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(54) **A HOUSEHOLD APPLIANCE**

HAUSHALTSGERÄT

APPAREIL ÉLECTROMÉNAGER

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Description

[0001] The present invention relates to a household appliance which prevents electrostatic charges from attaining the control cards.

[0002] Household appliances such as dish washers, washing machines, ovens, refrigerators, etc. are equipped with control panels over which are placed the control buttons that enable a user to make various adjustments. Control buttons are connected to the control cards located behind the control panel, and commands are transmitted to these control cards through the medium of buttons. Control panels and control buttons, which are in general made of an insulating material such as plastic, are fabricated in some models with a conductive material like metal or painted with a conductive paint to give them a metallic look so as to obtain visual amelioration.

[0003] In situations wherein for visual amelioration control buttons are either fabricated with a conductive substance like metal or given a metallic look through coating with a conductive paint, these buttons also become conductive. Electrostatic charges accumulated on a user can thus be transmitted to the control cards once the user touches the buttons. It is observed that control cards deteriorate for this reason.

[0004] In the state of the art, the Japanese Patent Application Number JP2002039537 relates to a control panel placed over a cooking appliance. There is an insulating layer to prevent the transfer of electrostatic charges from the user to the control card when he presses on or around the buttons over the control panel.

[0005] In another state of the art, the Japanese Patent Application Number JP4025101 describes a regulator containing an insulating material in order to prevent the transfer of electrostatic charges between the control panel and the main body.

[0006] In one other state of the art, the German Patent Application Number DE3204020 and the United States Patent Application Number US6091082 explain similar applications wherein an insulating material is incorporated to prevent the transfer of electrostatic charges between the zone that the user touches and the sensitive zones (such as PCB, control cards, etc.) which may be damaged by electrostatic charges.

[0007] US 2005/0178167 A discloses a household appliance comprising a panel, a control button being fixed onto the panel and a control card which is situated on the back side of the panel and to which the control button is connected.

[0008] However, the aforesaid and similar applications complicate assembling processes and increase the number of pieces employed, and therefore raise the cost of production.

[0009] The object of the present invention is to design a household appliance wherein the transfer of electrostatic charges is prevented between the user and the electronic circuit cards through the medium of buttons

that contain conductive materials.

[0010] The household appliance designed to attain the objective of the present invention is described in the claim attached herewith. In the situation when the household appliance disposes a panel made of an insulating substance or when an insulating material is used between the panel and the control card, the control cards are attached on the panel with dielectric screws. Hence, when the control buttons touch the dielectric screws, these screws block the transfer of electrostatic charges between the control buttons and the control cards. As insulation is secured through the use of dielectric screws, there is no need for any other insulating material between the control buttons and the screws.

[0011] The household appliance designed to fulfill the objective of the present invention is illustrated in the attached figures, where:

[0012] Figure 1 - a schematic view of the household appliance

[0013] Figure 2 - a perspective view of the panel

[0014] Figure 3 - an internal view of the panel

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

1. Household appliance
2. Panel
3. Button
4. Shaft
5. Control card
6. Screw

[0016] The household appliance (1) which constitutes the object of the present invention includes a panel (2), control buttons (3) which are fixed on the panel (2), a control card (5) on the back side of the panel (2) and connected to the control buttons (3), and at least one screw (6) made of dielectric material and which fixes the card (5) to the panel (2).

[0017] The control card (5) which is on the back side of the panel (2) is fixed onto the panel (2) with screws (6). The control card is equipped with a shaft (4) onto which are fastened the buttons (3); the shaft (4) passes through a hole on the panel (2) and comes out at the front side of the panel (2). The button (3) is attached to the shaft (4) after the control card (5) is fastened to the panel (2). Transmission of commands to the control card (5) is ensured through the medium of this shaft (4).

[0018] When the control card (5) is fixed on the back side of the panel (2), the button (3) is fastened to the shaft (4) emerging from the front surface of the panel (2). Fastened to the panel (2), the button (3) covers the screw (6) heads which are over the panel (2) and comes therefore into contact with the screw (6) heads.

[0019] The panel (2) is made of an insulating material such as plastic, whereas, due to visual amelioration concerns, the control buttons (3) fabricated with a conductive substance such as metal or given a metallic view through painting with a conductive paint. The transfer of static

charges between the control card (5) and the button (3) is become prevented by means of the used dielectric screws (6).

[0020] The button (3) is fixed and mounted over the shaft (5), leaning upon dielectric screw (6) heads; therefore, although their metal coated surfaces touch the panel (2) and/or the screw (6), which are fabricated with insulating material, the static charge is not transferred to the control card (5).

[0021] Fabricating the screw (6) and its head with an insulating material helps avoid scratches over the metal-coated zones when turning the button (3).

[0022] The household appliance (1) which constitutes the object of the present invention, wherein the card (5) is mounted onto the panel with a screw fabricated with an insulating material like plastic, does not necessitate the use of any special attachments to ensure insulation between the buttons (3) and the screw (6). This not only provides cost savings in component parts but also reduces the time necessitated for production and assemblage.

Claims

1. A household appliance (1) comprising a panel (2), a control button (3) which is made of a conductive material such as metal or which acquires conductivity because it is painted with a conductive paint, and which is fixed onto the panel (2), and a control card (5) which is situated on the back side of the panel (2) and to which is connected the control button (3), whereby the control card (5) is equipped with a shaft (4) and the button (3) is fixed and mounted over the shaft (4);
wherein at least one screw (6) wherein fixes the control card (5) to the panel (2) and ensures insulation between the button (3) and the control card (5), the at least one screw (6) is fabricated with a dielectric material and the button (3) is leaning upon the dielectric screw (6) head.

Patentansprüche

1. Haushaltsvorrichtung (1), umfassend eine Konsole (2), eine Steuertaste (3), die aus einem leitfähigen Material wie z. B. Metall hergestellt ist, oder die Leitfähigkeit erhält, da sie mit einem leitfähigen Lack überzogen ist, und die an der Konsole (2) befestigt ist, und eine Steuerkarte (5), die an der Rückseite der Konsole (2) angeordnet ist und mit der die Steuertaste (3) verbunden ist,
wobei die Steuerkarte (5) mit einer Welle (4) versehen ist und die Taste (3) auf der Welle (4) befestigt und montiert ist;
wobei wenigstens eine Schraube (6) die Steuerkarte (5) an der Konsole (2) befestigt und eine Isolierung zwischen der Taste (3) und der Steuerkarte (5) si-

cherstellt, wobei die wenigstens eine Schraube (6) mit einem dielektrischen Material hergestellt ist und die Taste (3) am Kopf der dielektrischen Schraube (6) anliegt.

Revendications

1. Un électroménager (1) comprenant un panneau (2), un bouton de commande (3) qui est fait d'un matériau conducteur tel que le métal ou qui devient conducteur car il est peint avec une peinture conductrice, et qui est fixé sur le panneau (2), et une carte de contrôle (5) qui est située sur le côté arrière du panneau (2) et à laquelle le bouton de commande (3) est relié.
où la carte de contrôle (5) est équipée d'un axe (4) et le bouton (3) est fixé et monté sur l'axe (4) ;
où au moins une vis (6) fixe la carte de contrôle (5) au panneau (2) et assure une isolation entre le bouton (3) et la carte de contrôle (5), ladite vis (6) est fait d'un matériau diélectrique et le bouton (3) s'appuie contre la tête de vis diélectrique (6).

[Fig.]
Figure 1

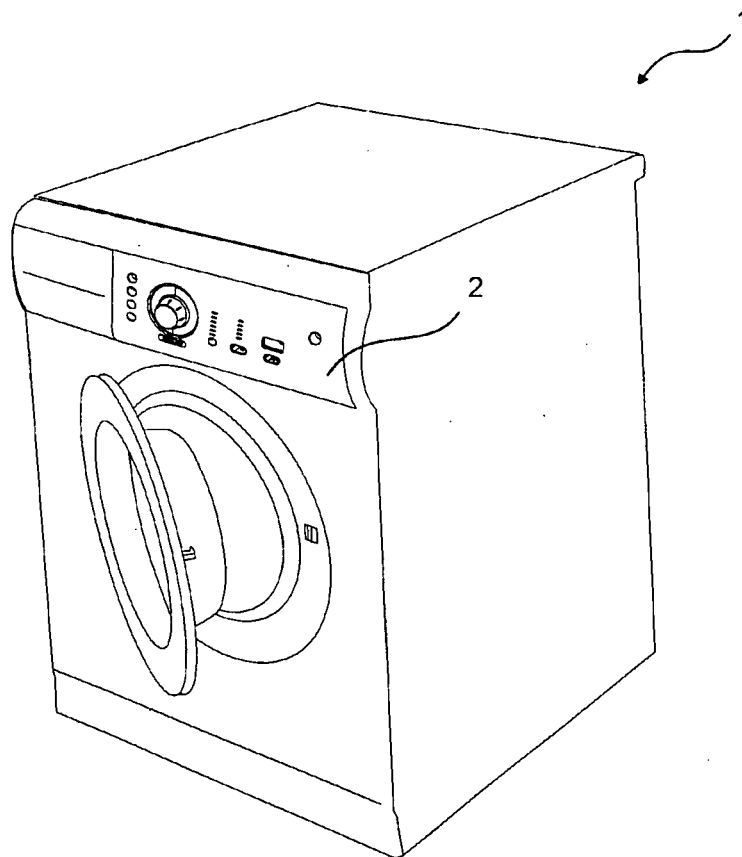
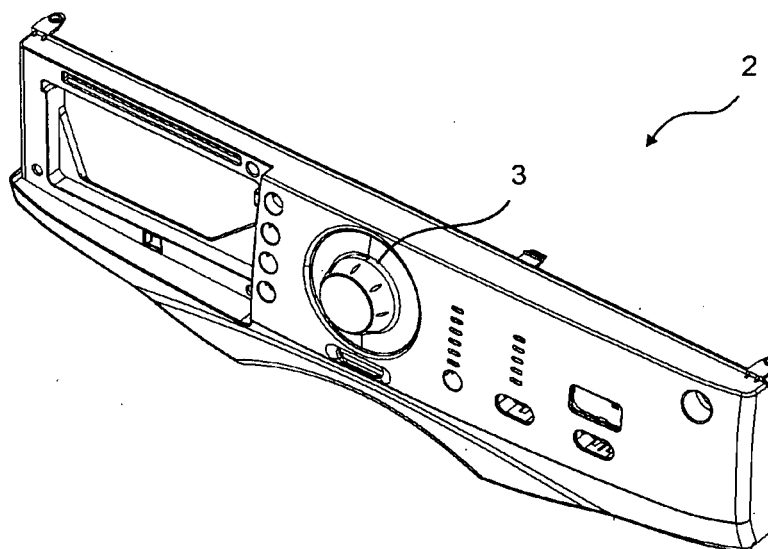
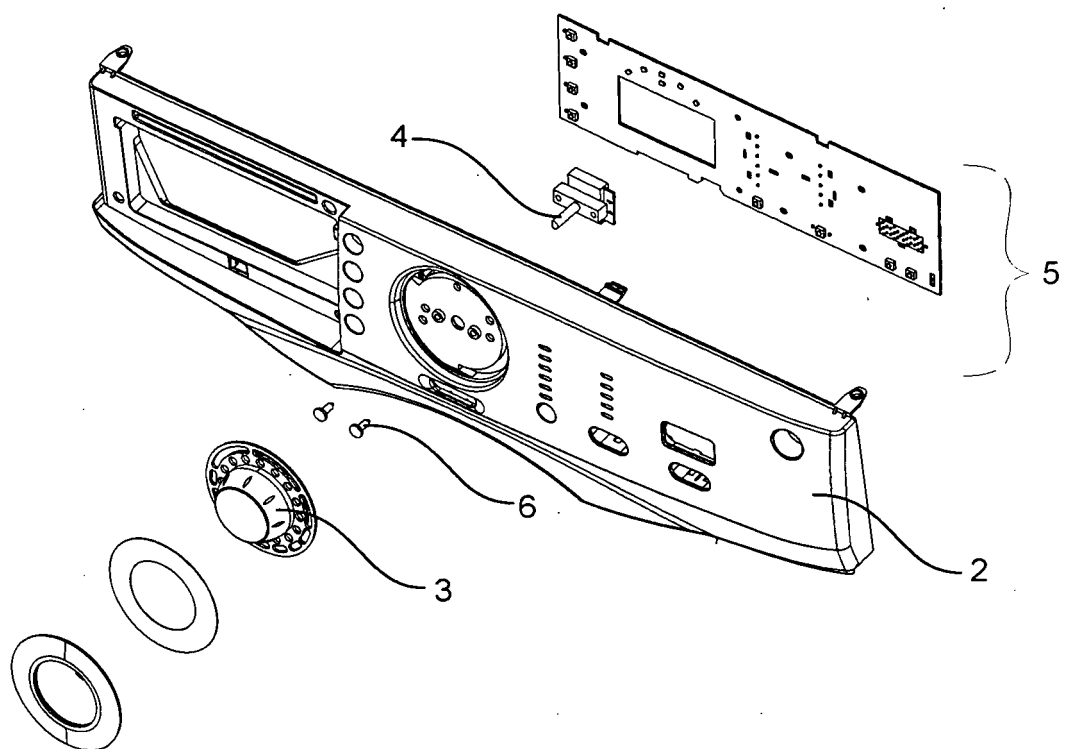


Figure 2



[Fig.]
Figure 3



REFERENCES CITED IN THE DESCRIPTION

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