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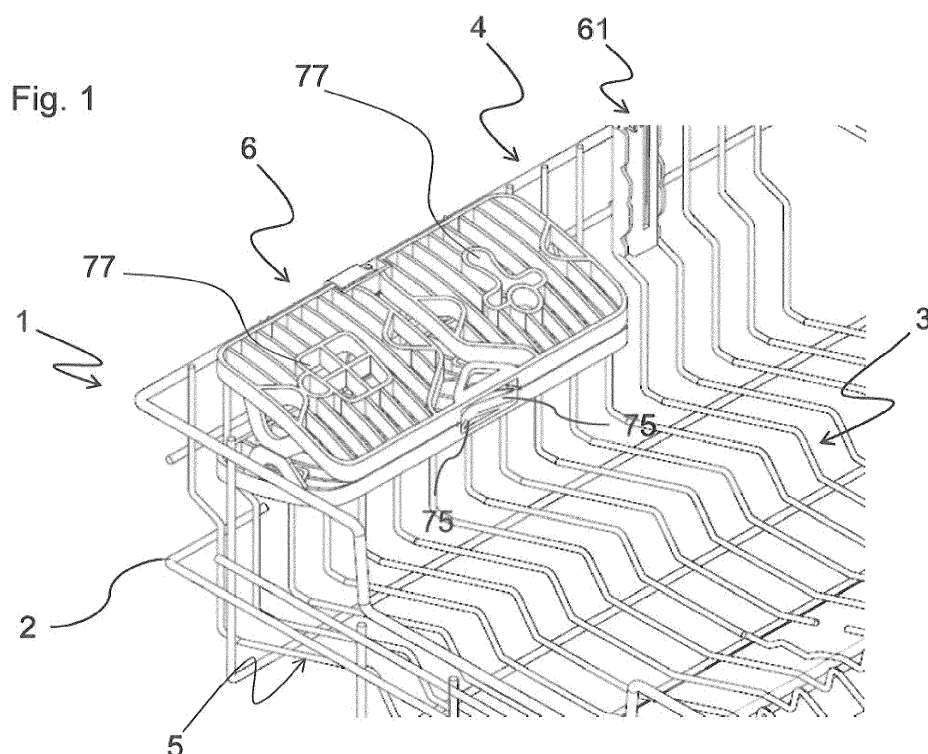
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(54) **A dishwasher rack comprising a shelf provided with a cover**

(57) Dishwasher rack (1) comprising a structure (2) that comprises a bottom (3) with a plurality of walls (4,5) extending therefrom, at least one flap-type support (6)

associated with one of said walls (4,5) for supporting objects in general, wherein the support (6) comprises a cover that can close said support (6) to prevent the fall of the objects thereon.



Description

[0001] The present invention relates to a dishwasher rack having at least one support shelf which in turn comprises a cover for supporting and containing small objects.

[0002] Folding shelves are known to be used in dishwashers for supporting glasses, cups, cutlery and other objects that are usually placed in the upper racks, which are commonly also known as flap-type shelves or shortly flaps; these basically consists of flat grid-like or perforated frames, that allow free flow of a washing liquid.

[0003] These folding shelves are usually freely movable to two positions, a folded-up position in which they rest on the rack wall, and a folded-down position, in which they form an angle of substantially 90° with said wall; in the latter position, objects may be laid on the shelf to be washed.

[0004] A rather frequent drawback, when washing low-weight objects, is the fall of these objects, that might block one of the washing mechanisms, such as the arms or else, or obstruct one of the drain hoses, thereby stopping the washing cycle.

[0005] One example of a height-adjustable flap-type shelf is disclosed in the Italian patent application RN2008A000010, by the applicant hereof.

[0006] This document discloses a dishwasher rack, in which the flap-type shelves have no means for restricting the fall of the objects to be washed.

[0007] As a result, light-weight objects may bounce up and fall due to the water jets sprayed into the washing tub. Although the shelf has irregularities/appendages for retaining the objects thereon, these irregularities/appendages may not always be effective in holding objects under upward washing liquid jets.

[0008] The present invention has the object of obviating these and other drawbacks by providing a dishwasher rack comprising at least one shelf adapted to prevent the fall of the objects lying thereon.

[0009] The guiding principle of this invention is the use of a cover compatible with the shelf, wherein said cover can retain the objects to be washed also in the vertical direction. This allows the supply means to spray the washing liquid at an adequate speed also in the upward direction, for an optimal washing action.

[0010] Further advantageous characteristics of the present invention will form the subject of the claims annexed hereto.

[0011] These characteristics, the effects derived therefrom and advantages achieved, will be more apparent from the description of a preferred, non-limiting embodiment of the invention, which is shown in the accompanying drawings, in which:

Fig. 1 is a perspective view of a shelf according to the invention in an operating state, when coupled to a dishwasher rack;
Fig. 2 is an exploded perspective view of a shelf like

that of Fig. 1;

Fig. 3 is a perspective view of the shelf of Fig. 2, with the cover coupled to the shelf.

[0012] Referring to Fig. 1, a dishwasher rack 1 is shown, comprising a structure 2, with a bottom 3 having a plurality of walls 4, 5 extending therefrom.

[0013] The rack 1 has a substantially parallelepipedal shape, and is open at its top to allow top loading, as usual.

[0014] One or more flap-type supports 6 of the invention are provided along the walls 4 and 5.

[0015] As shown in Figure 2, the flap-type support 6 is advantageously made of plastic, and comprises a shelf 62 with a mostly open structure to facilitate water flow; this shelf 62 comprises a base 63 for attachment to the wall 4 of the rack 1 with a wide-mesh lattice frame extending therefrom.

[0016] The frame 64 can support objects to be washed, such as cups, pacifiers or the like. Advantageously, in order to assist the user in the use of the flap-type support 6, the lattice of the frame 64 may comprise forms 77 identifying the objects to be washed, such as cups, pacifiers and the like.

[0017] One or more, preferably four, pairs of appendages 65,66 extend from the base 63, away from the frame 64, symmetrical with respect to the center axis of the shelf.

[0018] Furthermore, a T-shaped engaging tang 71 is provided in a central position relative to the appendages 65,66, and its functions, as well as those of the appendages 65 and 66, will be described in greater detail below.

[0019] The shelf 62 is mounted to the wall 4 of the rack 1 by means of a bearing member 61.

[0020] If the dishwasher has a plurality of bearing members 61, the latter are identical, preferably made of plastic, and are attached to the walls 4, 5 of the rack 1 by means of rear interlocking projections 67,68, which are designed for engagement with the horizontal wires of the rack wall 4. The bearing members 61 are removable from the rack 1, such that the user may remove them if he/she does not want to use the shelves or if he/she wants to clean the bearing members 61; nevertheless, once they are attached to the rack 1 and are being used, they are substantially stationary relative to the rack 1, as the width of the projections 67, 68 is slightly smaller than the spacing between two adjacent vertical wires on the side wall 4.

[0021] The bearing members 61 have a front central groove 69, between two walls 70 having an irregular saw-tooth profile. The latter act as supports for a pair of pivots 72, which support the shelf 62, and are placed at the sides of the tang 71.

[0022] The features of the rack 1 and the flap-type support 6 thereof may be easily understood from the above.

[0023] Thus, the support 6 may be placed at various inclinations to the corresponding wall 4 of the rack 1 and simultaneously even at different heights from the bottom thereof.

[0024] For this purpose, the tang 71 of each shelf 6 is slideably guided in the guide groove 69 of its bearing member 61, relative to which it may be placed at various heights, due to the sawtooth profile of the walls 70.

[0025] By engaging the pivots 72 of said supporting shelf 6 with the teeth of the walls 70, as shown in Figure 2, the shelf may rotate relative to these teeth, which will hence act as a seat for rotation of the pivots 72.

[0026] According to the selected height, the inclination of the shelf, so positioned, may be also changed; this is allowed by the engagement of the pairs of appendages 65,66 of the shelf 62, which abut with the vertical and horizontal wires of the wall respectively, in a selective manner and according to the inclination imparted to the shelf 62. These appendages 65,66 are used for more stable support of the objects on the shelf 62, at any height and/or inclination thereof, since the weight of these objects is thus discharged beforehand from the shelf 62 to the rack 1 through the abutments occurring through said appendages 65,66. According to the object of the invention, the objects may be secured using the cover; this cover is comprised in the flap-type support 6, and preferably consists of a second shelf 62', which identical or similar to the first, and rotated 180° about its axis.

[0027] This solution, which obviously has to be intended without limitation, advantageously allows the cover to be formed of a shelf 62' identical to that used for supporting objects during a washing cycle, such that a smaller number of different pieces are manufactured, and the manufacturing costs are also reduced.

[0028] For this purpose, the two shelves 62 have an appropriately shaped outer edge 73, ensuring mutual coupling thereof, as shown in Fig. 3.

[0029] Furthermore, for improved coupling between the two shelves 62 and 62', both the tang 71 and the pivots 72 for supporting the shelf 62' that acts as a cover, will join with the bearing member 61 that also supports the lower shelf 62 in the operating state, which will allow a single coupling arrangement to be used for both shelves 62 and 62'.

[0030] The second shelf 62' uses the appendages 65,66 in the same manner as the first shelf 62, i.e. by laying then on the vertical wires of the rack 1, in order to ensure sturdiness of the support 6 in the operating state.

[0031] In order to prevent the objects from dropping out of the support 6, the shelves 62,62' also have side end rails 74 which, as shown in Fig. 3, contact each other when the support 6 is in the operating state, thereby preventing the fall of any object from the support 6. Furthermore, as shown in Fig. 1, the outer edge 73 of the shelves 62,62' may include a splay 75, which may be advantageously utilized as a handle, for separating the two shelves 62, 62' when they are in the operating state, to allow unloading/loading of the objects to be washed.

[0032] The skilled person may also use other kinds of covers, without departure from the teachings of the present patent application.

[0033] Any variant that should become apparent to the

skilled person will be part of the scope of the following claims.

5 Claims

1. A dishwasher rack (1) comprising a structure (2) with a bottom (3) from which a plurality of walls (4,5) extend, at least one flap-type support (6) associated with one of said walls (4,5) for supporting objects in general,
characterized in that
the support (6) comprises a cover which closes it so as to define a volume that contains the objects to be treated.
2. A rack (1) according to claim 1, wherein the flap-type support (6) comprises a shelf (62) with a frame (64) having a prevalently open structure, on which the objects can be arranged.
3. A rack (1) according to claim 2, wherein the shelf (62) is adjustable in height and inclination.
4. A rack (1) according to any one of the preceding claims, wherein the cover of the flap-type support (6) consists of a second shelf (62') that can be coupled to the first shelf (62).
5. A rack (1) according to claim 4, wherein the second shelf (62') is equal to the first shelf (62).
6. A rack (1) according to claim 4 or 5, wherein each shelf (62,62') comprises an outer edge (73) so shaped as to ensure a proper coupling to the other shelf (62,62').
7. A rack (1) according to any one of the preceding claims, wherein the support (6) comprises side elements (74) positioned at the lateral ends for preventing the objects from falling.
8. A rack (1) according to any one of claims 2 to 7, wherein the flap-type support (6) also comprises a support (61), which in one operating condition is coupled to one of the walls (4,5) of the rack (1) and to at least one of the shelves (62,62'), so as to allow the shelves (62,62') to be positioned securely.
9. A rack (1) according to claim 8, wherein the support (61) comprises a central groove (69) allowing the shelves (62,62') to move.
10. A rack (1) according to claim 9, wherein the shelf (62) comprises a T-shaped engagement tang (71) arranged on the side opposite to the frame (64), and said tang (71) in the operating condition fits into the central groove (69) of the support (61).

11. A rack (1) according to any one of the preceding claims, wherein the support (6) comprises at least one pair of appendices (65,66) which are symmetrical relative to a central axis and which extend outwards from the frame (64), and wherein these appendices (65,66) respectively abut on vertical and horizontal wires, which are comprised in the wall (4,5). 5
12. A rack according to any one of the preceding claims, wherein the cover is removable from the remaining part of the support (6). 10
13. A rack according to any one of the preceding claims, wherein the cover includes shapes (77) that identify objects to be washed, such as cups, dummies and the like. 15
14. A dishwasher **characterized by** comprising at least one rack (1) according to claims 1 to 11. 20

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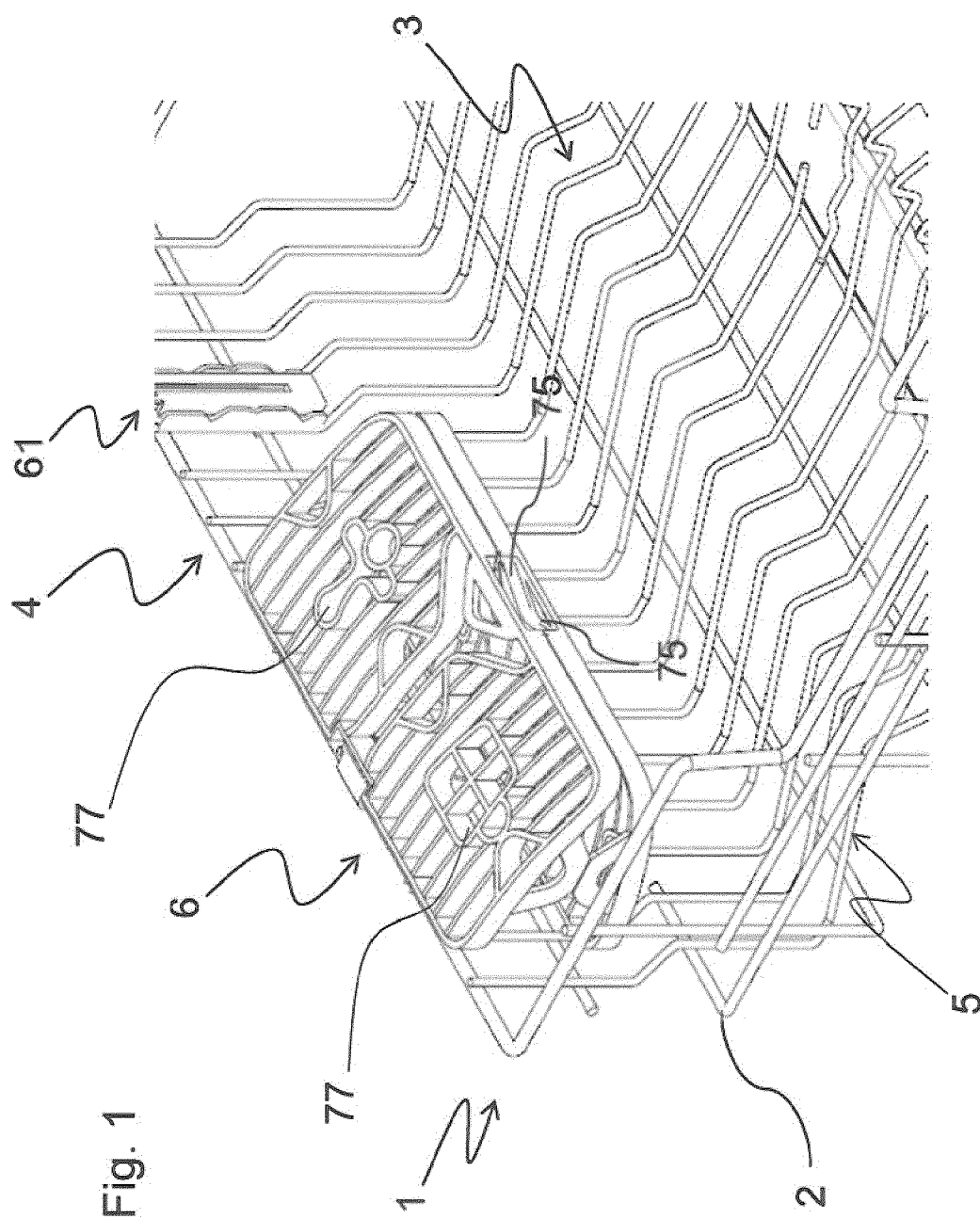
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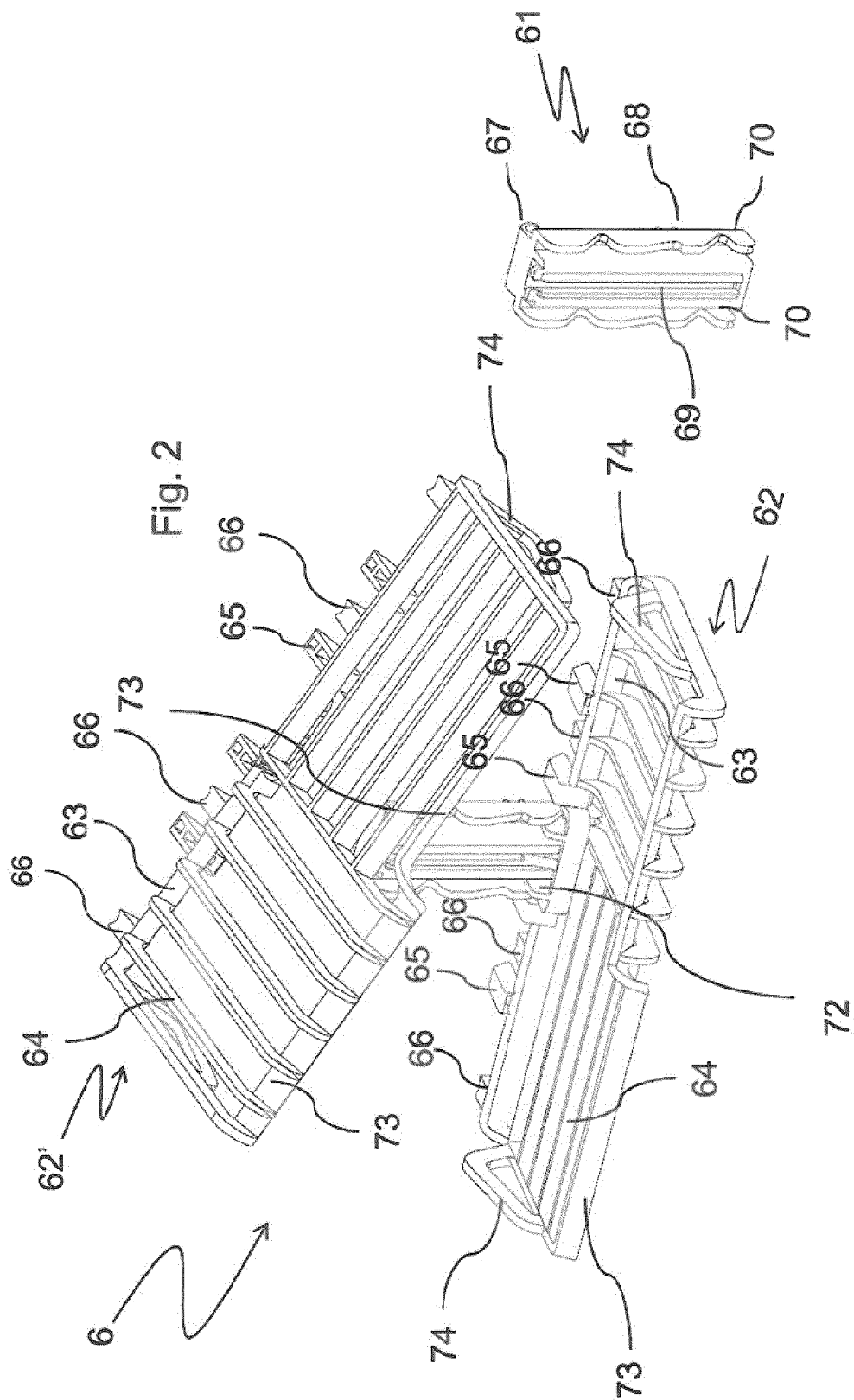
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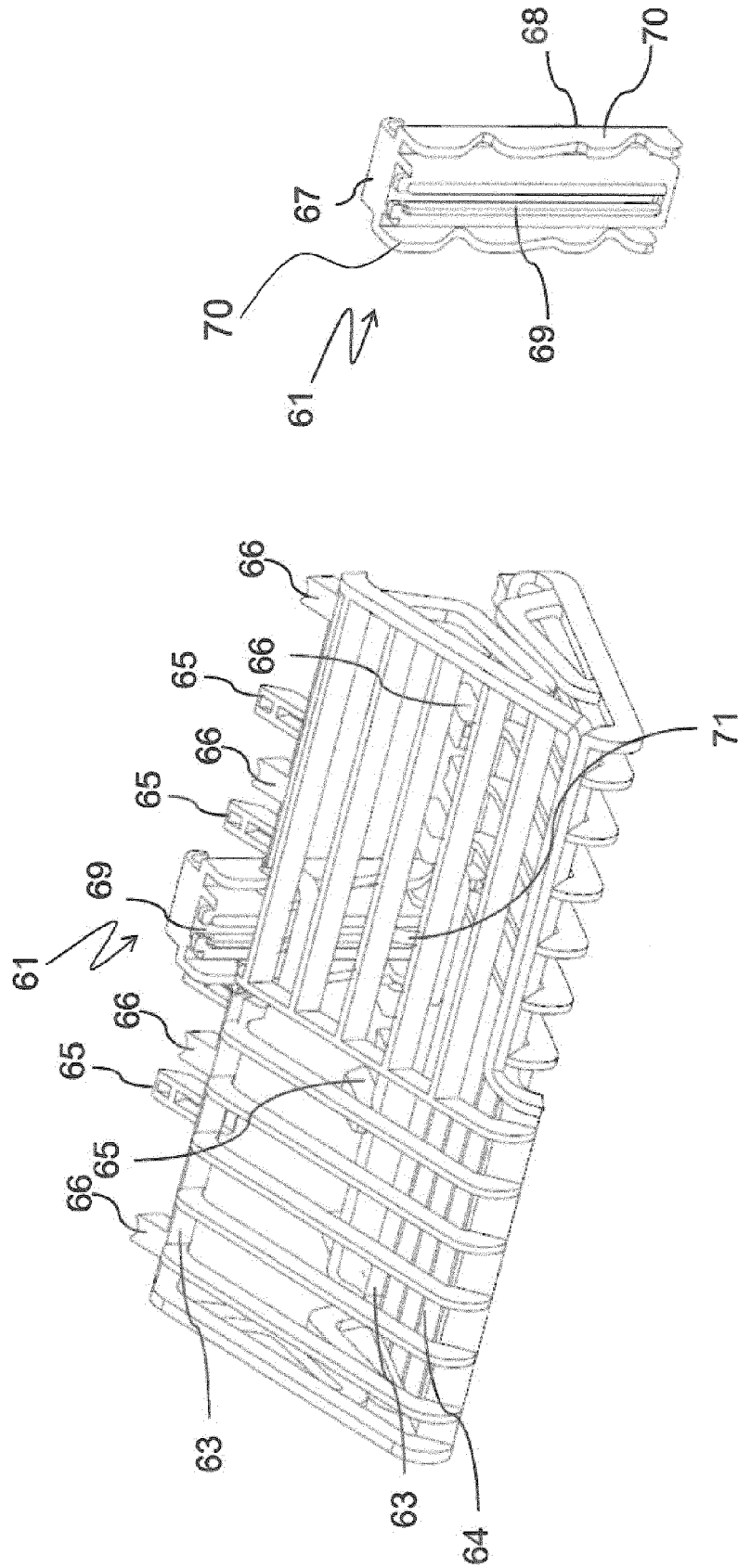


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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