(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 511 630 A1**

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
17.07.2019 Bulletin 2019/29

(51) Int Cl.:
F24C 15/06 *(2006.01)*

(21) Application number: **19151808.3**

(22) Date of filing: **15.01.2019**

(84) Designated Contracting States:
AL 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 RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **15.01.2018 EP 18151649**

(71) Applicant: **ELECTROLUX APPLIANCES AKTIEBOLAG**
105 45 Stockholm (SE)

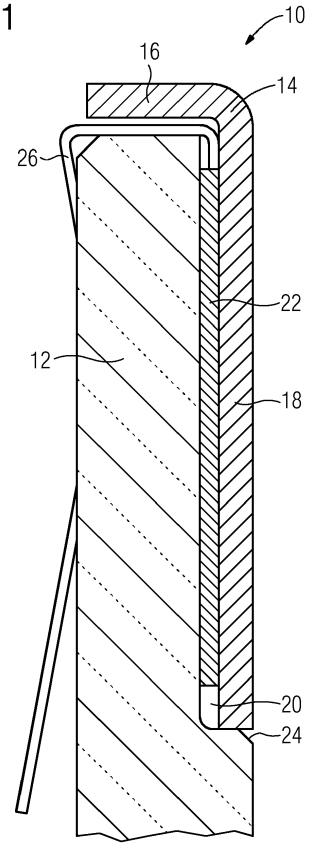
(72) Inventors:
- **VOGT, Tobias**
  91541 Rothenburg ob der Tauber (DE)
- **BOß, Sebastian**
  91541 Rothenburg ob der Tauber (DE)
- **SUNDBLAD, Linus**
  105 45 Stockholm (SE)
- **WESTMAN, Elina**
  105 45 Stockholm (SE)
- **FESER, Jürgen**
  91541 Rothenburg ob der Tauber (DE)

(74) Representative: **Electrolux Group Patents**
AB Electrolux
Group Patents
105 45 Stockholm (SE)

(54) COVER PANEL, PARTICULARLY FOR A DOMESTIC APPLIANCE

(57) The present invention relates to a cover panel (10), particularly for a domestic appliance. The cover panel (10) comprises a glass panel (12) and at least one elongated straight-lined profile element (14). The profile element (14) is glued at a straight-lined side of the glass panel (12). At least a part of the profile element (14) has an L-shaped cross-section. A first leg (16) of the L-shaped cross-section covers at least partially a narrow side of the glass panel (12). A second leg (18) of the L-shaped cross-section extends parallel to a large-area side of the glass panel (12). The glass panel (12) includes a recess (20) for receiving the second leg (18) of the L-shaped cross-section, while the first leg (18) of the L-shaped cross-section is arranged outside of said recess (20).

FIG 1



EP 3 511 630 A1

Description

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

[0002] A cover panel with a glass panel, particularly provided for a domestic appliance, is often equipped with a metal or plastic trim element. Said trim element is glued onto the glass panels. Further, the trim element is very thin, so that the trim element does not considerably overhang from the glass panel. Thus, the trim element cannot effectively protect the glass panel from impacts and scratches in sensible areas. Moreover, the thin trim element itself is sensitive to impacts and scratches.

[0003] Furthermore, the design effect of such a trim element is not satisfactory, since the front sides of the trim element and the glass panel have different heights. Said different heights lead also to problems in cleaning the cover panel.

[0004] It is an object of the present invention to provide a cover panel including a glass panel and at least one trim element, wherein the trim element provides an effective protection of the glass panel and the cover panel has an improved design.

[0005] The object of the present invention is achieved by the cover panel according to claim 1.

[0006] According to the present invention a cover panel, particularly for a domestic appliance is provided. Said cover panel comprises a glass panel and at least one elongated straight-lined profile element, wherein

- the profile element is glued at a straight-lined side of the glass panel,
- at least a part of the profile element has an L-shaped cross-section,
- a first leg of the L-shaped cross-section covers at least partially a narrow side of the glass panel,
- a second leg of the L-shaped cross-section extends parallel to a large-area side of the glass panel, and
- the glass panel includes a recess for receiving the second leg of the L-shaped cross-section, while the first leg of the L-shaped cross-section is arranged outside of said recess.

[0007] The main idea of the present invention is that a part of the profile element is received by the recess of the glass panel. On the one hand, the profile element acts as a trim element providing a flush transition between the profile element and the glass panel. On the other hand, the profile element acts as a protection device for the edge of said glass panel.

[0008] The recess forms a step in the glass panel, wherein the edges of said step extend parallel to the straight-lined side of the glass panel. The recess has a simple geometric structure and can be easily manufactured. The recess is substantially complementary to the second leg of the L-shaped cross-section. For example, the first leg of the L-shaped cross-section extends like a cantilever above, beside or beneath the narrow side of the glass panel. Alternatively, the first leg of the L-shaped cross-section may be aligned at the narrow side of the glass panel.

[0009] Preferably, an outer surface of the large-area side of the glass panel and an outer surface of the second leg are arranged at the same level. This provides an improved design and allows an easy cleaning of the cover panel.

[0010] For example, the second leg of the L-shaped cross-section is longer than the first leg of said L-shaped cross-section.

[0011] Further, the first leg of the L-shaped cross-section may cover completely the narrow side of the glass panel. This contributes to the improved design and easy cleaning of the cover panel.

[0012] According to the preferred embodiment of the present invention the glass panel is rectangular.

[0013] Particularly, the profile element is made of metal, for example stainless steel or aluminium, or made of plastics.

[0014] Preferably, the profile element and the recess extend along the entire length of the straight-lined side of the glass panel. Alternatively, the profile element extends along the nearly entire length of the straight-lined side of the glass panel, while the recess extend along the entire length of the straight-lined side of the glass panel. This allows an efficient protection of the edge of the glass panel.

[0015] For example, the profile element is glued at the glass panel by at least one silicon adhesive.

[0016] Alternatively, the profile element may be glued at the glass panel by hot melt.

[0017] Further, the profile element may be glued at the glass panel by at least one UV adhesive.

[0018] Moreover, the profile element may be glued at the glass panel by at least one double-sided adhesive tape.

[0019] Optionally, the first leg of the L-shaped cross-section is spaced from the narrow side of the glass panel.

[0020] Preferably, a milling edge is formed between the outer surface of the large-area side of the glass panel and the recess.

[0021] Furthermore, the cover panel may comprise at least one ground element arranged between the profile element and the glass panel.

[0022] For example, the ground element is U-shaped and protrudes at the opposite side of the second leg.

[0023] At last, the present invention relates to a domestic appliance comprising at least one cover panel mentioned above.

[0024] Novel and inventive features of the present invention are set forth in the appended claims.

[0025] The present invention will be described in further detail with reference to the drawing, in which

FIG 1 illustrates a schematic sectional side view of a cover panel according to a preferred embodi-

ment of the present invention,

FIG 2 illustrates a schematic perspective view of the cover panel according to the preferred embodiment of the present invention, and

FIG 3 illustrates a schematic perspective view of a door with the cover panel according to the preferred embodiment of the present invention.

[0026] FIG 1 illustrates a schematic sectional side view of a cover panel 10 according to a preferred embodiment of the present invention. Particularly, the cover panel 10 is provided for a domestic appliance. For example, the cover panel 10 is attached at a front wall or at a door of said domestic appliance.

[0027] The cover panel 10 comprises a glass panel 12 and a profile element 14. The glass panel 12 includes a recess 20. In this example, the recess 20 is elongated and extends along an edge of the glass panel 12. The profile element 14 acts as a trim element, which improves the design of the cover panel 10. Moreover, the profile element 14 acts as a protection device for the edge of the glass panel 12.

[0028] The profile element 14 has an L-shaped cross-section with a first leg 16 and second leg 18. The outer edge between the first leg 16 and the second leg 18 is rounded. The first leg 16 covers an upper narrow side of the glass panel 12. The second leg 18 is received by the recess 20. The outer surface of the large-area side of the glass panel 12 and the outer surface of the second leg 18 are arranged at the same level. The recess 20 is obtained by removing material from the glass panel 12.

[0029] The first leg 16 and the second leg 18 of the profile element 14 have a thickness between 0.5 mm and 1.0 mm. The relative high thickness of the profile element 14 provides increased elastic properties, which improves the protection of the underlying glass panel 12 against impacts and collision with other part.

[0030] The profile element 14 is glued at the glass panel 12 by an adhesive 22, wherein said adhesive is arranged between the recess 20 and a rear side of the second leg 18 of the profile element 14. For example, the profile element 14 is glued at the glass panel 12 by a silicon adhesive. Tolerances of the profile element 14 and the recess 20 may be compensated by the silicon adhesive. Alternatively, the profile element 12 may be glued at the glass panel 12 by hot melt 22. Said hot melt 22 has a fast hardening and can compensate tolerances of the profile element 14 and the recess 20. Further, the profile element 12 may be glued at the glass panel 12 by at least one UV adhesive 22. The UV adhesive 22 has a very fast hardening and can also compensate tolerances of the profile element 14 and the recess 20. Moreover, the profile element may be glued at the glass panel 12 by at least one double-sided adhesive tape 22. Said double-sided adhesive tape 22 allows an immediately fixing of the profile element 14 at the glass panel 12. The double-sided adhesive tape 22 can be applied manually without any tool.

[0031] Preferably, the profile element 14 and the recess 20 extend along the entire length of the straight-lined side of the glass panel 12. Alternatively, the profile element 14 extends along the nearly entire length of the straight-lined side of the glass panel 12, while the recess 20 extends along the entire length of the straight-lined side of the glass panel 12. Thus, the profile element 14 acts as protection device for the edge of the glass panel 12. Moreover, the profile element 14 acts as trim element providing the flush transition between said profile element 14 and the glass panel 12. The recess 20 extending along the entire length of the glass panel 12 can be easily manufactured.

[0032] Preferably, a milling edge 24 is formed between the outer surface of the large-area side of the glass panel 12 and the recess 20. Said milling edge 24 can be executed in different angles. The milling edge 24 improves the optical appearance of the cover panel 10, since the milling edge 24 provides a narrow slit between the profile element 14 and the large-area side of the glass panel 12.

[0033] The first leg 16 of the L-shaped cross-section of the profile element 14 may be spaced from the narrow side of the glass panel 12.

[0034] Optionally, the cover panel 10 comprises at least one ground element 26 made of metal. Preferably, the ground element 26 is arranged between the profile element 14 and the glass panel 12. In this example, the ground element 26 is U-shaped and protrudes at the opposite side of the second leg 18 of said profile element 14. The ground element 26 allows an earthing of the profile element 14. This is advantageous, if sensitive electronic circuits are arranged behind or closed to the cover panel 10.

[0035] In this example, the profile element 14 has an L-shaped cross-section and is elongated and straight-lined. In general, the profile element 14 may have an arbitrary geometric structure. The profile element 14 is made of metal, for example stainless steel or aluminium, or made of plastics. The profile element 14 may be manufactured by extrusion, bending, stamping and injection moulding.

[0036] FIG 2 illustrates a schematic perspective view of the cover panel 10 according to the preferred embodiment of the present invention. FIG 2 shows the upper portion of said cover panel 10.

[0037] The cover panel 10 comprises the glass panel 12 and the profile element 14. In the preferred embodiment, the profile element 14 extends along the entire length of the straight-lined side of the glass panel 12. Alternatively, the profile element 14 extends along the nearly entire length of the straight-lined side of the glass panel 12, while the recess 20 extends along the entire length of the straight-lined side of the glass panel 12. The recess 20 extending along the entire length of the glass panel 12 can be easily manufactured. The profile element 14 acts as protection device for the edge of the glass

panel 12. Moreover, the profile element 14 acts as trim element providing the flush transition between said profile element 14 and the glass panel 12 and improves the design of the cover panel 10.

[0038] The profile element 14 has the L-shaped cross-section with the first leg 16 and the second leg 18. The outer edge between the first leg 16 and the second leg 18 is rounded. The first leg 16 covers the upper narrow side of the glass panel 12. In this example, the first leg 16 of the L-shaped cross-section extends like a cantilever above the narrow side of the glass panel 12. Alternatively, the first leg 16 of the L-shaped cross-section may be aligned on the narrow side of the glass panel 12.

[0039] The second leg 18 of the L-shaped cross-section is received by the recess 20, while the first leg 16 of the L-shaped cross-section is arranged outside of said recess 20. The recess 20 has a simple geometric structure and can be easily manufactured. The recess 20 is substantially complementary to the second leg 18 of the L-shaped cross-section. The outer surface of the large-area side of the glass panel 12 and the outer surface of the second leg 18 are arranged at the same level. The recess 20 is obtained by removing material from the glass panel 12.

[0040] FIG 3 illustrates a schematic perspective view of a door 30 with the cover panel 10 according to the preferred embodiment of the present invention. FIG 3 shows the upper portion of said door 30. Preferably, the door 30 is provided for the domestic appliance.

[0041] The door 30 includes a door frame 28 and the cover panel 10. The cover panel 10 is attached at a front side of the door frame 28. The door frame 28 and the cover panel 10 have substantially the same heights and widths. In this example, the profile element 14 is arranged at the upper end of the door 30. Alternatively or additionally, the profile element 14 may be arranged at the lower end of said door 30. Moreover, the profile element 14 may be arranged at one or both lateral ends of the door 30.

[0042] Further, the cover panel 10 may be attached at a front frame of the domestic appliance, so that the cover panel 10 and the front frame form a front panel for the domestic appliance. For example, said front panel may be a cover panel or a control panel. Further, the front panel may be a cover panel of a drawer of the domestic appliance. For example, the front panel may be a cover panel of a water drawer of a steam cooking oven.

[0043] The present invention provides the profile element 14 received by the recess 20 in the glass panel 12. On the one hand, the profile element 14 acts as trim element providing the flush transition between the profile element 14 and the glass panel 12. On the other hand, the profile element 14 acts as protection device for the edge of said glass panel 12.

[0044] Although an illustrative embodiment of the present invention has been described herein with reference to the accompanying drawing, it is to be understood that the present invention is not limited to that 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

[0045]

10	cover panel
12	glass panel
14	profile element
16	first leg
18	second leg
20	recess
22	adhesive, hot melt, adhesive tape
24	milling edge
26	ground element
28	door frame
30	door

Claims

1. A cover panel (10), particularly for a domestic appliance, comprising:

- a glass panel (12) and
- at least one elongated straight-lined profile element (14), wherein
- the profile element (14) is glued at a straight-lined side of the glass panel (12),
- at least a part of the profile element (14) has an L-shaped cross-section,
- a first leg (16) of the L-shaped cross-section covers at least partially a narrow side of the glass panel (12),
- a second leg (18) of the L-shaped cross-section extends parallel to a large-area side of the glass panel (12), and
- the glass panel (12) includes a recess (20) for receiving the second leg (18) of the L-shaped cross-section, while the first leg (18) of the L-shaped cross-section is arranged outside of said recess (20).

2. The cover panel according to claim 1, **characterised in that** an outer surface of the large-area side of the glass panel (12) and an outer surface of the second leg (18) are arranged at the same level.

3. The cover panel according to claim 1 or 2, **characterised in that** the second leg (18) of the L-shaped cross-section is longer than the first leg (16) of said L-shaped cross-

section.

4. The cover panel according to any one of the preceding claims,
characterised in that
the first leg (16) of the L-shaped cross-section covers completely the narrow side of the glass panel (12).

5. The cover panel according to any one of the preceding claims,
characterised in that
the glass panel (12) is rectangular.

6. The cover panel according to any one of the preceding claims,
characterised in that
the profile element (14) is made of metal, for example stainless steel or aluminium, or made of plastics.

7. The cover panel according to any one of the preceding claims,
characterised in that
the profile element (14) and/or the recess (20) extend along the entire length of the straight-lined side of the glass panel (12).

8. The cover panel according to any one of the preceding claims,
characterised in that
the profile element (14) is glued at the glass panel (12) by at least one silicon adhesive (22).

9. The cover panel according to any one of the preceding claims,
characterised in that
the profile element (14) is glued at the glass panel (12) by hot melt (22).

10. The cover panel according to any one of the preceding claims,
characterised in that
the profile element (14) is glued at the glass panel (12) by at least one UV adhesive (22).

11. The cover panel according to any one of the preceding claims,
characterised in that
the profile element (14) is glued at the glass panel (12) by at least one double-sided adhesive tape (22).

12. The cover panel according to any one of the preceding claims,
characterised in that
the first leg (16) of the L-shaped cross-section is spaced from the narrow side of the glass panel (12).

13. The cover panel according to any one of the preceding claims,
characterised in that
a milling edge (24) is formed between the outer surface of the large-area side of the glass panel and the recess.

14. The cover panel according to any one of the preceding claims,
characterised in that
the cover panel (10) comprises at least one ground element (26) arranged between the profile element and the glass panel, wherein preferably the ground element (26) is U-shaped and protrudes at the opposite side of the second leg (18) .

15. A domestic appliance,
characterised in that
the domestic appliance comprises at least one cover panel (10) according to any one of the claims 1 to 14.

FIG 1

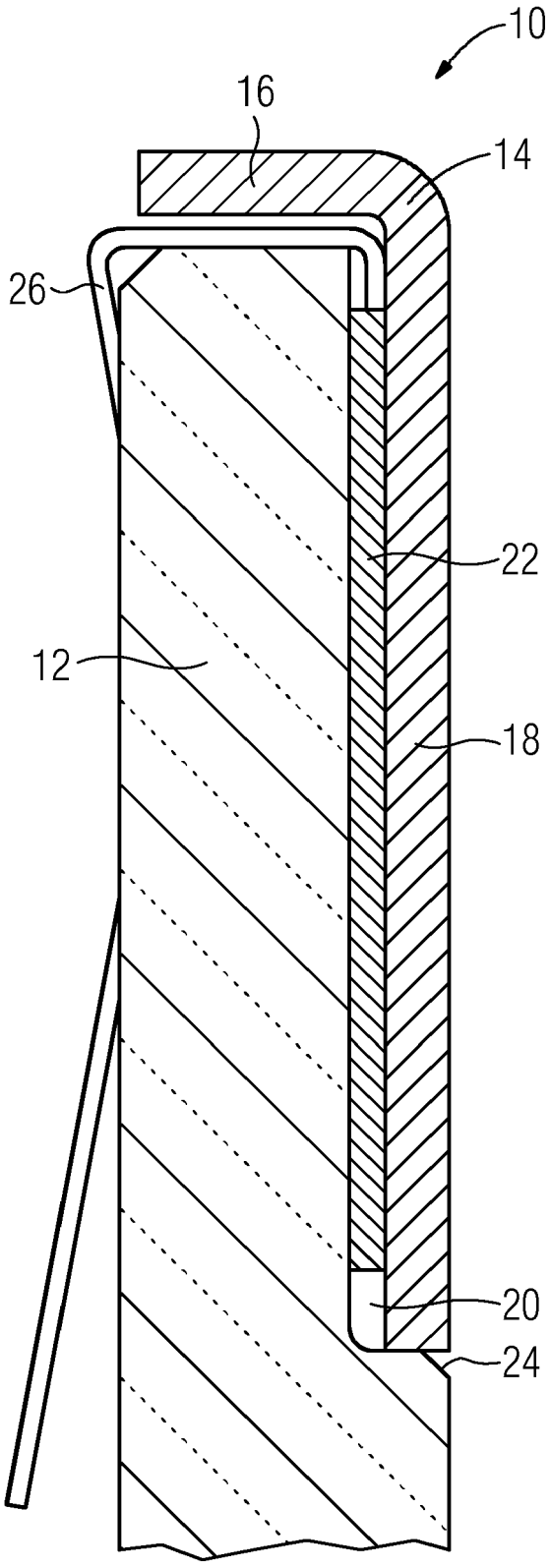


FIG 2

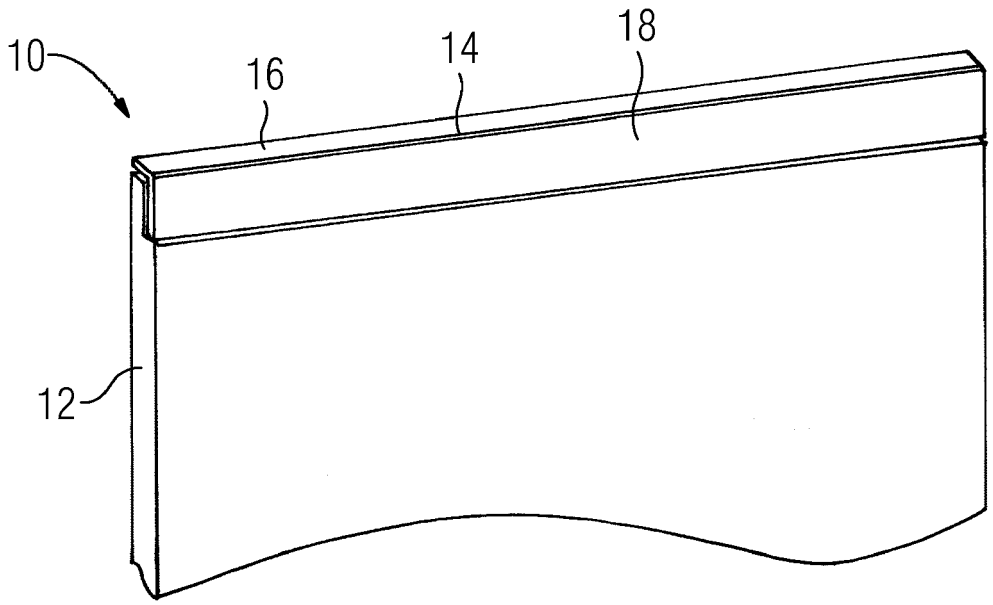
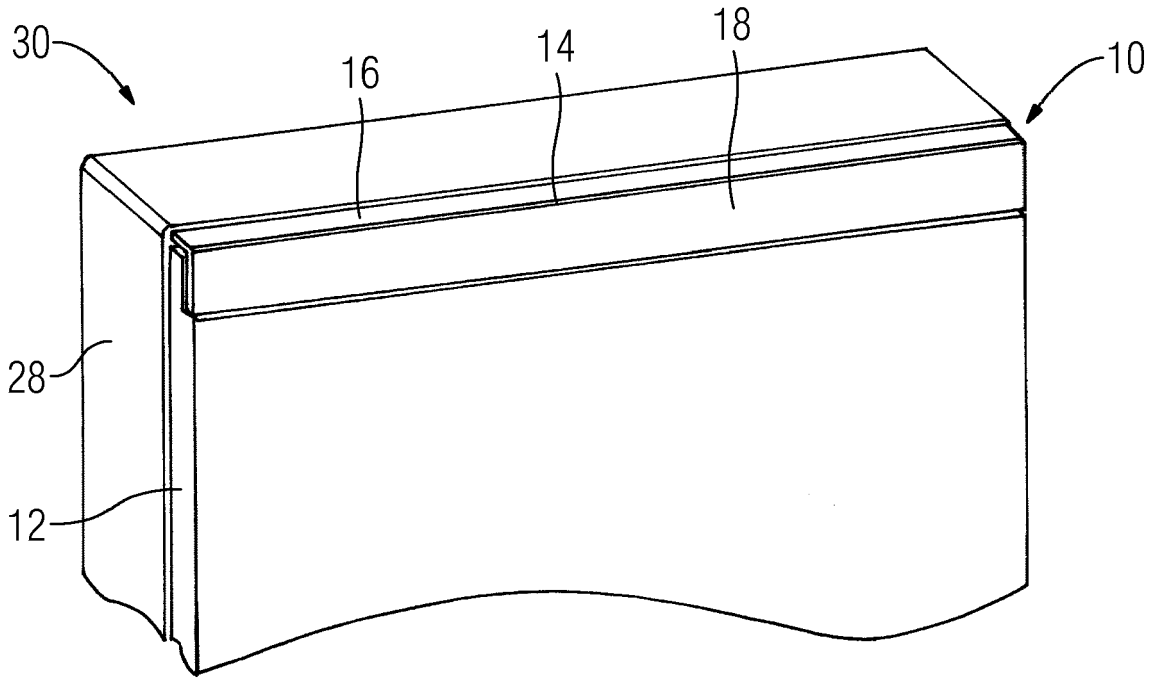


FIG 3



Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 19 15 1808

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2015 212002 A1 (BSH HAUSGERÄTE GMBH [DE]) 16 February 2017 (2017-02-16) * figures 1,2 * * paragraphs [0019] - [0022] *	1-15	INV. F24C15/06
A	EP 2 722 594 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 23 April 2014 (2014-04-23) * figures 1-4 * * paragraphs [0039], [0040] *	1-15	
A	EP 2 660 524 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 6 November 2013 (2013-11-06) * figures 1,2 * * paragraphs [0020] - [0023] *	1-15	

TECHNICAL FIELDS SEARCHED (IPC)

F24C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	20 March 2019	Moreno Rey, Marcos

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

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 19 15 1808

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-03-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 102015212002 A1	16-02-2017	NONE	
EP 2722594 A1	23-04-2014	EP 2722594 A1	23-04-2014
		ES 2456826 A2	23-04-2014
EP 2660524 A1	06-11-2013	EP 2660524 A1	06-11-2013
		ES 2429913 A2	18-11-2013

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82