



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
09.03.2011 Bulletin 2011/10

(51) Int Cl.:
A47L 15/42 ^(2006.01) **H01H 13/705** ^(2006.01)

(21) Application number: **09011335.8**

(22) Date of filing: **03.09.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
AL BA RS

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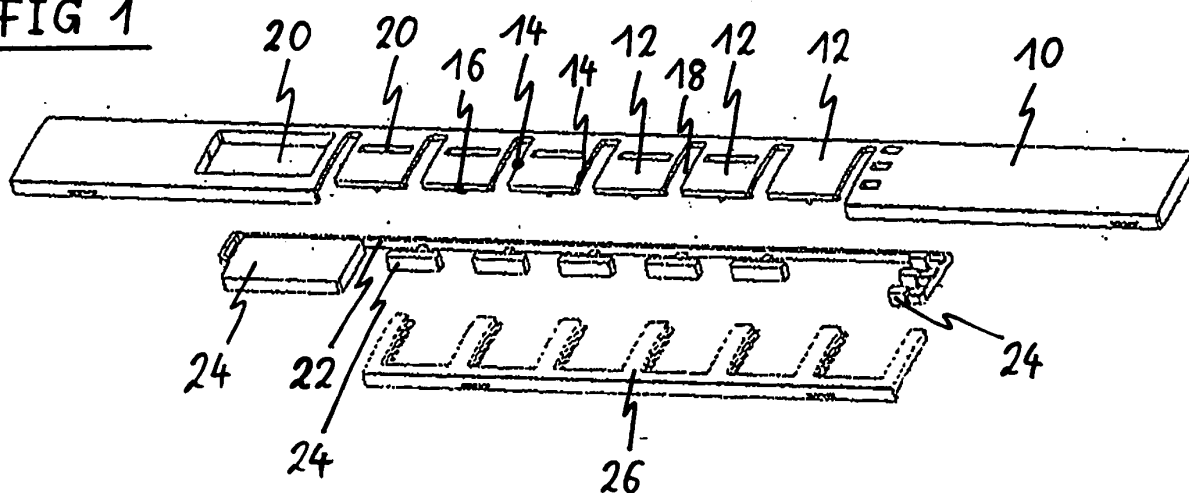
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(54) **A control panel for a domestic appliance**

(57) The present invention relates to a control panel for a domestic appliance. The control panel comprises at least one basic panel (10) and at least one control element (12). At least one control element (12) is formed as a flexible tongue connected to the basic panel (10). The control element (12) corresponds with at least one pair of electric contact elements. The pair of the electric

contact elements is arranged behind the basic panel (10), so that the pair of the electric contact elements contacts by pressing against a front side of the corresponding control element (12). The control panel comprises at least one elastic sealing member (26) connected to at least one free side of the control element (12). Further, the present invention relates to a domestic appliance with a control panel.

FIG 1



Description

[0001] The present invention relates to a control panel for a domestic appliance. Further, the present invention relates to a domestic appliance with a control panel.

[0002] Domestic appliances are controlled by one or more mechanical push-buttons. Said push-buttons are moveable within a cut-out of a control panel. An electronic device is arranged behind the control panel. The push-buttons are independent from each other.

[0003] However, the external alignment of the push-buttons is not always perfect, since the push-buttons are fixed on a flexible part of the electronic device. The push-buttons have a big height and require a big space above the control panel. It is difficult to clean such kinds of push-buttons. Further, the possibilities for creating the design of the control panel are restricted.

[0004] It is the object of the present invention to provide an improved control panel for a domestic appliance and a corresponding domestic appliance with a control panel, wherein the control panel has a compact design and can easily be cleaned.

[0005] This object is achieved by the control panel for the domestic appliance according to claim 1.

[0006] According to the present invention:

- the control panel comprises at least one basic panel,
- the control panel comprises at least one control element,
- at least one control element is formed as a flexible tongue connected to the basic panel,
- the control element corresponds with at least one pair of electric contact elements,
- the pair of the electric contact elements is arranged behind the basic panel, so that the pair of the electric contact elements contacts by pressing against a front side of the corresponding control element, and
- the control panel comprises at least one elastic sealing member connected to at least one free side of the control element.

[0007] The core of the present invention is the combination of the control element formed as the flexible tongue at the basic panel and the elastic sealing member connected to free sides of the control element. This constellation allows a flat and compact arrangement of the control panel.

[0008] According to the preferred embodiment of the present invention the control panel comprises at least two control elements formed as flexible tongues and arranged in series, wherein the sealing member is connected to proximal free sides of two neighbouring control elements. The series of control elements allows an elongated control panel.

[0009] Further, the sealing member may fill an intermediate space between two proximal free sides of two neighbouring control elements. In a similar way, the sealing member may enclose circumferentially the proximal

free sides and a distal free side of at least one control element.

[0010] Preferably, at least a part of the basic panel with the control elements is formed as an elongated single-piece sheet. Such a control panel may be attached at narrow surfaces of the domestic appliance.

[0011] According to the preferred embodiment of the present invention the basic panel includes at least one recess including the at least one intermediate space between the proximal free sides of neighbouring control elements and a space besides the distal free side of the control elements, wherein the sealing member fills at least partially said recess. This allows a continuous surface of the control panel.

[0012] Further, the basic panel and/or at least one control element, respectively, may comprise at least one cut-out provided for receiving a transparent element. Thus, a light source element may be arranged behind the control panel. Said light source element can give information of the status of the domestic appliance.

[0013] Preferably, at least a part of the transparent elements are formed as at least one transparent skeleton part. The transparent skeleton part allows an easy production of the control panel.

[0014] At least a part of the basic panel with the control elements may be made of plastics, in particular by an injection moulding. In a similar way, at least a part of the sealing member may be made by an over-injection moulding of a rubber material. This contributes also to an easy production by low costs.

[0015] Additionally, an elastic sheet may be arranged at the front side of the basic panel, wherein said elastic sheet is partially transparent and partially printed.

[0016] In particular, the control panel is provided for a narrow side of a door at the domestic appliance.

[0017] The object of the present invention is further achieved by a domestic appliance with at least one control panel, wherein the domestic appliance includes at least one control panel as described above.

[0018] For example, the control panel may be arranged on a narrow side of a door at the domestic appliance, in particular on an upper narrow side of a front door at the domestic appliance.

[0019] At last, the domestic appliance may be a dish washer. The inventive control panel allows a compact arrangement of the dishwasher, in particular of the dishwasher door.

[0020] The invention will be explained in more detail below by means of an exemplary embodiment. Reference is thereby made to the accompanied drawings, wherein

FIG 1 shows a schematic perspective front view of a control panel in a demounted state according to a preferred embodiment of the present invention,

FIG 2 shows a schematic perspective rear view of the

- control panel in the demounted state according to the preferred embodiment of the present invention,
- FIG 3 shows a schematic perspective front view of the control panel in a mounted state according to the preferred embodiment of the present invention,
- FIG 4 shows a schematic perspective rear view of the control panel in the mounted state according to the preferred embodiment of the present invention,
- FIG 5 shows a detailed rear view of a central portion of the control panel in the mounted state according to the preferred embodiment of the present invention,
- FIG 6 shows a schematic perspective view of a section of a dish washer door with the control panel according to the preferred embodiment of the present invention, and
- FIG 7 shows a schematic top view of the section of the dish washer door with the control panel according to the preferred embodiment of the present invention.

[0021] FIG 1 shows a schematic perspective front view of a control panel in a demounted state according to a preferred embodiment of the present invention. The control panel is provided for a domestic appliance. The control panel comprises a basic panel 10, a transparent part 22 and a sealing member 26.

[0022] The basic panel 10 is formed as an elongated sheet. In this example the basic panel 10 is a single-piece part. The basic panel 10 is made of plastics. For example, the basic panel 10 is made by an injection moulding.

[0023] The basic panel 10 includes control elements 12 arranged in series. In this example the basic panel 10 includes six control elements 12. The control elements 12 are formed as flexible tongues. Said flexible tongues are aligned into the same direction. The control elements 12 include three free sides, namely two proximal free sides 14 and one distal free side 16.

[0024] The basic panel 10 includes a recess 18. Said recess 18 comprises intermediate spaces between neighbouring control elements 12. The intermediate space extends between two proximal free sides 14 of the neighbouring control elements 12. Further, the recess 18 comprises the space besides the distal free sides 16 of the control elements 12.

[0025] The basic panel 10 comprises a number of cut-outs 20. In this example, five of the six control elements 12 comprise a medium-sized cut-out 20 in each case. Further one bigger cut-out 20 and three smaller cut-outs 20 are arranged within the proper basic panel 10.

[0026] The transparent part 22 is formed as a skeleton and includes a plurality of transparent elements 24. The transparent elements 24 correspond with the cut-outs 20 of the basic panel 10 in respect of their sizes and positions. The transparent elements 24 are complementary with the cut-outs 20 of the basic panel 10. For example, the transparent part 22 is made of transparent plastics. The transparent part 22 can be made by an injection moulding.

[0027] The cut-outs 20 and the corresponding transparent elements 24 are provided to be arranged in front of a light source element in each case. Said light source elements may give information about the status of an appliance controlled by the control panel.

[0028] The sealing member 26 has the form of a rake and is complementary with the recess 18 of the basic panel 10. The sealing member 26 is made of an elastic material. In particular, the sealing member 26 is made of a rubber material. For example, the sealing member 26 is made by an over-injection moulding of the rubber material.

[0029] The flexible tongues as control elements 12 and the elastic rubber material of the sealing member 26 allow a flat control panel. Said control panel can easily be cleaned by wiping. Further, the inventive control panel allows the creation of an advantageous design of said control panel.

[0030] FIG 2 shows a schematic perspective rear view of the control panel in the demounted state according to the preferred embodiment of the present invention. The rear sides of the basic panel 10, the transparent part 22 and the sealing member 26 are shown.

[0031] The basic panel 10 includes the control elements 12, the recess 18 and the cut-outs 20. The transparent part 22 is formed as the skeleton and includes the plurality of transparent elements 24. The sealing member 26 has the form of the rake and is complementary with the recess 18 of the basic panel 10.

[0032] Further, at their rear sides the control elements 12 comprise a fixing element 28 in each case. Said fixing element 28 is formed as a cross-shaped salient. The fixing element 28 is provided for fastening an electric contact element, which is one part of a pair of electric contact elements. The corresponding electric contact elements are arranged at another part of the domestic appliance, at which also the control panel may be attached. The control element 12 and the pair of electric contact elements form an electric switch. The electric contact elements are arranged behind the basic panel 10, so that the pair of the electric contact elements contacts by pressing against the front side of the corresponding control element 12.

[0033] FIG 3 shows a schematic perspective front view of the control panel in a mounted state according to the preferred embodiment of the present invention. The transparent part 22 and the sealing member 26 are inserted within the basic panel 10. The transparent elements 24 of the transparent part 22 fill the cut-outs 20 of

the basic panel 10. The sealing member 26 fills the recess 18 of the basic panel 10. FIG 3 clarifies that the control panel has a smooth surface at its front side.

[0034] FIG 4 shows a schematic perspective rear view of the control panel in the mounted state according to the preferred embodiment of the present invention. FIG 4 clarifies that the control panel in the mounted state is very flat.

[0035] FIG 5 shows a detailed rear view of a central portion of the control panel in the mounted state according to the preferred embodiment of the present invention. FIG 5 clarifies that the sealing member 26 fills completely the recess 18 of the basic panel 10. In a similar way, the transparent elements 24 of the transparent part 22 fill completely the cut-outs 20 of the basic panel 10. FIG 6 shows a schematic perspective view of a section of a dishwasher door 30 with the control panel according to the preferred embodiment of the present invention. The dishwasher is a preferred application of the inventive control panel.

[0036] The control panel is arranged within the upper narrow side of the dishwasher door 30. The surfaces of the basic panel 10, the transparent elements 24 and the sealing member 26 are substantially within the same level as the surface of the upper narrow side of the dishwasher door 30. Further, a front panel 32 is attached at the front side of the dishwasher door 30.

[0037] The inventive control panel allows a compact arrangement of the control elements 12 at a narrow side of the door of a domestic appliance.

[0038] FIG 7 shows a schematic top view of the section of the dish washer door with the control panel according to the preferred embodiment of the present invention. FIG 7 clarifies the dimensions of the basic panel 10, the transparent elements 24 and the sealing member 26 compared with the upper narrow side of the dishwasher door 30.

[0039] At last, an elastic sheet may be arranged at the front side of the basic panel 10. Preferably, said elastic sheet is at least partially transparent. Additionally, the elastic sheet may be printed with symbols describing the functions of the control elements 12.

[0040] Although illustrative embodiments of the present invention have been described herein with reference to the accompanying drawings, it is to be understood that the present invention is not limited to this precise embodiment, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention. All such changes and modifications are intended to be included within the scope of the invention as defined by the appended claims.

List of Reference Numerals

[0041]

10 basic panel

12 control element
14 proximate free side
16 distal free side
18 recess
20 cut-out
22 transparent part, skeleton part
24 transparent element
26 sealing member
28 fixing element
30 dishwasher door
32 front panel

Claims

1. A control panel for a domestic appliance, wherein:
 - the control panel comprises at least one basic panel (10),
 - the control panel comprises at least one control element (12),
 - at least one control element (12) is formed as a flexible tongue connected to the basic panel (10),
 - the control element (12) corresponds with at least one pair of electric contact elements,
 - the pair of the electric contact elements is arranged behind the basic panel (10), so that the pair of the electric contact elements contacts by pressing against a front side of the corresponding control element (12), and
 - the control panel comprises at least one elastic sealing member (26) connected to at least one free side of the control element (12).
2. The control panel according to claim 1, **characterized in that** the control panel comprises at least two control elements (12) formed as flexible tongues and arranged in series, wherein the sealing member (26) is connected to proximal free sides (14) of two neighbouring control elements (12).
3. The control panel according to claim 2, **characterized in that** the sealing member (26) fills an intermediate space between two proximal free sides (14) of two neighbouring control elements (12).
4. The control panel according to any one of the preceding claims, **characterized in that** the sealing member (22) encloses circumferentially the proximal free sides (14) and a distal free side (16) of at least one control element (12).
5. The control panel according to any one of the preceding claims,

characterized in that

at least a part of the basic panel (10) with the control elements (12) is formed as an elongated single-piece sheet.

6. The control panel according to any one of the preceding claims,
characterized in that
the basic panel (10) includes at least one recess (18) including the at least one intermediate space between the proximal free sides (14) of neighbouring control elements (12) and a space besides the distal free side (16) of the control elements (12), wherein the sealing member (22) fills at least partially said recess (18). 10
7. The control panel according to any one of the preceding claims,
characterized in that
the basic panel (10) and/or at least one control element (12), respectively, comprise at least one cut-out (20) provided for receiving a transparent element (26). 20
8. The control panel according to any one of the preceding claims,
characterized in that
at least a part of the transparent elements (24) are formed as at least one transparent skeleton part (22). 25
30
9. The control panel according to any one of the preceding claims,
characterized in that
at least a part of the basic panel (10) with the control elements (12) is made of plastics, in particular by an injection moulding. 35
10. The control panel according to any one of the preceding claims,
characterized in that
at least a part of the sealing member (26) is made by an over-injection moulding of a rubber material. 40
11. The control panel according to any one of the preceding claims,
characterized in that
an elastic sheet is arranged at the front side of the basic panel (10), wherein said elastic sheet is partially transparent and partially printed. 45
50
12. The control panel according to any one of the preceding claims,
characterized in that
the control panel is provided for a narrow side of a door (30) at the domestic appliance. 55
13. A domestic appliance with at least one control panel,
characterized in that

the domestic appliance includes at least one control panel according to any one of the preceding claims 1 to 12.

- 5 14. The domestic appliance according to claim 13, **characterized in that**
the control panel is arranged on a narrow side of a door (30) at the domestic appliance, in particular on an upper narrow side of a front door (30) at the domestic appliance. 10
15. A domestic appliance according to any one of the claims 12 to 14,
characterized in that
the domestic appliance is a dish washer. 15

FIG 1

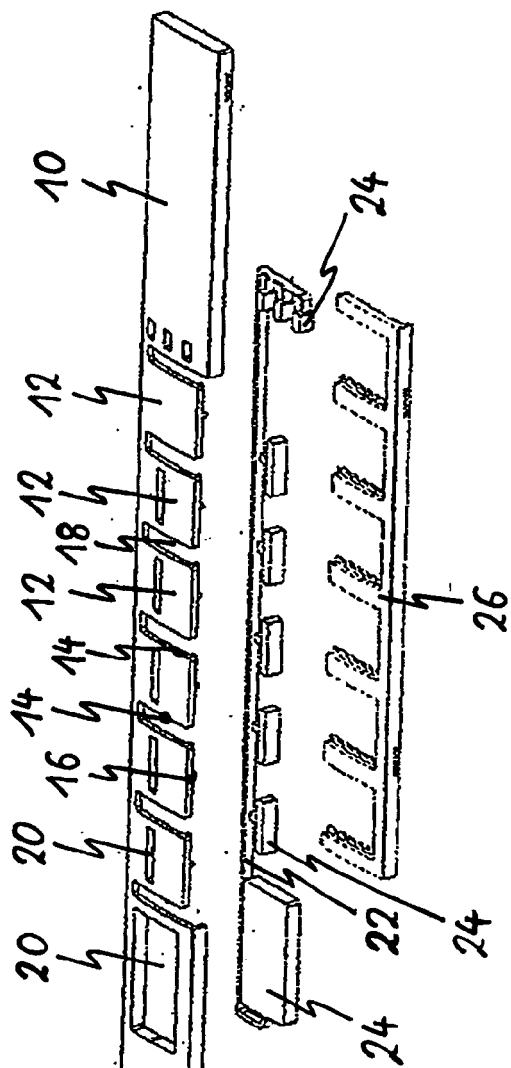


FIG 2

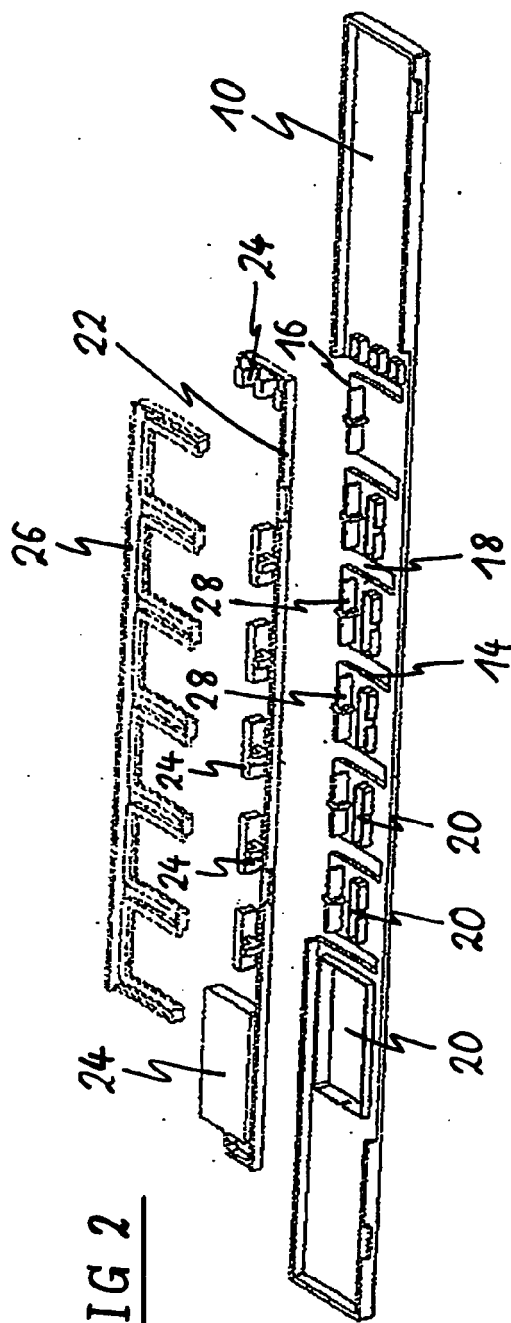


FIG 3

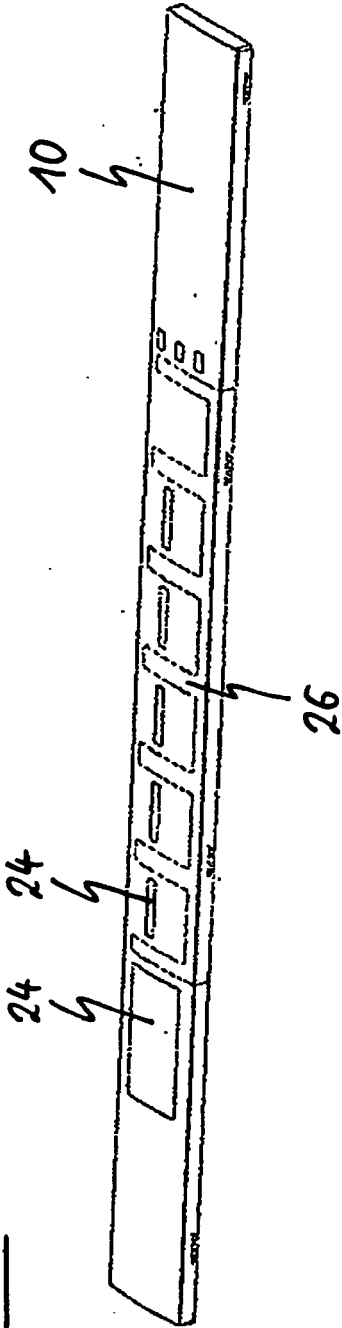


FIG 4

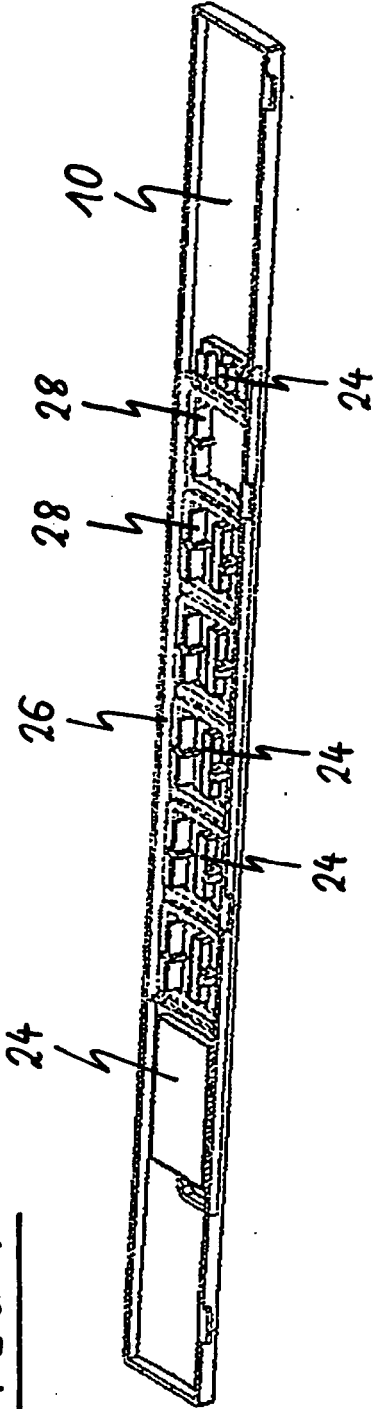


FIG 5

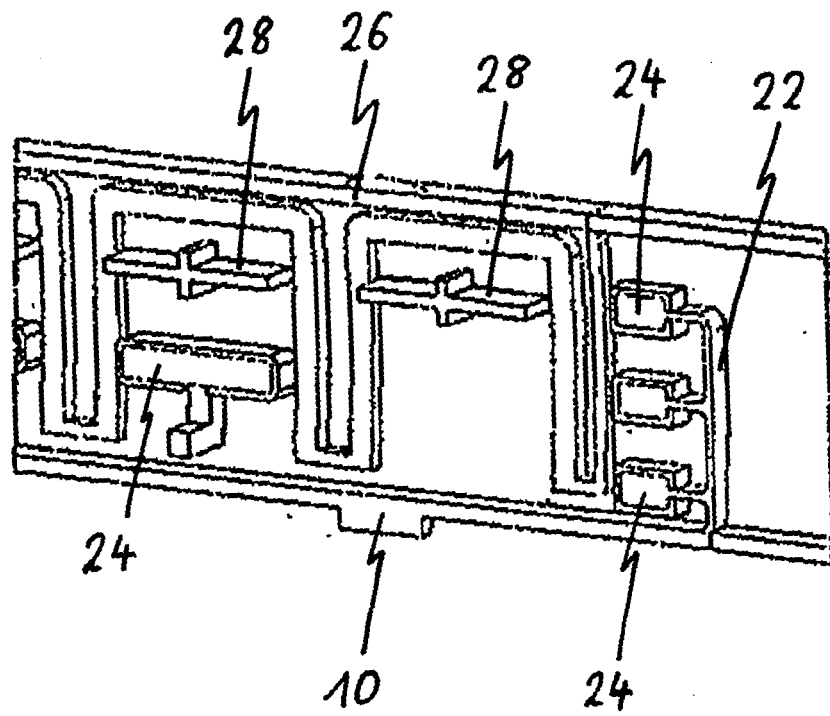


FIG 6

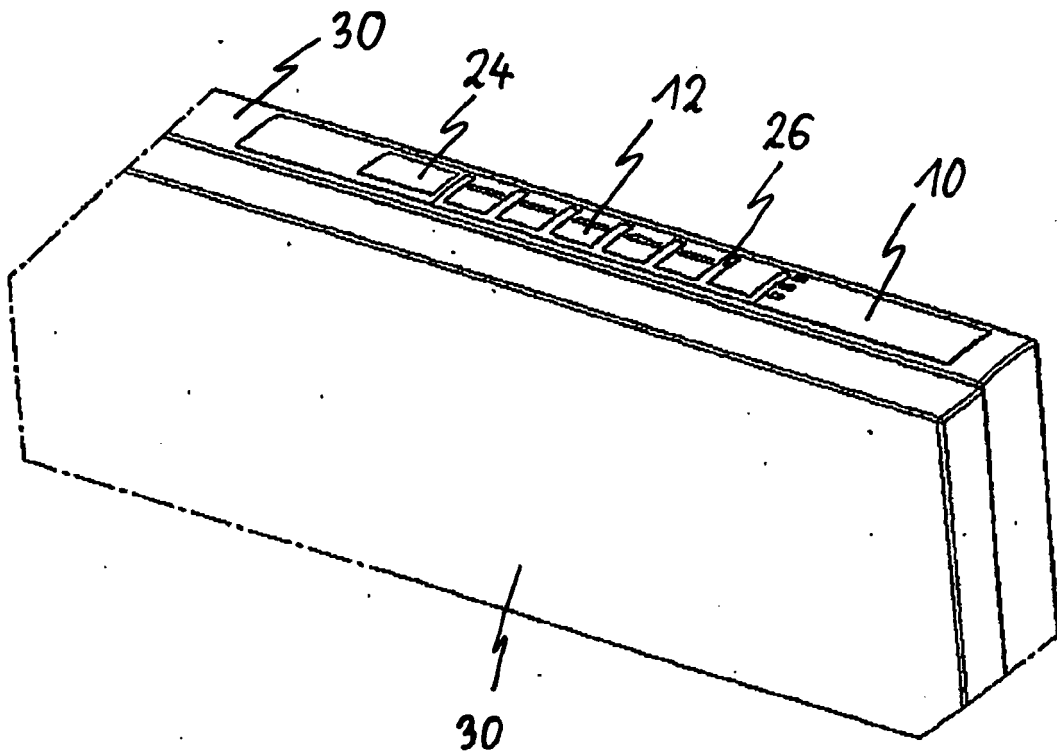
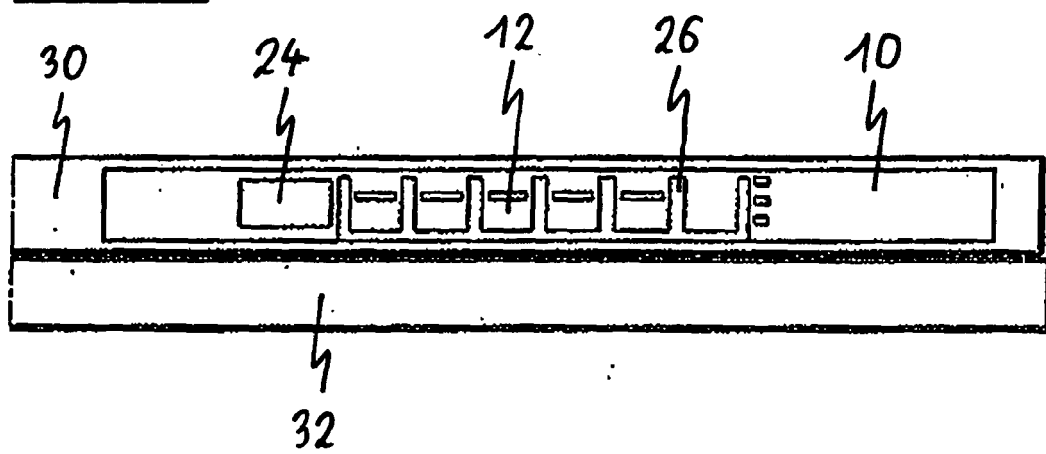


FIG 7





EUROPEAN SEARCH REPORT

Application Number
EP 09 01 1335

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Place of search Munich		Date of completion of the search 15 January 2010	Examiner Lodato, Alessandra
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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