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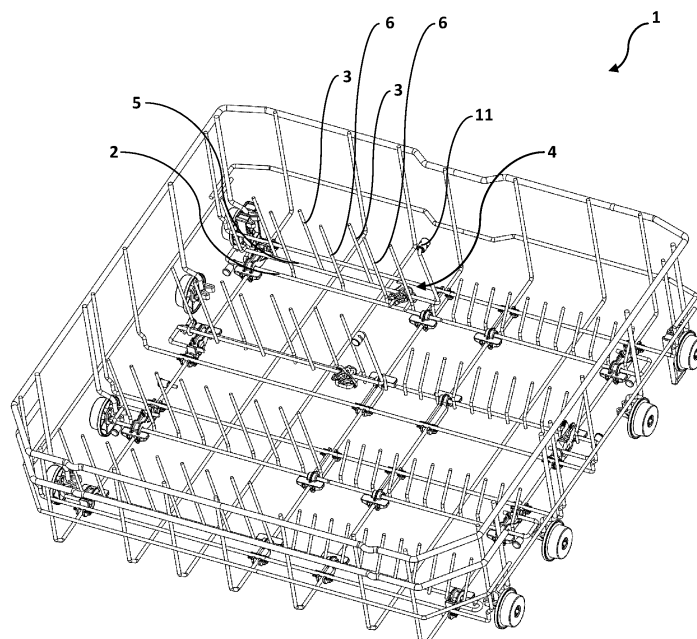
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(54) MOVABLE WIRE MECHANISM WITH ADJUSTABLE GAPS FOR DISHWASHERS

(57) The present invention relates to a dishwasher rack comprising a movable wire mechanism. The present invention particularly relates to a movable wire mechanism which enables the users to adjust the gaps between the wires depending on the dimensions of the items desired to be loaded into the dishwasher. Said movable wire mechanism (4) comprises a movable horizontal wire (5) which is connected to the fixed horizontal wires (2) and which is positioned such that the position thereof can be changed by moving as connected to the fixed to the

fixed horizontal wires (2) and relative to the fixed horizontal wires (2) and the fixed vertical wires (3), and at least one movable vertical wire (6) which extends vertically as connected to said movable horizontal wire (5). Said movable wire mechanism (4) has a narrow position (D) where the movable vertical wires (6) are placed between the fixed vertical wires (3) and a wide position (G) where the movable vertical wires (6) are placed parallel to the fixed vertical wires (3).

**Figure 1****EP 4 233 675 A1**

Description

[0001] The present invention relates to a dishwasher rack comprising a movable wire mechanism. The present invention particularly relates to a movable wire mechanism which enables the users to adjust the gaps between the wires depending on the dimensions of the items desired to be loaded into the dishwasher.

[0002] In dishwashers, the washing process is performed in the washing tub. Kitchen items to be washed such as plates, pots, cups, glasses and cutlery are placed onto the racks disposed in the washing tub, and the kitchen items placed onto the racks are cleaned with the water taken from the mains and the detergent delivered into the washing tub. The arrangement of the kitchen items on the rack significantly affects the washing and drying performance. The existing racks are composed of horizontal wires positioned in the form of a cage and vertical wires which extend perpendicular to the former wires, which are positioned at a certain distance from each other and which ensure that the kitchen items stay fixed throughout the washing process. However, the fixed distance between said vertical wires may prevent kitchen items with various dimensions from being placed in the most efficient manner. For example, a narrower distance is required for thin items such as plates, while a wider distance may be required for thick items such as pans or deep plates. Therefore, it is required to adjust the distance between the plate-holding wires to enable the users to customize the layout of the rack as per their preference.

[0003] The state of the art Patent Documents No. US 2012/292269, US 2012/292270, US 2013/299438 and US 2021/393108 disclose additional wire systems, which enable kitchen items with various dimensions to be placed into the dishwasher rack. However, the systems disclosed in said documents are removable such that they occupy space when not used or may get lost.

[0004] The Patent Document No. DE 199 471 52 disclose a dishwasher rack comprising vertical wires which can be moved separately over the horizontal wires. The Patent Document No. EP 0 729 725 discloses triangular item placement wires which can be collapsed or extended to enable kitchen items with various dimensions to be placed. The Patent Documents No. US 7,231,929 and US 10,638,912 disclose dishwasher racks comprising wires which can be positioned horizontally and vertically. The Patent Document No. US 2012/298155 discloses double vertical wires with adjustable distances therebetween by being slid over the horizontal wires.

[0005] The present invention discloses a movable wire mechanism which enables the users to adjust the gaps between the wires depending on the dimensions of the kitchen items desired to be loaded into the dishwasher. Said movable wire mechanism enables the user to easily change the distance between the vertical wires as per his/her needs by means of a handle.

[0006] The aim of the present invention is the realiza-

tion of a dishwasher rack having a movable wire mechanism which enables the kitchen items to be placed into the rack more efficiently and provides flexibility of use to the user, and the realization of a dishwasher comprising said rack.

[0007] The figures explained below aim to exemplify the dishwasher rack comprising the movable wire mechanism, of which the advantages against the state of the art have already been summarized and will be explained in detail later.

[0008] The figures should not be interpreted as limiting the scope of protection defined in the claims, and should not be used separately to interpret the scope in the claims without referring to the technique in the description.

Figure 1: is the perspective view of a dishwasher rack comprising the movable wire mechanism in an embodiment of the present invention.

Figure 2: is the sideways view of the movable wire mechanism when in the narrow (A), intermediate (B) and wide (C) positions in an embodiment of the present invention.

Figure 3: is the perspective view of the movable wire mechanism when in the narrow position in an embodiment of the present invention.

[0009] The elements illustrated in the figures are numbered as follows:

- | | |
|----|-------------------------|
| 1 | Dishwasher rack |
| 2 | Fixed horizontal wire |
| 3 | Fixed vertical wire |
| 4 | Movable wire mechanism |
| 5 | Movable horizontal wire |
| 6 | Movable vertical wire |
| 7 | Locking member |
| 8 | Locking tab |
| 9 | Lock bearing wire |
| 10 | Lock movement member |
| 11 | Handle |
| 12 | Movable wire bearing |
| D | Narrow position |
| G | Wide position |

[0010] Figure 1 shows a dishwasher rack (1) comprising the movable wire mechanism (4) in an embodiment of the present invention. As can be seen, the dishwasher rack (1) comprises fixed horizontal wires (2) positioned in the form of a cage and fixed vertical wires (3) extending vertically as connected to said fixed horizontal wires (2). The kitchen items are placed in a certain layout on the fixed vertical wires (3) provided on the dishwasher rack (1), and the layout of the kitchen items significantly affects the washing and drying performance.

[0011] In an embodiment of the present invention, the dishwasher rack (1) comprises a movable wire mechanism (4). Said movable wire mechanism (4) comprises a movable horizontal wire (5) and at least one movable vertical wire (6) which extends vertically as connected to said movable horizontal wire (5). The movable wire mechanism (4) is positioned such that the position thereof can be changed by moving as connected to the fixed horizontal wires (2) provided on the dishwasher rack (1) and relative to the fixed horizontal wires (2) and the fixed vertical wires (3). The locking member (7) is rotated by means of a handle (11) so as to change the position of the movable wire mechanism (4).

[0012] As shown in Figure 2 and 3, the movable wire mechanism (4) can be positioned in the narrow position (D) and the wide position (G). In the narrow position (D) where the movable vertical wires (6) are placed between the fixed vertical wires (3), the distance between the wires (3 and 6) is decreased and thus thinner kitchen items are enabled to be placed onto the dishwasher rack (1). In the wide position (D) where the movable vertical wires (6) are placed parallel to the fixed vertical wires (3), the distance between the fixed vertical wires (3) does not change and thus thicker kitchen items are enabled to be placed onto the dishwasher rack (1). The movable horizontal wire (5) is borne by means of a movable wire bearing (12) provided on the fixed wires (2 and 3) so as to be positioned to be next to the fixed wires (2 and 3). Thus, the movable wire mechanism (4) does not occupy additional space and is not required to be taken out of the dishwasher rack (1) when not in use.

[0013] The movable wire mechanism (4) is shifted between the narrow position (D) and the wide position (G) by means of the locking member (7) provided at one end of the movable wire mechanism (4) and the handle (11) connected to said locking member (7). One end of the movable horizontal wire (5) is borne with the lock movement member (10) provided on the locking member (7) and the other end thereof keeps its position in the vicinity of the movable wire bearing (12) and the fixed wires (2 and 3).

[0014] The locking member (7) is positioned so as to rotate over the lock bearing wire (9) connected to the fixed wires (2 and 3). When moved upwards, the handle (11) lifts up the lock movement member (10) on the locking member (7) such that the locking member (7) rotates on the lock bearing wire (9) and that the position of the movable wire mechanism (4) is changed.

[0015] When the movable wire mechanism (4) is in the narrow position (D), the locking tab (8) on the locking member (7) is engaged with the lock bearing wire (9) and locked so as to keep the wires fixed in this position. The position of the movable vertical wire (6) is shifted to the center with respect to the fixed vertical wire (3) so as to provide nominal use distances. When the movable wire mechanism (4) is in the wide position (G), the locking member (7) is in the free position. The locking member (7) can rotate between 90 and 180 degrees.

[0016] In short, the dishwasher rack (1) comprising the movable wire mechanism (4) of the present invention enables the user to easily change the distance between the vertical wires (3) as per his/her needs. Thus, the kitchen items are enabled to be placed into the dishwasher rack (1) more efficiently, increasing the washing efficiency of the dishwasher and providing flexibility of use to the user.

[0017] In an embodiment of the present invention, a dishwasher rack (1) is disclosed, comprising fixed horizontal wires (2) positioned in the form of a cage and fixed vertical wires (3) extending vertically as connected to said fixed horizontal wires (2). Said dishwasher rack (1) comprises a movable wire mechanism (4). Said movable wire mechanism (4) comprises a movable horizontal wire (5) which is connected to the fixed horizontal wires (2) and which is positioned such that the position thereof can be changed by moving as connected to the fixed horizontal wires (2) and relative to the fixed horizontal wires (2) and the fixed vertical wires (3), and at least one movable vertical wire (6) which extends vertically as connected to said movable horizontal wire (5). Said movable wire mechanism (4) has a narrow position (D) where the movable vertical wires (6) are placed between the fixed vertical wires (3) and a wide position (G) where the movable vertical wires (6) are placed parallel to the fixed vertical wires (3).

[0018] In another embodiment of the present invention, said movable horizontal wire (5) is borne by means of a movable wire bearing (12) provided on the fixed wires (2 and 3) so as to be positioned to be next to the fixed wires (2 and 3).

[0019] In another embodiment of the present invention, said movable wire mechanism (4) comprises a locking member (7) and a handle (11) so as to shift said movable wire mechanism (4) between the narrow position (D) and the wide position (G).

[0020] In another embodiment of the present invention, said locking member (7) is positioned so as to rotate on a lock bearing wire (9) connected to the fixed wires (2 and 3).

[0021] In another embodiment of the present invention, said locking member (7) is positioned so as to rotate between 90 and 180 degrees on the lock bearing wire (9).

[0022] In another embodiment of the present invention, said locking member (7) comprises a locking tab (8) configured to be engaged with the lock bearing wire (9) so as to keep the wires fixed in this position when the movable wire mechanism (4) is in the narrow position (D).

[0023] In another embodiment of the present invention, said movable horizontal wire (5) is borne by means of a lock movement member (10) provided on the locking member (7).

[0024] In another embodiment of the present invention, said handle (11) is configured to, when moved upwards, lift up the lock movement member (10) on the locking member (7) such that the locking member (7) rotates on the lock bearing wire (9) and that the position of the movable wire mechanism (4) is changed.

[0025] Another embodiment of the present invention is a dishwasher comprising a dishwasher rack (1) having said movable wire mechanism (4).

Claims

1. A dishwasher rack (1) **comprising** fixed horizontal wires (2) positioned in the form of a cage and fixed vertical wires (3) extending vertically as connected to said fixed horizontal wires (2), **characterized in that**

said dishwasher rack (1) comprises a movable wire mechanism (4),

said movable wire mechanism (4) comprises a movable horizontal wire (5) which is connected to the fixed horizontal wires (2) and which is positioned such that the position thereof can be changed by moving as connected to the fixed to the fixed horizontal wires (2) and relative to the fixed horizontal wires (2) and the fixed vertical wires (3), and at least one movable vertical wire (6) which extends vertically as connected to said movable horizontal wire (5), and

said movable wire mechanism (4) has a narrow position (D) where the movable vertical wires (6) are placed between the fixed vertical wires (3) and a wide position (G) where the movable vertical wires (6) are placed parallel to the fixed vertical wires (3).

2. A dishwasher rack (1) as in Claim 1, **characterized in that** said movable horizontal wire (5) is borne by means of a movable wire bearing (12) provided on the fixed wires (2 and 3) so as to be positioned to be next to the fixed wires (2 and 3).

3. A dishwasher rack (1) as in Claim 1 or 2, **characterized in that** said movable wire mechanism (4) comprises a locking member (7) and a handle (11) so as to shift said movable wire mechanism (4) between the narrow position (D) and the wide position (G).

4. A dishwasher rack (1) as in Claim 3, **characterized in that** said locking member (7) is positioned so as to rotate on a lock bearing wire (9) connected to the fixed wires (2 and 3).

5. A dishwasher rack (1) as in Claim 4, **characterized in that** said locking member (7) is positioned so as to rotate between 90 and 180 degrees on the lock bearing wire (9).

6. A dishwasher rack (1) as in Claim 4, **characterized in that** said locking member (7) comprises a locking tab (8) configured to be engaged with the lock bearing wire (9) so as to keep the wires fixed in this position when the movable wire mechanism (4) is in the narrow position (D).

7. A dishwasher rack (1) as in any one of the Claims 3 to 6, **characterized in that** said movable horizontal wire (5) is borne by means of a lock movement member (10) provided on the locking member (7).

8. A dishwasher rack (1) as in Claim 7, **characterized in that** said handle (11) is configured to, when moved upwards, lift up the lock movement member (10) on the locking member (7) such that the locking member (7) rotates on the lock bearing wire (9) and that the position of the movable wire mechanism (4) is changed.

9. A dishwasher comprising a dishwasher rack (1) as in any one of the Claims 1 to 8.

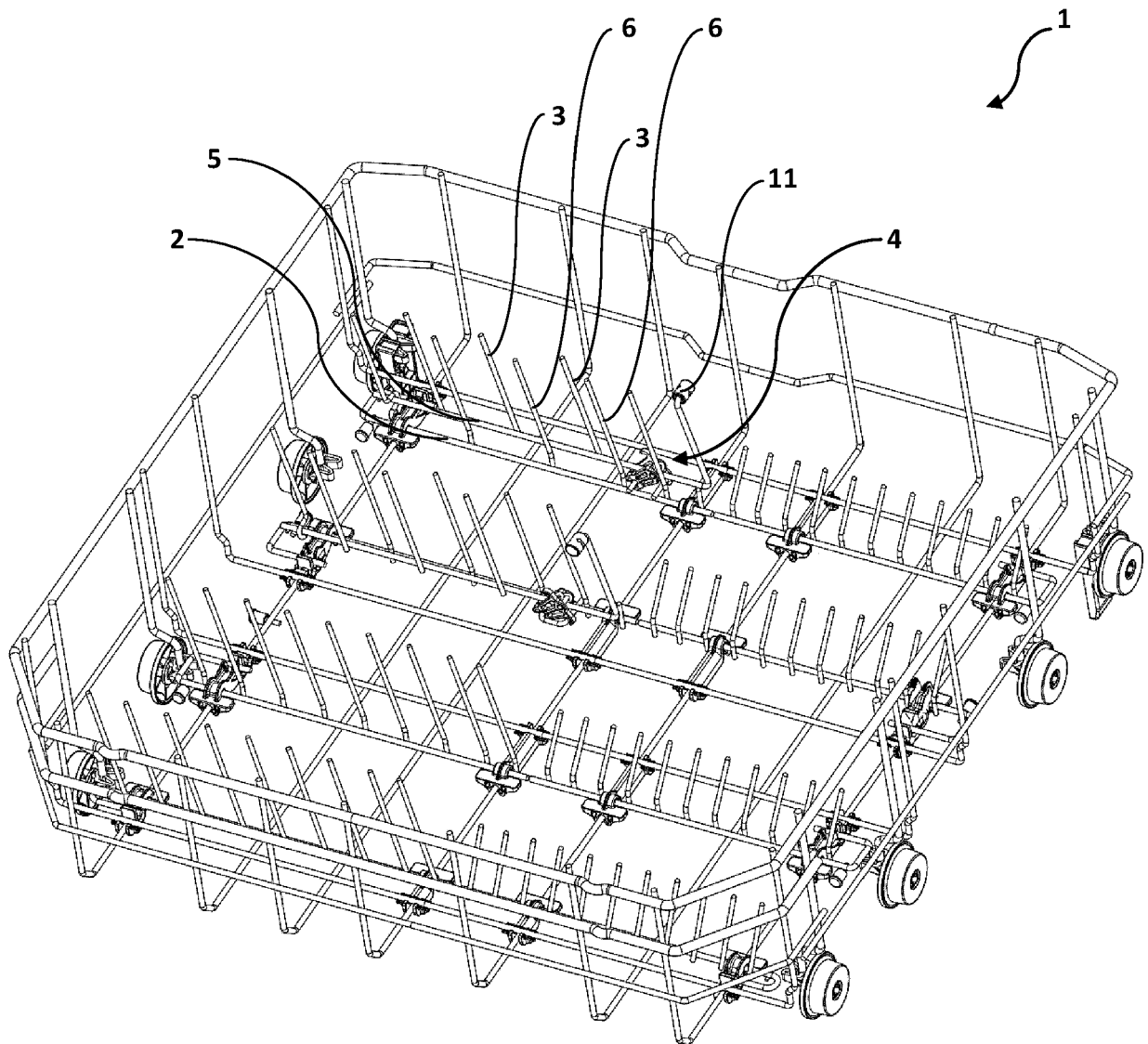


Figure 1

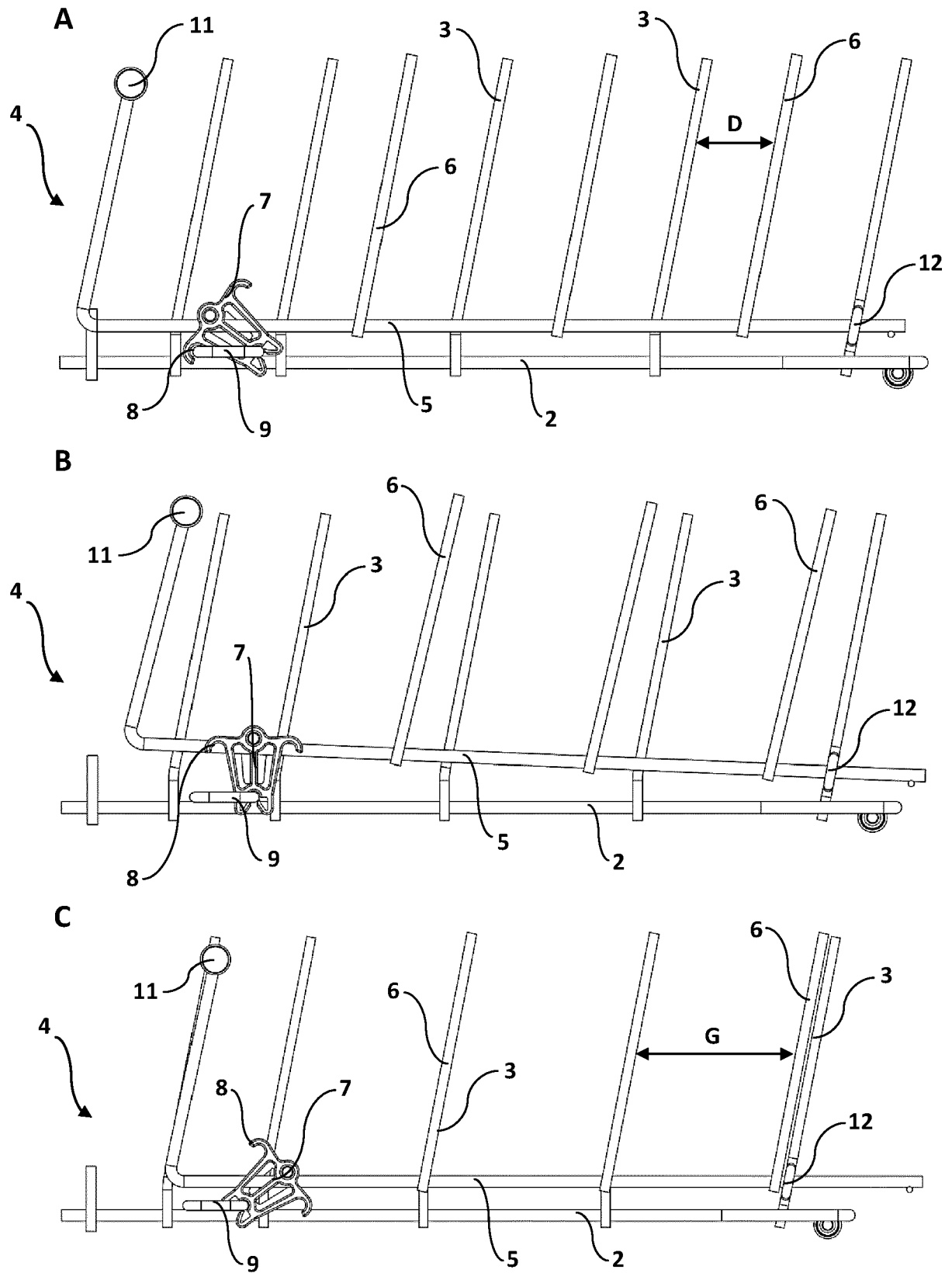


Figure 2

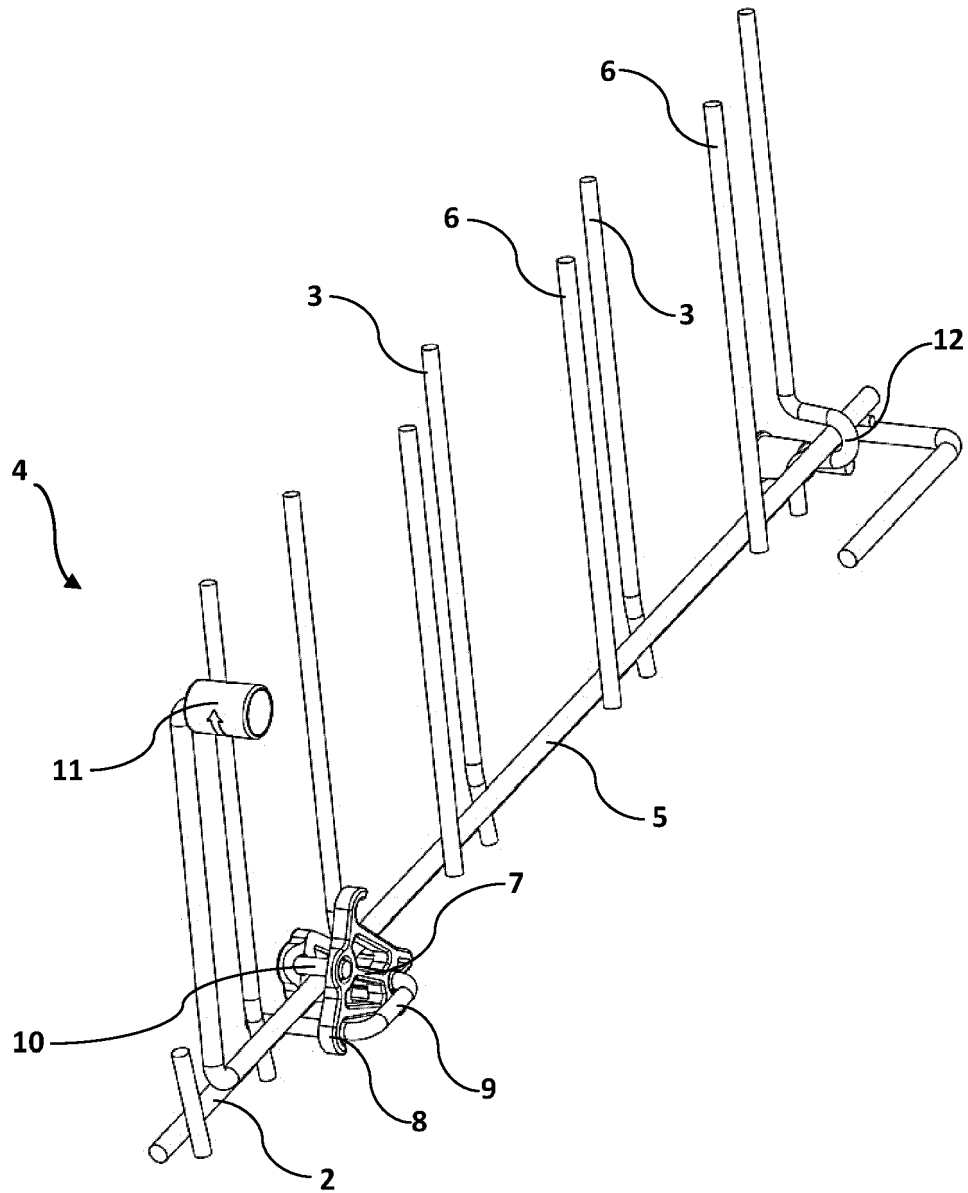


Figure 3



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Application Number

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