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(54) **A DISHWASHER**

GESCHIRRSPÜLER

LAVE-VAISSELLE

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(56) References cited:

EP-A1- 0 691 100	EP-A1- 2 363 055
DE-A1-102005 040 990	DE-A1-102011 002 939
US-A1- 2008 178 916	US-A1- 2012 320 345

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Description

[0001] The present invention relates to a dishwasher with improved ease of use.

[0002] Nowadays, the dishwashers are preferred to have an aesthetic appearance. Therefore, there is an increase in usage of built-in dishwashers. The built-in dishwashers are placed in kitchen cabinets. Decorative panels same as or matching with the kitchen cabinets are placed on the door according to user preference. By this, an aesthetic integrity is provided between the kitchen cabinets and the dishwasher. The decorative panels are mounted on the door using several methods. The decorative panel can be partially mounted on the door so as to expose the control panel of the dishwasher, or can be mounted so as to cover the door completely. Exposure of the control panel provides aesthetic integrity thanks to the lower part being the decorative panel, and also enables the user to see the warnings on the dishwasher and determine the washing parameters. However, when the entirety of the door is covered by the decorative panel, named fully integrated, the dishwasher has a complete cabinet appearance. Therefore, it is considered more aesthetic and is highly preferred by the users. A control panel is not provided on the door for the sake of the decorative panel to fully match on the door. In fully integrated dishwashers, the control panel is generally provided on the surface of the door extending from the outer surface to the washing tub. Therefore, the user is not able to see the warning lights and select the washing parameters without opening the door. Warnings such as duration of the program, the remaining duration, likely washing failures, etc. cannot be communicated to the user. Usually, the user cannot comprehend operating of the dishwasher or completion of the program, and opens the door. Opening of the door during washing results with inefficient progress of the washing.

[0003] State of the art European patent document no. EP0691100 discloses a dishwasher in which the program information is communicated to the user by means of illumination.

[0004] DE102005040990 discloses a dishwasher comprising an optical waveguide arranged on top of the front door, for guiding light beams of a display light to the front of the appliance.

[0005] The aim of the present invention is to realize a dishwasher informing the user by means of an illumination member.

[0006] The dishwasher realized to achieve the aim of the present invention and disclosed in the first claim and the dependent claims comprises a body, a washing tub and a door. The kitchenware to be washed are placed in the washing tub provided on the body. The contact of the washing cabinet with the outer environment is cut off by means of a door provided on the washing tub. The panel is provided on the upper portion of the door and behind it are provided electronic cards containing the washing programs and parameters and components enabling

controlling of the dishwasher. A decorative panel is placed on the door.

[0007] The dishwasher of the invention comprises an illumination member provided on the panel, enabling reflecting the washing steps and warnings on the ground. The light emitted by the illumination member does not contact the door. By this, the washing steps and notifications can conveniently be seen by the user.

[0008] The dishwasher comprises a door comprising at least one channel on its front surface enabling the light to advance towards the ground. The illumination member is provided on the surface of the panel contacting the door. By means of the channel provided on the door, the light emitted by the illumination member is conveyed to the ground.

[0009] The dishwasher comprises a channel enabling conveyance of the light to the ground via the panel, by passing between the decorative panel and the door.

[0010] In an embodiment of the invention, the dishwasher comprises an illumination member which is a laser light source. The shapes formed by the light reach the ground without being dispersed by means of the illumination member being a laser light source.

[0011] In an embodiment of the invention, the dishwasher comprises a decorative panel comprising an at least partially open base. The light reaches the ground by advancing through the open portion of the base.

[0012] In an embodiment of the invention, the dishwasher comprises an illuminator enabling reflecting numbers and texts of various colors and shapes. All information can be formed and reflected as light by means of the illuminator which is a laser light source.

[0013] The dishwasher realized to achieve the aim of the present invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view of the dishwasher.

Figure 2 is a partial perspective view of the dishwasher.

Figure 3 is a perspective view of the decorative panel on the dishwasher.

[0014] The elements in the figures are numbered individually and the correspondence of these numbers are given hereinafter.

- 1- Dishwasher
- 2- Body
- 3- Panel
- 4- Washing tub
- 5- Door
- 6- Illumination member
- 7- Channel
- 8- Decorative panel
- 9- Base

[0015] The dishwasher (1) comprises a body (2), a washing tub (4) provided on the body (2), in which the

items to be washed are placed, a door (5) enabling to cut off contact of the washing tub (4) with the outer environment, a panel (3) provided on the upper portion of the door (5), covering the electronic cards and components, and a decorative panel (8) placed on the door (5) so as to cover the door including the panel (3). The kitchenware are placed in the washing tub (4) to be washed. The contact of the washing tub (4) with the outer environment is cut off by means of the door (5) during washing. The panel (3) is provided on the upper portion of the door (5). Electronic cards are provided behind the panel (3). (Figure 1)

[0016] The dishwasher (1) of the invention comprises an illumination member (6) provided on the panel (3), capable of reflecting on the ground the program steps, warnings, and the program parameters selectable by the user, without requiring the user to contact the door (5). The illumination member (6) is provided on the surface of the panel (3) joining the remaining portion of the door (5). Light is reflected from the panel (3) towards the ground by means of the illumination member (6). By this, the user is enabled to monitor the washing steps and warnings. Further, the signals coming from the electronic components are not required to be conveyed by ways such as cable by means of the illumination member (6) being on the panel (3), providing ease of assembly. (Figure 2)

[0017] The dishwasher (1) comprises a door (5) provided on its front surface with at least one channel (7) extending from below the panel (3) to the ground, enabling conveyance of the light emitted by the illumination member (6) to the ground. The light is conveyed to the ground by means of the channel (7) provided on the front surface of the door (5). The channel (7) is provided as an extension of the illumination member (6) on the door (5). The light emitted by the illumination member (6) reaches the ground by advancing via the channel (7). The channel (7) acts as a light bearer. The light is prevented from being dispersed by means of the channel (7) surrounding the light. By this, the light is reflected in a more uniform shape on the ground. The illumination member (6) can be provided on the channel (7) at a region closer to the ground. Reflection of the light on the ground thus becomes easier.

[0018] In an embodiment of the invention, the dishwasher (1) comprises a channel (7) enabling conveyance of the light to the ground via the panel (3), by passing between the decorative panel (8) and the door (5). While the light emitted by the illumination member (6) provided on the panel (3) advances via the channel (7), one surface is covered by means of the decorative panel (8). By this, the light advances through the enclosed channel (7) without being dispersed. (Figure 3)

[0019] In an embodiment of the invention, the dishwasher (1) comprises illumination which is laser light source. The light is prevented from losing its radiance in the time it reaches from the panel (3) to the ground by means of the illumination member (6) being a laser light

source. The user can thus see the illumination more clearly.

[0020] In an embodiment of the invention, the dishwasher (1) comprises a decorative panel (8) comprising a base (9) at least partially open so that the light can reach the ground. The light is conveyed to the ground through the open portion of the base (9).

[0021] In an embodiment of the invention, the dishwasher (1) comprises an illumination member (6) having various colors and shapes enabling indication of various washing steps and warnings. Figures, letters and numbers can be conveyed to the ground without being dispersed by means of the laser light source. The user is thus enabled to see more clearly.

[0022] The aim of the present invention is to realize a dishwasher (1) with improved ease of use. In fully integrated dishwashers, reflection on the ground method is used for the user to monitor the washing steps. The washing steps and warnings are reflected on the ground by means of the illumination member (6) placed on the panel (3) provided on the door (5). The light is conveyed to the ground by means of the channel (7) provided on the surface of the door (5) below the panel (3). By this, the user is informed about the washing steps without requiring to open the door (5).

Claims

1. A dishwasher (1) **comprising** a body (2), a washing tub (4) provided in the body (2), in which the items to be washed are placed, a door (5) enabling to cut off contact of the washing tub (4) with the outer environment, a panel (3) provided on the upper portion of the door (5), covering the electronic cards and components, a decorative panel (8) placed on the door (5) so as to cover the door including the panel (3), and an illumination member (6) provided on the panel (3), capable of reflecting on the ground the program steps, warnings, and the program parameters selectable by the user, without requiring the user to contact the door (5), **characterized by** the door (5) being provided on its front surface with at least one channel (7) extending from below the panel (3) to the ground, enabling the conveyance of the light emitted by the illumination member (6) to the ground by passing between the door (5) and the decorative panel (8).
2. A dishwasher (1) according to claim 1, **characterized by** the illumination member (6) being a laser light source.
3. A dishwasher (1) according to any one of the preceding claims, **characterized by** the decorative panel (8) comprising a base (9) at least partially open so that the light is able to reach the ground.

4. A dishwasher (1) according to any one of the preceding claims, **characterized by** the illumination member (6) having various colors and shapes enabling indication of various washing steps and warnings.

Patentansprüche

1. Ein Geschirrspüler (1) **umfasst** einen Körper (2), eine Waschwanne (4), die in dem Körper (2) angeordnet ist, worin die zu waschenden Gegenstände gestellt werden; eine Tür (5), die es ermöglicht, den Kontakt der Waschwanne (4) mit der äußeren Umgebung zu unterbrechen, eine Platte (3), die am oberen Teil der Tür (5) vorgesehen ist und die elektronischen Karten und Komponenten abdeckt, eine dekorative Platte (8), die an der Tür (5) angebracht ist, um die Tür und die Platte (3) abzudecken, und ein Beleuchtungselement (6), das auf der Platte (3) vorgesehen ist und in der Lage ist, die vom Benutzer wählbaren Programmschritte, Warnungen und Programmparameter auf dem Boden zu reflektieren, ohne dass der Benutzer die Tür (5) kontaktieren muss, **gekennzeichnet ist er dadurch**, dass die Tür (5) an ihrer Vorderseite mit mindestens einem Kanal (7) versehen ist, der sich von unterhalb der Platte (3) zum Boden erstreckt und die Übertragung des vom Beleuchtungselement (6) emittierten Lichts zum Boden durch Passieren zwischen der Tür (5) und der Dekorplatte (8) ermöglicht.
2. Ein Geschirrspüler (1), wie in Anspruch 1 aufgeführt, **ist dadurch gekennzeichnet, dass** das Beleuchtungselement (6) eine Laserlichtquelle ist.
3. Ein Geschirrspüler (1), wie in einem der vorherigen Ansprüche aufgeführt, **ist dadurch gekennzeichnet, dass** die dekorative Platte (8) einen Boden (9) umfasst, der zumindest teilweise geöffnet ist, so dass das Licht den Boden erreichen kann.
4. Ein Geschirrspüler (1), wie in einem der vorherigen Ansprüche aufgeführt, **ist dadurch gekennzeichnet, dass** das Beleuchtungselement (6) verschiedenen Farben und Formen aufweist, das die Anzeige verschiedener Waschschriffe und Warnungen ermöglicht.

Revendications

1. Un lave-vaisselle (1) **comprenant** un corps (2), une cuve de lavage (4) prévue dans le corps (2), dans laquelle sont placés les articles à laver, une porte (5) permettant de couper le contact de la cuve de lavage (4) avec l'environnement extérieur, un panneau (3) prévu sur la partie supérieure de la porte

(5), couvrant les cartes et composants électroniques, un panneau décoratif (8) placé sur la porte (5) de manière à couvrir la porte y compris le panneau (3), et un élément d'éclairage (6) prévu sur le panneau (3), capable de refléter sur le sol les étapes du programme, les avertissements et les paramètres du programme pouvant être sélectionnés par l'utilisateur, sans nécessiter que l'utilisateur entre en contact avec la porte (5), **est caractérisé en ce que** la porte (5) est munie sur sa surface avant d'au moins un canal (7) s'étendant depuis le dessous du panneau (3) jusqu'au sol, permettant le transport de la lumière émise par l'élément d'éclairage (6) jusqu'au sol en passant entre la porte (5) et le panneau décoratif (8).

2. Un lave-vaisselle (1) selon la déclaration 1, **est caractérisé en ce que** l'élément d'illumination (6) est une source de lumière laser.

3. Un lave-vaisselle (1) selon l'une quelconque des déclarations précédentes, **est caractérisé en ce que** le panneau décoratif (8) comprend une base (9) au moins partiellement ouverte de sorte que la lumière puisse atteindre le sol.

4. Un lave-vaisselle (1) selon l'une quelconque des déclarations précédentes, **est caractérisé en ce que** l'élément d'illumination (6) a différentes couleurs et formes permettant l'indication de différentes étapes de lavage et d'avertissements.

Figure 1

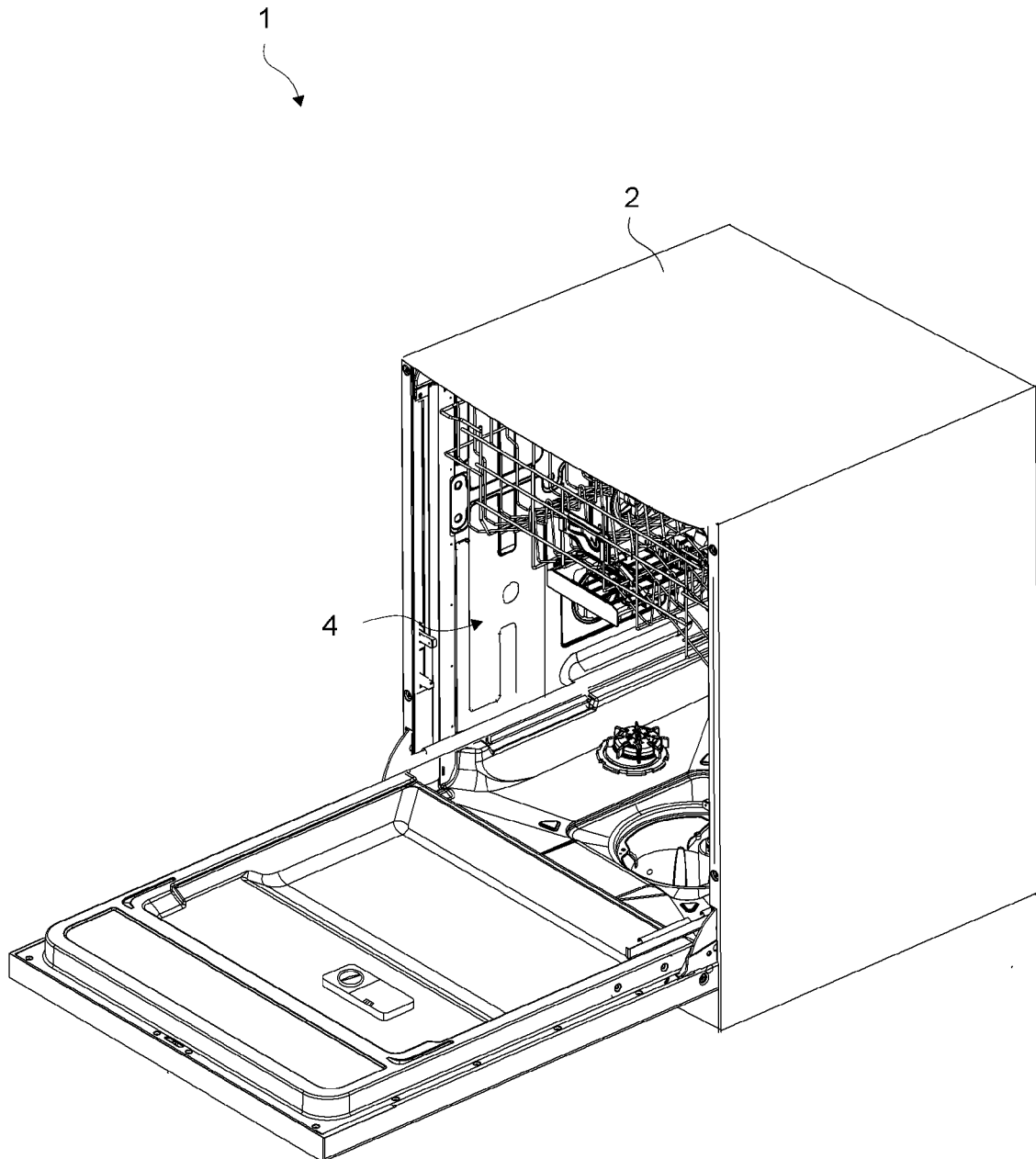


Figure 2

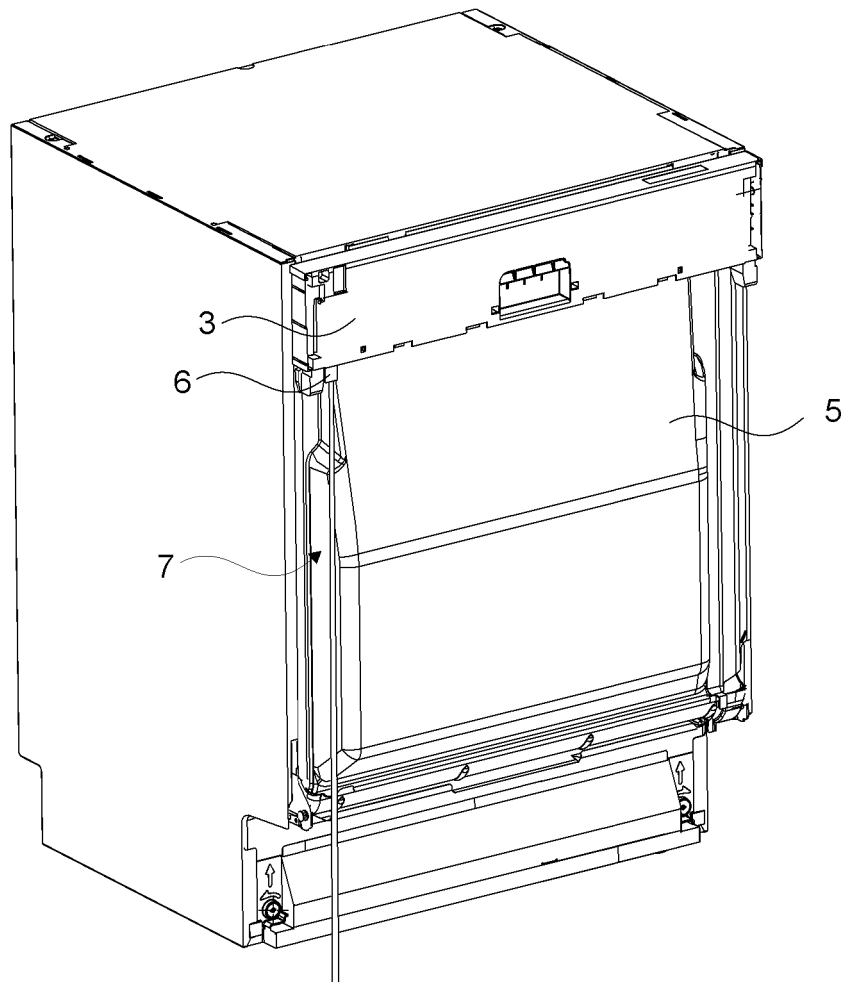
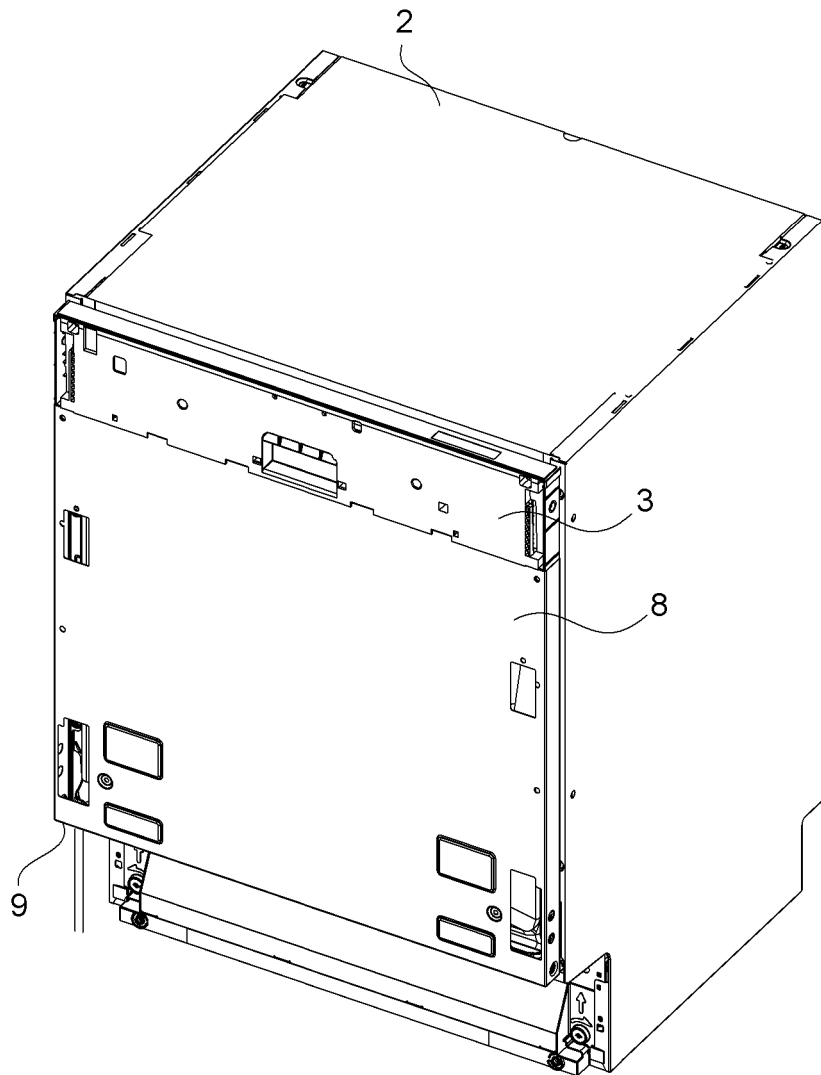


Figure 3



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 0691100 A **[0003]**
- DE 102005040990 **[0004]**