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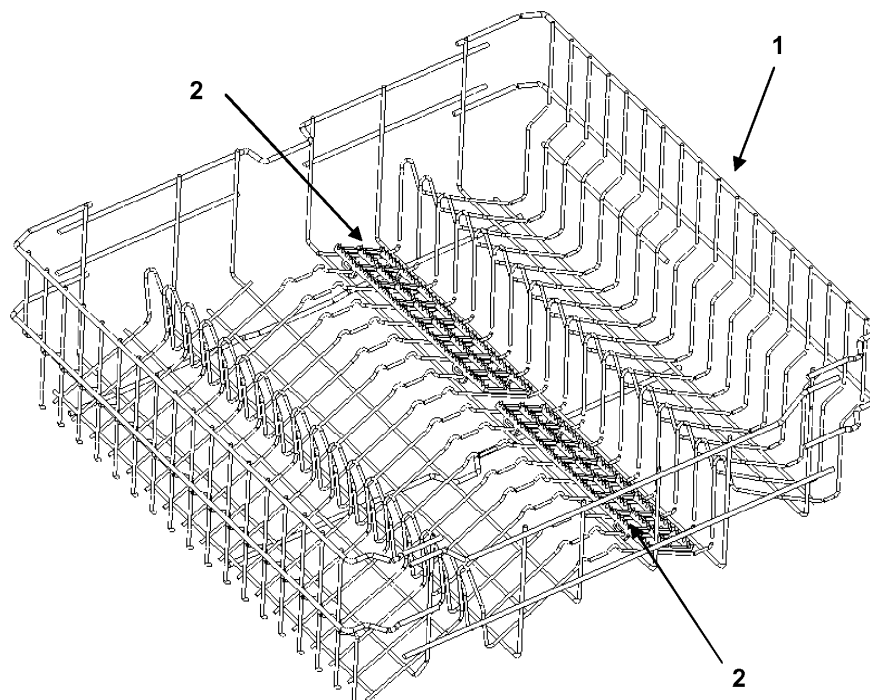
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(54) **Dish-holder support for dishwasher rack**

(57) The base of the invention is mounted on the bottom wires (12) of a dishwasher rack (1); comprises multiple bars (21) joined as a wireframe; and comprises multiple teeth (22) shaped as recesses and protrusions between which kitchen utensils such as glasses are placed, wherein the teeth are placed on at least one bar (21).

Each one of the bars (21) is placed such that they are on a bottom wire (12). There is at least one hook (23) under the base (2) which is mounted to the bottom wires (12). Also, on one side of the base (2), there is at least one snap fitting (25) which is mounted on one of the intermediate connection wires (15) connecting the bottom wires (12).



**Figure – 1**

## Description

### A BASE FOR DISHWASHER RACKS

#### Field of the Invention

[0001] This invention is related to bases which prevent kitchen utensils such as glass and jars placed in a dishwasher rack from slipping or tilting.

#### Background of the Invention

[0002] There exists various studies related to the known state of the art in accordance with the dishwasher racks in which the kitchen utensils to be cleaned are placed. The main problems with the dishwasher racks are to increase the usable area of the racks and make the kitchen utensils placed on these racks steady and organized. In other words, the full capacity and layout of a rack is of great importance. Specially, placing kitchenware of various sizes and various types into racks sometimes raises difficulties to the user. For example, while there are slots specially placed for the plates to be placed into the rack, the glasses are usually placed into the left spaces. In cases where the rack is not completely full these glasses may slip, tilt and in turn may be broken while these racks are being moved back and forth. Therefore, there is a need for various apparatus that can prevent glasses in the rack from slipping and tilting.

[0003] There are several studies about the known state of the art related to this subject and patent application published under patent no EP1787569 can be given as an example. In this application a glass base made of a flexible material is disclosed. According to this, the base is installed to the bottom of the rack by stretching and several elastic extensions on the base prevent the glasses on it from slipping and tilting.

[0004] In the patent application published under patent no US2005242046 which is another example of the known state of the art, a glass rack that is hung on to the wireframe of the rack is disclosed. This rack is hung higher than the bottom of the rack and the part in which the glasses are inserted can turn. This apparatus which is not appropriate for the glasses to be placed onto the base of the rack, causes reduction in the usable area of the rack due to its parts extending towards inside the rack.

#### Brief Description of the Invention

[0005] The base of the invention is an apparatus which is placed onto the bottom of the dishwasher racks. The base is made as a wireframe and the parts forming the wireframe are spaced such that they are facing the bottom wires of the rack. Thus, it is achieved that the water spraying from the nozzles can reach inside the kitchen utensils such as glasses, wineglasses, mugs, bowls and jars without obstruction. On upper surface of the base, there are teeth in which head parts of such utensils can

enter. By this way these utensil are prevented from slipping on the base. The protrusions located on one side of the base are mounted on the rack wires and said rack wires are held in these protrusions. This connection mechanism allows the base to make a rotational movement with respect to the axis of this wire and by this way allows the base to open and close (between horizontal and vertical positions). The protrusions under the base (in case the base is mounted on the bottom of the rack) are mounted to the wires on the bottom of the rack preventing the base from separating without control. When the base is not in use, it is closed (vertical position) and in this position it does not affect in-rack layout since it occupies a very small space.

#### Objective of the Invention

[0006] The objective of this invention is to provide a base for placing kitchen utensils such as glasses, wineglasses, mugs, bowls and jars into dishwasher racks.

[0007] Another objective of the invention is to provide a base which can be placed onto the bottom of dishwasher racks, which can be opened and closed and which can prevent the utensils placed on it from slipping.

[0008] Another objective of the invention is to space the parts comprising the wireframe base such that the distance between them is same as the distance between the wires of the rack and by this way making the water spraying from the nozzles reach into the kitchen utensils without obstruction.

[0009] Another objective of the invention is to provide a cheap, reliable and easy-to-mount-and-remove base.

#### Brief Description of the Drawings

[0010] An example of the base of the invention and the dishwasher rack in which it is used are illustrated in the Figures and the brief descriptions of the Figures are given below:

Figure 1 is the perspective view of the base of the invention while the base is placed in the dishwasher rack.

Figure 2 is the side view of the base while the base is placed in the dishwasher rack.

Figure 3 is a general perspective view of the base. Figure 4 is the detailed perspective view of the base. Figure 5-7 are the views of different teeth geometries of the base.

Figure 8 is the perspective view of the base when a glass is placed on it.

Figure 9 is the side view of the base when a glass is placed on it.

Figure 10 is another perspective view of the base.

Figure 11 is the perspective view of the base in closed position in the dishwasher rack.

Figure 12 is the detailed perspective view of the base of the invention while the base is placed in the dish-

washer rack.

Figure 13 is the side view of the base in closed position in the dishwasher rack.

Figure 14 is a view of the position of the base on the rack.

**[0011]** The parts in the figures are individually referenced and these references are:

Dishwasher rack (1)  
Base (2)  
Glass (3)  
Wires for placing plates (11)  
Base wires (12)  
Vertical wires (13)  
Horizontal wires (14)  
Intermediate connection wires (15)  
Bars (21)  
Teeth (22)  
Hooks (23)  
Concave surfaces (24)  
Snap fitting (25)  
Groove (26)  
Edges of the concave surface (27)

### **Detailed Description of the Invention**

**[0012]** In Figures 1 - 14, an example of the dishwasher rack (1) and the base (2) of the invention are illustrated; the base (2) is developed to prevent glasses (3) (or kitchen utensils such as wineglasses, mugs, bowls and jars) placed in the rack (1) from slipping and tilting. In Figure 1, the perspective view of the said base (2) when it is placed in the dishwasher rack (1). The base (2) shown here is in the horizontal position on the bottom of the rack (1) and this is the open position of the base (2) and a glass (3) can be placed on it (shown in Figures 8 and 9).

**[0013]** As known, a dishwasher rack (1) is formed by several shaped wires. As shown in Figure 2, there are wires with different functions in the rack (1). For example, there are horizontal and vertical (14, 13) wires encircling the rack (1). On the bottom of the rack (1), there are bottom wires (12) on which miscellaneous kitchen utensils are placed and following these wires (12) there are wires for placing plates (11) shaped in bent form such that the plates can be inserted between them. In the racks, the bottom wires (12) are used horizontally or inclined to some degree. Besides, there are intermediate connection wires (15) on the bottom of the rack (1) which connect the bottom wires (12) to each other (shown in Figures 11 - 12).

**[0014]** In Figures 3, 4 and 10, perspective views of the base (2) placed onto the bottom of the dishwasher rack (1) are given. The base (2) shown here has a flat wireframe form and this wireframe form consists of multiple parallel and / or intersecting bars (21). The distance between the bars (21) is held equal with the distance between the bottom wires (12) of the rack (1) under the

base (2). In other words, when the base (2) is placed into the rack (1) there is one bottom wire (12) under each bar (21). Thus, it achieved that the water coming from the washing nozzles of the dishwasher can reach into the said kitchen utensils without any obstruction.

**[0015]** On the upper surface of the base (2) (on top of at least one bar (21)), there are multiple teeth (22) formed as recesses and protrusions. The glasses (3) are placed on the base (2) such that their head parts are between the teeth (22) (illustrated in Figures 8 - 9). By this way, during the movement of the rack (1), the glasses (3) are prevented from slipping.

**[0016]** On the bottom of the base (2), there is at least one hook (23). The bottom wires (12) are shrink fitted between these hooks (23) which have the ability to stretch. The base (2) is placed on the bottom of the rack (1) such that the bottom wires (12) enter between the hooks (23) of the base (2). When each of the bottom wires (12) has entered inside the longitudinal groove (26) formed by a hook (23), it is possible to move the base (2) a little bit back and forth due to the length of the groove (26). Also, the base (2) is prevented from slipping without control since the bottom wires (12) are shrink fitted to the hooks (23).

**[0017]** Different teeth (22) forms are shown in Figures 5 - 7. In accordance with these, the teeth (22) in which the head parts of the glasses (3) are inserted may be in triangular, circular, rectangular form or the combination of at least two of these forms.

**[0018]** As shown in Figures 8 - 9, when the glasses (3) are placed on the base (2), a more stable condition can be obtained by leaning the sides of the glasses (3) against the wires for placing plates (11) (for this to be possible, the bottom wires (12) next to the wires for placing plates (11) should be sloped towards wires for placing plates (11)).

**[0019]** Another important feature of the base (2) is its ability to open and close around an axis. As shown in Figure 10, on one side of the base (2), there is an insert with at least one snap fitting (25) which is fitted to the intermediate connection wire (15). The base (2) can be mounted to and removed from the intermediate connection wire (15) by these said snap fittings (25). The snap fittings (25) are shrink fitted to the intermediate connection wire (15) and the base (2) can make a rotational movement in this position with respect to the axis of the wire (15) and also can be moved back and forth along this wire (15) (or in other words along the axis of the wire (15)). The opened and closed positions of the base (2) as a result of this rotation are shown in Figures 11 - 13. As shown in Figure 13, when the base (2) is at the vertical position, it is between the glasses (3) and wires for placing plates (11) and therefore in the vertical position it does not cause a substantial loss of the usable volume.

**[0020]** Alternatively, at least one concave surface (24) has been formed under the base (2). This concave surface (24) sits in a balance manner on the two bottom wires (12) when the base (2) is open (in this position, the

edges (27) of the surface (24) is at equal distance to both bottom wires (12)). In other words, the said surface's (24) being concave and this surface's sitting on two bottom wires (12) makes it harder to slip on the bottom wires (12) when compared to bottom of the base (2) being flat. Also, since the kitchen utensils on the base (2) increase the weight, the functionality of the concave surfaces (24) increases. Thus, the base (2) prevented from moving back and forth without control.

**[0021]** As seen in Figures 11 and 13, the base (2) can take a position by rotating according to the use on the rack (2). The user, according to the glass (3) placement need, can provide a safe glass (3) placement in the rack (2) by using the base (2) in vertical position as shown in Figure 11 and 13. Therefore, when the base (2) is vertically positioned, the teeth (22) and wires for placing plates (11) intertwine and the base (2) is prevented from moving back and forth on the intermediate connection wire (15). Again, in this position (Figure 13), the glasses (3) (or the kitchen utensils) can be made stable by leaning the glasses (3) placed on the bottom wires (12) against the said concave surfaces (24) (glasses' (3) leaning against concave surfaces (24) results in less slipping when compared to leaning against flat surfaces). Therefore, the width of the base (2) and the bent of the wires (11, 12) should be suitable for this.

4. A base (2) according to Claim 1 **characterized in that** under the base (2), when the base (2) is in vertical position, there is at least one concave surface (24) against which the kitchen utensils lean.

5. A base (2) according to Claim 4 **characterized in that** when the base (2) is placed on the bottom wires (2), the edges (27) of the concave surface (24) is equally distanced to the two bottom wires (12).

## Claims

1. A base (2) which is mounted on the bottom wires (12) of a dishwasher rack (1); which comprises multiple bars (21) joined as a wireframe; and which comprises multiple teeth (22) shaped as recesses and protrusions between which kitchen utensils such as glasses are placed, wherein the teeth are placed on at least one bar (21); **characterized in that** each of the bars (21) are spaced such that they each are on a bottom wire (12); under the base (2), there is at least one hook (23) engaging the bottom wires (12); on one side of the base (2), there is at least one snap fitting (25) which is mounted on one of the intermediate connection wires (15) connecting the bottom wires (12); and in this position, the base (2) can make a rotational movement with respect to the axis of the wire (15) and can be moved back and forth along the wire (15).

2. A base (2) according to Claim 1 **characterized in that**, when the hooks (23) are mounted to the bottom wires (12), there is a longitudinal groove (26) in each hook (23) for the base (2) to be moved back and forth a little bit.

3. A base (2) according to Claim 1 **characterized in that** said hooks (23) can be shrink fitted to the bottom wires (12).

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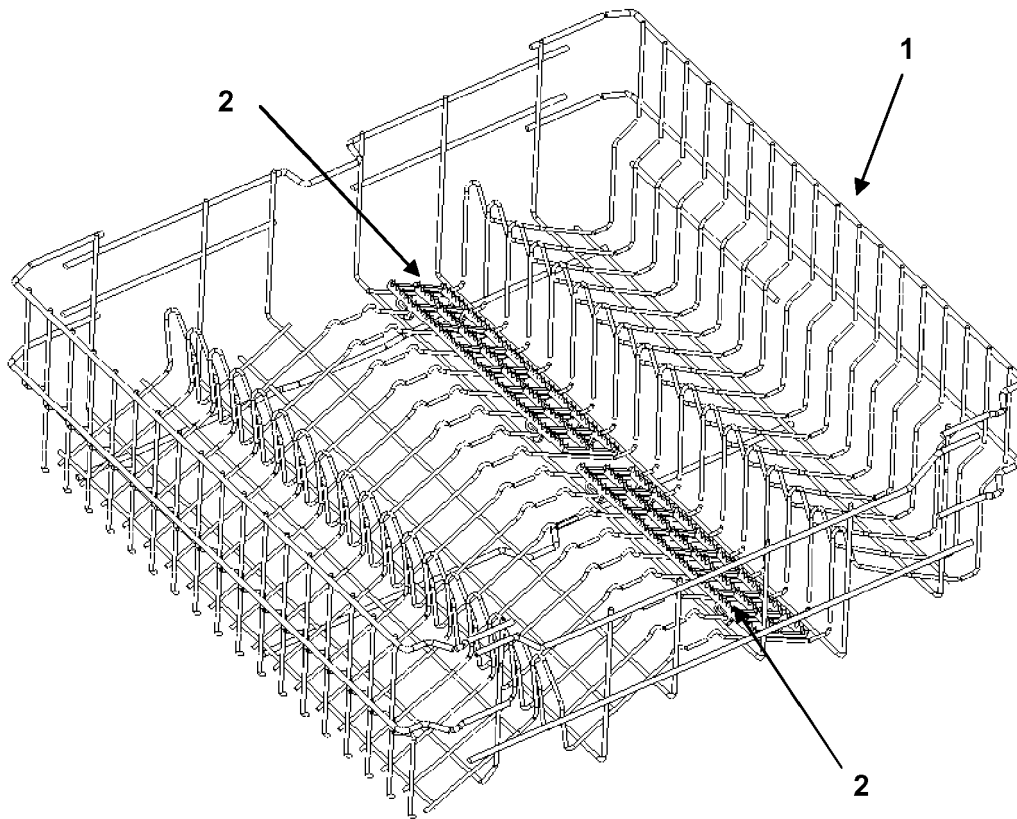


Figure – 1

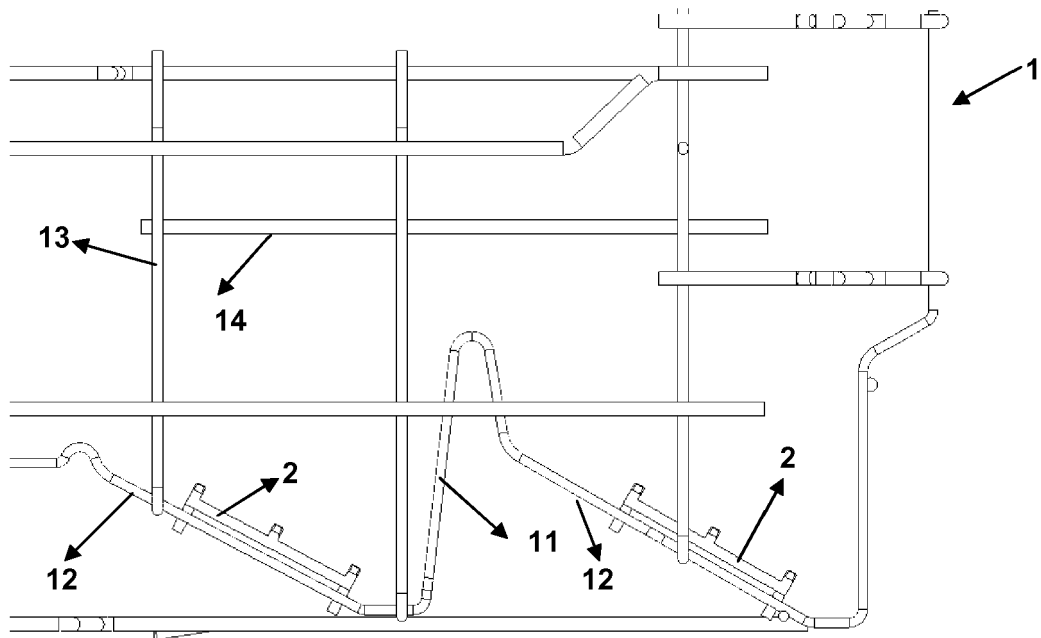


Figure – 2

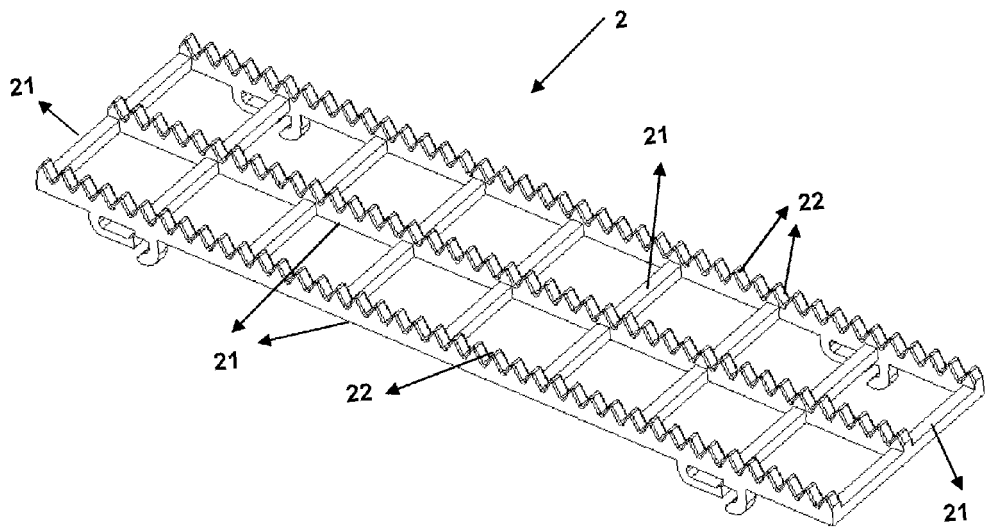


Figure - 3

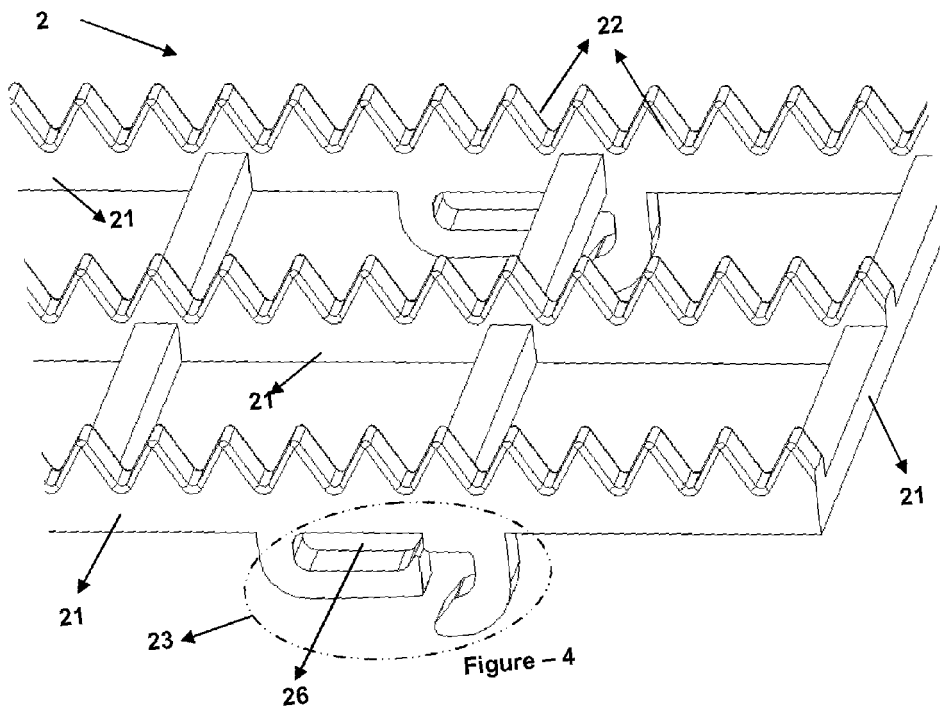


Figure - 4

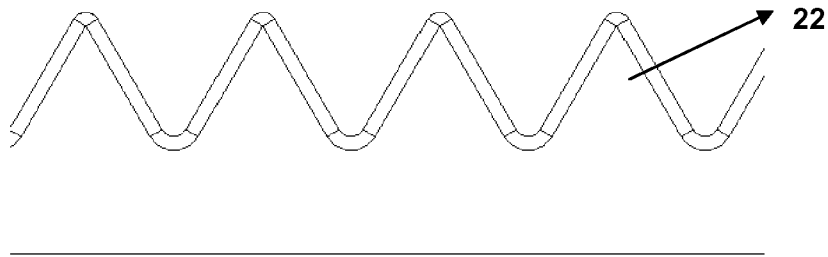


Figure – 5

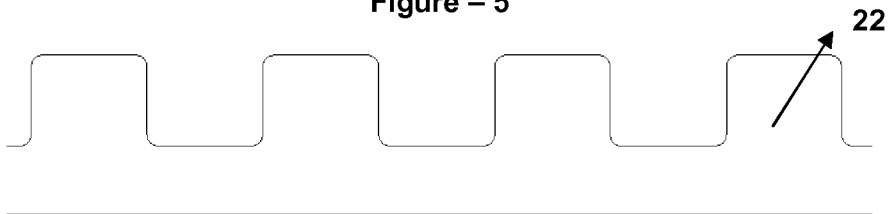


Figure – 6

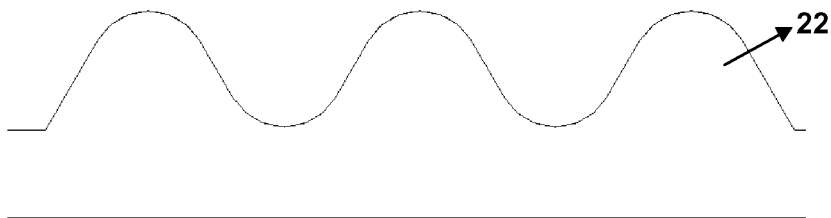


Figure – 7

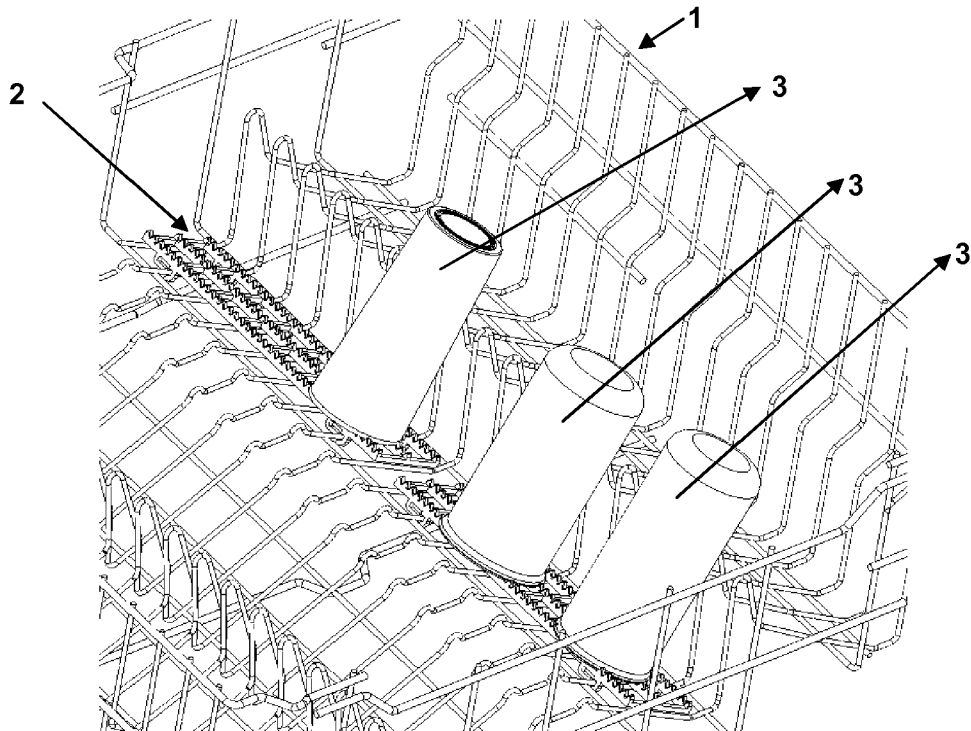


Figure – 8

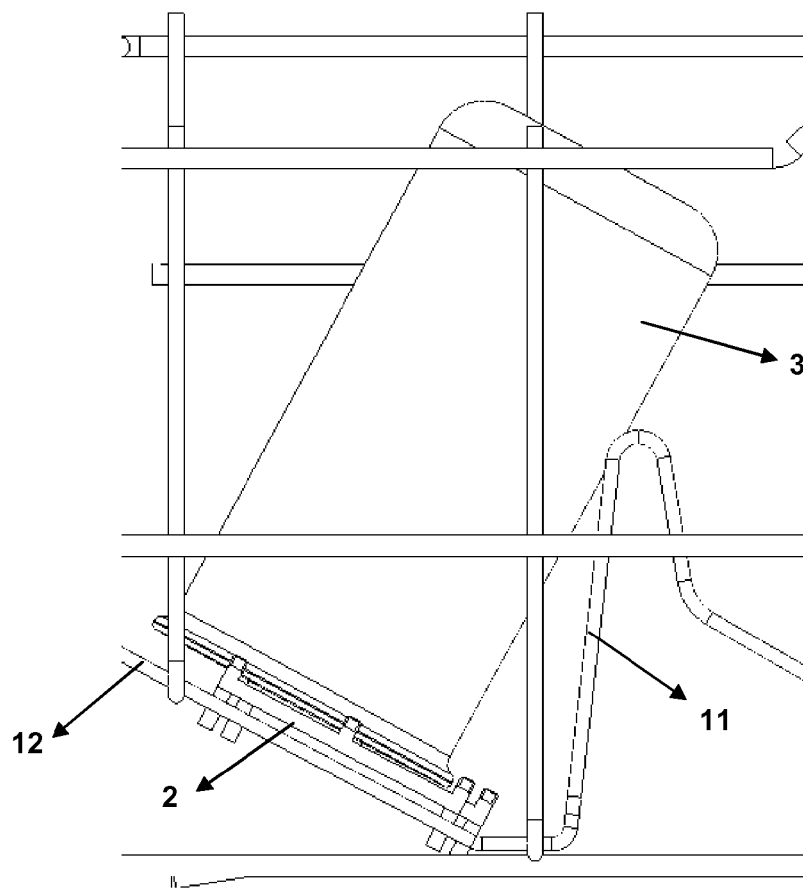


Figure - 9

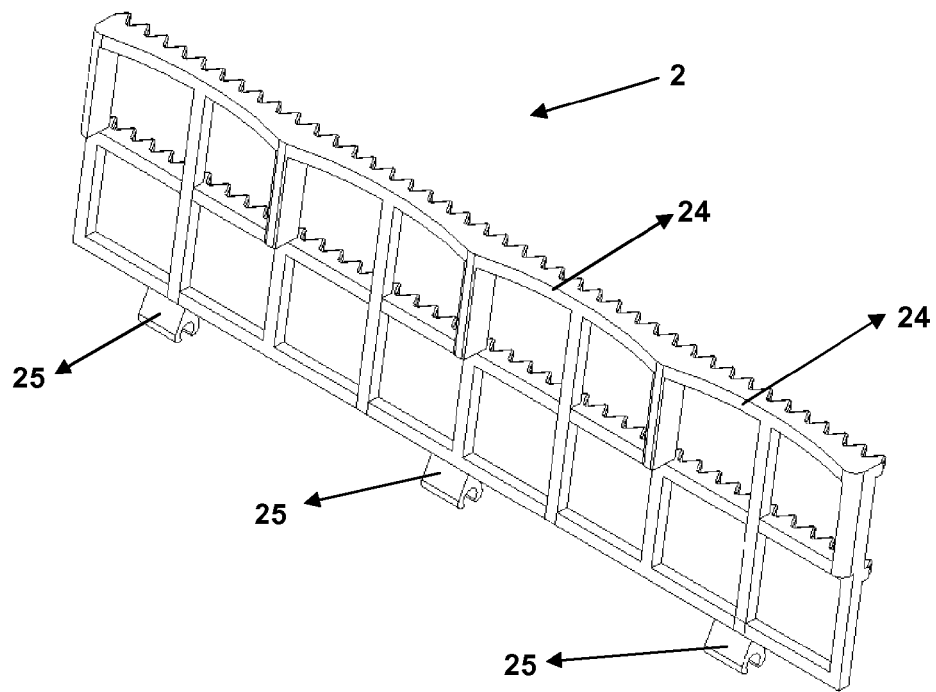


Figure - 10



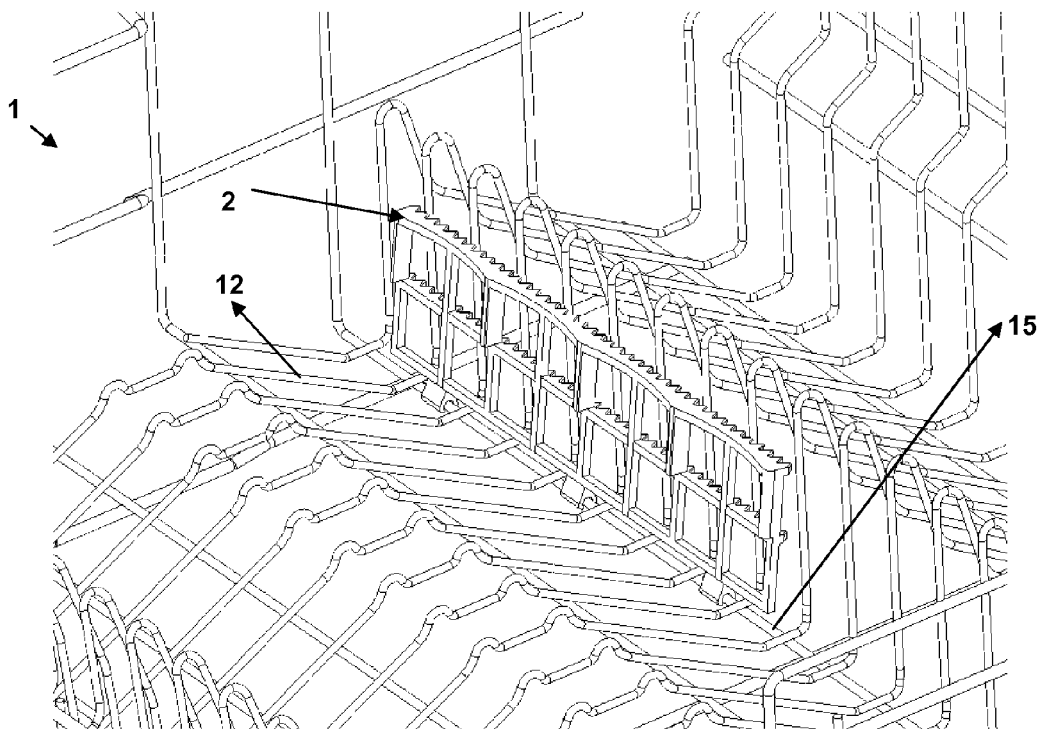


Figure - 11

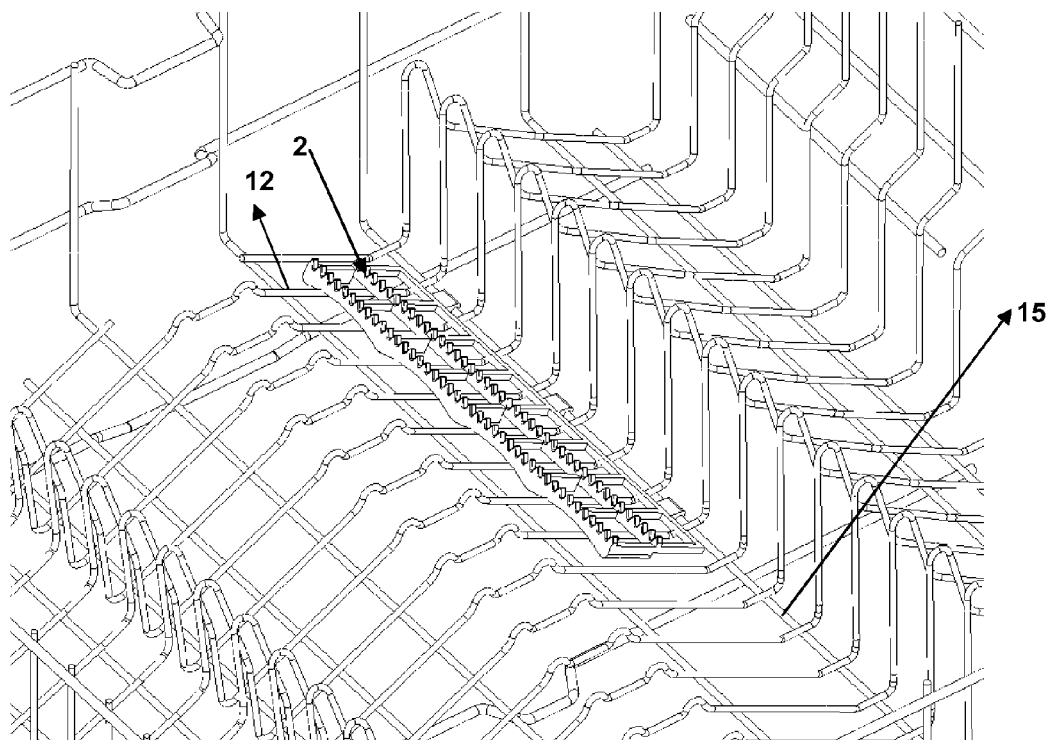


Figure- 12

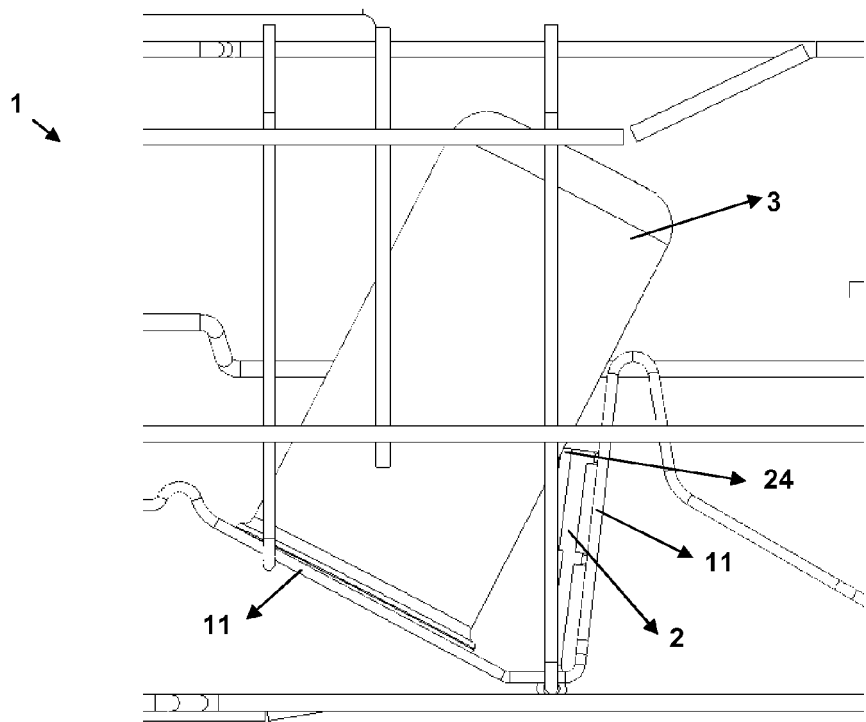


Figure – 13

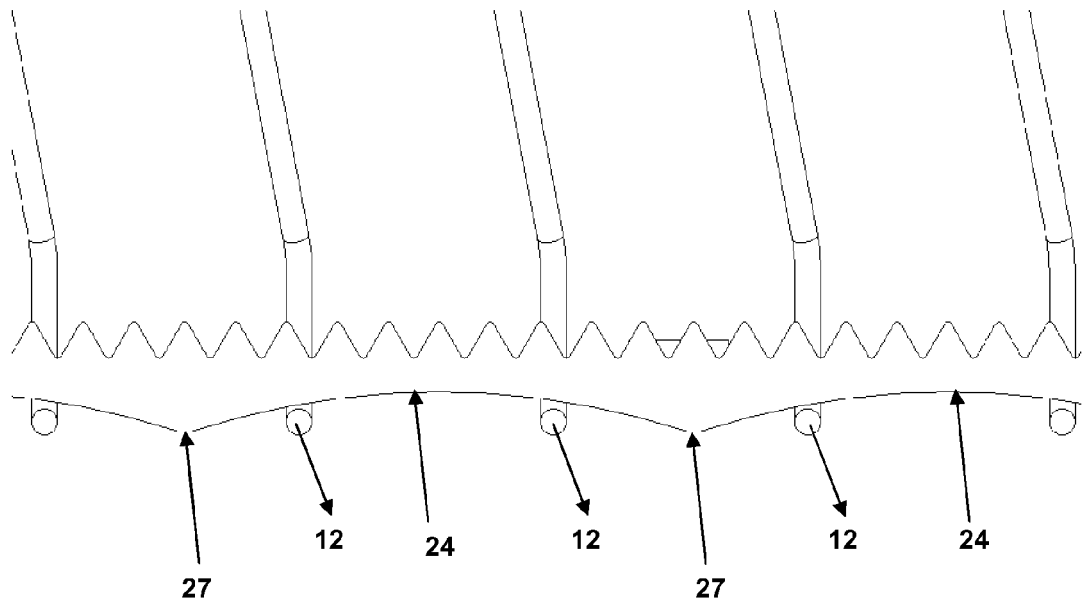


Figure – 14



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Application Number  
EP 09 15 9145

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 4 September 2009	Examiner Lodato, Alessandra
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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