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Remarks:

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(54) **A SUPPORT ACCESSORY WHICH CAN BE COUPLED TO ONE RIGID SUPPORT COMPRISED IN A DISHWASHER RACK**

(57) The invention relates to a support accessory (2,3,4) which can be coupled to at least one support comprised in a dishwasher rack, wherein said support accessory (2,3,4) comprises a central part (32) having an elongated shape and at least two ends (31), wherein each end (31) comprises an outward-facing cavity (33), and wherein the central part (32) is flexible, and is associated with said ends (31) in correspondence of the cavities (33).

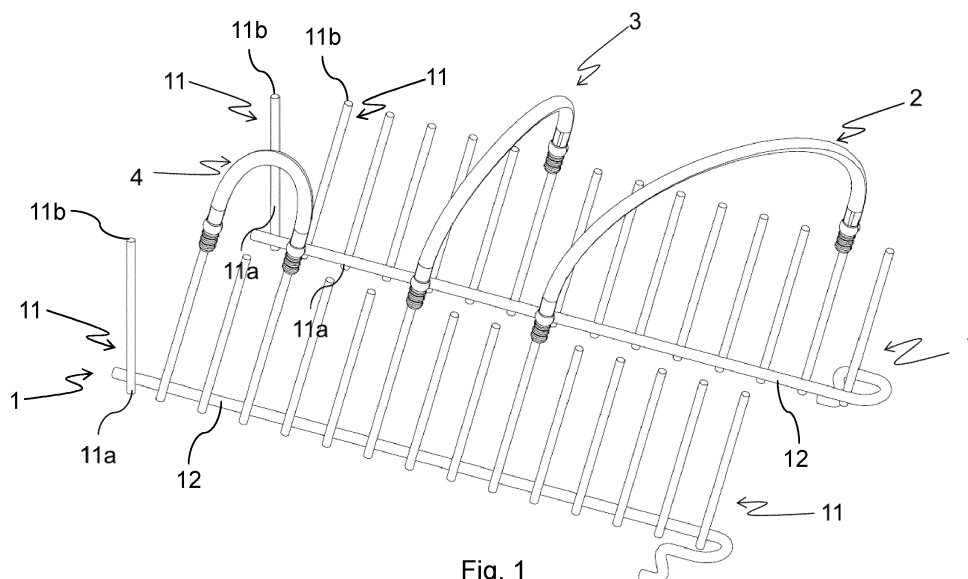
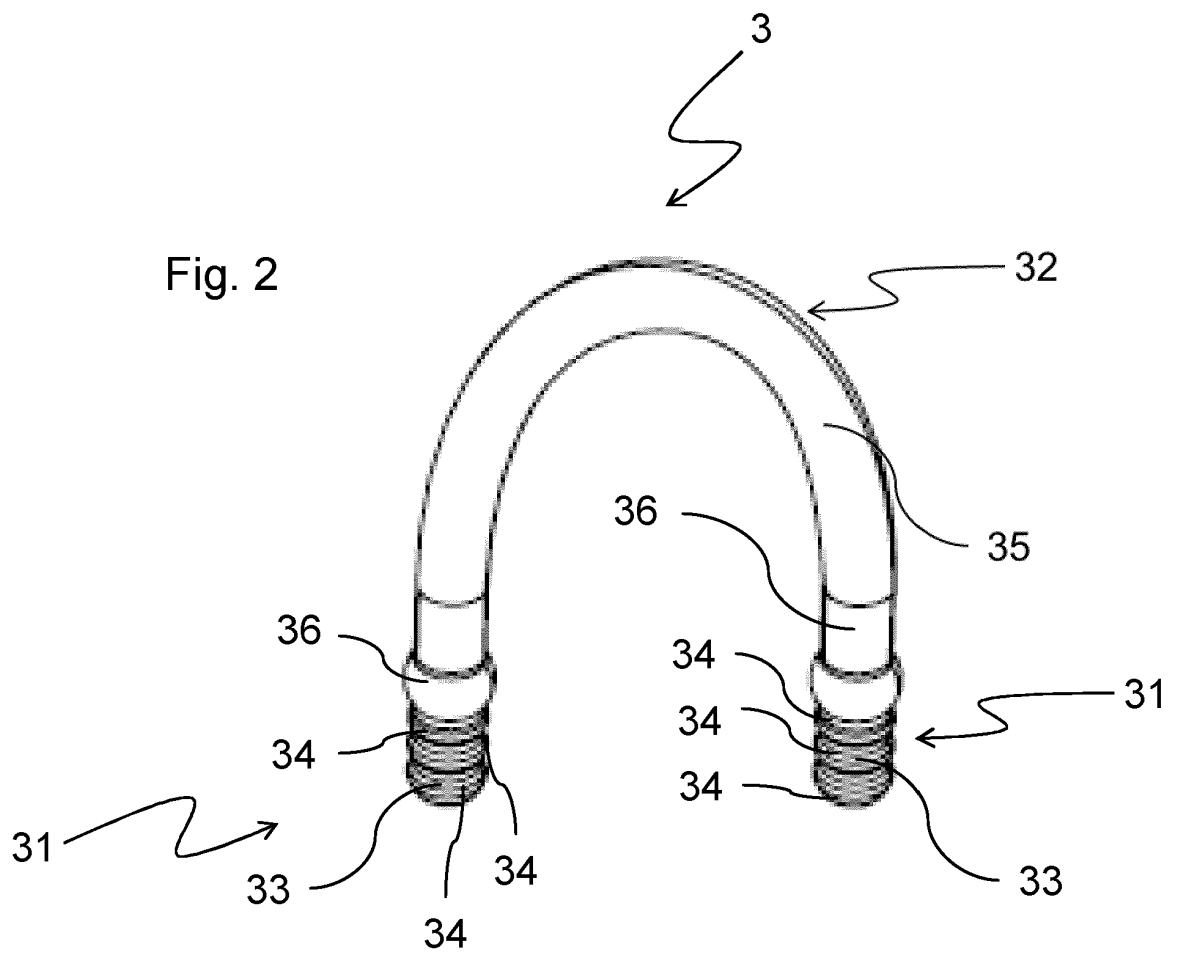


Fig. 1



## Description

**[0001]** The present invention relates to a flexible support accessory which can be coupled to at least one rigid support comprised in a dishwasher rack.

**[0002]** As known, positioning some large objects having non-standard dimensions, such as silverware, decanters or simple dishes of non-standard diameter, inside the dishwasher tub may be a problem, in that the dimensions of these objects do not allow them to be properly positioned in the racks of the dishwasher rack, which were originally conceived for standard-diameter dishes.

**[0003]** Moreover, the improper positioning of such pieces of crockery in the rack, along with the fact that they are often made of delicate (and valuable) materials such as porcelain, crystal glass or the like, makes it likely that, during the wash cycle, a single moving or falling piece of crockery will cause one or more other pieces to break and/or chip, possibly also because they slide out of the rack.

**[0004]** Placing specific racks in the dishwasher rack would certainly provide a solution to the above-described problem, but loading flexibility would be reduced because it would be difficult or even impossible to position a large number of conventional pieces of crockery. In document EP 2036482 A1 to VESTEL BEYAZ ESYA SANAYI VE TICARET A.S. this problem has been faced by adding a support 2 (Fig. 2 in EP 2036482 A1) coupled to the edge of the rack 1 by means of a rotary joint 3; however, this invention does not completely solve the above-described problem, in that the rigidity of the support 2 does not allow changing its dimension, since only the support height can be varied by changing the position of said support 2 through the use of the rotary joint 3.

**[0005]** The present invention aims at solving these and other problems by providing a flexible support which can be coupled to a rigid support.

**[0006]** The idea at the basis of the present invention is to provide a flexible support accessory having an elongated shape, preferably with a circular cross-section, which can be coupled to at least one rigid support, so that one can create at will a support having the desired dimensions by exploiting the interaction between the two or more supports.

**[0007]** The advantageous features of the present invention will be set out in the appended claims.

**[0008]** These features and the effects thereof will become more apparent from the following description of a preferred but non-limiting example of embodiment of the invention referring to the annexed drawings, wherein:

Fig. 1 is a perspective view of three flexible support accessories in their operating condition, coupled to a pair of rigid rake-type supports, also in their operating condition;

Fig. 2 is a perspective view of one of the flexible support accessories of Fig. 1, decoupled from the rigid supports, in an idle position;

Fig. 3 is a perspective view of the flexible support accessory of Fig. 2 in its operating condition, applied to a removable rigid support;

Fig. 4 shows the support of Fig. 3, applied to a dishwasher rack.

**[0009]** With reference to Fig. 1, a dishwasher rack (not shown in the drawings) comprises at least one rigid support (such as a rake) and at least one flexible support accessory 2,3,4 according to the invention, the latter being coupled to at least one of said rigid supports, i.e. being in an operating condition.

**[0010]** The rigid support comprises a rake 1, at least made up of segments 11 and a crosspiece 12, which are made integral with each other, preferably by electric welding.

**[0011]** For this purpose, the segment 11 comprises a base end 11a and a head 11b. The base ends 11a are constrained to the crosspiece 12, so that the rotation of the crosspiece 12 about its own axis moves the heads 11b of the segments 11 along a circular trajectory.

**[0012]** The support accessories 2,3,4 according to the invention may have different lengths, so as to better meet the users' needs and to increase the dishwasher's loading flexibility; in the idle condition, these support accessories 2,3,4 will preferably have a cylindrical shape. Objects to be washed having different dimensions can be laid against the support accessories 2,3,4 without risking that said objects might get scratched or be subject to any kind of shock, in that the supports 2,3,4 can keep them at a distance from the segments 11, which are made of a rigid material and may therefore cause damage in the event that an object to be washed strikes or slides against them.

**[0013]** Furthermore, the support accessories 2,3,4 may also act as load holder belts by securing the objects to the rack.

**[0014]** The material of the support accessories 2,3,4 is flexible, such as rubber or the like (e.g. suitably charged TPE).

**[0015]** With reference to Fig. 2, there is shown that a support 3 comprises two coupling ends 31 and a flexible central part 32.

**[0016]** The internal portion of the end 31 comprises an outward-facing cavity 33 having a substantially cylindrical shape compatible with the head 11b of the segment 11, whereas the external portion of the end 31 comprises elastic ribs 34 that are necessary to keep it coupled to the head 11b when the support accessory 3 is in the operating condition.

**[0017]** The apertures of the cavity 33 are located at the outer ends of the support accessory 3, so that, in the operating condition, the axis of the end 31 of the support accessory 3 coincides with that of the segment 11.

**[0018]** Within the central part 32 there may be a central channel, so that it can be more easily flexed.

**[0019]** As an alternative, the support 3 may have a solid central part, so that it can be more easily molded.

[0020] The end portion 31 facing the central part 32 comprises a membrane 36 that prevents a washing liquid from getting into the central part 32 and allows to create a suction cup effect between the end 31 and the head 11b of the segment 11. This advantageously prevents the wash liquid from stagnating inside the central channel 35 and ensures a correct coupling between the two components.

[0021] The support 3 according to the present invention, although it has been conceived mainly for use in association with one or more rakes, is well suited to any application on a dishwasher rack for the purpose of increasing its loading capacity and flexibility.

[0022] It must however be pointed out that the rigid support, i.e. the lower part, is secured by interference with a pair of parallel wires of the rack bottom.

[0023] A further application is shown in Fig. 3, wherein the rigid support consists of a removable base 5 that comprises a pair of segments 51 consisting of angle-bent wires, fitted with ends 51a for coupling them to the rack wires.

[0024] The segments 51 support a fork 52 with vertically-oriented prongs 52a: the flexible accessory 3 according to the invention is applied to the free ends of the latter.

[0025] The base 5 of this variant of the support according to the invention can be applied to a dishwasher rack, as shown in Fig. 4: it can therefore be easily understood that this variant can be used as an alternative to rakes for applying the support accessory 3.

[0026] The removable rigid support 5 and in particular the coupling ends 51 a are so shaped as to also engage with the crosspieces 13 of two rakes 1, so that, when the rakes are lowered, it is possible to use some base wires of the rakes in order to secure the rigid support 5.

[0027] The material of the removable rigid support 5 is preferably a metallic one, coated with a layer of insulating material, such as Rilsan, which prevents any contact between the metal and the washing liquid, thus avoiding the onset of any corrosion phenomena.

[0028] The fork 52 may however consist of a pair of vertically-oriented parallel pegs, positioned on a frame comprising one or more horizontally-oriented small bars, preferably two, to which the pegs and both beams are coupled.

[0029] The beams are orthogonal and coplanar to the small bars; at the ends of the beams there are hooks for securing them to the rack.

[0030] In this case as well, it must however be pointed out that the rigid support, i.e. the base 5, is secured by interference with a pair of parallel wires of the rack bottom.

[0031] It is therefore clear that the use of these support accessories 2,3,4 allows to increase the loading flexibility of the dishwasher rack, while also making it possible to wash in the dishwasher objects which otherwise could not be properly washed.

[0032] All possible variants which are apparent to

those skilled in the art will still fall within the scope of the following claims.

## 5 Claims

1. A support accessory (2,3,4) which can be coupled to at least one support comprised in a dishwasher rack, wherein said support accessory (2,3,4) comprises a central part (32) having an elongated shape and at least two ends (31), and wherein each end (31) comprises an outward-facing cavity (33), **characterized in that** the central part (32) is flexible, and is associated with said ends (31) in correspondence of the cavities (33).
2. A support accessory (2,3,4) according to claim 1, wherein the central part (32) is associated with the end (31) along the extension of the cavity (33).
3. A support accessory (2,3,4) according to claim 1 or 2, wherein the cavity (33) comprises a membrane (36) positioned close to the central part (32).
4. A support accessory (2,3,4) according to claim 1 or 2 or 3, wherein at least one of the ends (31) comprises elastic ribs (34).
5. A support accessory (2,3,4) according to any one of the preceding claims, wherein said support accessory (2,3,4) has a circular cross-section.
6. A support accessory (2,3,4) according to any one of the preceding claims, **characterized in that** it is made of a flexible plastic material such as rubber, TPE or the like.
7. A support for a dishwasher rack, **characterized by** comprising at least one substantially rigid part (11,5) and at least one support accessory (2,3,4) according to any one of claims 1 to 6, wherein said rigid part and said support accessory (2,3,4) are coupled to each other.
8. A support according to claim 7, wherein the rigid support comprises a rake (1) with segments (11) fitted at least with heads (11b) that can be coupled to the ends (31).
9. A support according to claim 7 or 8, wherein the rigid part comprises a base (5) supporting a fork (52) or the like, whose free ends (52a) are adapted to engage with the support accessory (2,3,4) for supporting it.
10. A support according to claim 9, wherein the base (5) supporting the fork (52) can be removably secured to a dishwasher rack.

11. A dishwasher rack comprising at least one support according to any one of claims 7 to 10.

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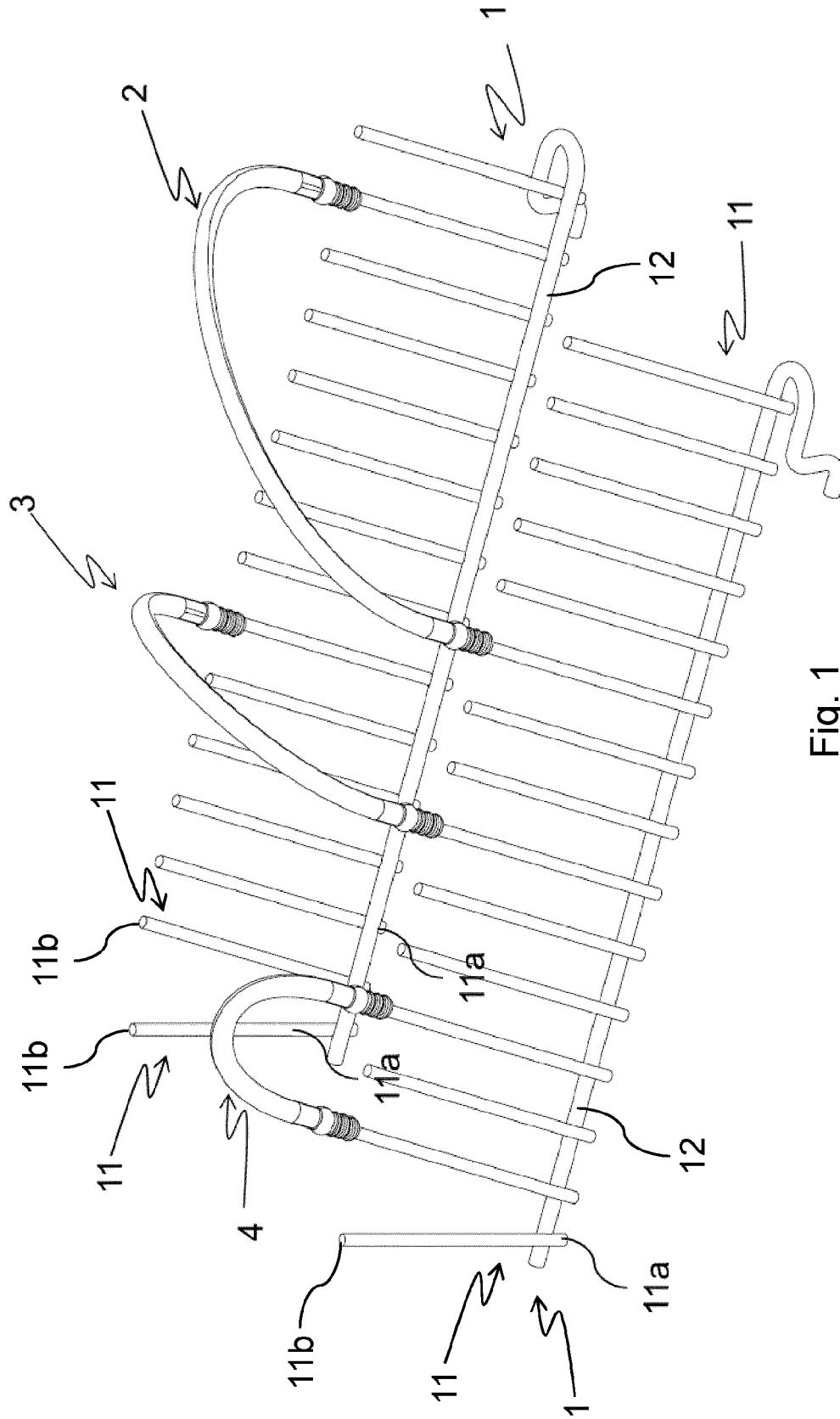
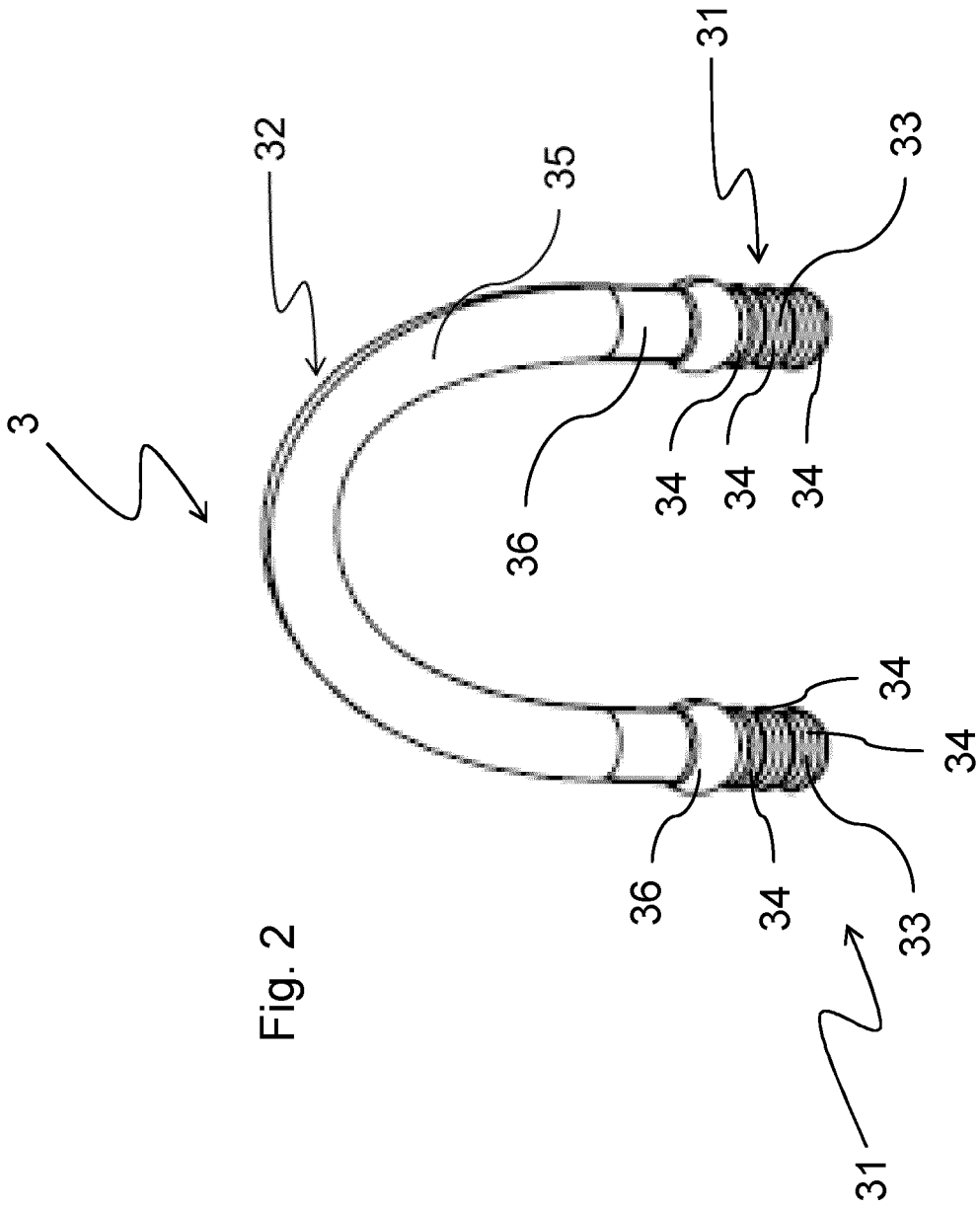


Fig. 1



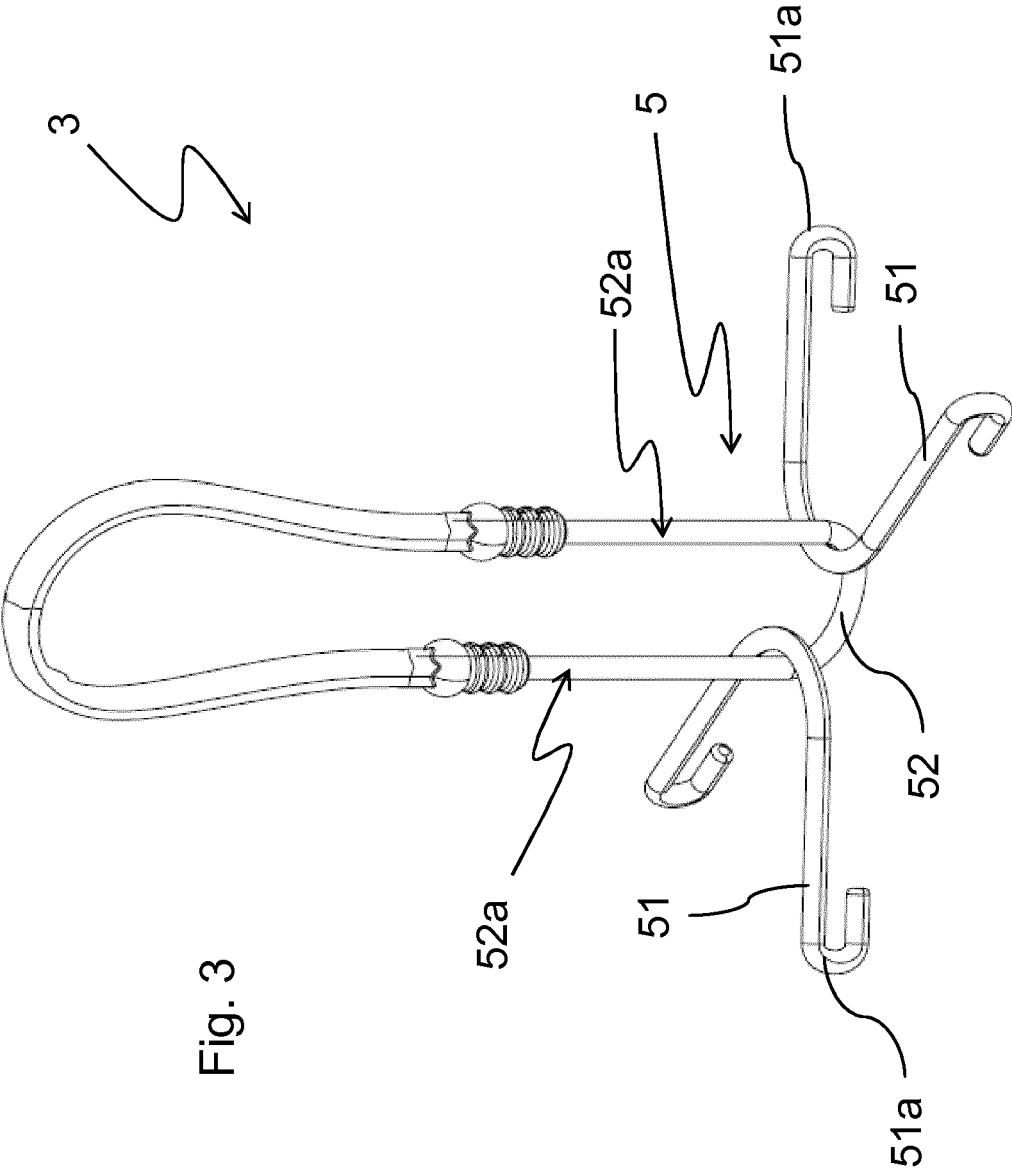


Fig. 3

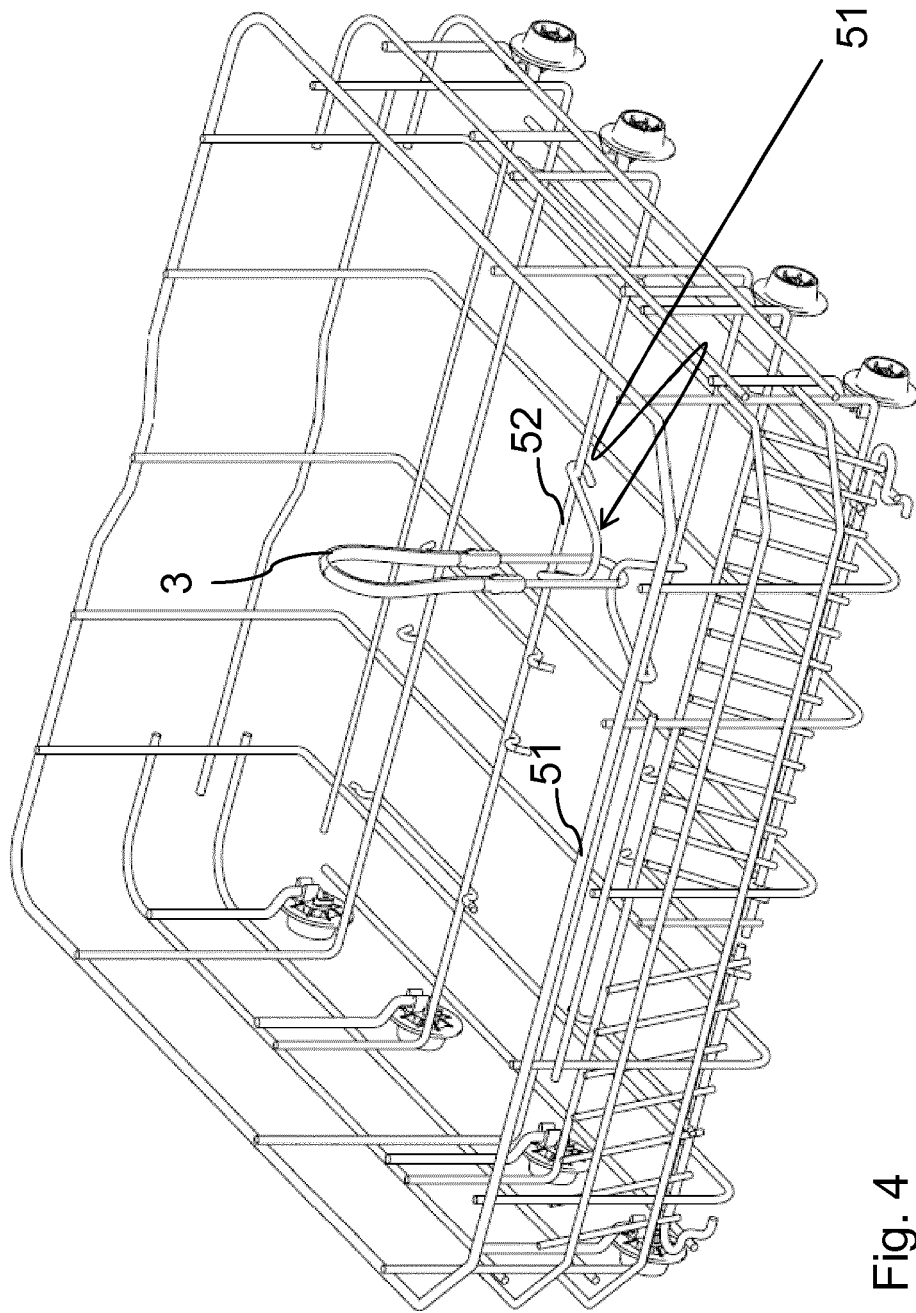


Fig. 4



## EUROPEAN SEARCH REPORT

Application Number  
EP 15 16 2635

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| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                         |                                  |                                         |
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| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                         |                                  |                                         |
| Place of search                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                         | Date of completion of the search | Examiner                                |
| Munich                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                         | 21 July 2015                     | Martin Gonzalez, G                      |
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## EUROPEAN SEARCH REPORT

Application Number  
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| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                    |                                                                                                    |                                                                                                                                                                                                                                                                              |                                         |
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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 15 16 2635

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21-07-2015

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