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(54) **A dishwasher with spray device**

(57) The present invention is a dishwasher comprising a door (20); and a washing housing (10) with a washing chamber (12) to which the door (20) is hinged in a sealed and hinged manner. The dishwasher comprises a spray distributor (30) which has at least one spray head (35) which is positioned in the washing housing (12) and which is adjusted so as to distribute the item, existing inside a container (33) thereof, to the washing chamber (12).

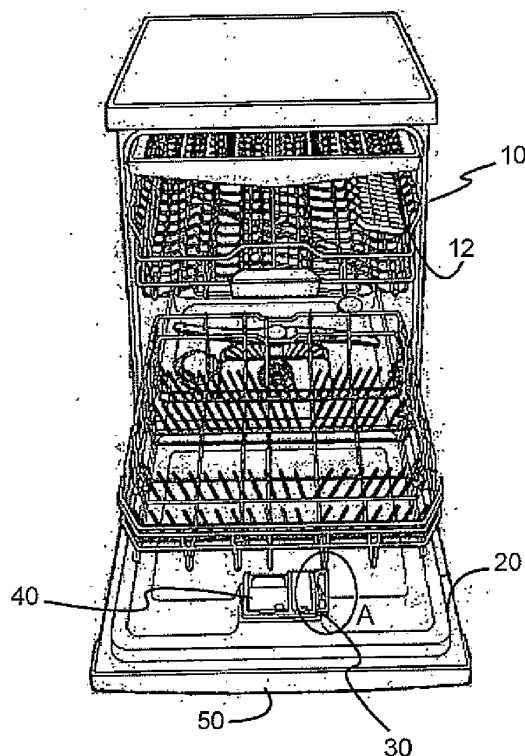


FIG. 1

Description

TECHNICAL FIELD

[0001] The present invention relates to cleaning mechanisms which provide deodorizing of bad smells inside a dishwasher washing chamber or which provides hygiene.

KNOWN STATE OF THE ART

[0002] A dishwasher has a body which encircles a wire basket, wherein the items to be washed are brought in, in a sealed manner; and thus which forms a washing chamber. A door is hinged to the open surface of the washing chamber of the body in a hinged manner. A detergent dispenser, existing on the door, transfers the detergent in solid form to the washing chamber and washes the dirty items by dissolving the detergent using water that is suspended by means of rotating spray arms on the base or on the ceiling of the washing chamber.

[0003] The chemical substances of the detergent used during washing and the water vapor accumulated inside the washing chamber is transferred outside by the opening of the door after the washing cycle is completed and meanwhile, the user may be subject to bad smells. Moreover, the dirty dishes, waiting to be washed in the basket of the dishwasher, lead to bad smells inside the washing chamber. In order to prevent said bad smells, dishwasher tablets are fixed onto the basket. The deodorant, which is in tablet form, is vaporized and it is distributed inside the washing chamber and it depresses the bad smells. However, the efficiency of the active substance of the deodorant decreases by time, and the bad smells can be smelled again.

[0004] Moreover, in some dishwasher detergents, there are deodorant components for eliminating the bad smell of the washing chamber, however, these deodorant components are not permanent and they can not provide a long-lasting effect.

BRIEF DESCRIPTION OF THE INVENTION

[0005] The object of the invention is to eliminate bad smell inside the washing chamber of dishwashers for long duration.

[0006] Another object of the invention is to eliminate bad smells inside the washing chamber of dishwashers in a rapid manner after the bad smell is formed.

[0007] In order to realize the abovementioned objects, the present invention is a dishwasher comprising a door; and a washing housing with a washing chamber to which the door is hinged in a sealed and hinged manner. A spray distributor is provided which has at least one spray head which is positioned in the washing housing and which is adjusted so as to distribute the item, existing inside a container thereof, to the washing chamber. The spray distributor transfers the item thereof to the washing

chamber in spray form. This item can be a deodorant or a chemical substance which provides hygiene, or a mixture of deodorant and chemical substance.

[0008] In a preferred embodiment of the invention, a casing is provided to which the spray distributor is fixed and which is provided on the door's face facing the washing chamber. The casing provides the spray, which exits the spray head, to be transferred from the door towards the washing chamber.

[0009] In a preferred embodiment of the invention, a detergent distributor is provided where the casing is formed and which is provided on the door. Thus, a compartment of the detergent distributor forms the casing and a spray member is placed here.

[0010] In a preferred embodiment of the invention, the container of the spray distributor is in the form of a pressurized vessel which is assembled to the spray head in a manner that the fluid is transferred. When the spray head is pressed, the pressurized vessel provides the item thereof to be discharged outwardly.

[0011] In a preferred embodiment of the invention, the pressurized vessel essentially comprises a deodorant substance which can be atomized. Thus, during the washing process or after the washing process, when a bad smell forms, it can be eliminated by the deodorant.

[0012] In a preferred embodiment of the invention, an actuator is provided which contacts with the spray head from an end thereof in a pressing manner, in order to open the spray head. Thus, the actuator applies for instance pressure to the spray head and provides the spray head to function.

[0013] In a preferred embodiment of the invention, a control unit is provided to which the actuator is in connection in a triggering manner and which transfers signal to the actuator so as to open the spray head in a predetermined washing position. For instance, when the washing program ends, the control unit sends a signal to the actuator and the control unit operates the spray distributor so as to spray the washing chamber.

[0014] In a preferred embodiment of the invention, the actuator and the spray head are aligned in a coaxial manner. In this case, since the actuator advances, direct pressure can be applied to the spray head.

BRIEF DESCRIPTION OF THE FIGURES

[0015] The additional characteristics and advantages of the invention will be obtained from the exemplary embodiments giving reference to the accompanied figures.

[0016] In Figure 1, the frontal view of a dishwasher with a representative embodiment of a spray device according to the invention is given, where the door of the dishwasher is open.

[0017] In Figure 2, the expanded view of detail A of the spray device illustrated in Figure 1 is given.

REFERENCE NUMBERS

[0018]

- 10 Washing housing
- 12 Washing chamber
- 20 Door
- 30 Spray distributor
- 32 Casing
- 33 Container

- 34 Actuator
- 35 Spray head
- 40 Detergent distributor
- 50 Control unit

THE DETAILED DESCRIPTION OF THE INVENTION

[0019] In Figure 1, the frontal view of a dishwasher comprising a representative embodiment of a spray distributor (30) according to the invention is given. The dishwasher comprises a washing chamber (12) in cavity form so as to provide a closed and sealed washing housing (10); and a door (20) which is hinged to the washing housing (12) in a hinged manner. A detergent distributor (40) is fixed onto an inner surface of the door (20) facing the washing chamber (12). The detergent distributor (40) comprises adjacent compartments and it forms a casing (32) where the spray distributor (30) is placed into one of the compartments.

[0020] In Figure 2, the expanded view of the same representative embodiment of the subject matter spray distributor (30) is given. Accordingly, a casing (32) is in the form of a groove, and inside the casing (32), an actuator (34) of the spray distributor (30) and a container (33) in connection with a spray head (35) are assembled so as to be close to each other and so as to contact with one each mutual edge.

[0021] The actuator (34) is in the form of a piston. The actuator (34) is in a position so as to face the top part of the spray head (35) from the piston's top part realizing stroke. On the other hand, the container (33) is seated to the casing (32) from the base thereof and at the upper part thereof, the spray head (35) is aligned so as to be coaxial with the actuator (34).

[0022] When the washing program ends, a control unit (50), existing on the dishwasher, sends an electrical signal to the actuator (34) and pushes the spray head (35) by means of the piston arm. Thus, the item inside the container (33) is released after the spray head (35), pushed by the actuator (34), is opened. In order to provide the item inside the container (33) to exit from the spray head (35) by means of the pushing force thereof, the item inside the container (33) is pressurized. In the embodiment illustrated in the figures, in order to eliminate the bad smells after washing, inside the container (33), there are deodorants or chemicals with particles providing hygiene.

[0023] In an alternative embodiment of the invention, the actuator (34) can be activated manually by means of a triggering member of the actuator (34). In order to provide this, a button can be added to the actuator (34).

5 [0024] In an alternative embodiment of the invention, the control unit (50) can activate the actuator (34) during washing or prior to washing. The container (33) can comprise different functional chemical substances like polisher or like an item facilitating the washing process, instead of a deodorant.

Claims

- 15 1. A dishwasher comprising a door (20) and a washing housing (10) with a washing chamber (12) to which the door (20) is hinged in a sealed and hinged manner, **characterized in that** a spray distributor (30) is provided which has at least one spray head (35) which is positioned in the washing housing (10) and which is adjusted so as to distribute the item, existing inside a container (33) thereof, to the washing chamber (12).
- 25 2. A dishwasher according to claim 1, wherein a casing (32) is provided to which the spray distributor (30) is fixed and which is provided on the door's (20) face facing the washing chamber (12).
- 30 3. A dishwasher according to claim 2, wherein a detergent distributor (40) is provided where the casing (32) is formed and which is provided on the door (20).
- 35 4. A dishwasher according to any one of the preceding claims, wherein the container (33) of the spray distributor (30) is in the form of a pressurized vessel which is assembled to the spray head (35) in a manner that the fluid is transferred.
- 40 5. A dishwasher according to claim 4, wherein the pressurized vessel essentially comprises deodorant substance which can be atomized.
- 45 6. A dishwasher according to any one of the preceding claims, wherein an actuator (34) is provided which contacts with the spray head (35) from an end thereof in a pressing manner, in order to activate the spray head (35).
- 50 7. A dishwasher according to claim 6, wherein a control unit (50) is provided to which the actuator (34) is in connection in a triggering manner and which transfers signal to the actuator (34) so as to open the spray head (35) in a predetermined washingsituation.
- 55 8. A dishwasher according to claim 7, wherein the actuator (34) and the spray head (35) are aligned in a

coaxial manner.

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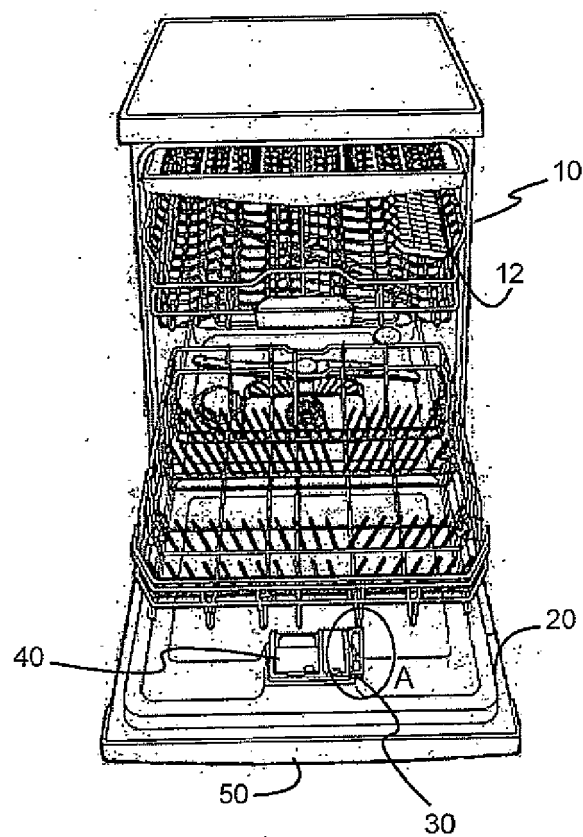


FIG. 1

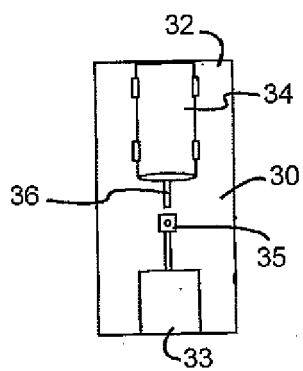


FIG. 2



EUROPEAN SEARCH REPORT

Application Number
EP 12 16 9417

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X A	US 3 049 132 A (JOHN GILSON ROBERT) 14 August 1962 (1962-08-14) * column 3, line 49 - column 5, line 12 * * column 11, line 30 - column 11, line 38 * -----	1,4,5 2,3,6-8	INV. A47L15/44
			TECHNICAL FIELDS SEARCHED (IPC)
			A47L
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 6 August 2012	Examiner Jezierski, Krzysztof
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 12 16 9417

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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06-08-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3049132 A	14-08-1962	GB 889418 A US 3049132 A	14-02-1962 14-08-1962

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82