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(54) A DISHWASHER COMPRISING A GEAR

GESCHIRRSPÜLMASCHINE MIT EINEM GETRIEBE

LAVE-VAISSELLE COMPRENANT UN ENGRENAGE

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Description

[0001] The present invention relates to a dishwasher comprising a gear.

[0002] In dishwashers, dirty kitchen items are placed onto the racks. The water is delivered onto the dirty kitchen items placed onto the racks by means of the spray arms. The water is delivered to the spray arms by means of the circulation pump. However, a mechanical water guiding valve is used to guide the water to different spray arms at different times. The dirt particles removed from the kitchen items with the pressure of the sprayed water sometimes scatter in the washing tub without being dissolved and leave the tub with the guidance of the water. The dirt particles leaving the tub are retained by means of the strainer, microfilter and the coarse filter structures provided on the base of the tub. Thus, the dirt particles are prevented from entering the water line and clogging the water line. The dirt particles retained by the strainer, the microfilter and the coarse filter structures accumulate there in the course of time, preventing a clean washing of the dishes. Therefore, the strainer, the microfilter and the coarse filter structures are removed from the washing tub and cleaned by the user at certain intervals. The same components are replaced after the washing process and the washing programs are run. However, when the strainer, the microfilter and the coarse filter structures are not properly mounted or are damaged, the filtering process cannot be efficiently realized. This causes the spray arms, the circulation pump and the mechanical valves to get clogged, and the gears to get damaged.

[0003] In the state of the art European Patent Application No. EP3222193, a dishwasher is disclosed, wherein a mechanism water guiding valve is used.

[0004] Document US 2013/092188 A1 discloses a washing machine with a triturating device placed between a filter and a recirculation pump.

[0005] The aim of the present invention is the realization of a dishwasher with improved washing efficiency.

[0006] The dishwasher realized in order to attain the aim of the present invention, explicated in the first claim and the dependent claims thereof, comprises a body; a washing tub which is provided in the body; a filter group which filters the dirt particles in the washing tub; a plurality of spray arms which are disposed in the washing tub and which provide the delivery of the water to the kitchen items; a circulation pump which provides the delivery of the water to the spray arms; and a mechanical water guiding valve which enables the water to be guided to the desired spray arm. By means of the circulation pump, the water filtered by the filter group is delivered to the spray arms via the mechanical water guiding valve. The filter group comprises a main strainer at the base of the washing tub, and a microfilter and a coarse filter which are provided under the main strainer. Thus, the dirt particles in the washing tub are filtered.

[0007] The dishwasher of the present invention comprises the mechanical water guiding valve having a gear group composed of a plurality of gears which provide the disintegration of the dirt particles. By means of the gears disintegrating the dirt particles, the dirt particles passing through the filter group are prevented from damaging the mechanical water guiding valve. Thus, the spray arms are prevented from getting clogged, improving the washing efficiency.

[0008] In a preferred embodiment of the present invention, the dishwasher comprises an inclined channel which is provided on the gear between the teeth. By means of the inclined channels between the teeth, the dirt particles are prevented from getting stuck between the gears.

[0009] In a preferred embodiment of the present invention, the dishwasher comprises the gear having the stepped channel. The thickness of the gear decreases towards the ends. By means of the stepped channels between the teeth, the dirt particles are prevented from getting stuck between the gears. Thus, the gears are prevented from getting damaged.

[0010] In a preferred embodiment of the present invention, the dishwasher comprises the gear having at least one sharp surface provided on the channel. The sharp surface is formed by means of the stepped form on a gear surface closest to the other gear. By means of the sharp surface, the dirt particles entering the channel are enabled to leave the mechanical water guiding valve.

[0011] In a preferred embodiment of the present invention, the dishwasher comprises the gear having the channel with an angle between 3 degrees and 90 degrees. By means of the large angle of the channel, the dirt particles are enabled to leave the gear group.

[0012] By means of the present invention, a dishwasher is realized, wherein the washing efficiency is improved by means of the gear group removing the dirt particles which cannot be filtered by the filter group from the mechanical water guiding valve.

[0013] 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 schematic view of the washing tub, the filter group and the gear group.
Figure 3 - is the top view of the gears.
Figure 4 - is the cross-sectional view of the gears.

[0014] The elements illustrated in the figures are numbered as follows:

1. Dishwasher
2. Body
3. Washing tub
4. Main strainer
5. Microfilter
6. Coarse filter
7. Filter group
8. Spray arm
9. Circulation pump

10. Mechanical water guiding valve
11. Gear
12. Gear group
13. Channel
14. Sharp surface

[0015] The dishwasher (1) comprises a body (2); a washing tub (3) which is provided in the body (2) and wherein the washing process is performed; a filter group (7) provided at the base of the washing tub (3) and having a main strainer (4) which strains the dirt particles breaking off from the kitchen items placed into the washing tub (3) and a microfilter (5) and a coarse filter (6) which are positioned under the main strainer (4); a plurality of spray arms (8) which provide the delivery of water to the kitchen items in the washing tub (3); a circulation pump (9) which enables the water to be guided to the spray arms (8); and a mechanical water guiding valve (10) which enables the water to be guided to the desired spray arms (8) in order. The dirt particles removed from the kitchen items are retained by the filter group (7). The water cleansed of dirt particles by passing through the filter group (7) is delivered back to the spray arms (8) by means of the circulation pump (9). The mechanical water guiding valve (10) is used to guide the water to the desired spray arm (8).

[0016] The dishwasher (1) of the present invention comprises the mechanical water guiding valve (10) having a gear group (12) composed of a plurality of gears (11) which provide the disintegration of the dirt particles that cannot be filtered by the filter group (7). The dirt particles that cannot be filtered by the filter group (7) are delivered to the gear group (12). As the gears (11) move together, the dirt particles are enabled to be disintegrated and to leave the mechanical water guiding valve (10).

[0017] In an embodiment of the present invention, the dishwasher (1) comprises an inclined channel (13) which is provided on the gear (11) between the teeth. By means of the inclined form of the channel (13), the dirt particles are prevented from accumulating on the gear (11). The disintegrated dirt particles leave the mechanical water guiding valve (10) thanks to the inclination.

[0018] In an embodiment of the present invention, the dishwasher (1) comprises the stepped channel (13) which is provided between the teeth. By means of the stepped form, the dirt particles are enabled to leave the mechanical water guiding valve (10) without getting stuck on the gear (11). Thus, the dirt particles are prevented from reaching the spray arms (8), improving the washing efficiency.

[0019] In an embodiment of the present invention, the dishwasher (1) comprises the gear (11) having at least one sharp surface (14) provided at the edges of the channel (13). The sharp surface (14) can be obtained by the inclined or horizontal form. By means of the sharp surfaces (14) of the edges, the dirt particles with a wider surface area are enabled to be more easily disintegrated and leave the mechanical water guiding valve (10).

[0020] In an embodiment of the present invention, the dishwasher (1) comprises the channel (13) with an angle value of approximately between 3 degrees and 90 degrees. By means of the larger angle of the channel (13), ease of production is provided.

[0021] By means of the present invention, the dirt particles are prevented from being delivered to the spray arms (8) thanks to the inclined and/or stepped form of the channels (13). Thus, the risk of malfunction is eliminated, and the washing efficiency is improved.

Claims

1. A dishwasher (1) comprising a body (2); a washing tub (3) which is provided in the body (2) and wherein the washing process is performed; a filter group (7) provided at the base of the washing tub (3) and having a main strainer (4) which strains the dirt particles breaking off from the kitchen items placed into the washing tub (3) and a microfilter (5) and a coarse filter (6) which are positioned under the main strainer (4); a plurality of spray arms (8) which provide the delivery of water to the kitchen items in the washing tub (3); a circulation pump (9) which enables the water to be guided to the spray arms (8); and a mechanical water guiding valve (10) which enables the water to be guided to the desired spray arms (8) in order, **characterized by** the mechanical water guiding valve (10) having a gear group (12) composed of a plurality of gears (11) which provide the disintegration of the dirt particles that cannot be filtered by the filter group (7).

2. A dishwasher (1) as in Claim 1, **characterized by** an inclined channel (13) which is provided on the gear (11) between the teeth.

3. A dishwasher (1) as in Claim 2, **characterized by** the stepped channel (13) which is provided between the teeth.

4. A dishwasher (1) as in Claim 2 or Claim 3, **characterized by** the gear (11) having at least one sharp surface (14) provided at the edges of the channel (13).

5. A dishwasher (1) as in any one of the above claims, **characterized by** the channel (13) with an angle value of approximately between 3 degrees and 90 degrees.

Patentansprüche

1. Eine Spülmaschine (1) **umfasst** einen Körper (2), eine Waschwanne (3), die in dem Körper (2) vorgesehen ist und in der der Waschprozess durchgeführt wird; eine am Boden der Waschwanne (3) vorgese-

hene Filtergruppe (7) mit einem Hauptsieb (4), der die von den in die Waschwanne (3) eingebrachten Küchenartikel abbrechenden Schmutzpartikel absiebt; ein Mikrofilter (5) und ein Grobfilter (6), die unter dem Hauptsieb (4) angeordnet sind; eine Vielzahl von Sprüharmen (8), die die Abgabe von Wasser an die Küchenartikel in der Waschwanne (3) bewirken; eine Umwälzpumpe (9), die es ermöglicht, das Wasser zu den Sprüharmen (8) zu leiten; und ein mechanisches Wasserführungsventil (10), das es ermöglicht, das Wasser der Reihe nach zu den gewünschten Sprüharmen (8) zu leiten, **gekennzeichnet ist sie dadurch,** dass das mechanische Wasserführungsventil (10) eine aus mehreren Zahnrädern (11) bestehende Getriebegruppe (12) aufweist, die für die Zerkleinerung der von der Filtergruppe (7) nicht filtrierbaren Schmutzpartikel sorgen.

2. Eine Spülmaschine (1), wie in Anspruch 1 aufgeführt, **ist dadurch gekennzeichnet, dass** ein geneigter Kanal (13) auf dem Zahnrad (11) zwischen den Zähnen vorgesehen ist.

3. Eine Spülmaschine (1), wie in Anspruch 2 aufgeführt, **ist dadurch gekennzeichnet, dass** ein Stufenkanal (13) zwischen den Zähnen vorgesehen ist.

4. Eine Spülmaschine (1), wie in Anspruch 2 oder 3 aufgeführt, **ist dadurch gekennzeichnet, dass** das Zahnrad (11) mindestens eine scharfe Oberfläche (14) aufweist, die an den Rändern des Kanals (13) vorgesehen ist.

5. Eine Spülmaschine (1), wie in einem der vorherigen Ansprüchen aufgeführt, **ist dadurch gekennzeichnet, dass** der Kanal (13) einen Winkelwert von etwa zwischen 3 Grad und 90 Grad aufweist.

Revendications

1. Un lave-vaisselle (1) **comprenant** un corps (2) ; une baignoire de lavage (3) qui est prévue dans le corps (2) et dans laquelle le processus de lavage est effectué ; un groupe de filtres (7) prévu à la base de la baignoire de lavage (3) et ayant une crépine principale (4) qui filtre les particules de saleté se détachant des articles de cuisine placés dans la baignoire de lavage (3) et un microfiltre (5) et un filtre grossier (6) qui sont positionnés sous la crépine principale (4) ; une pluralité de bras d'aspersion (8) qui assurent la distribution de l'eau aux articles de cuisine dans la baignoire de lavage (3) ; une pompe de circulation (9) qui permet de guider l'eau vers les bras de pulvérisation (8) ; et une vanne mécanique de guidage d'eau (10) qui permet à l'eau d'être guidée vers les bras de pulvérisation souhaités (8) dans l'ordre, **caractérisé en ce que** la vanne mécanique de guidage d'eau (10) a un groupe d'engrenages (12) composé d'une pluralité d'engrenages (11) qui assurent la désintégration des particules de saleté qui ne peuvent pas être filtrées par le groupe de filtre (7).

2. Lave-vaisselle (1) selon la Déclaration 1, **caractérisé par** un canal incliné (13) qui est prévu sur l'engrenage (11) entre les dents.

3. Lave-vaisselle (1) selon la Déclaration 1, **caractérisé par** le canal étagé (13) qui est prévu entre les dents.

4. Lave-vaisselle (1) selon la Déclaration 2 ou la Déclaration 3, **caractérisé en ce que** l'engrenage (11) a au moins une surface tranchante (14) prévue sur les bords du canal (13).

5. Lave-vaisselle (1) comme dans l'une quelconque des Déclarations précédentes, **caractérisé par** le canal (13) avec une valeur angulaire d'environ entre 3 degrés et 90 degrés.

Figure 1

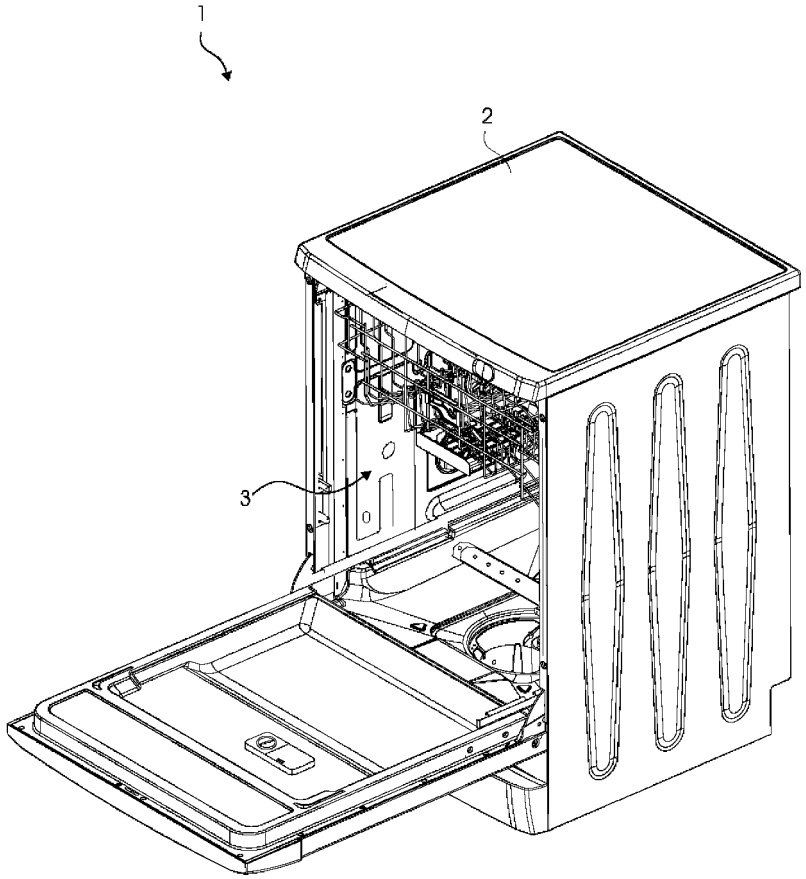


Figure 2

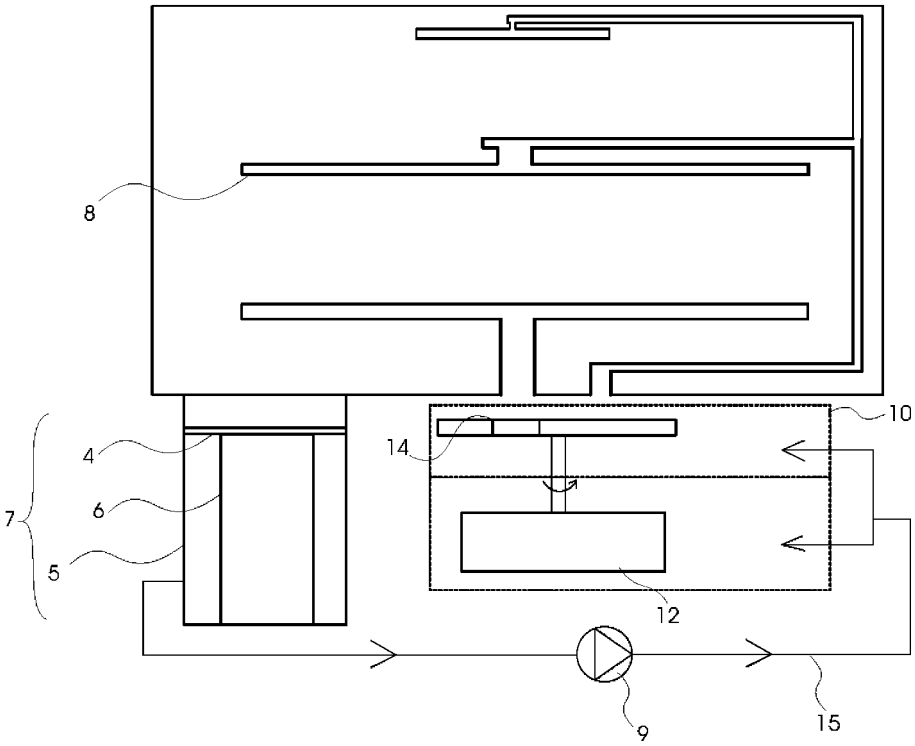


Figure 3

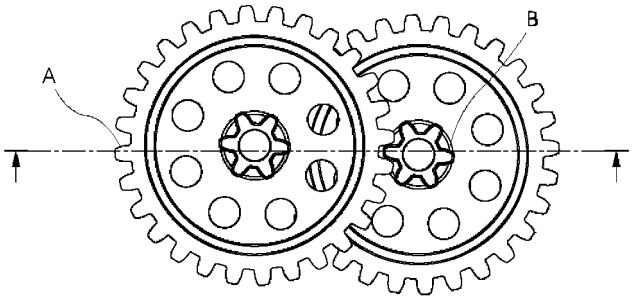


Figure 4

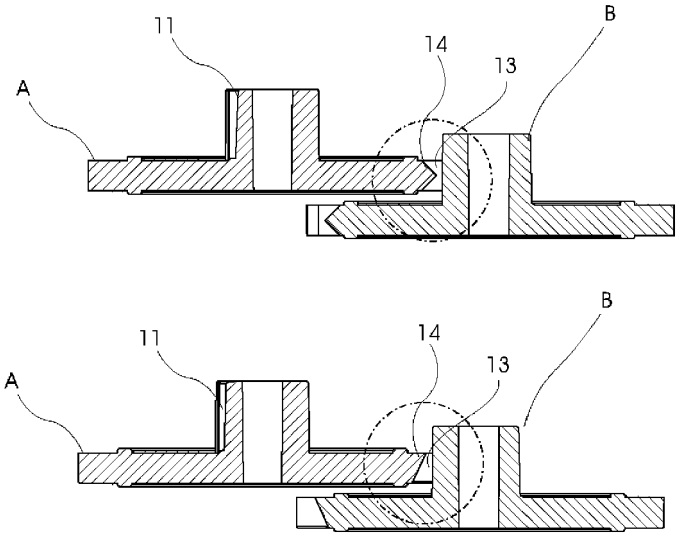
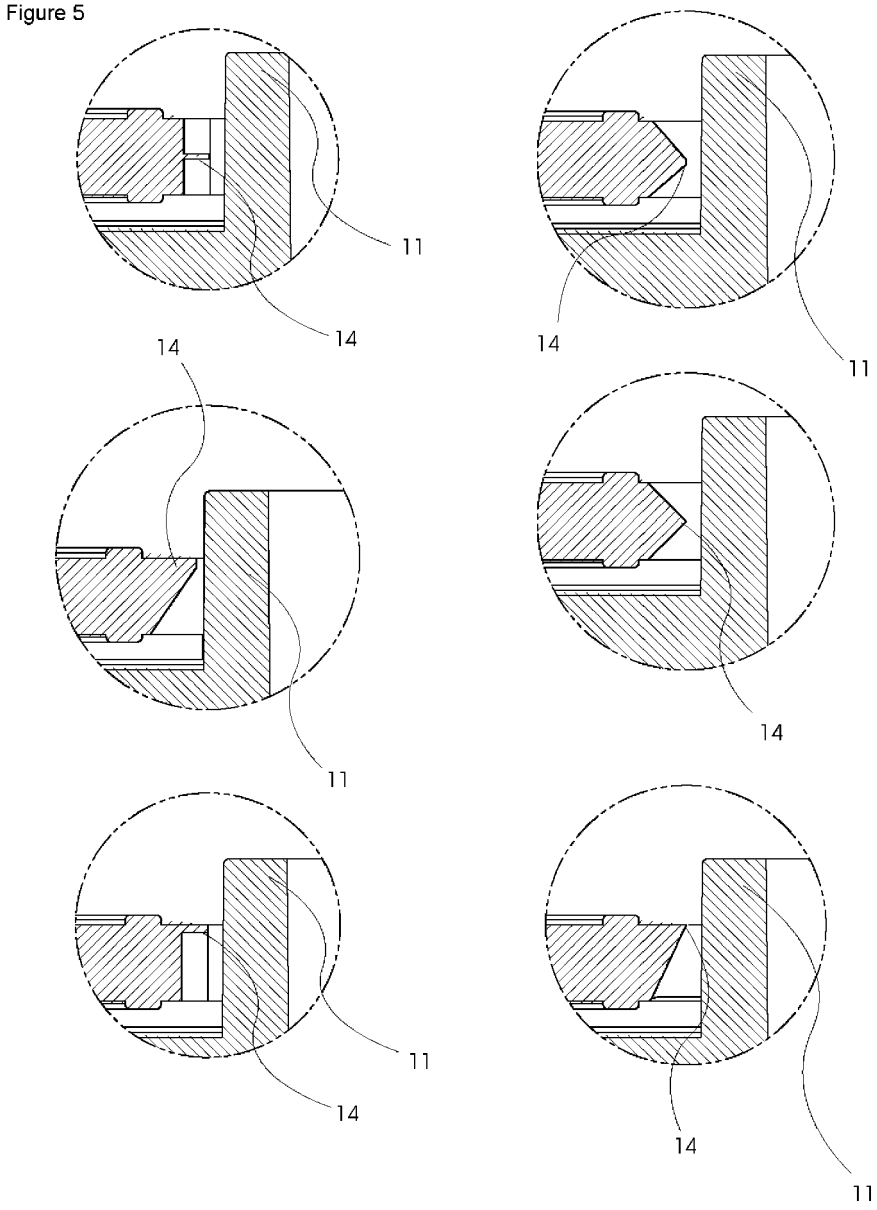


Figure 5



REFERENCES CITED IN THE DESCRIPTION

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