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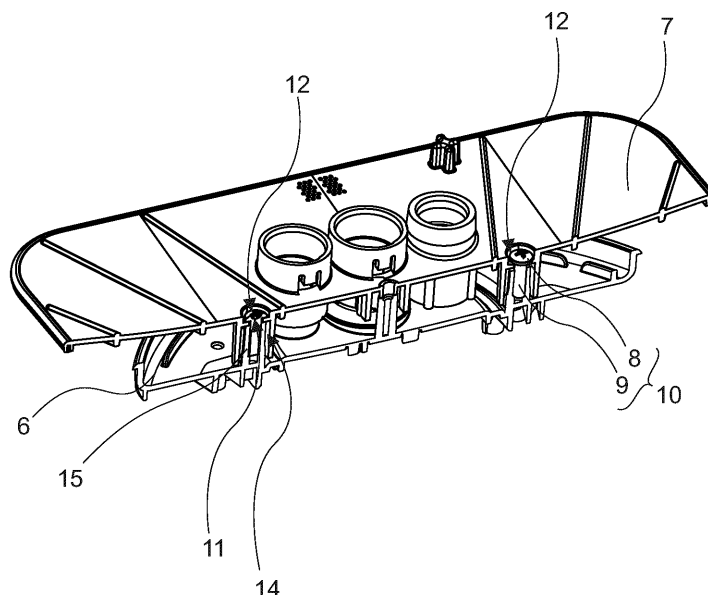
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(54) A DISHWASHER COMPRISING A FIXING MEMBER

(57) The present invention relates to a dishwasher (1) comprising a body (2); a washing tub (3) which is disposed in the body (2) and wherein the washing process is performed; at least one rack (4) which is disposed in the washing tub (3) and whereon the kitchen items are placed by the user; at least one spraying member (5) which sprays water onto the rack (4); a sump (6) which is disposed under the washing tub (3) and wherein the water leaving the washing tub (3) is collected; and a filter (7) which is disposed over the sump (6) and which retains the dirt residues removed from the kitchen items before

entering the sump (6). The dishwasher (1) further comprises at least one fixing member (10) which has a head portion (8) and a neck portion (9) and is attached over the filter so as to enable the filter (7) and the sump (6) to be fixed on the washing tub (3); at least one mounting hole (11) through which the fixing member (10) is attached on the filter (7); a housing (12) which is provided on the surface of the filter (7) and which receives the head portion (8); and one or more than one first elevation (13) which is arranged so as to allow the water flow through the housing (12).

Figure 4

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Description

[0001] The present invention relates to a dishwasher comprising a fixing member in the washing tub.

[0002] In dishwashers, kitchen items placed in racks in the washing tub are washed by means of water and detergent. Then, by means of spraying members, water is sent onto the kitchen items to remove the dirt. The dirt residues removed from the kitchen items move towards the bottom of the washing tub along with the water. The dirty water flowing into the sump located under the washing tub is discharged from the dishwasher by means of the discharge valve. In the state of the art, the filtering group used in the dishwasher is generally composed of a microfilter disposed in the sump where dirty water is collected and a filtering plate which performs prefiltering of the dirty water filling into the microfilter. During the washing of the kitchen items placed in the dishwasher, failing to effectively filter the food residues on the kitchen items decreases the performance of the dishwasher. The prefiltering process performed by the filtering plate is important in carrying almost all of the dirt residues to the microfilter. The filtering plate is placed and fixed on the base of the washing tub so as to be above the sump. In the state of the art, the fixing process is carried out by means of screws. However, since the screws used on the filter form a protruding structure, accumulation of dirt is observed around the same. The accumulation of dirt causes problems such as water not being able to flowing over time and the filter losing its function.

[0003] In the state of the art Patent Document No. KR100662156, a dishwasher is disclosed, wherein the filter and the sump are fixed with screws.

[0004] The aim of the present invention is the realization of a dishwasher with increased washing performance.

[0005] The dishwasher realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a body; a washing tub which is disposed in the body; at least one rack which is disposed in the washing tub; at least one spraying member which sprays water onto the rack; a sump which is disposed under the washing tub; and a filter which is disposed at the base of the washing tub so as to be above the sump. Water taken from the mains is delivered into the washing tub by means of the spraying member. The kitchen items are placed onto the racks disposed in the washing tub. By means of the water delivered by the spraying member, the kitchen items are cleaned. The dirty water flowing from the washing tub passes through the filter to be collected in the sump. Then, it is discharged from here.

[0006] The dishwasher of the present invention comprises a fixing member which is attached on the filter, a mounting hole which receives the fixing member, a housing, and one or more than one first elevation provided on the housing. The fixing member comprises a head portion and a neck portion. The head portion is fitted into the

housing on the filter. Upon entering the housing, the head portion get into contact with the first elevations.

[0007] In an embodiment of the present invention, the dishwasher comprises the mounting hole of which the diameter is larger than the diameter of the neck portion. Thus, the water flowing from the washing tub passes through the first elevations and then through the mounting hole.

[0008] In an embodiment of the present invention, the dishwasher comprises the first elevation which is disposed around the mounting hole. The water flowing into the housing moves forward without accumulating around the head portion of the fixing member by means of the first elevations. Then, it passes through the mounting hole.

[0009] In an embodiment of the present invention, the dishwasher comprises a cut-out which is provided under the housing and which opens into the sump, and a protrusion which is provided on the sump and which is fitted into the cut-out. The protrusion is fitted into the cut-out. Thus, the filter and the sump are joined together.

[0010] In an embodiment of the present invention, the dishwasher comprises the cut-out of which the diameter is larger than the diameter of the protrusion. Thus, when the protrusion is fitted into the cut-out, a gap is provided between the cut-out and the protrusion through which the water can pass. Thus, the water is prevented from accumulating at the mounting spaces.

[0011] In an embodiment of the present invention, the dishwasher comprises a mounting channel which is provided on the protrusion. The mounting channel is arranged longitudinally in the vertical plane on the protrusion. Thus, the neck portion of the fixing member, of which the head portion is fitted into the housing, is fitted in the mounting channel. Thus, the sump and the filter are enabled to be fixed to the washing tub.

[0012] In an embodiment of the present invention, the dishwasher comprises one or more than one second elevation provided on the surface of the protrusion which is in contact of the ceiling of the cut-out. By means of the second elevations, gaps are provided in the contact between the protrusion and the cut-out. The water is enabled to continue to flow through these gaps.

[0013] In an embodiment of the present invention, the dishwasher comprises the mounting channel of which the diameter is configured to completely surround the neck portion. The mounting channel enables the neck portion to be fixed without any gaps.

[0014] In an embodiment of the present invention, the dishwasher comprises the housing, the mounting hole and the mounting channel which are concentric in the vertical plane. The fixing member is attached through the mounting hole. The head portion remains on the housing, and the neck portion is fixed in the mounting channel.

[0015] In an embodiment of the present invention, the dishwasher comprises the first elevation and the second elevation which are positioned so as not to overlap each other when the fixing member is attached on the filter. Thus, the water is enabled to move in the vertical plane

through the elevations to be delivered to the sump.

[0016] By means of the present invention, a dishwasher is realized, comprising a fixing member which is attached onto the filter so as to prevent any dirt or dirt water accumulation, and which enables the sump to be fixed in the washing tub.

[0017] A dishwasher realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the perspective view of the dishwasher.

Figure 2 - is the perspective view of the washing tub, the filter and the sump.

Figure 3 - is the top view of the washing tub and the filter.

Figure 4 - is the cross-sectional view of the sump and the fixing member.

Figure 5 - is the cross-sectional view of the filter, the sump and the elevations.

[0018] The elements illustrated in the figures are numbered as follows.

- 1- Dishwasher
- 2- Body
- 3- Washing tub
- 4- Rack
- 5- Spraying member
- 6- Sump
- 7- Filter
- 8- Head portion
- 9- Neck portion
- 10- Fixing member
- 11- Mounting hole
- 12- Housing
- 13- First elevation
- 14- Cut-out
- 15- Protrusion
- 16- Mounting channel
- 17- Second elevation

[0019] The dishwasher (1) comprises a body (2); a

washing tub (3) which is disposed in the body (2) and wherein the washing process is performed; at least one rack (4) which is disposed in the washing tub (3) and whereon the kitchen items are placed by the user; at least one spraying member (5) which sprays water onto the rack (4); a sump (6) which is disposed under the washing tub (3) and wherein the water leaving the washing tub (3) is collected; and a filter (7) which is disposed over the sump (6) and which retains the dirt residues removed from the kitchen items before entering the sump (6). The kitchen items are placed onto the rack (4). By means of the water delivered by the spraying member (5), the kitchen items are cleaned. The dirty water flowing from the kitchen items is collected on the sump (6). Before reaching the sump (6), the dirty water passes through the filter (7) provided at the base of the washing tub (3) so as to be over the sump (6). Thus, the dirt particles are prevented from reaching the sump (6).

[0020] The dishwasher (1) of the present invention comprises at least one fixing member (10) which has a head portion (8) and a neck portion (9) and which is attached over the filter so as to enable the filter (7) and the sump (6) to be fixed on the washing tub (3); at least one mounting hole (11) through which the fixing member (10) is attached on the filter (7); a housing (12) which is provided on the surface of the filter (7) and which receives the head portion (8); and one or more than one first elevation (13) which is arranged so as to allow the water flow through the housing (12). The fixing member (10) is composed of a head portion (8) and a neck portion (9). The head portion (8) is fitted into the housing (12) on the filter (7). The neck portion (9) passes through the mounting hole (11). When on the housing (12), the lower surface of the head portion (8) contacts the first elevations (13). Thus, the head portion (8) is prevented from completely entering the housing (12). By means of the gaps remaining between the first elevations (13), the water flow is enabled to continue. Thus, water and dirt accumulation around the fixing member (10) is prevented and the efficiency of the filter (7) is increased.

[0021] In an embodiment of the present invention, the dishwasher (1) comprises the mounting hole (11) of which the diameter is larger than the diameter of the neck portion (9). When the fixing member (10) is fitted into the housing (12), only the head portion (8) thereof comes into contact with the first elevations (13). The neck portion (9) does not contact the mounting hole (11) peripherally. Thus, the flowing water is enabled to flow down between the neck portion (9) and the mounting hole (11).

[0022] In an embodiment of the present invention, the dishwasher (1) comprises the first elevation (13) which is disposed around the mounting hole (11). The first elevations (13) are disposed at intervals around the mounting hole (11). Thus, the head portion (8) bears against the first elevations (13) and the water flow is allowed through the gaps therebetween.

[0023] In an embodiment of the present invention, the dishwasher (1) comprises a cut-out (14) which is pro-

vided under the housing (12) and which opens into the sump (6), and a protrusion (15) which is provided on the sump (6) and which is fitted into the cut-out (14). By means of the protrusion (15) being fitted into the cut-out (14), the sump (6) and the filter (7) are fixed to each other.

[0024] In an embodiment of the present invention, the dishwasher (1) comprises the cut-out (14) of which the diameter is larger than the diameter of the protrusion (15). The diameter of the cut-out (14) is larger than the diameter of the cut-out (15). Thus, the water flowing through the mounting hole (11) continues to flow through the gap between the cut-out (14) and the protrusion (15). Thus, the water and the dirt residues are prevented from accumulating at the mounting details.

[0025] In an embodiment of the present invention, the dishwasher (1) comprises a mounting channel (16) which is arranged in the vertical plane on the protrusion (15) and which receives the neck portion (9). The neck portion (9) of the fixing member (10) is fixed into the mounting channel (16) provided in the vertical plane on the protrusion (15). Thus, the filter (7) and the sump (6) are fixed into the washing tub (3).

[0026] In an embodiment of the present invention, the dishwasher (1) comprises one or more than one second elevation (17) provided on the surface of the protrusion (15) which is in contact of the ceiling of the cut-out (14). The second elevations (17) are provided on the upper surface of the protrusion (15) which is in contact with the cut-out (14). Thus, there is no full superficial contact between the ceiling of the cut-out (14) and the protrusion (15). By means of the second elevations (17), the water is enabled to continue to flow through the gaps.

[0027] In an embodiment of the present invention, the dishwasher (1) comprises the mounting channel (16) of which the diameter is almost equal to the diameter of the neck portion (9) so as to completely surround the neck portion (9). The mounting channel (16) completely surrounds the neck portion (9), thus providing the fixing of the mounting components.

[0028] In an embodiment of the present invention, the dishwasher (1) comprises the housing (12), the mounting hole (11) and the mounting channel (16) which are concentric in the vertical plane. The fixing member (10) passes into the mounting hole (11) through the housing (12), and from there, passes through the cut-out (14) so as to enter in the mounting channel (16) on the protrusion (15). Thus, the filter (7) and the sump (6) are enabled to be fixed in the vertical plane.

[0029] In an embodiment of the present invention, the dishwasher (1) comprises the first elevation (13) and the second elevation (17) which are positioned so as not to overlap each other when the fixing member (10) is fixed such that one end thereof is on the filter (7) and the other end on the sump (6). When the fixing member (10) is on the filter (7) and the sump (6), the first elevation (16) and the second elevation (17) do not overlap with each other. Thus, the water flowing through the mounting hole (11)

passes through the gap between the cut-out (14) and the protrusion (15) and reaches the sump (6).

[0030] By means of the present invention, a dishwasher (1) is realized, comprising a fixing member (10) which enables the filter (7) and the sump (6) to be fixed onto the washing tub (3) such that the water flow is not blocked. By means of the first elevations (13) and the second elevations (17), there is no surface contact and the water is enabled to flow into the sump (6) without being blocked or without accumulating.

Claims

1. A dishwasher (1) **comprising** a body (2); a washing tub (3) which is disposed in the body (2) and wherein the washing process is performed; at least one rack (4) which is disposed in the washing tub (3) and wherein the kitchen items are placed by the user; at least one spraying member (5) which sprays water onto the rack (4); a sump (6) which is disposed under the washing tub (3) and wherein the water leaving the washing tub (3) is collected; and a filter (7) which is disposed over the sump (6) and which retains the dirt residues removed from the kitchen items before entering the sump (6), **characterized by** at least one fixing member (10) which has a head portion (8) and a neck portion (9) and which is attached over the filter so as to enable the filter (7) and the sump (6) to be fixed on the washing tub (3); at least one mounting hole (11) through which the fixing member (10) is attached on the filter (7); a housing (12) which is provided on the surface of the filter (7) and which receives the head portion (8); and one or more than one first elevation (13) which is arranged so as to allow the water flow through the housing (12).
2. A dishwasher (1) as in Claim 1, **characterized by** the mounting hole (11) of which the diameter is larger than the diameter of the neck portion (9).
3. A dishwasher (1) as in Claim 2, **characterized by** the first elevation (13) which is disposed around the mounting hole (11).
4. A dishwasher (1) as in any one of the above claims, **characterized by** a cut-out (14) which is provided under the housing (12) and which opens into the sump (6), and a protrusion (15) which is provided on the sump (6) and which is fitted into the cut-out (14).
5. A dishwasher (1) as in Claim 4, **characterized by** the cut-out (14) of which the diameter is larger than the diameter of the protrusion (15).
6. A dishwasher (1) as in Claim 4 or Claim 5, **characterized by** a mounting channel (16) which is arranged in the vertical plane on the protrusion (15)

and which receives the neck portion (9).

7. A dishwasher (1) as in any one of Claim 4 to Claim 6,
characterized by one or more than one second
elevation (17) provided on the surface of the protrusion (15) which is in contact of the ceiling of the cut-out (14). 5
8. A dishwasher (1) as in Claim 6 or Claim 7, **characterized by** the mounting channel (16) of which the
diameter is almost equal to the diameter of the neck
portion (9) so as to completely surround the neck
portion (9) 10
9. A dishwasher (1) as in any one of Claim 6 to Claim 8, 15
characterized by the housing (12), the mounting
hole (11) and the mounting channel (16) which are
concentric in the vertical plane.
10. A dishwasher (1) as in any one of Claim 7 to Claim 9, 20
characterized by the first elevation (13) and the
second elevation (17) which are positioned so as
not to overlap each other when the fixing member
(10) is fixed such that one end thereof is on the filter
(7) and the other end on the sump (6). 25

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Figure 1

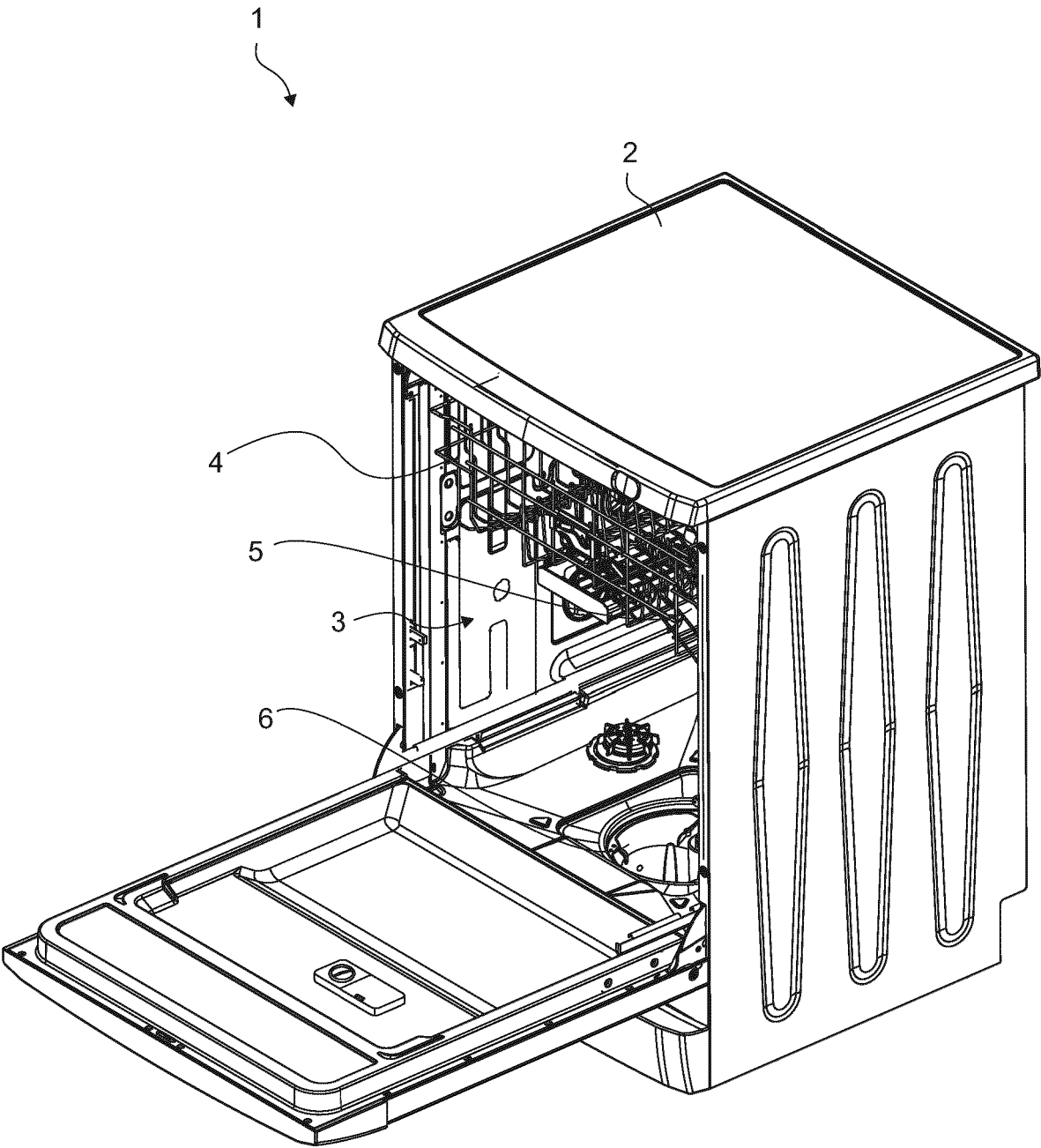


Figure 2

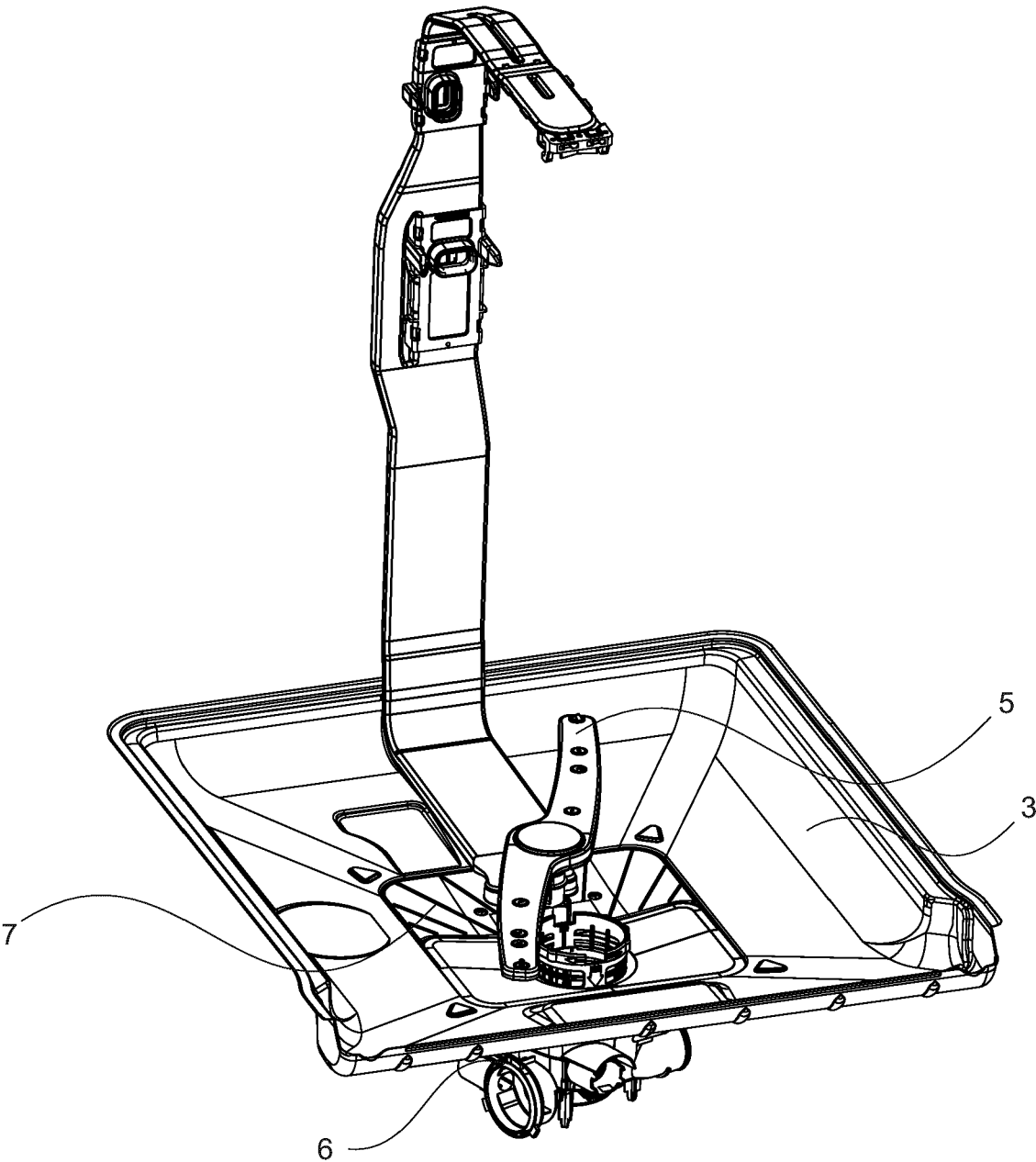


Figure 3

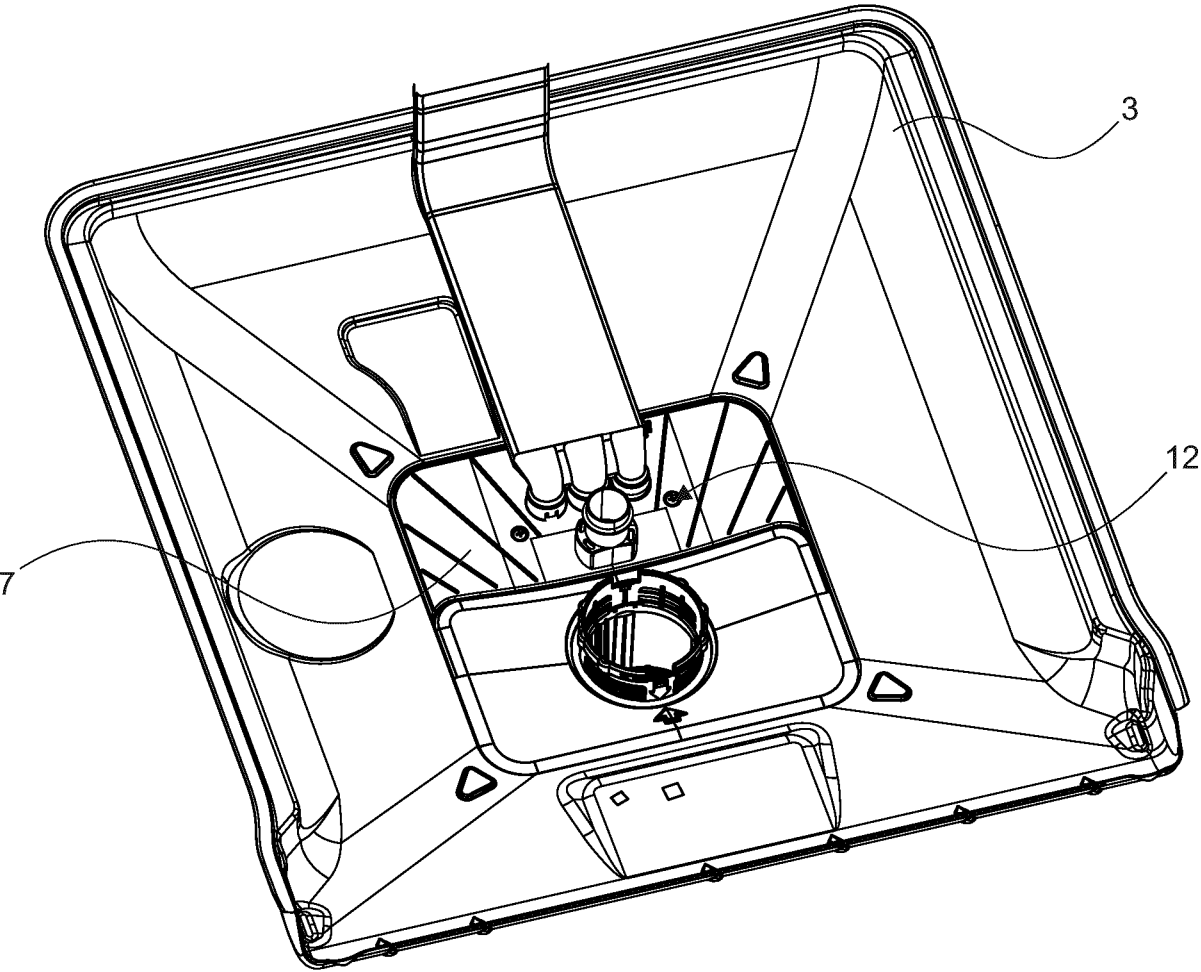


Figure 4

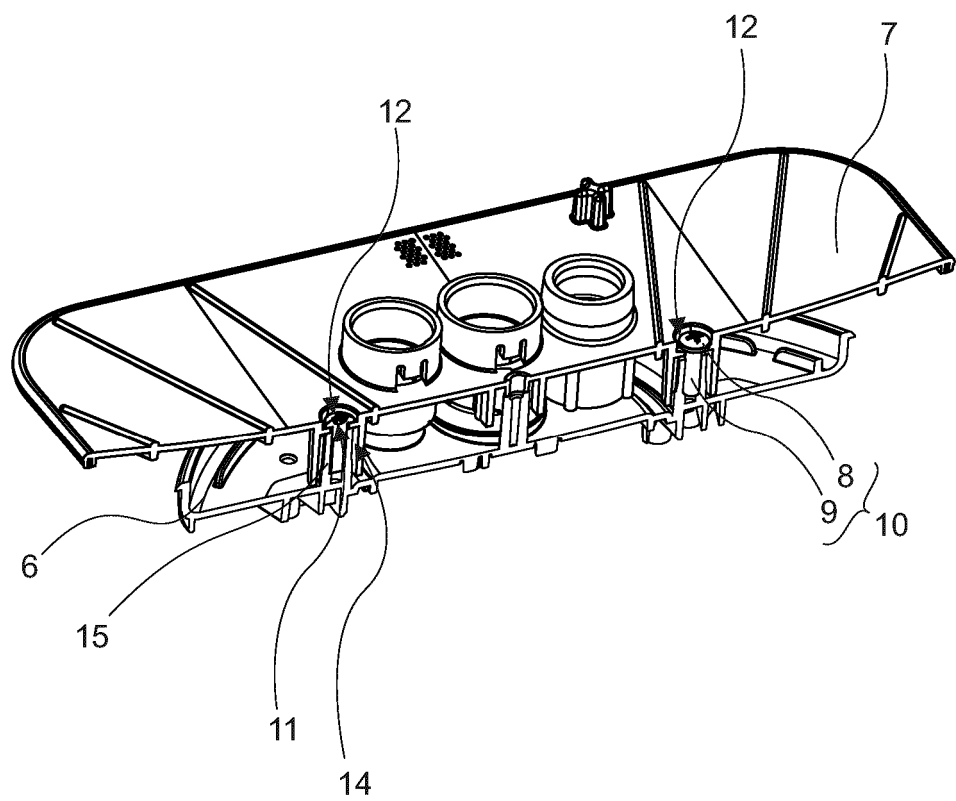
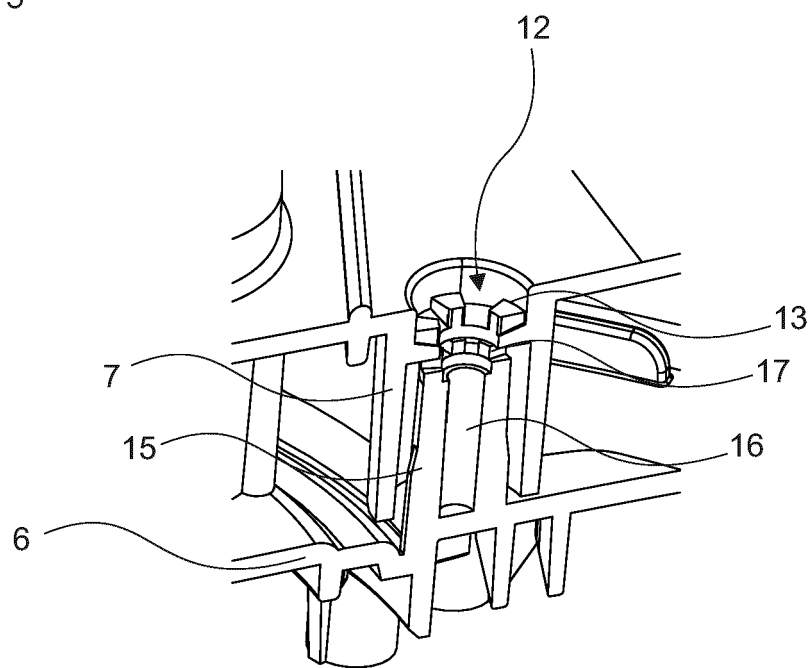


Figure 5





EUROPEAN SEARCH REPORT

Application Number

EP 24 20 1947

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Place of search Munich		Date of completion of the search 18 February 2025	Examiner Prosig, Christina
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