301 in the cabinet and then pivoted such that it is completely comprised within the cabinet 300.

[0027] A cabinet comprising the carousel 1 as described herein is also provided. The bracket 100 may be fixed to the cabinet via the guide rail 111. The guide rail 111 may be fixed to the cabinet at an upper portion and/or a lower portion. The guide rail 111 may be, for example,

fixed to a front wall of the cabinet 300 in the vicinity of the opening 301. The guide rail 111 may be fixed to the cabinet 300 at the base of the cabinet 300.

[0028] A cabinet 300 may comprise a plurality of carousels 1. The carousels 1 may be vertically offset from each other along a single guide rail 111. That is, the carousels 1 may share a guide rail 111 but have individual sleeves 110. In such a way a plurality of carousels 1 can be distributed within the cabinet 300 increasing potential storage area available for articles.

[0029] Although, the present invention has been described above with reference to specific embodiments, it is not intended to be limited to the specific form set forth herein. Rather, the invention is limited only by the accompanying claims.

[0030] In the claims, the term "comprises/comprising" does not exclude the presence of other elements or steps. Furthermore, although individually listed, a plurality of means, elements or method steps may be implemented. Additionally, although individual features may be included in different claims, these may possibly advantageously be combined, and the inclusion in different claims does not imply that a combination of features is not feasible and/or advantageous. In addition, singular references do not exclude a plurality. The terms "a", "an", "first", "second" etc do not preclude a plurality. Reference signs in the claims are provided merely as a clarifying example and shall not be construed as limiting the scope of the claims in any way.

Claims

1. A storage carousel (1) for a cabinet (300), the storage carousel (1) comprising a bracket (100) in partially pivotable connection to a shelf (200), the bracket (100) comprises a first supporting arm (101), at a first end of the first supporting arm (101) a pivoting fixture (105) is provided for connection between the shelf (200) and the supporting arm (101) for enabling the shelf (200) to pivot around at the first end of the first supporting arm (101), the pivoting fixture (105) is furthermore arranged on a slidable rail (104) such that the shelf (200) can be linearly displaced with respect to the first supporting arm (101).
2. The storage carousel (1) according to claim 1, wherein, on removal of the shelf (200) from the cabinet, the shelf (200) is arranged to pivot first in an arc-shaped path (A) and subsequently in a linear path (B) with respect to the first supporting arm (101).
3. The storage carousel (1) according to claim 1 or 2, wherein the bracket (100) further comprises a guide arm (108) in pivotable connection with the first supporting arm (101) and in pivotable connection with the shelf (200)

4. The storage carousel (1) according to any of claims 1 to 3, wherein the pivotable connection of the guide arm (108) to the shelf (200) is laterally displaced with respect to the pivotable connection of the first supporting arm (101) to the shelf (200). 5
5. The storage carousel (1) according to any of claims 1 to 4, wherein the guide arm (108) is arranged at a second end (106) of the first supporting arm (101). 10
6. The storage carousel (1) according to any of claims 1 to 5, wherein the slidable rail (104) is fixed to a rigid support member (102) provided at the first end of the supporting arm (101) such that the rigid support member (102) and the first supporting arm (101) form an L-shaped support. 15
7. The storage carousel (1) according to any of claims 1 to 6, wherein the bracket (100) further comprises a sleeve (110) arranged for receiving the first supporting arm (101) and a guide rail (111) along which the sleeve can be displaced (111). 20
8. The storage carousel (1) according to any of claims 1 to 7, wherein the first supporting arm (101) is fixed with respect to the cabinet (300). 25
9. The storage carousel (1) according to any of claims 1 to 8, wherein the first supporting arm (101) is a substantially longitudinally extending rigid member. 30
10. The storage carousel (1) according to any of claims 1 to 9, wherein the shelf (200) has a length and a width, and wherein the length is greater than the width. 35
11. The storage carousel (1) according to any of claims 1 to 10, wherein the shelf (200) is substantially semi-circular. 40
12. A bracket (100) for a storage carousel (1) wherein the bracket (100) comprises a first supporting arm (101), at a first end of the first supporting arm (101) a pivoting fixture (105) is provided for connection between a shelf (200) and the supporting arm (101) for enabling the shelf (200) to pivot around at the first end of the first supporting arm (101), the pivoting fixture (105) is furthermore arranged on a slidable rail (104) such that the shelf (200) can be linearly displaced with respect to the first supporting arm (101). 45 50
13. A cabinet (300) comprising a storage carousel (1) according to any of claims 1 to 11. 55
14. The cabinet (300) according to claim 13, and wherein the guide rail (111) is secured to the cabinet (300).

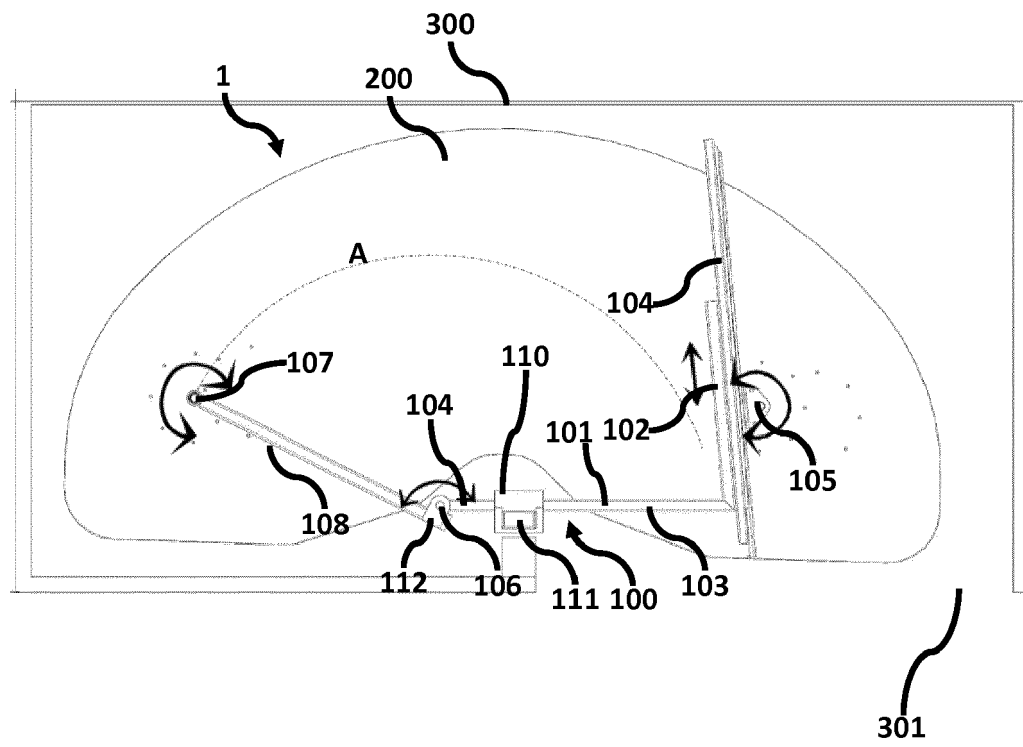


Fig. 1

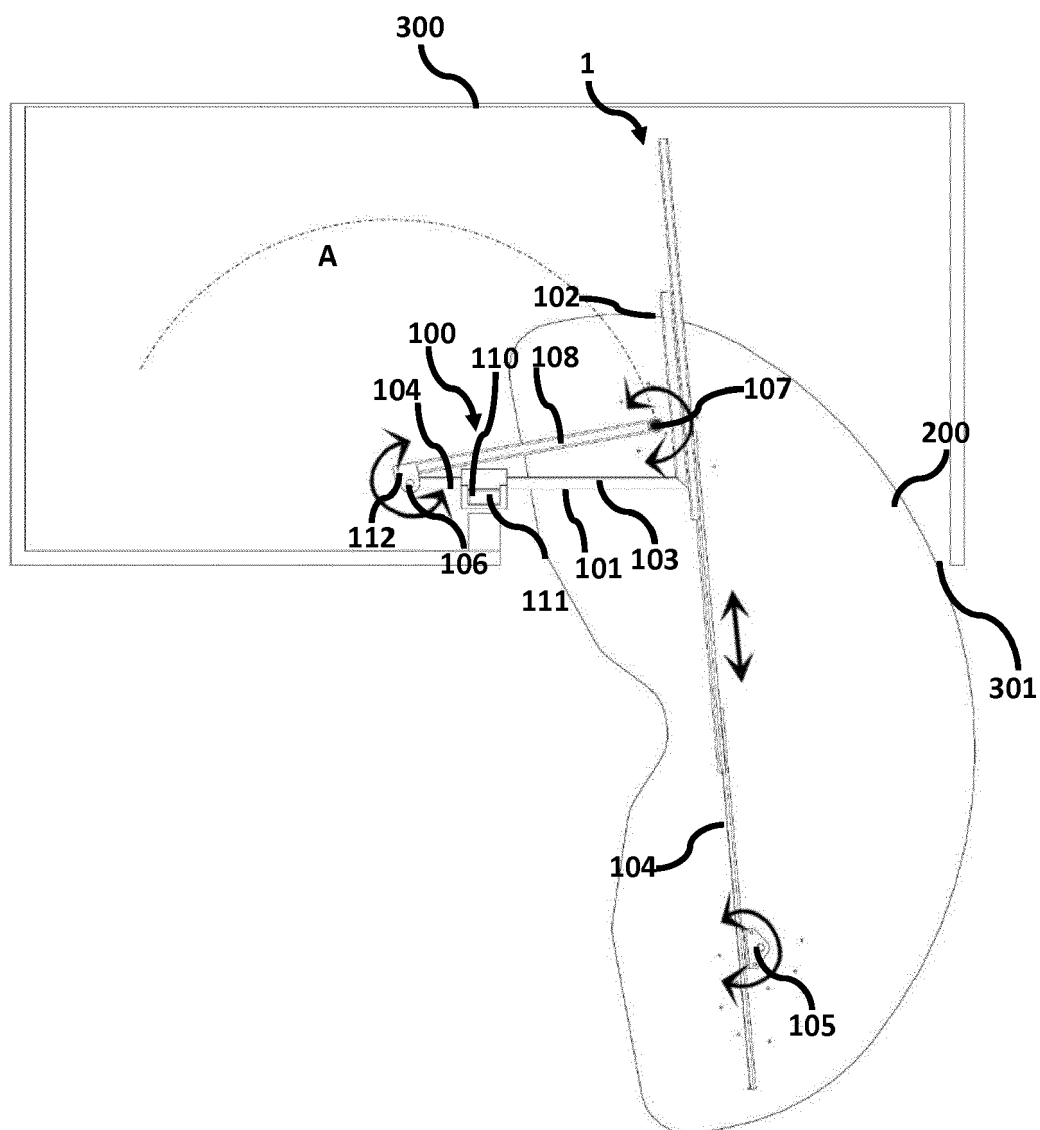


Fig. 2

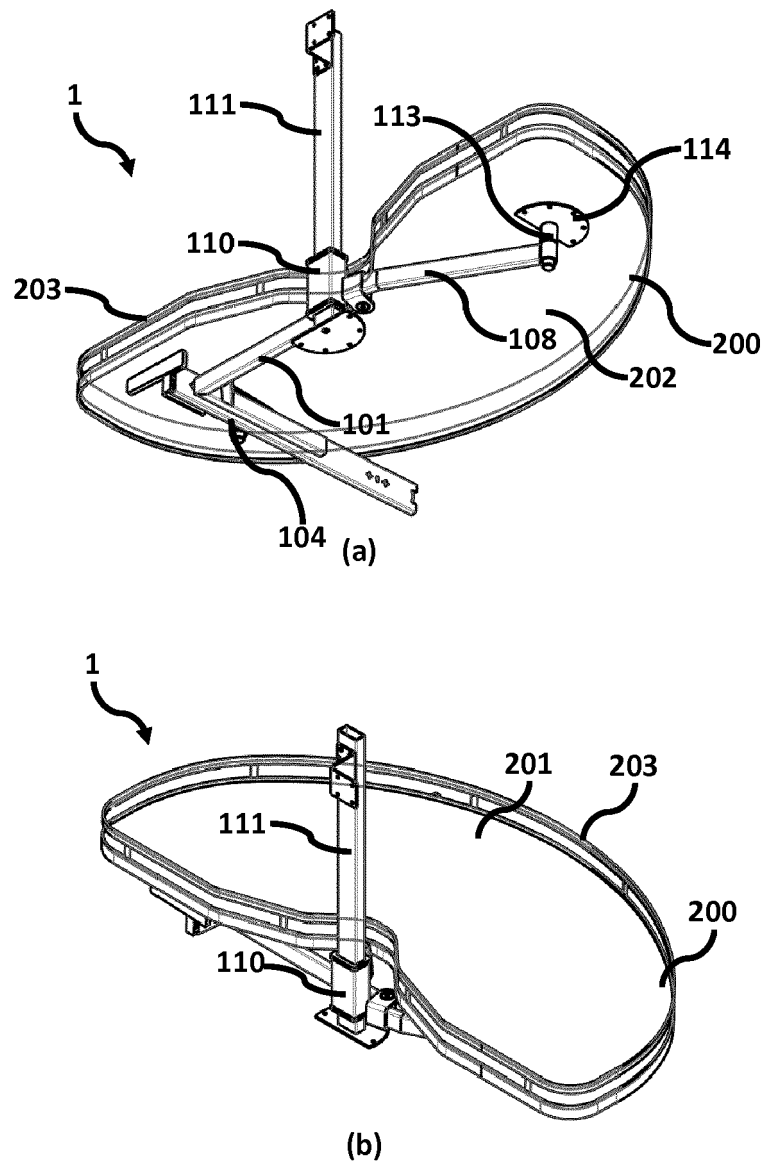


Fig. 3

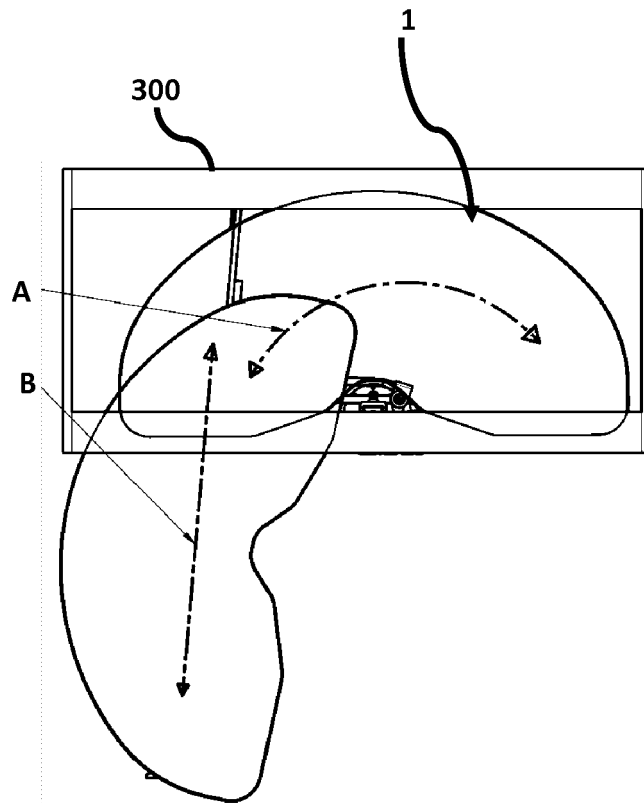


Fig. 4



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Application Number
EP 17 17 0987

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Place of search The Hague		Date of completion of the search 3 July 2017	Examiner Ibarrondo, Borja
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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