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(54) **RANGE HOOD COMPRISING AN IMPROVED BUTTON BEARING DEVICE**

(57) The present invention relates to a range hood (10) comprising a control panel (11) having button holes for locating a number of buttons (43) and a button set (4) having a number of connection means (41, 42) and bearing the buttons (43) wherein said range hood (10) further comprises a button bearing device (1) comprising: a number of button grooves (2) corresponding to the holes of the control panel (11) and bearing of the buttons (43); a front surface area (6) abutting to the inner surface of the control panel (11) on a back side of the range hood (10); and a number of mounting legs (3) mounted to the connection means (41, 42) of the button set (4).

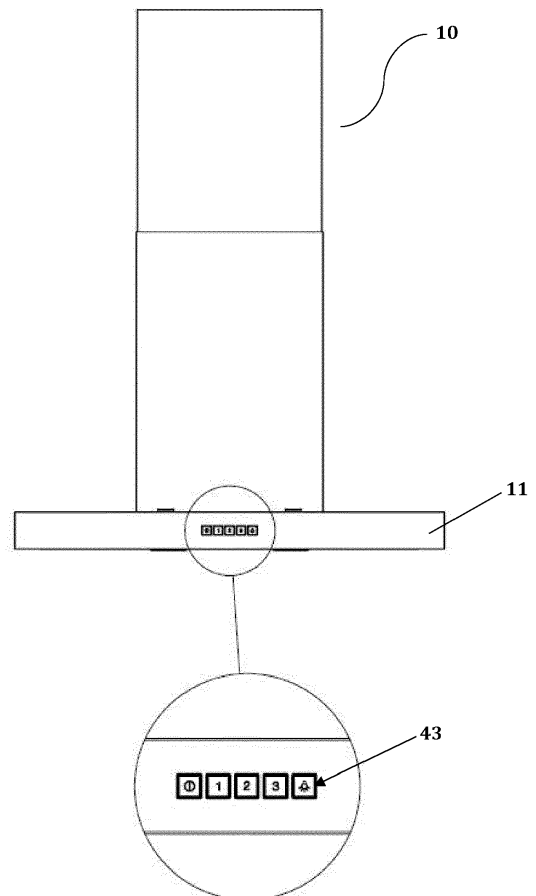


FIGURE 5

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Description

Technical Field

[0001] The present invention relates to range hoods comprising push buttons. More particularly, the invention presents a range hood comprising an improved button bearing device for guiding reset push buttons.

Background of the Invention

[0002] Range hoods are widely used in almost every home as well as industrial areas. They are usually operated manually by the users by means of the buttons on the panels. These buttons can be provided as push buttons or touchscreens. The operations such as on/off function of the fan, power level adjustment of the same and on/off function of the lamp on the range hood are performed by means of these buttons.

[0003] One of the types of the buttons is reset push buttons. These push buttons are the components providing the switching function by way of a mechanical movement, and are connected to a lower mechanism. For the sake of the desired function, switching is carried out by pressing the relevant button.

[0004] The buttons must be fixed on the range hood to withstand the force exerted by the users. The range hood contains grooves on the front panel for the buttons. The diameter of these grooves should be larger than the operating tolerance of the button diameter. If said grooves are not fully centred, they cause jamming, malfunction and deformation of the buttons as well as defects in appearance of the range hood. In addition, it is important to integrate the buttons in a low cost process easily to the range hood, to prevent damages occurring on the buttons during transportation and production, and eventually to maintain the long term functionality of the buttons without damages during the usage term of the range hood.

[0005] In the known methods, a twisted and reformed button fixing plate is used to adjust the button position. The button fixing plate which is given with an exemplary drawing in Figure 1, is generally fixed to the front panel of the range hood by a welding method. The fixing plate is positioned in the holes on the front panel of the range hood using screws. However, the manufacturing techniques connected to this fixing plate do not provide the desired bearing of the buttons, and they also have other disadvantages as they are damaged during shipment and assembly of the range hood.

[0006] Foregoing disadvantages may have several negative effects upon application of said methods. The most important is the costs. Costs increase during the process. In addition, labour time is prolonged. Each prolonged period is added to the total expense as a cost to be paid to the worker. Further, the products out of condition due to erroneous bending of the sheet metal, structural errors in the buttons, etc. increase the amount of

scrap. Amount of the production decreases with increased labour time. This requires extra time for the products to reach to the market. Problems such as jamming and deterioration of the buttons after sale increase the customer complaints and breakdown-technical service. Overall, the user may not be satisfied, and value of the product is lowered.

[0007] The present invention solves the foregoing problems by means of a range hood having an improved button bearing device comprising grooves appropriate for the operation of the buttons as defined in the claims.

Brief Description of the Figures

[0008] The preferred embodiments of the present invention are illustrated via non-limiting drawings wherein;

Figure 1 is a representative illustration of a button fixation plate from various angles according to prior art.

Figure 2 is a representative view of a button bearing device (1) provided in accordance with the present invention from different angles.

Figure 3 is a perspective view showing the way in which the system comprising a button set (4) and button bearing device (1) of the present invention are integrated to each other.

Fig. 4 is a perspective drawing in which the system as shown in Fig. 3 is connected to a range hood control panel (11).

Figure 5 is a general view of a range hood (10) produced in accordance with the present invention.

References

[0009]

- 1 Button bearing device
- 2 Button groove
- 3 Mounting leg
- 4 Button set
- 5 Mounting hole
- 6 Front surface area of the bearing device
- 10 Range hood
- 11 Control panel of the range hood
- 21 Protrusion surrounding the button groove
- 41 Connection means (hole)
- 42 Connection means (screw)
- 43 Button

Brief Description of the Invention

[0010] The present invention is generally related to a range hood (10) comprising a control panel (11) with but-

ton holes for allocating several of buttons (43), and a button set (4) carrying the buttons (43) and having a number of connection means (41, 42). The range hood (10) further comprises a button bearing device (1) comprising:

- a number of button grooves (2) corresponding to the holes of the control panel (11) and bearing of the buttons (43);
- a front surface area (6) attached to an inner surface of the control panel (11) on the back side of the range hood (10); and
- a number of mounting legs (3) mounted to the connection means (41, 42) of the button set (4).

[0011] The button bearing device (1) preferably comprises circumferential protrusions (21) surrounding the button grooves (2) and ascending from the front surface area (6) while being seated into the holes of the control panel (11). The connection means (41, 42) comprise a number of holes (41) and screws (42) in order to be secured to the bearing device (1). Accordingly, said mounting legs (3) include mounting holes (5) corresponding to said holes (41).

[0012] The button bearing device (1) according to the present invention can be made of a flexible material, preferably of plastics. The buttons (43) mentioned above may have a square or circular form. The buttons (43) disclosed herein may especially be of the type reset push button.

[0013] In preferred embodiments of the present invention, front surface area (6) of the button bearing device (1) is adhered to the internal surface of the control panel (11) on the back side of the range hood (10). This process can be done with the help of silicone, double-sided tape, heat treatment, centring, riveting or screwing.

[0014] In another aspect, the invention relates to a system comprising a button set (4) having a number of buttons (43) and connection means (41, 42), and a button bearing device (1) in order to be fixated to a control panel (11) of a range hood (10) having a number of button holes wherein the button bearing device (1) comprises:

- a number of button grooves (2) corresponding to the holes of the control panel (11) and bearing of the buttons (43);
- a front surface area (6) attached to the inner surface of the control panel (11) on the back side of the range hood (10); and
- a number of mounting legs (3) mounted to the connection means (41, 42) of the button set (4).

[0015] Still in a further aspect, the present invention relates to a process for manufacturing of the range hood (10) provided hereinabove, comprising the following steps:

- providing the system disclosed in the previous paragraph,

- placing the buttons (43) into the button holes of the range hood control panel (11), and
- fixing the front surface area (6) of the button bearing device (1) to the internal surface of the control panel (11) on the back side of the range hood (10).

Detailed Description of the Invention

[0016] Range hoods which are one of the biggest assistants during cooking are widely used in the kitchens. Users make use of the buttons on the range hood for applying the desired command. These buttons can be push button or touch operated. The user can operate the range hood by pressing the keys on the range hood. The range hoods with reset push buttons are still widely used in the kitchens.

[0017] The number of buttons can increase according to the predetermined speeds of the range hood. In addition, the on/off button and the lamp's button can be existing on the range hood panel. The durability of the push buttons against pushing force is important for the operation of the range hood. There are problems associated with deviation and jamming on the buttons which are not durable against said forces. In addition, appearance of the buttons is important for the user. The deviation of the buttons from their position or scratches occurring on them upon application of forces deteriorate the appearance.

[0018] The operation of the range hood is usually provided by the user by touching the button directly on the range hood panel. Push buttons conduct switching by mechanical movement. More specifically, the internal mechanism is activated by the user upon application of a force to the button. The internal mechanism includes a movable button set. Generally, range hoods with push buttons have grooves on the front panel allocated for the buttons.

[0019] The present invention relates to an improvement for such a system, and in order to eliminate the existing problems in prior art, a button bearing device (1) shown with different angles in Figure 2 is hereby provided. The button bearing device (1) according to the present invention has a body with button grooves (2) and mounting legs (3) on its surface. Preferably, the front surface of the button bearing device (1) has protrusions (21) surrounding the button groove (2). By means of the protrusions (21), it is ensured that the device (1) is easily and accurately placed or mounted on the range hood (10).

[0020] In Figure 3, the demounted view of the parts for connection of the button bearing device (1) and a button set (4) according to the invention is presented from different angles. By way of the connection means (41, 42) belonging to the button set (4), fixation to the mounting legs (3) of the button bearing device (1) is ensured, and buttons (43) are passed through the button grooves (2) of the bearing device (1). The connection means are preferably provided by a number of holes (41) and screws (42) on the fixing part of the button set. The screws (42)

are adapted to be secured to the mounting holes (5) provided on the mounting legs (3). The combined structure described herein has unique advantages. The transfer of the button set (4), integrated to the button bearing device (1) in this way, to the production line provides ease and speed in manufacturing of the range hood (10). In addition, random movement of the buttons (43) during transportation, as well as damages and visual or functional losses are prevented.

[0021] The combined system formed as shown in Figure 3 is attached to a control panel (11) of the range hood (10) as shown in Figure 4. The buttons (43) passing through the corresponding holes on the control panel (11) are thereby mounted to the range hood (10). This assembly may be made by a variety of fixing means as can be appreciated by those skilled in the art. In the context of the present invention, the button bearing device (1), and thereby the button set (4) is mounted to the range hood (10) preferably by applying an adhesive material to the front surface area (6) of the button bearing device (1). Once the assembly is completed, the range hood manufacturing process is completed as shown in Figure 5.

[0022] The height of the mounting legs (3) determines how far the buttons (43) would go out from the range hood control panel (11). As mentioned above, protrusions (21) surrounding the button grooves (2) are provided. In this way, the inner wall area of the button groove (2) is increased, and thereby stability of the buttons (43) is improved. Furthermore, it is of great advantage in the production line that the protrusions (21) are formed in such a way that being fit and seated into the button holes on the range hood control panel (11). Hence, it is ensured that the button bearing device (1) is secured to the rear surface of the range hood control panel (11) in a precise, firm and quick manner.

[0023] The button bearing device (1) positioned to correspond to the button holes on the control panel (11) of the range hood (10) is not visible to the user since it is placed in the internal mechanism of the range hood.

[0024] The button bearing device (1) is preferably manufactured from a flexible material. In this embodiment of the present invention, the button bearing device (1) is more preferably made of a plastic material. The use of a plastic material minimizes the frictional effect when force is applied to the button (43) and total weight of the button system is also reduced.

[0025] The buttons (43) may have different geometric forms. Although the buttons (43) shown in the drawings of the present application are presented in square form, it is possible to present the buttons in circular or other geometric forms, and it is also possible to adjust the dimensions to the desired level.

[0026] The button bearing device (1) according to the present invention can be used in range hoods produced with different materials such as metal, ceramic, glass, corian or marble.

Claims

1. A range hood (10) comprising a control panel (11) having button holes for placing a number of buttons (43), and a button set (4) having a number of connection means (41, 42) and bearing the buttons (43) **characterized in that** the range hood (10) further comprises a button bearing device (1) comprising:
 - a number of button grooves (2) corresponding to the holes of the control panel (11) and bearing of the buttons (43);
 - a front surface area (6) abutting to inner surface of the control panel (11) on a back side of the range hood (10); and
 - a number of mounting legs (3) mounted to the connection means (41, 42) of the button set (4).
2. A range hood (10) according to claim 1 wherein said button bearing device (1) further comprises protrusions (21) surrounding the button grooves (2), which extend beyond the front surface area (6) and being seated into the holes of the control panel (11).
3. A range hood (10) according to claim 1 wherein the connection means (41, 42) comprises a number of holes (41) and screws (42) for fixing them to the button bearing device (1).
4. A range hood (10) according to claim 3 wherein the mounting legs (3) comprise mounting holes (5) corresponding to said holes (41).
5. A range hood (10) according to claim 1 wherein the button bearing device (1) is made of a flexible material.
6. A range hood (10) according to claim 5 wherein the button bearing device (1) is made of a plastic material.
7. A range hood (10) according to claim 1 wherein the buttons (43) have square or circular form.
8. A range hood (10) according to claim 1 wherein the buttons (43) are of the type reset push button.
9. A range hood (10) according to claim 1 wherein front surface area (6) of the button bearing device (1) is adhered to the internal surface of the control panel (11) on the back side of the range hood (10).
10. A range hood (10) according to claim 9 wherein said adherence is carried out by means of silicone, double-sided tape, heat treatment, centring, riveting or screwing.
11. A system comprising;

a button set (4) having a number of buttons (43) and connection means (41, 42), and
 a button bearing device (1)
 for attachment to a control panel (11) of a range hood (10) having a number of button holes,
 wherein said button bearing device (1) comprises:

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- a number of button grooves (2) corresponding to the holes of the control panel (11) and bearing of the buttons (43);

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- a front surface area (6) abutting to inner surface of the control panel (11) on a back side of the range hood (10); and

- a number of mounting legs (3) mounted to the connection means (41, 42) of the button set (4).

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12. A method for manufacturing of a range hood (10) as provided in claim 1 comprising the steps of:

- providing a system according to claim 11,

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- placing the buttons (43) to the button holes of the range hood control panel (11), and

- fixing of front surface area (6) of the button bearing device (1) to the internal surface of the control panel (11) on a back side of the range hood (10).

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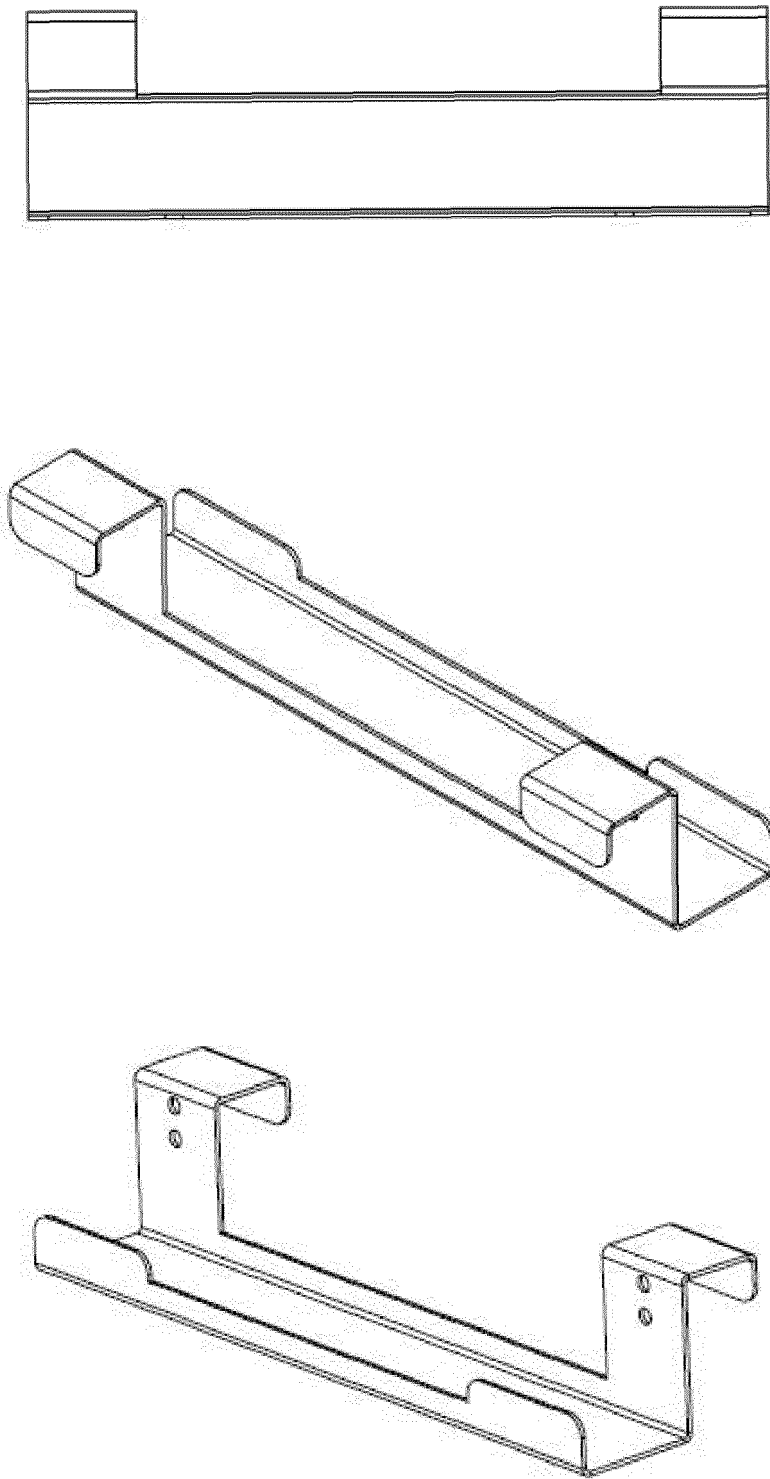


FIGURE 1 (Prior Art)

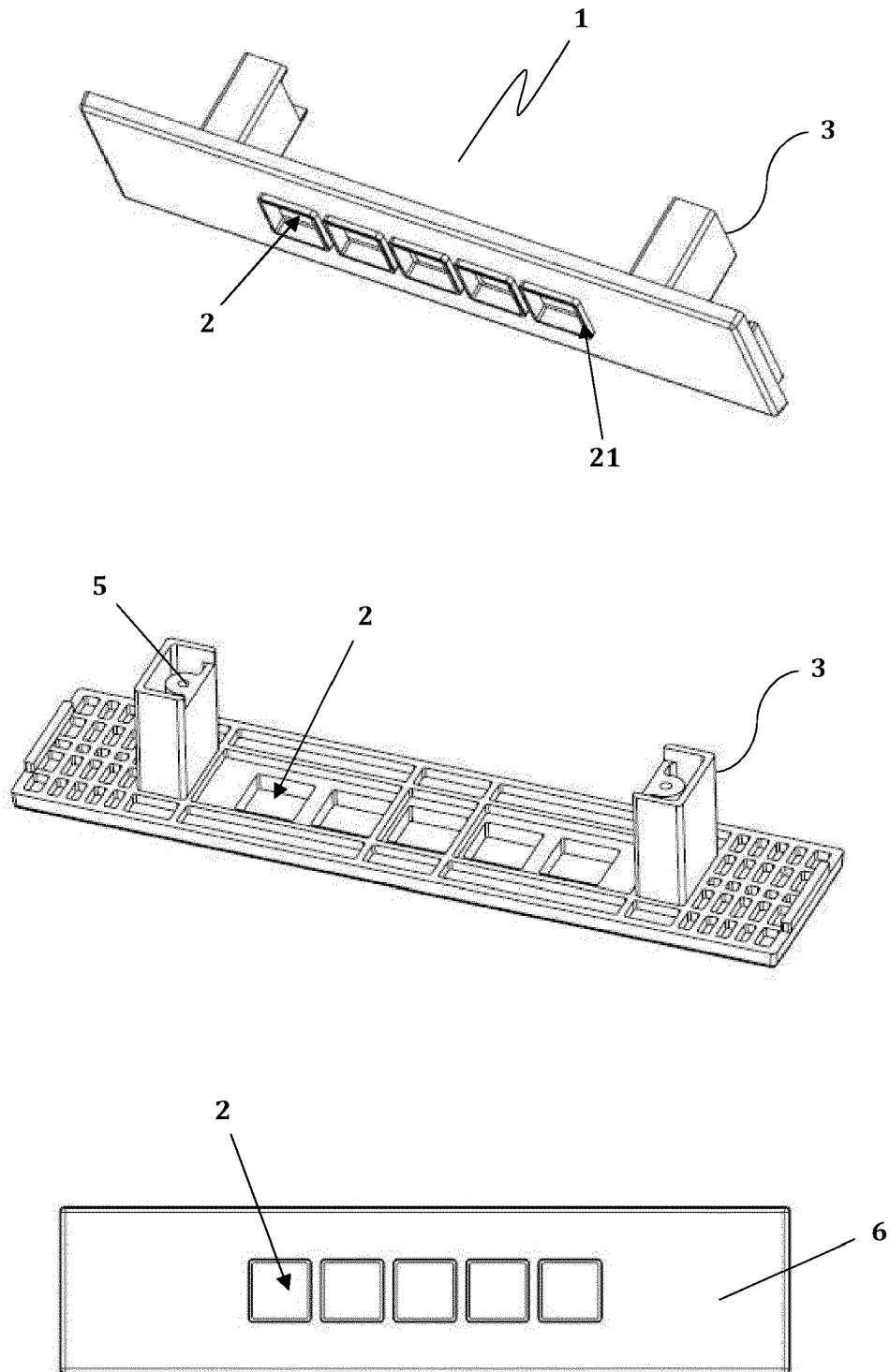


FIGURE 2

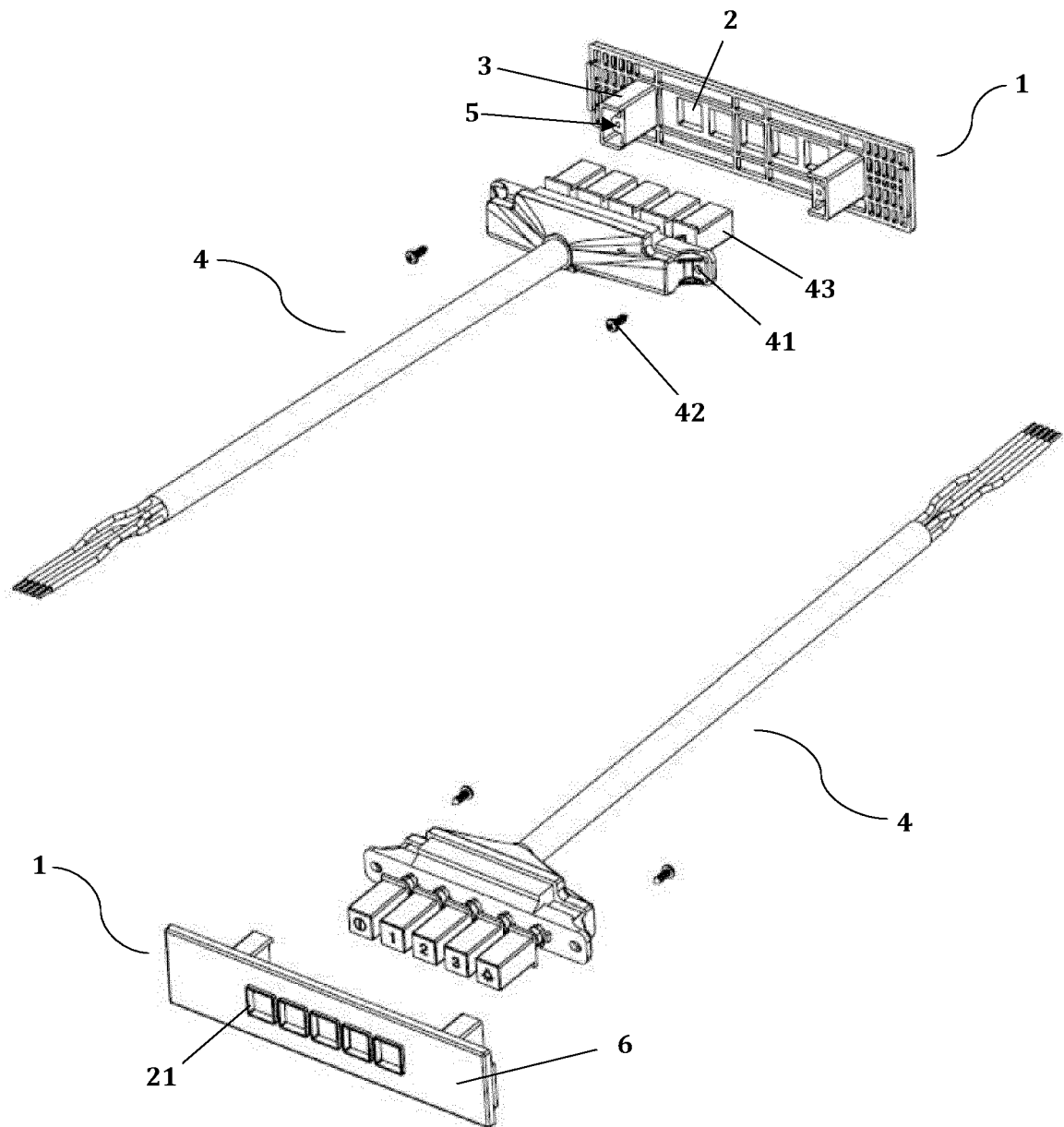


FIGURE 3

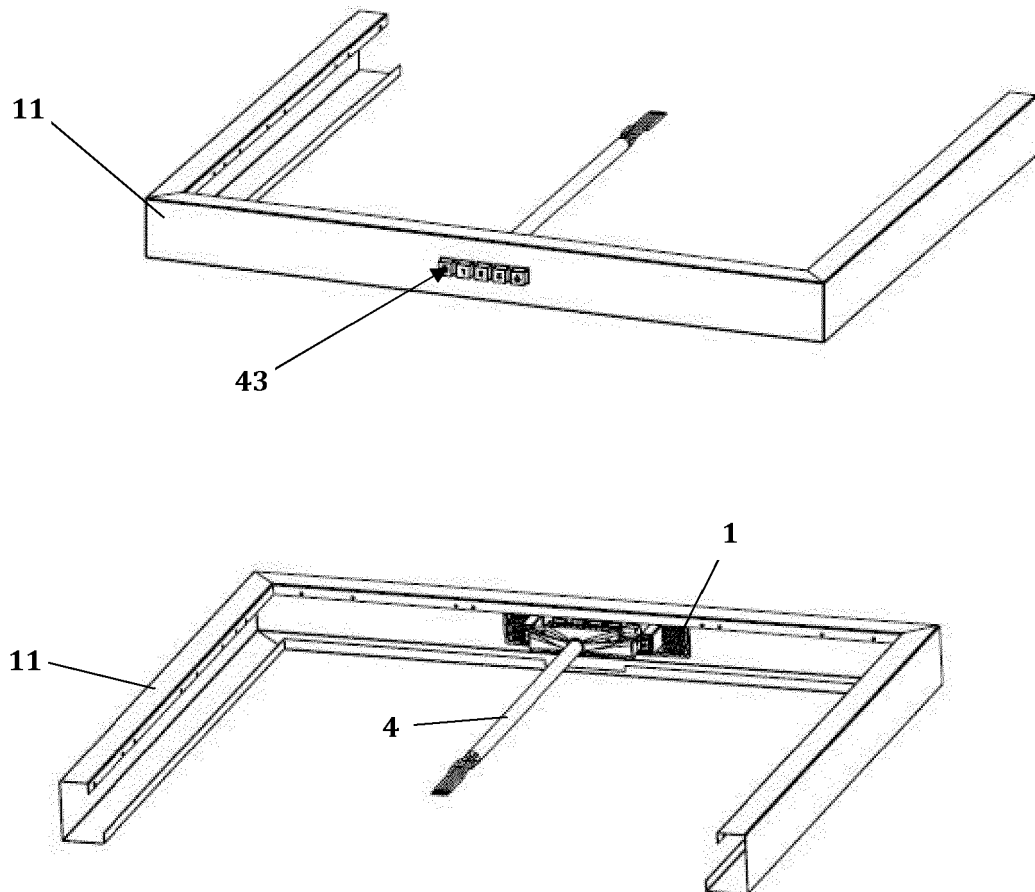


FIGURE 4

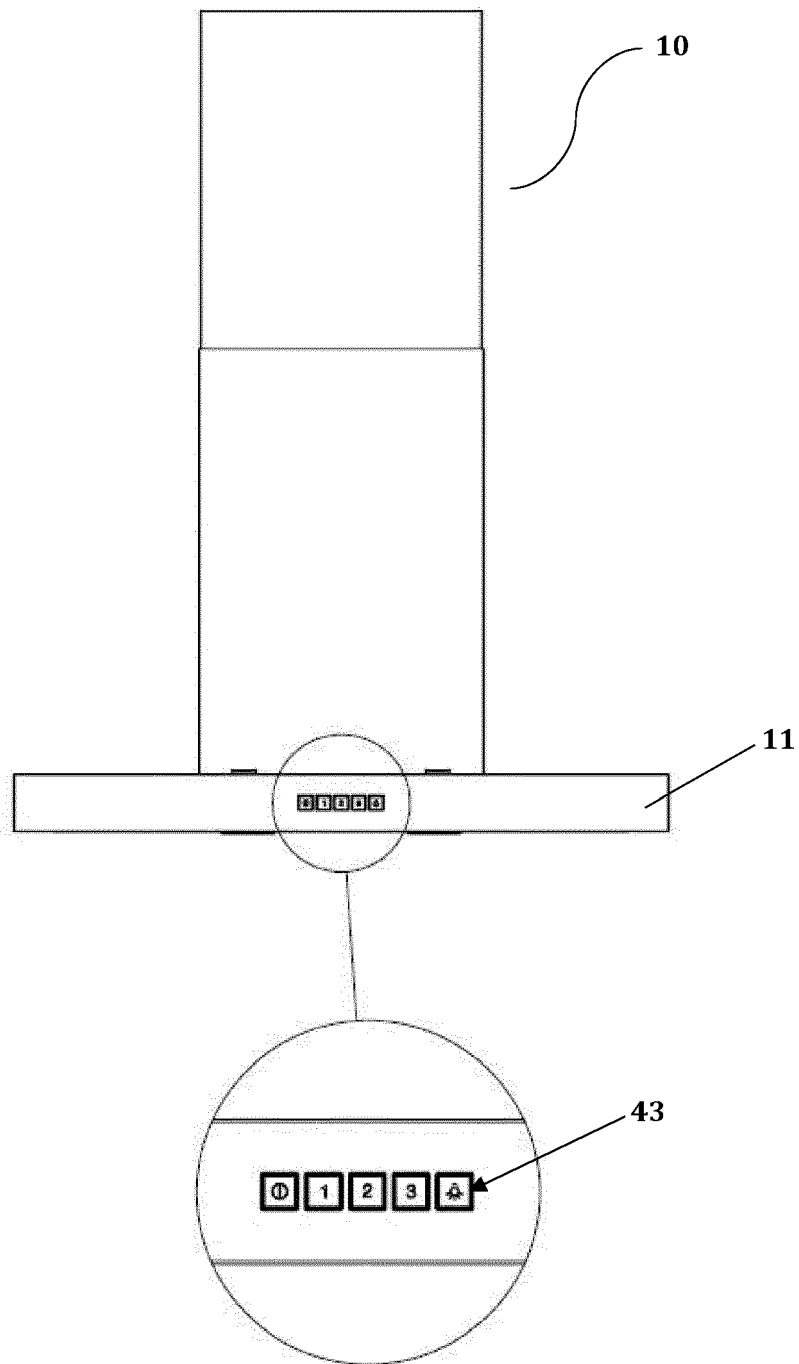


FIGURE 5



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Application Number
EP 19 21 6346

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Place of search The Hague		Date of completion of the search 8 June 2020	Examiner Rodriguez, Alexander
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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