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(54) **A cooking hob with one or more heating systems**

Herd mit einem oder mehreren Heizsystemen

Plaque de cuisson avec un ou plusieurs systèmes de chauffage

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Description

[0001] The present invention relates to a cooking hob with one or more heating systems according to the preamble of claim 1.

[0002] Some cooking hobs, which are part of a modular range of hobs, comprise different kinds of heating systems and/or heating elements, e.g. induction coils, radiant heating elements, woks and/or teppans. Usually, said heating systems correspond with separate control units, displays and control elements. This structure causes a cooking hob with a high number of parts. Such kind of cooking hob is very complex.

[0003] ES 2 306 555 A1 discloses a cooking hob with an upper part for supporting cookware and a lower part for containing heating elements. A housing for containing a display and control elements is arranged at the side of the lower part and below the upper part. A side wall of the housing and a side wall of the lower part are permanently connected by a welded joint.

[0004] DE 200 14 192 U1 discloses a positioning arrangement for a frame of a disk drive in a computer chassis without any screws. Two rows of notches are formed at an inner front board of the computer chassis. The notches are provided for receiving a positioner. An upper board of the computer chassis comprises two rows of hooks. The end face of the frame comprises two collateral support plates and a hook plate at its bottom side. The upper board of the frame comprises angle plates at all sides. Said angle plates include a number of slots for receiving the hooks, when the frame has been pushed into the computer chassis. The positioning arrangement is provided to clamp the hook plate and the support plate together, after the hooks have been received by the slots. The positioning arrangement includes a pressure absorbing plate and two elastic elements.

[0005] It is an object of the present invention to provide a cooking hob provided for one or more heating systems, wherein said cooking hob comprises a low number of parts and may be assembled in an easy way.

[0006] The object of the present invention is achieved by the cooking hob according to claim 1.

[0007] According to the present invention the at least one housing is formed as a single-piece part, made of plastics and attached by at least one hook at the side wall of the at least one lower part, wherein the side wall of the at least one lower part includes at least one recess for inserting top down the at least one hook of the housing, and wherein the at least one upper part includes frame elements formed as L-shaped profile parts at its lower side for fixing the at least one lower part, and wherein the frame elements form a rectangle at the bottom side of the upper part, and wherein the horizontal circumference of the frame formed by the frame elements is marginally bigger than the horizontal circumference of the lower part and the attached housing, and wherein further hooks are arranged at an outer side of an outer side wall of the housing, said further hooks are connected or connectable to the corresponding frame element, and wherein the further hooks and the corresponding frame element form a snap-in mechanism.

[0008] The main idea of the present invention is the separate arrangement of the heating elements on the one hand and the control units, displays and/or control elements on the other hand in the lower part and the housing, respectively. The separate housing protects the control units, displays and/or control elements from heat, wetness and humidity. Further, the lower part and the housing are arranged side-by-side and below the upper part, so that the cooking hob has a compact form. The housing is attached by the at least one hook at the at least one corresponding recess of the lower part, so that the lower part and the housing may be assembled without any tools. Further, the lower part may be attached at the frame elements of the upper part by standard tools or without any tools. The housing is additionally attachable at the frame elements.

[0009] According to the present invention the at least one upper part includes a glass-ceramic panel. The glass-ceramic panel allows a flat form of the cooking hob and contributes to compact form of the cooking hob,

Further, the at least one upper part includes fixing springs and/or fixing snaps at its lower side for fixing the at least one lower part. The frame elements, the fixing springs and/or the fixing snaps are simply mountable.

Preferably, the at least one lower part includes a bottom part and four side walls, so that the lower part is formed as a box with an open top side. The lower part provides a closed casing together with the upper part.

In particular, the at least one lower part is made of metal sheets. The metal sheets are heat resistant.

Further, the at least one housing includes a bottom part and four side walls, so that the housing is formed as a box with an open top side. The housing provides an efficient protection for the control units, displays and/or control elements.

According to the present invention the at least one housing is made of plastics.

According to the present invention the at least one housing is attached by at least one hook at the side wall of the at least one lower part. Alternatively, the housing is attached by screws at the side wall of the lower part.

[0010] According to the present invention the side wall of the at least one lower part includes at least one recess for inserting the at least one hook of the housing.

[0011] In order to connect the lower part and the upper part, the side walls of the lower part are connected to the frame elements by screws or by spring elements or by snap elements.

[0012] At last, the frame elements may be glued at a lower side of the glass-ceramic panel.

[0013] The novel and inventive features believed to be the characteristic of the present invention are set forth in the appended claims.

[0014] The invention will be described in further detail with reference to the drawings, in which

FIG 1 illustrates a schematic perspective exploded view of a cooking hob according to a preferred embodiment of the present invention,

FIG 2 illustrates a schematic perspective view of a lower part of the cooking hob according to the preferred embodiment of the present invention,

FIG 3 illustrates a schematic perspective view of a housing for the cooking hob according to the preferred embodiment of the present invention, and

FIG 4 illustrates a schematic exploded side view of the cooking hob according to the preferred embodiment of the present invention.

[0015] FIG 1 illustrates a schematic perspective exploded view of a cooking hob according to a preferred embodiment of the present invention. The cooking hob includes an upper part 10, a lower part 16 and a housing 18.

[0016] The upper part 10 of the cooking hob comprises a glass-ceramic panel 12 and four frame elements 14. The frame elements 14 are attached at the bottom side of the glass-ceramic panel 12. The frame elements 14 form substantially a rectangle at the bottom side of the glass-ceramic panel 12. In this example, the frame elements 14 are formed as L-shaped profile parts made of metal. The glass-ceramic panel 12 covers the lower part 16 of the cooking hob and the housing 18.

[0017] The lower part 16 of the cooking hob comprises a bottom part 20 and four side walls 22. The lower part 16 is formed as a flat box with an open top side. The bottom part 20 and the side walls 22 are formed as metal sheets. The lower part 16 of the cooking hob contains heating elements, which are not shown in FIG 1.

[0018] The housing 18 is arranged besides the lower part 16 and below the upper part 10. The housing 18 is attached at one of the side walls 22 of the lower part 16. In this example, housing 18 is suspended at the side wall 22 by a hook 30, wherein said hook 30 is inserted in a recess of the side wall 22. Alternatively, the housing 18 may be attached at the side wall 22 by screws or rivets.

[0019] Displays 24 and control elements 26 are arranged within the housing 18. The displays 24 are provided to indicate the status of corresponding heating elements within the lower part 16. The control elements 26 are provided to activate and deactivate said heating elements by the user. Further, one or more control circuits are arranged in the housing 18 below the displays 24 and/or the control elements 26. The control circuits are provided to control the heating elements.

[0020] FIG 2 illustrates a schematic perspective view of the lower part 16 of the cooking hob according to the preferred embodiment of the present invention. FIG 2 shows the bottom part 20 and the four side walls 22 of the lower part 16. FIG 2 clarifies that the lower part 16 is formed as a flat box with an open top side.

[0021] The housing 18 is attached at one of the four side walls 22 of the lower part 16. In FIG 2 the housing 18 is attached at the rear side wall 22 of the lower part 16. The housing 18 is attached at the side wall 22 by two hooks 30. Said hooks 30 are inserted top down into corresponding recesses of the rear side wall 22.

[0022] The displays 24 and the control elements 26 of the cooking hob are arranged within the housing 18. The one or more control circuits are arranged in the housing 18 below the displays 24 and/or the control elements 26.

[0023] FIG 3 illustrates a schematic perspective view of the housing 18 for the cooking hob according to the preferred embodiment of the present invention. FIG 3 shows the empty housing 18 without any displays 24, control elements 26 and control circuits.

[0024] FIG 3 clarifies that the housing 18 is formed as a box with an open top side. In this example, the housing 18 is formed as a single-piece part and made of plastics. The hooks 30 are arranged at an outer side of a rear side wall of the housing 18. Said rear side wall of the housing 18 is provided to lie against the corresponding side wall 22 of the lower part 16. A recess 28 is formed in said rear side wall of the housing 18. The recess 28 is provided for electric cables between the heating elements in the lower part 16 on the one hand and the displays 24, control elements 26 and/or control circuits on the other hand.

[0025] At an outer side of a front side wall of the housing 18 further hooks 38 are arranged. In this example, two further hooks 38 are formed at the outer side of the front side wall of the housing 18. Said further hooks 38 can be connected with the corresponding frame element 14 attached at the lower side of the glass ceramic panel 12.

[0026] Since the side wall of the housing 18 lies against the side wall 22 of the lower part 16, a double side wall is arranged between the heating elements on the one hand and the displays 24, control elements 26 and/or control circuits on the other hand. Thus, the displays 24, the control elements 26 and/or the control circuits are protected against heat. Since the housing 18 is formed as single-piece part and made of plastics, the displays 24, the control elements 26 and/or the control circuits are protected against humidity and wetness.

[0027] All necessary electronic components of the cooking hob may be arranged within the housing 18. The housing 18 may contain several layers 40 and 42 of electric and/or electronic components. In this example, the housing 18 contains a first layer 40 and a second layer 42. The electric and/or electronic components are arranged at the layers 40 and 42. In general, the housing 18 may contain one or more layers 40 and 42.

[0028] FIG 4 illustrates a schematic exploded side view of the cooking hob according to the preferred embodiment of the present invention. FIG 4 clarifies that the glass-ceramic panel 12 covers the lower part 16 as well as the housing 18.

[0029] In this example, the frame elements 14 comprise round holes 34 and slot holes 36, and the side walls 22 comprise corresponding screw holes 32. The round

holes 34, slot holes 36 and the screw holes 32 allow a connection between the upper part 10 and the lower part 16 by screws. Alternatively, the round holes 34 and/or slot holes 36 may be arranged in the side walls 22 of the lower part 16, and the corresponding screw holes 32 may be arranged in the frame elements 14.

[0030] The frame elements 14 are formed as L-shaped profile parts and glued at the lower side of the glass-ceramic panel 12. In this example, the horizontal circumference of the frame formed by the frame elements 14 is marginally bigger than the horizontal circumference of the lower part 16 and the attached housing 18.

[0031] FIG 4 clarifies that the housing 18 and the lower part 16 have substantially the same height. Thus, the upper part 10, the lower part 16 and the housing 18 form a compact cooking hob. Said cooking hob requires only few materials.

[0032] The cooking hob according to the present invention may comprise several lower parts 16 arranged side-by-side and directly below the upper part 10. In this case, one or more housings 18 may be arranged beside the lower parts 16 and also directly below the upper part 10.

[0033] The present invention is particularly suitable for large cooking hobs and/or for cooking hobs with different heating systems, e.g. induction coils, radiant heating elements, woks and/or teppans. Further, the present invention is also suitable for a range of hobs, wherein each may comprise a different heating system. For example, the upper part 10 may comprise grill plates made of iron or steel. Said iron or steely grill plates may be arranged beside or within the glass-ceramic panel.

[0034] Although an illustrative embodiment of the present invention has been described herein with reference to the accompanying drawings, it is to be understood that the present invention is not limited to that preferred embodiment, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope of protection as defined by the claims.

List of reference numerals

[0035]

10 upper part
12 glass-ceramic panel
14 frame element
16 lower part
18 housing
20 bottom part
22 side wall
24 display
26 control element
28 recess
30 hook
32 screw hole
34 round hole
36 slot hole
38 further hook
40 first layer
42 second layer

Claims

1. A cooking hob with one or more heating systems, wherein:

- the cooking hob includes at least one upper part (10) with a glass-ceramic panel (12) provided for supporting cookware and/or food stuff,
- the cooking hob includes at least one lower part (16) provided for containing at least one heating element inside said lower part (16),
- the at least one lower part (16) is arranged below the at least one upper part (10),
- the cooking hob includes at least one housing (18) provided for containing at least one control unit, at least one display (24) and/or control elements (26),
- the at least one housing (18) is arranged at the side of or adjacent to the at least one lower part (16) and below the at least one upper part (10), and
- the at least one housing (18) is attached at a side wall (22) of the at least one lower part (16),

characterized in, that
the at least one housing (18) is formed as a single-piece part, made of plastics and attached by at least one hook (30) at the side wall (22) of the at least one lower part (16), wherein the side wall (22) of the at least one lower part (16) includes at least one recess (28) for inserting top down the at least one hook (30) of the housing (18), and wherein the at least one upper part (10) includes frame elements (14) formed as L-shaped profile fixing parts and glued to the lower side of the glass-ceramic panel (12) for fixing the at least one lower part (16), and wherein the frame elements (14) form a rectangle at the bottom side of the glass-ceramic panel (12), and wherein the horizontal circumference of the frame formed by the frame elements (14) is marginally bigger than the horizontal circumference of the lower part (16) and the attached housing (18), and wherein further hooks (38) are arranged at an outer side of an outer side wall of the housing (18), said further hooks (38) are connected or connectable to the corresponding frame element (14), and wherein the further hooks (38) and the corresponding frame element (14) form a snap-in mechanism.

2. The cooking hob according to claim 1, **characterized in, that**
the at least one upper part (10) includes fixing springs

and/or fixing snaps at its lower side for fixing the at least one lower part (16).

3. The cooking hob according to any one of the preceding claims,
characterized in, that
the at least one lower part (16) includes a bottom part (20) and four side walls (22), so that the lower part (16) is formed as a box with an open top side.

4. The cooking hob according to any one of the preceding claims,
characterized in, that
the at least one lower part (16) is made of metal sheets.

5. The cooking hob according to any one of the preceding claims,
characterized in, that
the at least one housing (18) includes a bottom part and four side walls, so that the housing (18) is formed as a box with an open top side.

6. The cooking hob according to any one of the preceding claims,
characterized in, that
the side walls (22) of the lower part (16) are connected to the frame elements (14) by screws, hooks, springs and/or snaps.

7. The cooking hob according to any one of the preceding claims **characterized in, that**
the frame elements (14) are glued at a lower side of the glass-ceramic panel (12).

Patentansprüche

1. Kochfeld mit einem oder mehreren Heizsystemen, wobei:

- das Kochfeld wenigstens einen oberen Teil (10) mit einem Glaskeramikfeld (12) enthält, das zum Tragen von Kochgeschirr und/oder Lebensmitteln vorgesehen ist,
- das Kochfeld wenigstens einen unteren Teil (16) enthält, der zum Aufnehmen wenigstens eines Heizelements innerhalb des unteren Teils (16) vorgesehen ist,
- der wenigstens eine untere Teil (16) unterhalb des wenigstens einen oberen Teils (10) angeordnet ist,
- das Kochfeld wenigstens ein Gehäuse (18), das zum Aufnehmen wenigstens einer Steuereinheit vorgesehen ist, wenigstens eine Anzeigevorrichtung (24) und/oder Steuerelemente (26) enthält,
- das wenigstens eine Gehäuse (18) an der Seite des oder neben dem wenigstens einen unteren Teil (16) und unterhalb des wenigstens einen oberen Teils (10) angeordnet ist und
- das wenigstens eine Gehäuse (18) an einer Seitenwand (22) des wenigstens einen unteren Teils (16) angebracht ist,

dadurch gekennzeichnet, dass
das wenigstens eine Gehäuse (18) einteilig ausgebildet ist, aus Kunststoff hergestellt ist und durch wenigstens einen Haken (30) an der Seitenwand (22) des wenigstens einen unteren Teils (16) angebracht ist, wobei die Seitenwand (22) des wenigstens einen unteren Teils (16) wenigstens eine Aussparung (28) enthält zum Einführen von oben nach unten des wenigstens einen Hakens (30) des Gehäuses und wobei der wenigstens eine obere Teil (10) Rahmenelemente (14), die als Befestigungsteile mit L-förmigem Profil gebildet und an die Unterseite des Glaskeramikfelds (12) geklebt sind, zum Befestigen des wenigstens einen unteren Teils (16) enthält und wobei die Rahmenelemente (14) ein Rechteck an der Bodenseite des Glaskeramikfelds bilden, und
wobei der horizontale Umfang des Rahmens, der durch die Rahmenelemente (14) gebildet ist, geringfügig größer ist als der horizontale Umfang des unteren Teils (16) und des angebrachten Gehäuses (18) und wobei weitere Haken (38) an einer Außenseite einer äußeren Seitenwand des Gehäuses angeordnet sind, wobei die weiteren Haken (38) mit dem entsprechenden Rahmenelement (14)verbunden sind oder verbunden werden können und wobei die weiteren Haken (38) und das entsprechende Rahmenelement (14) einen Schnappmechanismus bilden.

2. Kochfeld nach Anspruch 1,
dadurch gekennzeichnet, dass
der wenigstens eine obere Teil (10) Befestigungsfedern und/oder Befestigungsschnappverschlüsse an seiner Unterseite zum Befestigen des wenigstens einen unteren Teils (16) enthält.

3. Kochfeld nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, dass
der wenigstens eine untere Teil (16) einen Bodenabschnitt (20) und vier Seitenwände (22) enthält, so dass der untere Teil (16) als ein Kasten mit einer offenen Oberseite gebildet ist.

4. Kochfeld nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, dass
der wenigstens eine untere Teil (16) aus Metallblechen hergestellt ist.

5. Kochfeld nach einem der vorhergehenden Ansprü-

che,
dadurch gekennzeichnet, dass
das wenigstens eine Gehäuse (18) einen Bodenabschnitt und vier Seitenwände (22) enthält, so dass das Gehäuse (18) als ein Kasten mit einer offenen Oberseite gebildet ist.

6. Kochfeld nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, dass
die Seitenwände (22) des unteren Teils (16) mit den Rahmenelementen (14) durch Schrauben, Haken, Federn und/oder Schnappverschlüsse verbunden sind.

7. Kochfeld nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet, dass
die Rahmenelemente (14) an einer Unterseite des Glaskeramikfelds (12) geklebt sind.

Revendications

1. Plan de cuisson présentant un ou plusieurs systèmes de chauffage et dans lequel :

le plan de cuisson comprend au moins une partie supérieure (10) dotée d'un panneau (12) en vitrocéramique prévu pour soutenir des ustensiles de cuisine et/ou des aliments,
le plan de cuisson comprenant au moins une partie inférieure (16) prévue pour reprendre au moins un élément chauffant à l'intérieur de ladite partie inférieure (16),
la ou les parties inférieures (16) étant agencées en dessous de la ou des parties supérieures (10),
le plan de cuisson comprenant au moins un logement (18) prévu pour contenir au moins une unité de commande, au moins un affichage (24) et/ou des éléments de commande (26),
le ou les logements (18) étant agencés à côté de ladite ou desdites parties inférieures (16) ou en position adjacente à celles-ci et en dessous de ladite ou desdites parties supérieures (10) et le ou les logements (18) sont fixés sur une paroi latérale (22) de la ou des parties inférieures (16),
caractérisé en ce que
le ou les logements (18) sont configurés sous la forme d'une pièce d'un seul tenant réalisée en matière synthétique et fixée par au moins un crochet (30) sur la paroi latérale (22) de la ou des parties inférieures (16), la paroi latérale (22) de la ou des parties inférieures (16) comprenant au moins un creux (28) permettant d'insérer du haut vers le bas le ou les crochets (30) du logement (18), la ou les parties supérieures (10) comprenant des éléments de bâti (14) configurés comme pièces de fixation profilées en forme de L et collées sur le côté inférieur du panneau (12) en vitrocéramique pour fixer la ou les parties inférieures (16), les éléments de bâti (14) formant un rectangle sur le côté de base du panneau (12) en vitrocéramique et
la circonférence horizontale du bâti formée par les éléments de bâti (14) déborde au-delà de la circonférence horizontale de la partie inférieure (16) et du logement (18) qui y est fixé, d'autres crochets (38) étant agencés sur le côté extérieur de la paroi latérale extérieure du logement (18), lesdits autres crochets (38) étant reliés ou pouvant être reliés à l'élément de bâti (14) correspondant, les autres crochets (18) et l'élément de bâti (14) correspondant formant un mécanisme d'encliquetage.

2. Plan de cuisson selon la revendication 1, **caractérisé en ce que** la ou les parties supérieures (10) comprennent des ressorts de fixation et/ou des encliquetages de fixation sur leur côté inférieur, pour fixer la ou les parties inférieures (16).

3. Plan de cuisson selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la ou les parties inférieures (16) comprennent une partie de fond (20) et quatre parois latérales (22), de telle sorte que la partie inférieure (16) est configurée en boîte dont le côté supérieur est ouvert.

4. Plan de cuisson selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la ou les parties inférieures (16) sont réalisées en tôle métallique.

5. Plan de cuisson selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le ou les logements (18) comprennent une partie de fond et quatre parois latérales de telle sorte que le logement (18) est configuré en boîte dont le côté supérieur est ouvert.

6. Plan de cuisson selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les parois latérales (22) de la partie inférieure (16) sont reliées aux éléments de bâti (14) par des vis, des crochets, des ressorts et/ou des encliquetages.

7. Plan de cuisson selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les éléments de bâti (14) sont collés sur le côté inférieur du panneau (12) en vitrocéramique.

FIG 1

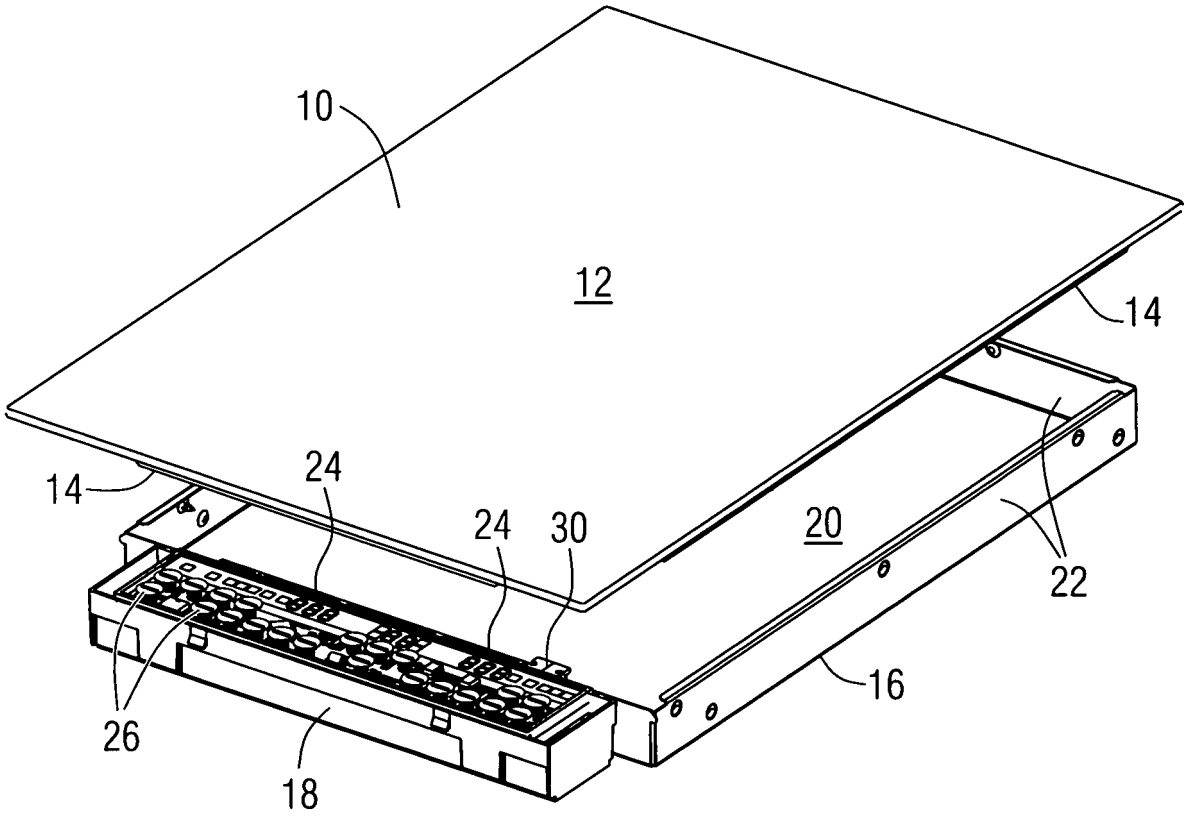


FIG 2

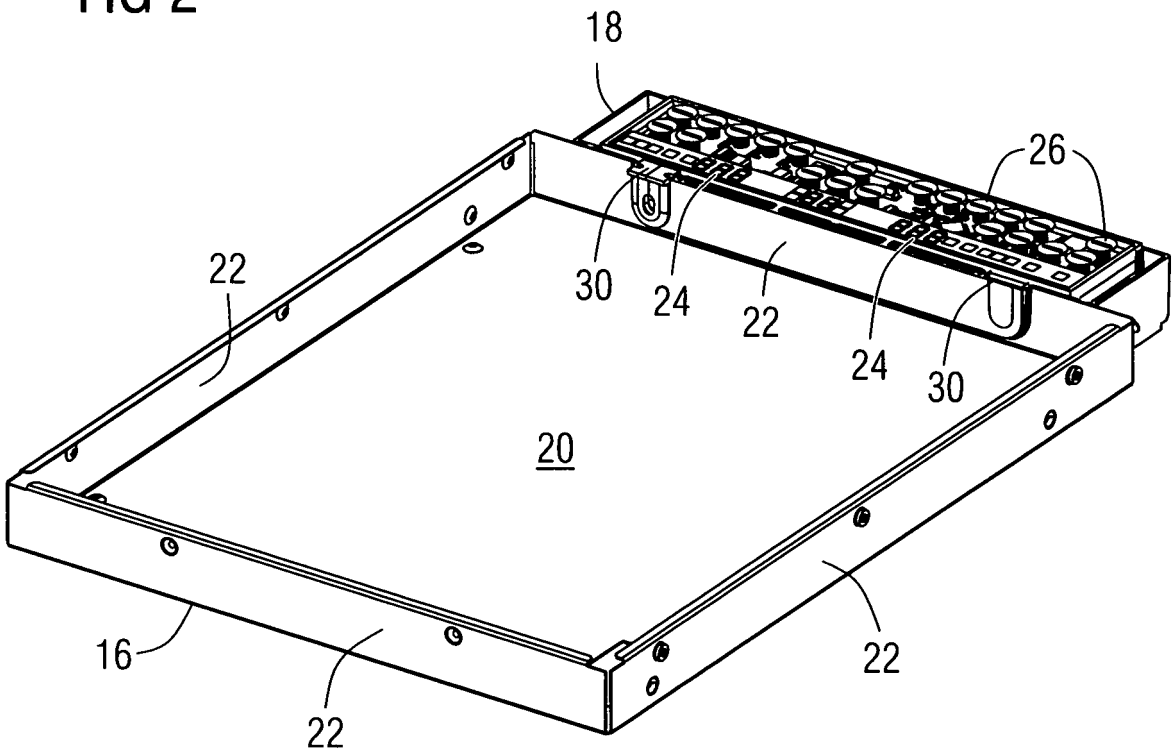


FIG 3

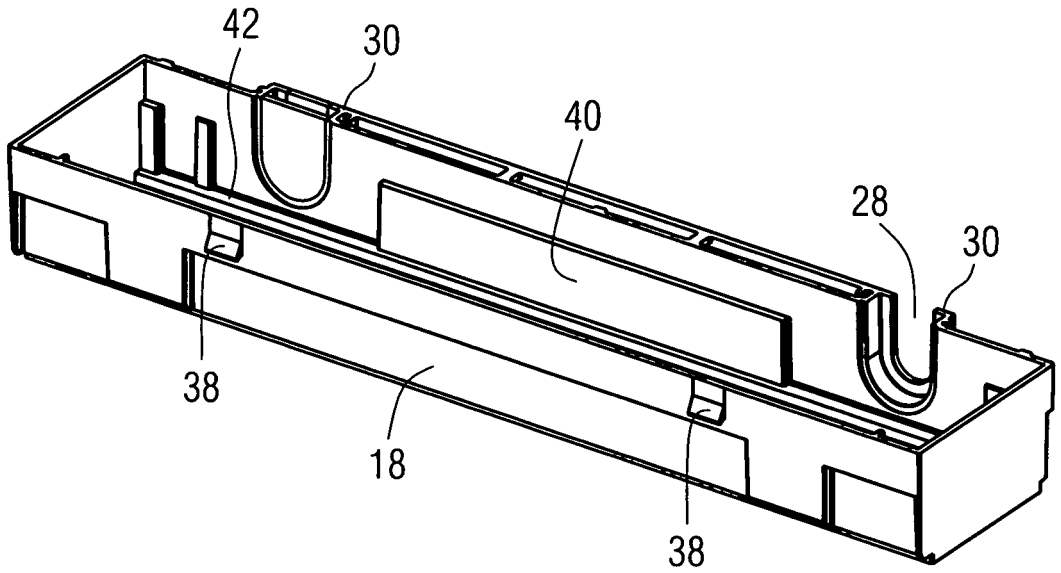
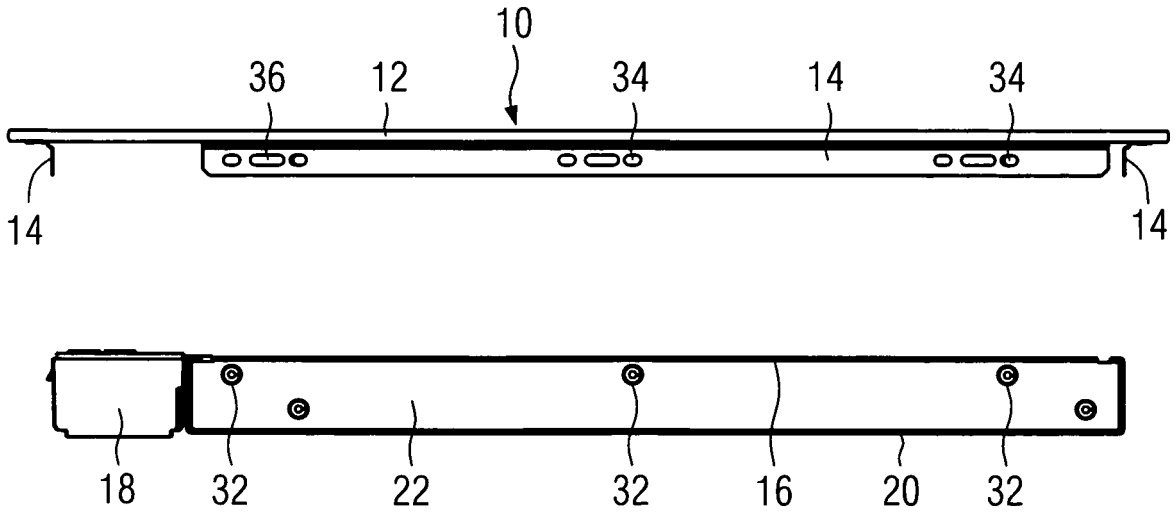


FIG 4



REFERENCES CITED IN THE DESCRIPTION

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