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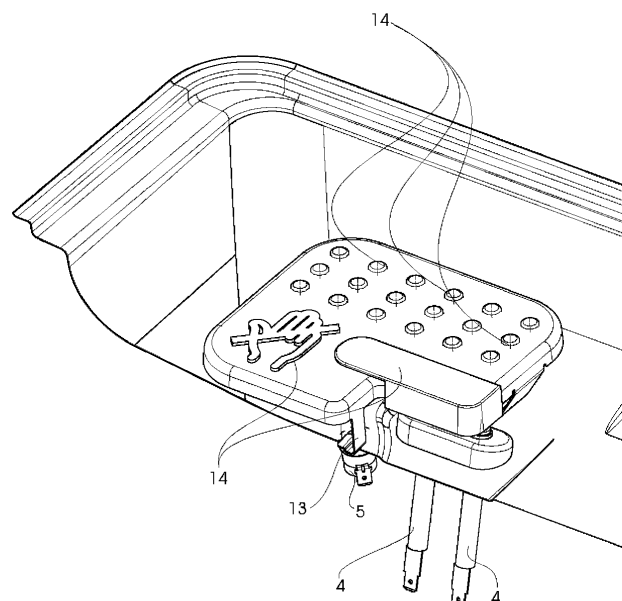
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(54) A DISHWASHER COMPRISING A PROTECTIVE MEMBER

(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; a heater (4) which extends from between the bottom of the washing tub (3) and the body (2) into the washing tub (3) and which enables the washing

water to be heated; a thermostat (5) which is positioned so as to be near the heater (4) and which enables the temperature to be kept under control and a water hose (6) which is arranged between the washing tub (3) and the body (2) so as to enable the transfer of the water.

Figure 3



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Description

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

[0002] In dishwashers used today, a washing cycle is completed by successively performing the cold washing, main washing, rinsing and drying steps. The drying step which is one of the main steps of the dishwasher enables water droplets and water stains remaining on the washed and cleaned dishes to be removed by way of vaporization. In conventional systems, the kitchen items are heated by water in the hot rinsing step. Then, in the drying step, the kitchen items are enabled to be dried by sucking the humid air from the internal environment. In some products, after the rinsing step, the air in the dishwasher is heated by means of the heater provided in the dishwasher in the drying step. The drying performance is not linear, but increases in proportion to the temperature of the internal environment. The temperature of the air is increased by means of the heater in the washing cabin. By means of a heater with a predetermined power, the air is heated and enabled to be distributed in the dishwasher such that the water remaining on the cleaned kitchen items is evaporated. Thus, drying effectiveness is improved. In this application, the positioning of said heater is critical. The temperature of the surface of the heater can reach 300-400 °C depending on the geometry of the heater. However, high heat causes the plastic items placed into the washing tub to be deformed and poses risk to user safety.

[0003] In the state of the art Chinese Utility Model Document No. CN201359416, a dishwasher comprising a casing provided on the heater is disclosed.

[0004] The aim of the present invention is the realization of a dishwasher with improved safety.

[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 provided on the body, a heater which extends towards the washing tub from between the washing tub and the body and which enables the air in the washing tub to be heated; a thermostat which enables the temperature to be controlled; and a water hose which enables the water in the washing tub to be transferred. By means of the water hose, water is enabled to be delivered into and discharged out of the washing tub. By means of the heater, the air in the washing tub is heated, increasing the drying performance. The thermostat is positioned in the vicinity of the heater. Thereby, safety is provided by keeping the heater under control.

[0006] The dishwasher of the present invention comprises a protective member which is provided between the body and the washing tub and which at least partially covers the heater in the washing tub. By means of the protective member, the kitchen items placed into the washing tub are enabled to be washed safely and user safety is improved.

[0007] In an embodiment of the present invention, the

dishwasher comprises a first protective member and a second protective member. The first protective member is placed into the washing tub and at least partially covers the heater. The second protective member is placed between the washing tub and the body and encloses the heater. Thus, the other components are protected from being damaged.

[0008] In an embodiment of the present invention, the dishwasher comprises the second protective member having a heater housing which surrounds the heater, a thermostat housing the thermostat is attached to and detached from and a hose channel wherein the water hose is placed. The thermostat and the water hose are fixed on the body by means of the second protective member. By means of the heater housing surrounding the heater, the components are prevented from contacting the heater and thus, safety is improved.

[0009] In an embodiment of the present invention, the dishwasher comprises at least one opening provided on the bottom of the heater. The heater passes through the opening and extends into the washing tub.

[0010] In an embodiment of the present invention, the dishwasher comprises the second protective member having at least one claw which is provided on the thermostat housing and which enables the thermostat to be fixed onto the thermostat housing. The thermostat is fixed onto the body by means of the claw.

[0011] In an embodiment of the present invention, the dishwasher comprises a thermal conduction member which extends from the first protective member towards the thermostat. The thermal conduction member is provided as an extension of the first protective member or as a separate member which is connected to the first protective member. The thermal conduction member transfers the heat taken from the first protective member which is heated by the heater to the thermostat by means of thermal conduction. Thus, temperature can be measured accurately without the need for providing contact between the thermostat and the heater. Furthermore, the rigidity of the first protective member is increased by means of the thermal conduction member.

[0012] In an embodiment of the present invention, the dishwasher comprises one or more than one insulation member provided on the first protective member. By means of the insulation member, safety of the user and the kitchen items is provided in case the user or the kitchen items contact the first protective member.

[0013] By means of the present invention, a dishwasher is realized, wherein the safety is improved by means of the protective member which at least partially covers the heater.

[0014] 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 first protective member.

Figure 3 - is the perspective view of the first protective member and the heater.

Figure 4 - is the perspective view of the second protective member on the body.

Figure 5 - is the perspective view of the second protective member.

[0015] The elements illustrated in the figures are numbered as follows:

1. Dishwasher
2. Body
3. Washing tub
4. Heater
5. Thermostat
6. Water hose
7. Protective member
- 7a- First protective member
- 7b- Second protective member
1. Heater housing
2. Thermostat housing
3. Hose channel
4. Opening
5. Claw
6. Thermal conduction member
7. Insulation member

[0016] 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; a heater (4) which extends from between the bottom of the washing tub (3) and the body (2) into the washing tub (3) and which enables the washing water to be heated; a thermostat (5) which is positioned so as to be near the heater (4) and which enables the temperature to be kept under control and a water hose (6) which is arranged between the washing tub (3) and the body (2) so as to enable the transfer of the water. By means of the heater (4) which operates in the drying process, the temperature of the air in the washing tub (3) is increased and the drying performance is improved. The temperature of the heater (4) is kept under control by means of the thermostat (5) which is positioned near the heater (4). The water required for the washing process transferred to and from the washing tub (3) by means of the water hose (6).

[0017] The dishwasher (1) of the present invention comprises a protective member (7) which at least partially covers the heater (4) in the region in the washing tub (3) and between the body (2) and the washing tub (3). The protective member (7) provides safety of the user and other components by at least partially covering the heater (4) in the washing tub (3) and in the region between the body (2) and the washing tub (3).

[0018] In an embodiment of the present invention, the dishwasher (1) comprises a first protective member (7a) which is provided in the washing tub (3) so as to at least partially cover the heater (4), and a second protective member (7b) in the region between the washing tub (3)

and the body (2) so as to surround the heater (4). The first protective member (7a) is arranged in the washing tub (3) over the heater (4). By means of the first protective member (7a), the heater (4) and the kitchen items which may fall onto the heater (4) as a result of the swaying motions which occur during the washing process are protected. Furthermore, the user is prevented from contacting the heater (4) after the completion of the washing process, improving the user safety.

[0019] In an embodiment of the present invention, the dishwasher (1) comprises the second protective member (7b) having a heater housing (8) which surrounds the heater (4), a thermostat housing (9) whereon the thermostat (5) is placed and a hose channel (10) wherein the water hose (6) is placed and which prevents the heat transfer between the heater (4) and the water hose (6). The heater housing (8) surrounds the lower part of the heater (4) and prevents any contact with the heater (4). Thus, safety is provided for other components and the heater (4). The thermostat (5) is attached onto the thermostat housing (9). The hose channel (10) enables the water hose (6) to be fixed on the second protective member (7b). Thus, the water hose (6) is prevented from getting into contact with the heater (4).

[0020] In an embodiment of the present invention, the dishwasher (1) comprises the second protective member (7b) having at least one opening (11) which is provided at the bottom of the heater housing (8) and through which the heater (4) extending from the washing tub (3) passes. The heater (4) passes through the opening (11) and extends into the washing tub (3) through between the washing tub (3) and the body (2).

[0021] In an embodiment of the present invention, the dishwasher (1) comprises the second protective member (7b) having at least one claw (12) which is provided on the thermostat housing (9) and which enables the thermostat (5) to be fixed. The thermostat (5) is enabled to be fixed by attaching the claw (12) provided on the thermostat housing (9) onto the thermostat (5).

[0022] In an embodiment of the present invention, the dishwasher (1) comprises a thermal conduction member (13) which extends from the first protective member (7a) towards the thermostat (5) and enables the heat radiated from the heater (4) to be conducted to the thermostat (5). The heat radiated from the heater (4) is accumulated on the first protective member (7a). The thermal conduction member (13) is provided as an extension of the first protective member (7a) or as a separate member which contacts the first protective member (7a). Heat is transferred to the thermal conduction member (13) via the first protective member (7a). The thermal conduction member (13) extends from the first protective member (7a) towards the thermostat (5). Thus, the heat is enabled to be transferred to the thermostat (5). By transferring the heat directly to the thermostat (5), the temperature is controlled accurately. Furthermore, the rigidity of the first protective member (7a) is increased by means of the thermal conduction member (13).

[0023] In an embodiment of the present invention, the dishwasher (1) comprises one or more than one insulation member (14) arranged on the first protective member (7a), providing thermal insulation. By means of the insulation member (14), the user and the kitchen items placed into the washing cabin are prevented from contacting the heated surface of the first protective member (7a). Thus, the user safety is improved.

[0024] By means of the present invention, a dishwasher (1) is realized, comprising the protective member (7) which is provided so as to cover the heater (4). The first protective member (7a) is placed onto the surface of the heater (4) in the washing cabin. The second protective member (7b) covers the part of the heater (4) between the body (2) and the washing tub (3). Thus, safety is provided for other components, the user and the kitchen items placed into the washing tub (3).

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; a heater (4) which extends from between the bottom of the washing tub (3) and the body (2) into the washing tub (3) and which enables the washing water to be heated; a thermostat (5) which is positioned so as to be near the heater (4) and which enables the temperature to be kept under control and a water hose (6) which is arranged between the washing tub (3) and the body (2) so as to enable the transfer of the water, **characterized by** a protective member (7) which at least partially covers the heater (4) in the region in the washing tub (3) and between the body (2) and the washing tub (3).
2. A dishwasher (1) as in Claim 1, **characterized by** a first protective member (7a) which is provided in the washing tub (3) so as to at least partially cover the heater (4), and a second protective member (7b) in the region between the washing tub (3) and the body (2) so as to surround the heater (4).
3. A dishwasher (1) as in Claim 2, **characterized by** the second protective member (7b) having a heater housing (8) which surrounds the heater (4), a thermostat housing (9) whereon the thermostat (5) is placed and a hose channel (10) wherein the water hose (6) is placed and which prevents the heat transfer between the heater (4) and the water hose (6).
4. A dishwasher (1) as in Claim 3, **characterized by** the second protective member (7b) having at least one opening (11) which is provided at the bottom of the heater housing (8) and through which the heater (4) extending from the washing tub (3) passes.
5. A dishwasher (1) as in any one of Claims 3 to 4, **characterized by** the second protective member (7b) comprising at least one claw (12) provided on the thermostat housing (9), enabling the thermostat (5) to be fixed.
6. A dishwasher (1) as in Claim 2, **characterized by** a thermal conduction member (13) which extends from the first protective member (7a) towards the thermostat (5) and enables the heat radiated from the heater (4) to be conducted to the thermostat (5).
7. A dishwasher (1) as in any one of Claims 2 to 6, **characterized by** one or more than one insulation member (14) arranged on the first protective member (7a), providing thermal insulation.

Figure 1

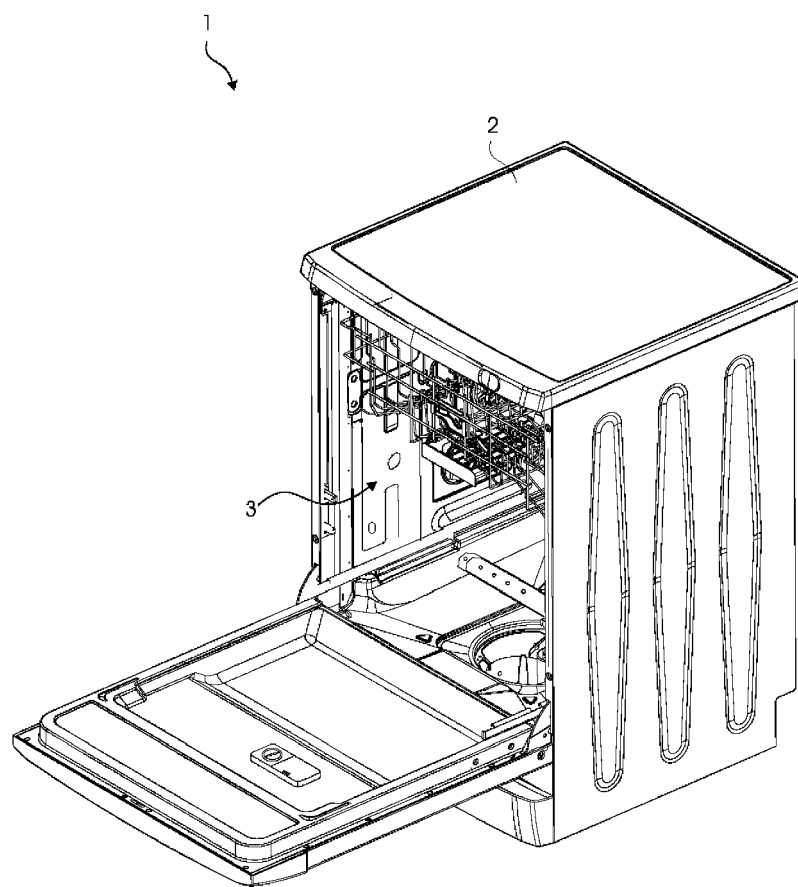


Figure 2

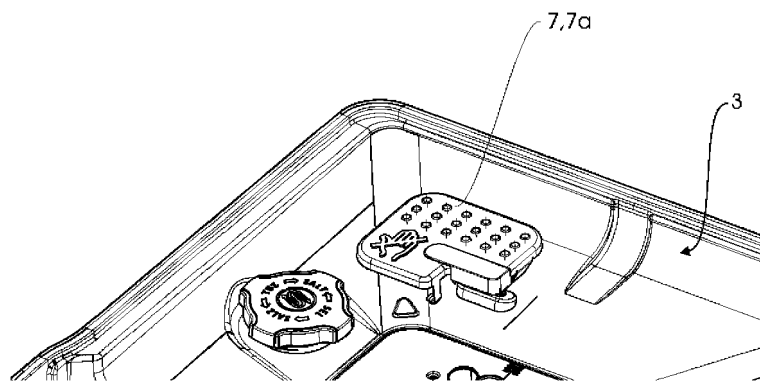


Figure 3

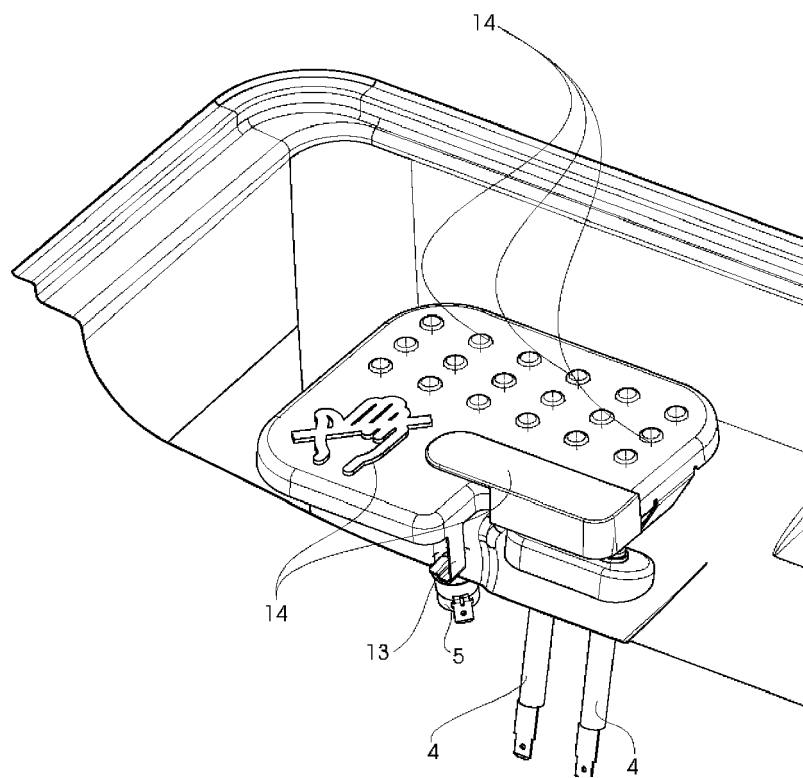


Figure 4

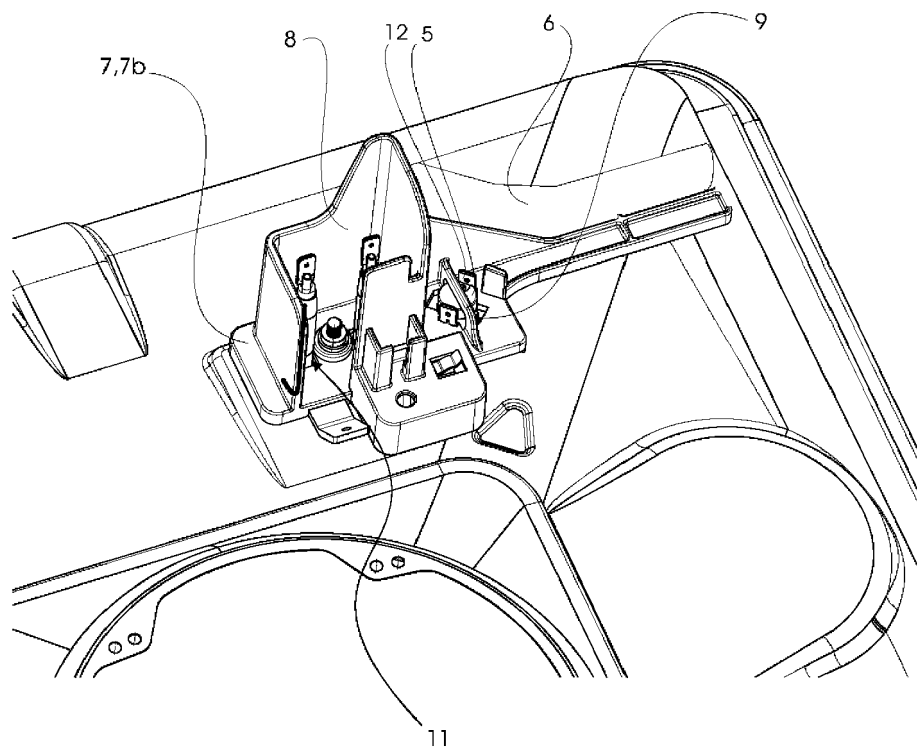
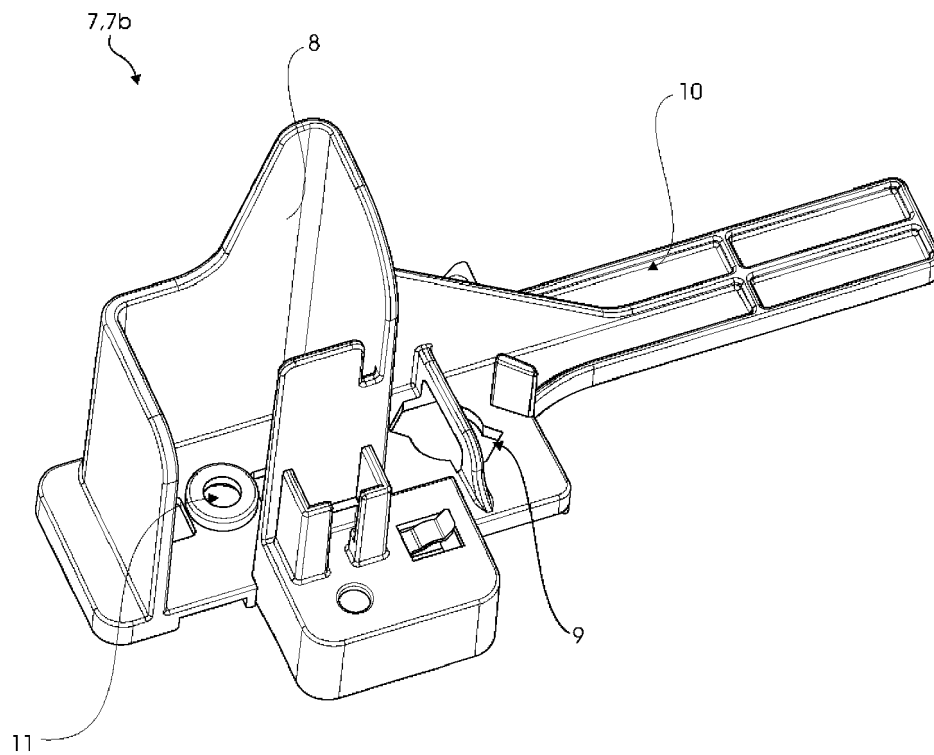


Figure 5





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