(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
03 February 2022 (03.02.2022)

WIPO | PCT

(10) International Publication Number
WO 2022/025844 A2

(51) International Patent Classification:
A47L 15/44 (2006.01)

(21) International Application Number:
PCT/TR2021/050692

(22) International Filing Date:
07 July 2021 (07.07.2021)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2020/11944 28 July 2020 (28.07.2020) TR

(71) Applicant: **ARCELIK ANONIM SIRKETI** [TR/TR]; Karaagac Caddesi 2-6, Sutluce, 34445 Beyoglu/Istanbul (TR).

(72) Inventors: **TRAŞ, Mehmet Ozan**; Arçelik A.Ş. Sutluce Karaagac Caddesi No:2/6, 34445 Beyoglu/Istanbul (TR). **AK, Gökhan**; Arçelik A.Ş. Sutluce Karaagac Caddesi No:2/6, 34445 Beyoglu/Istanbul (TR). **ARAS, Nasir Efe**; Arçelik A.Ş. Sutluce Karaagac Caddesi No:2/6, 34445 Beyoglu/Istanbul (TR). **KAN, Uğur**; Arçelik A.Ş. Sutluce Karaagac Caddesi No:2/6, 34445 Beyoglu/Istanbul (TR). **GÖKDERE, Nurgül**; Arçelik A.Ş. Sutluce Karaagac Caddesi No:2/6, 34445 Beyoglu/Istanbul (TR).

(74) Agent: **ANKARA PATENT BUREAU**; Kavaklidere Mahallesi Bestekar Caddesi No:10, 06680 Ankara (TR).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*
— *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

(54) Title: A DISHWASHER

(57) Abstract: The present invention relates to a dishwasher (1) comprising a body (2); a washing tub (3) which is arranged in the body (2) and wherein the washing process is realized; at least one rack (4) which is disposed in the washing tub (3) and whereon the kitchen items are placed to be washed; at least one spraying member (5) which enables the water to be sprayed onto the rack (4); a dosing member (6) which enables the additional cleaning agent loaded to be delivered into the washing tub (3); a siphon system (7) which is provided on the dosing member (6); and an opening (8) which is provided on the siphon system (7) and which provides the delivery of the additional cleaning agent into the washing tub (3).

WO 2022/025844 A2

A DISHWASHER

The present invention relates to a washing machine comprising a cleaning agent dispenser.

In dishwashers, detergent dispensers which are generally mounted on the inner side of the door are used. Said dispensers have receptacles for placing chemical agents such as detergent, rinse aid, etc. The detergent in the receptacle ensures the dirt residues on the dishes to be dissolved while the rinse aid decreases the surface tension of the water so as to improve the drying efficiency. The chemical agents used in the cleaning process can be efficient only when used at the correct step. For example, the detergent must be added into the water at the main washing step while agents such as rinse aid, glass protector, etc. must be added at the hot rinsing (second rinsing) step. When powdered and/or liquid chemical agents are used, each chemical agent is placed into its own proper receptacle, and said receptacles are opened at the correct step such that the correct chemical agent is used at the correct time. In addition to said agents, today, the users often use cleaning agents such as laundry bleach, vinegar, etc. in order to eliminate microorganisms. However, if concentrated chemical agents such as laundry bleach are not dosed in the correct amount and at the correct time, residues may remain on the kitchen items, which in turn adversely affects the health of the user. Therefore, dosing apparatuses are used for this purpose. However, excessive cleaning agent or water remaining on the dosing apparatuses may cause an efficient dosing at the next washing cycle.

In the state of the art Patent Document No. US2969072, a detergent dispenser is disclosed, which is used in dishwashers and which is pivotally mounted to the rack wherein the items to be washed are placed.

In the state of the art Patent Document No. GB2321590, a detergent dispenser is disclosed, which is used in dishwashers and which is attached to the connecting tube delivering water to the spray arms.

The aim of the present invention is the realization of a dishwasher wherein hygiene is ensured in an efficient and safe manner.

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 dosing member which doses additional cleaning agents into the washing tub; a siphon system which is provided on the dosing member; and an opening which is provided on the siphon system and which is used for delivering the cleaning agent into the washing tub. The kitchen items are placed onto the rack to be washed. The water is delivered onto the rack by means of the spraying member such that the kitchen items are cleaned. The dosing member which delivers the additional cleaning agent into the washing tub provides dosing by means of the siphon system. By means of the opening provided on the dosing member, the additional cleaning agent is delivered into the washing tub.

The dishwasher of the present invention comprises the dosing member having a discharge opening and a valve. By means of the discharge opening, the remaining water and/or additional cleaning agent is enabled to be discharged from the dosing member. By means of the valve provided on the discharge opening, the water and/or additional cleaning agent is delivered into the washing tub.

In an embodiment of the present invention, the dosing member comprises a slot with one end being positioned on the discharge opening and a thermal member which is provided on the slot between the valve and the discharge opening. The thermal member changes form as the temperature in the washing tub increases. Thus, the valve is enabled to move vertically, and the remaining water and/or additional cleaning agent is enabled to be discharged from the dosing member.

In an embodiment of the present invention, the dosing member comprises a spring which is the thermal member. When the dishwasher reaches the washing program, the temperature in the washing tub rises and the length of the spring increases. Thus, the spring pushes the valve downwards, and the additional cleaning agent and/or water is enabled to be delivered from the dosing member.

In an embodiment of the present invention, the dosing member comprises the valve which has an open position and a closed position. When the valve is in the open position, the

water and/or additional cleaning agent is delivered from the dosing member, and when the valve is in the closed position, the water and/or additional cleaning agent cannot be delivered into the washing tub through the discharge opening.

In an embodiment of the present invention, the dosing member comprises a sealing member which is positioned between the slot and the valve. The sealing member is provided almost all around between the slot and the valve. Thus, the uncontrolled discharge of the water and/or additional cleaning agent is prevented.

In an embodiment of the present invention, the dishwasher comprises the spring which enables the valve to shift to the open position at the washing step and enables the valve to shift to the closed position when the temperature in the washing tub decreases.

By means of the present invention, a dishwasher is realized, comprising the dosing member wherein the water and/or additional cleaning agent remaining thereon after the dosing process is discharged.

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 dosing member.

Figure 3 - is the cross-sectional view of the dosing member, the valve and the slot.

The elements illustrated in the figures are numbered as follows:

1- Dishwasher

2- Body

3- Washing tub

4- Rack

5- Spraying member

6- Dosing member

7- Siphon system

8- Opening

9- Discharge opening

10- Valve

11- Slot

12- Thermal member

13- Spring

14- Sealing member

The dishwasher (1) comprises a body (2); a washing tub (3) which is arranged in the body (2) and wherein the washing process is realized; at least one rack (4) which is disposed in the washing tub (3) and whereon the kitchen items are placed to be washed; at least one spraying member (5) which enables the water to be sprayed onto the rack (4); a dosing member (6) which enables the additional cleaning agent loaded to be delivered into the washing tub (3); a siphon system (7) which is provided on the dosing member (6); and an opening (8) which is provided on the siphon system (7) and which provides the delivery of the additional cleaning agent into the washing tub (3). The kitchen items placed onto the rack (4) are cleaned by means of the water delivered by the spraying member (5) and the cleaning agent. The user loads additional cleaning agents such as laundry bleach, etc. into the dosing member (6), which are then delivered into the washing tub (3). Thus, the additional cleaning agents are prevented from leaving residues on the kitchen items. By means of the siphon system (7), the dosing is performed in a controlled manner.

The dishwasher (1) of the present invention comprises the dosing member (6) which can be detachably attached onto the rack (4) and which has a discharge opening (9) for discharge the undosed additional cleaning agent and a valve (10) provided on the discharge opening (9). The water and/or additional cleaning agent remaining on the dosing member (6) is discharged from the dosing member (6) by means of the discharge opening (9). The valve (10) controls the discharge of the undosed water and/or additional cleaning agent.

In an embodiment of the present invention, the dosing member (6) comprises a slot (11) which is positioned vertically with one end being positioned on the discharge opening (9), and a thermal member (12) which is provided on the slot (11) between the discharge opening (9) and the valve (10). The thermal member (12) is provided between the valve (10) and the discharge opening (9), on the slot (11) positioned on the dosing member (6). By means of the thermal member (12), the valve (10) is enabled to move depending on the temperature.

In an embodiment of the present invention, the dosing member (6) comprises a spring (13) which is the thermal member (12). The length of the thermal member (12) which is the spring (13) increase as the temperature in the washing tub (3) rises, and the length of the spring (13) decreases as the temperature decreases. Thus, the valve (10) is enabled to move vertically on the slot (11)

In an embodiment of the present invention, the dishwasher (1) comprises the valve (10) which has an open position wherein the passage of the water and/or additional cleaning agent is allowed and a closed position wherein the passage of the water and/or additional cleaning agent is prevented. When the valve (10) is in the open position, the water and/or additional cleaning agent is allowed to be delivered from the dosing member (6) into the washing tub (3).

In an embodiment of the present invention, the dosing member (6) comprises a sealing member (14) which is positioned almost all around between the slot (11) and the valve (10). The sealing member (14) is positioned between the slot (11) and the valve (10). Thus, the uncontrolled delivery of the water and/or additional cleaning agent in the dosing member (6) into the washing tub (3) is prevented.

In an embodiment of the present invention, the dishwasher (1) comprises the spring (13) which increases in length so as to enable the valve (10) to shift to the open position at the washing step and which cools down when the temperature in the washing tub (3) decreases so as to enable the valve (10) to shift to the closed position. By means of the water heated at the washing step, the temperature of the washing tub (3) rises and the length of the spring (13) increases. The valve (10) is pushed downward by means of the spring (13) increasing in length, and the water and/or additional cleaning agent remaining

in the dosing member (6) is delivered into the washing tub (3). As the temperature in the washing tub (3) decreases, the length of the spring (13) also decreases, and enables the valve (10) to shift to the closed position.

By means of the present invention, a dishwasher (1) is realized, comprising a discharge opening (9) and a valve (10) which are provided on the dosing member (6). By means of the thermal member (12) provided between the discharge opening (9) and the valve (10), the undosed water and/or additional cleaning agent is enabled to be delivered into the washing tub (3) in a controlled manner.

CLAIMS

1- A dishwasher (1) **comprising** a body (2); a washing tub (3) which is arranged in the body (2) and wherein the washing process is realized; at least one rack (4) which is disposed in the washing tub (3) and whereon the kitchen items are placed to be washed; at least one spraying member (5) which enables the water to be sprayed onto the rack (4); a dosing member (6) which enables the additional cleaning agent loaded to be delivered into the washing tub (3); a siphon system (7) which is provided on the dosing member (6); and an opening (8) which is provided on the siphon system (7) and which provides the delivery of the additional cleaning agent into the washing tub (3), **characterized by** the dosing member (6) which can be detachably attached onto the rack (4) and which has a discharge opening (9) for discharge the undosed additional cleaning agent and a valve (10) provided on the discharge opening (9).

2- A dishwasher (1) as in Claim 1, **characterized by** the dosing member (6) comprises a slot (11) which is positioned vertically with one end being positioned on the discharge opening (9), and a thermal member (12) which is provided on the slot (11) between the discharge opening (9) and the valve (10).

3- A dishwasher (1) as in Claim 2, **characterized by** the dosing member (6) comprising a spring (13) which is the thermal member (12).

4- A dishwasher (1) as in any one of the above claims, **characterized by** the valve (10) which has an open position wherein the passage of the water and/or additional cleaning agent is allowed and a closed position wherein the passage of the water and/or additional cleaning agent is prevented.

5- A dishwasher (1) as in any one of the above claims, **characterized by** the dosing member (6) comprising a sealing member (14) which is positioned almost all around between the slot (11) and the valve (10).

6- A dishwasher (1) as in any one of Claim 2 to Claim 5, **characterized by** the spring (13) which increases in length so as to enable the valve (10) to shift to the open position at the washing step and which cools down when the temperature in the

washing tub (3) decreases so as to enable the valve (10) to shift to the closed position.

Figure 1

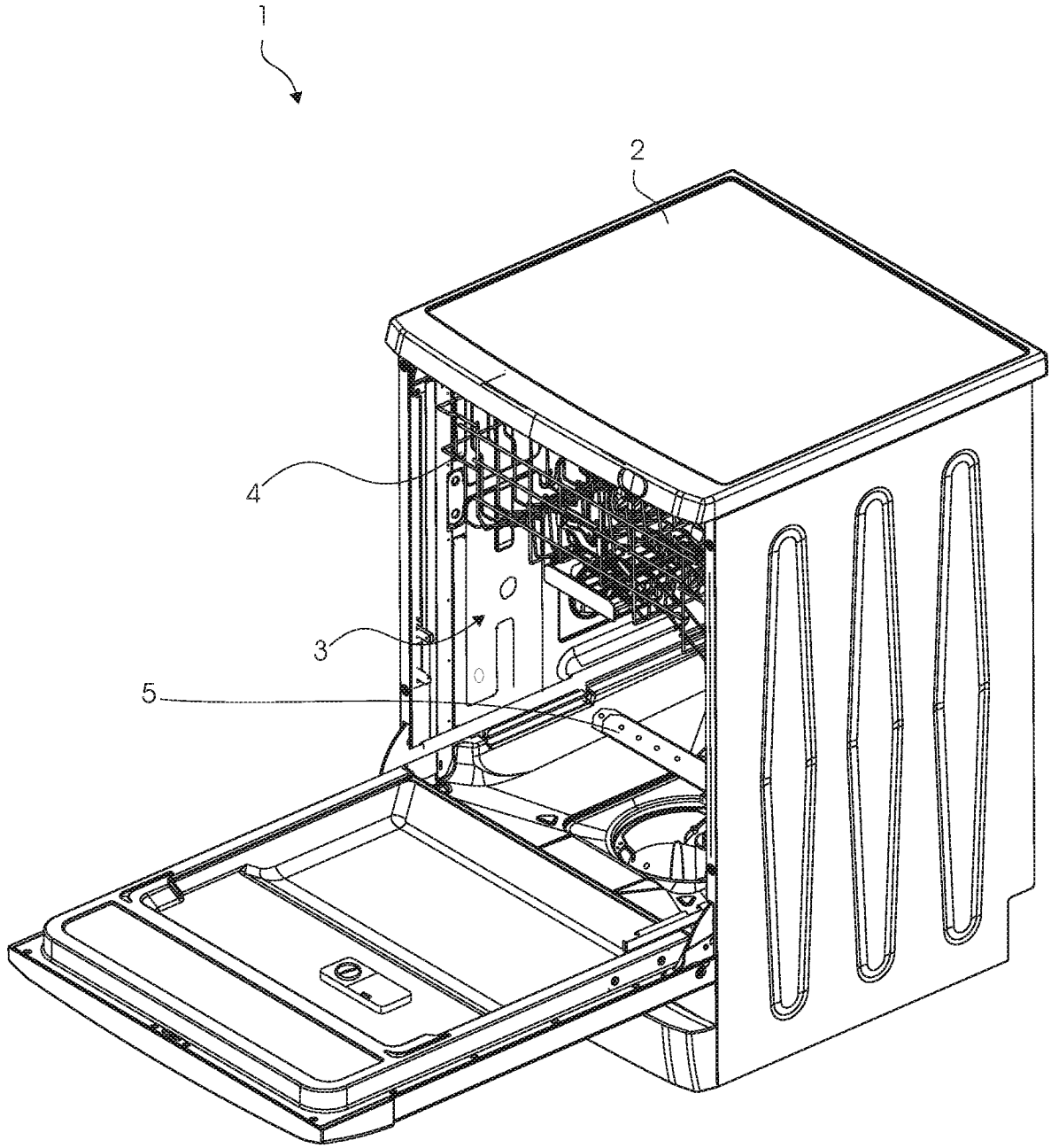

Figure 2

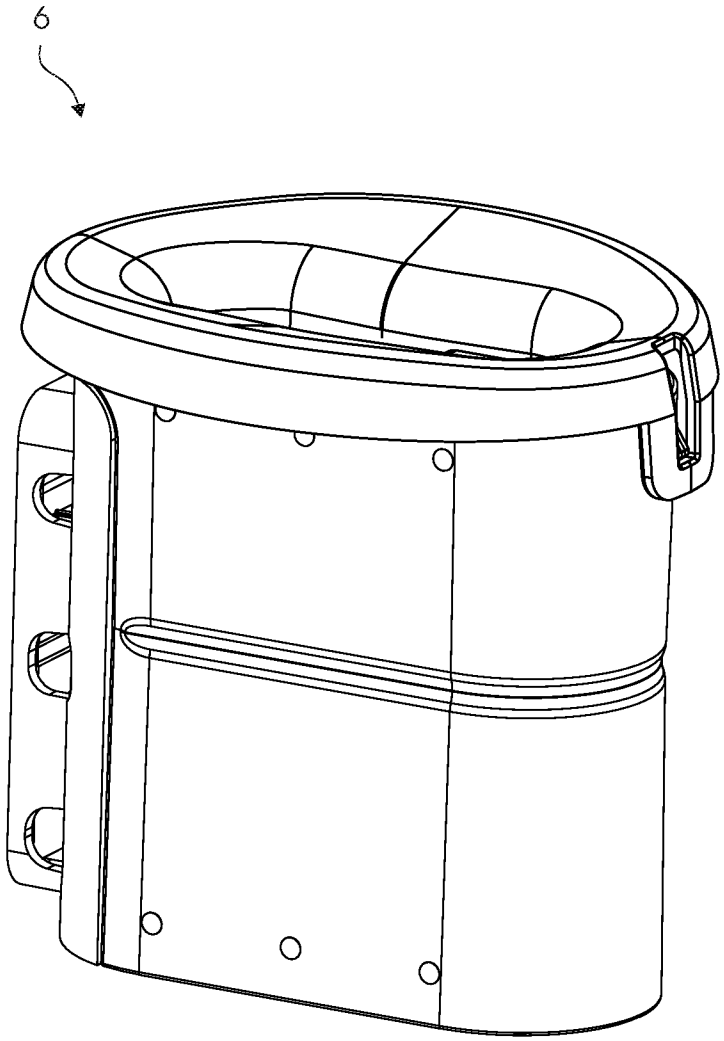

Figure 3