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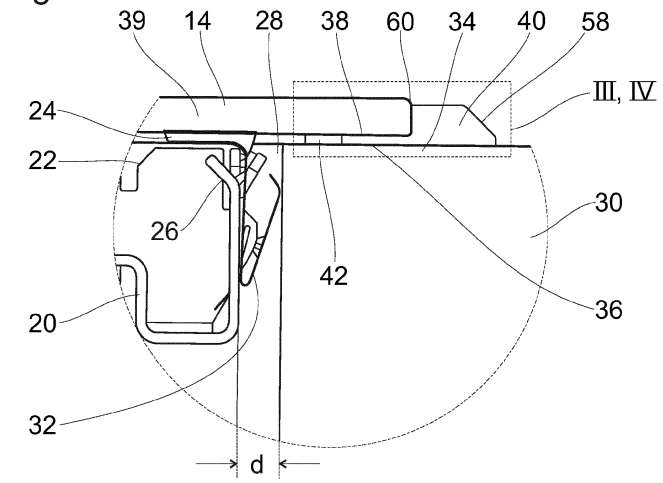
(54) COOKING HOB

(57) The present invention concerns a cooking hob (10), which is configured to be mounted in a cut-out (28) of a worktop (30) in a way that at least one outer edge of a cooktop (14) of the cooking hob (10) rests at least partially on a circumferential cut-out edge of the worktop (30). A gasket means (42) is arrangeable or arranged on an outer zone (38) of the bottom side of the cooktop (14). The gasket means (42) is configured to provide a sealing between the bottom side of the cooktop (14) and the worktop (30) The at least one outer edge is at least partially equipped or equippable with and/or comprises an edge decorating and/or protecting means (40). The edge decorating and/or protecting means (40)
- comprises a first area or portion (48, 54) with a fixed and non-modifiable shape or structure and a second area or portion (56) with a customized design;
and/or
- is configured to contact a lower surface of the cooktop (14), close to the at least one outer edge at a position next to or adjacent to the gasket means (42).

Fig.2



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Description

[0001] The present invention relates to a cooking hob configured to be mounted in a cut-out of a worktop according to claim 1.

[0002] In order to perform cooking activities, either in domestic or professional environment, cooking appliances are used for the preparation of food in or on specific food treatment areas in order to prepare dishes or meals. Cooking processes are particularly performed on cooking hobs, which comprise cooking zones for placement of cookware receiving the food to be cooked. The cooking zones are generally arranged on a cooktop, which forms an upper wall of the cooking hob. Specifically, when the cooking hob is a built-in electric cooking hob, more specifically an induction cooking hob, the cooktop is usually a glass ceramic cooktop. Such glass ceramic cooktops can be provided as a frameless plate, which overlaps with a peripheral zone a cut-out area of a kitchen worktop, in which the built-in hob is installed.

[0003] Such frameless glass plates, however, have the disadvantage that inadvertent operations during cooking activities can cause damages on unprotected side edges of the glass ceramic cooktops by moved cooking utensils. In order to prevent such damages, EP 1 970 632 A2 proposes to border at least lateral edges, which lead away from a front edge of the glass ceramic cooktop, particularly also a rear edge of the cooktop, by frame elements, each comprising vertically rising bar, which may end in vertical direction at the level of or below a top edge of an adjacent front face of the cooktop.

[0004] It is an object of the present invention to provide a cooking hob, in particular a built-in cooking hob, which comprises a generally applicable hob body and which allows a model-specific design adaptation, particularly performed on an assembly line, in a cost-efficient manner and without any conceptional modification.

[0005] The object is achieved for a cooking hob configured to be mounted in a cut-out of a worktop, i. e. a cooking hob according to those features of claim 1, which are generally known, by the features of claim 1 characterizing the present invention.

[0006] A cooking hob configured to be mounted in a cut-out of a worktop in a way that at least one outer edge of a cooktop of the cooking hob rests at least partially on a circumferential cut-out edge of the worktop. A gasket means is arrangeable or arranged on an outer zone of the bottom side of the cooktop. The gasket means is configured to provide a sealing between the bottom side of the cooktop and the worktop, wherein the at least one outer edge is at least partially equipped or equippable with and/or comprises an edge decorating and/or protecting means. The edge decorating and/or protecting means comprises a first area or portion with a fixed and non-modifiable shape or structure and a second area or portion with a customized design. Additionally, or as an alternative, what may be a solution according to a second aspect, the edge decorating and/or protecting means is configured to contact a lower surface of the cooktop, or more specifically to contact a lower surface of a glass ceramic plate that may be a part of the cooktop, close to the at least one outer edge at a position next to or adjacent to the gasket means.

[0007] The worktop receiving the cooking hob in its cut-out is particularly a kitchen worktop, in which the cooking hob is operated, and the cooktop may be a glass ceramic cooktop, which material is nowadays commonly used specifically for cooking hobs that are operated by electricity. A specific embodiment of the gasket means is a sealing strip or sealing bead. A preferred solution for the arrangement of the gasket means is a firm attachment, which may particularly facilitate the installation of the cooking hob in the worktop cut-out. Moreover, the at least one outer edge is particularly at least one lateral edge, which may be a left-hand edge and/or a right-hand edge. The edge decorating and/or protecting means has particularly an arbitrary and/or variable design, so that a cooking hob platform may be established, which can include models with variable design, which may not only provide the option to provide either a frameless or a framed structure, but also the option to vary the overall design by a variation of the shape or design of the at least one edge decorating and/or protecting means to be attached to the at least one outer edge of the cooktop. With other words, a customized design may be provided, which is particularly adapted to the respective cooking hob model and which may be specific for one specific model or brand. The solution according to the second aspect may cover the specific solution that the edge decorating and/or protecting means not only contacts but is even attached, more specifically firmly attached, to the lower surface of the cooktop. This lower surface may be a part or section of the bottom side of the cooktop. Favourably, the positioning of the edge decorating and/or protecting means is executed in that it is provided in parallel alignment with the gasket means. That way, the peripheral zone of the cooktop overlapping the cut-out area of the kitchen worktop may be kept narrow.

[0008] The first area or portion with the fixed and non-modifiable shape or structure may be relevant for fastening the edge decorating and/or protecting means at the outer edge of the cooktop, while the second area or portion may be relevant for the design modification supporting a distinction between different models. Moreover, the first and second areas or portions are preferably subdivisions or sections of the three-dimensional edge decorating and/or protecting means, and these subdivisions or sections may also be of a three-dimensional shape.

[0009] According to an embodiment, the edge decorating and/or protecting means is a bar or strip, i. e. an edge decorating and/or protecting strip, specifically a trim strip. Said bar or strip comprises at least one first contact surface, which abuts or is configured to abut a side surface of the cooktop, and at least one second contact surface, which abuts or is configured to abut a lower surface of the cooktop, or more specifically it is configured to abut

a lower surface of a glass ceramic plate of the cooktop, close to the at least one outer edge. The first and second contact surfaces are preferably arranged at or allocated to the first area or portion, i. e. that part that may be relevant for the fixation of the edge decorating and/or protecting means. The first area or portion is favourably uniformly shaped, so that it is independent from the cooking hob model and its respective edge decorating and/or protecting strip embodiment. With such uniform shape, also the contact pair formed by the fixation construction of the edge decorating and/or protecting means and the connecting area at the cooktop can be uniformly designed.

[0010] In some implementations, the at least one first contact surface fits tightly on the side surface of the cooktop, which may mean that there is a touch without any material arranged in between. This is preferably executed by means of a gap-free contact between these two surfaces. Alternatively, the at least one first contact surface is fastened on the side surface of the cooktop by complete gluing. Another alternative may provide for a gap between the at least one first contact surface and the side surface of the cooktop, which is filled with a sealing material. Any one of these three mentioned alternatives may contribute to avoiding liquid and/or debris to enter into any space between these adjacent surfaces. Incidentally, the side surface of the cooktop may be a front, a rear or a lateral surface.

[0011] Moreover, the edge decorating and/or protecting means may be fastened or configured to be fastened on a lower surface of the cooktop, or more specifically to be fastened on a lower surface of a glass ceramic plate of the cooktop, and/or on a side surface of the cooktop, or more specifically on a side surface of a glass ceramic plate of the cooktop. Preferably, the edge decorating and/or protecting means is or shall be fastened on at least one of the first and second contact surfaces. The fastening is particularly performed by gluing or by an application of a double-sided tape. Moreover, the fastening may be performed in a contiguous or intermittent manner. While said contiguous application may simplify the application process by an application process without discontinuity, an intermittent application may be favourable, if the intention should be to save adhesive material.

[0012] According to an embodiment, the at least one outer edge, which is allocated to the edge decorating and/or protecting means, or which more specifically is allocated to the first and second contact surfaces of the edge decorating and/or protecting means, is an angled edge. A specifically preferred solution is characterized in that a 90 degrees angle is formed at the at least one outer edge. Moreover, the at least one outer edge may comprise at least one flat machined surface. A particularly favourable embodiment provides for a provision of the above-mentioned specific angle and/or the flat machined surface at all outer edges of the cooktop. It is further noted, that any other angle close to 90° can be used as well. In order to provide for a matching contact pair, favourably the related counterpart formed by the first area or portion of the edge decorating and/or protecting means includes an appropriate angle between its first and second contact surfaces. Moreover, the flat machined surface and to 90 degrees angled edges may be also be provided at the outer edges, which are not designated to be equipped with edge decorating and/or protecting means. With such kind of matched outer edges, a uniform design over the entire cooking hob range including all different models with and without side trims is provided.

[0013] One specific solution for the cooking hob according to the present invention provides that the edge decorating and/or protecting means, or more specifically the first area or portion of the edge decorating and/or protecting means, comprises a fixing rail or fixing flaps protruding from a main body of the edge decorating and/or protecting means. Protruding in this context may mean that a bottom surface of the edge decorating and/or protecting means is an entirely flat surface including also the bottom surface of the fixing rail or fixing flaps. This may further result in that the at least one second contact surface is or are arranged on the fixing rail or the fixing flaps and may form the top surface thereof.

[0014] According to a particularly specific embodiment, a lateral edge of the fixing rail or of an exterior fixing flap, which lateral edge is positioned at one of the ends of the edge decorating and/or protecting means, is at least partially tapered towards a free edge of the fixing rail or of the exterior fixing flap, which free edge is arranged opposite to the main body of the edge decorating and/or protecting means. Such tapering may particularly be performed by providing a linear tapering or any non-linear shaping of the lateral edge. Said linear tapering is particularly fleshed out by provision of an exterior angle between the lateral edge and a straight line, on which the free edge is lying, wherein said exterior angle is set between 20 and 70 degrees, preferably between 35 and 60 degrees, more preferably around 45 degrees. On the other hand, said non-linear shaping of the lateral edge may be presentable by any kind of bended track, in particular the non-linear lateral edge is formed by an S-shape. The tapered shaping of the lateral edge is favourable in terms of making the front end of the fixing rail or of the exterior fixing flap invisible for the user who is looking onto the front side of the glass ceramic cooktop. It is noted that the lateral edge forms a front and/or a rear face, when the edge decorating and/or protecting means is attached to the lateral outer edge of the cooktop.

[0015] In some implementations, the cooking hob rests on the fixing rail or on the fixing flaps of a left hand side edge decoration and/or protecting means as well as on the fixing rail or on the fixing flaps of a right hand side edge decoration and/or protecting means. Due to the finite thickness of the fixing rail or fixing flaps, at least one gap between the bottom surface of the cooktop, or more specifically between the bottom surface of a glass ceramic plate of the cooktop, and the top surface of the worktop is generated at those areas, where no edge dec-

oration and/or protecting means is arranged. This gap is particularly situated on the front edge and/or on the rear edge of the cooktop and, as mentioned, is caused by the thickness of the fixing rail or fixing flaps. The gap may be closed by filling it with a sealing means, for example a sealing profile. The sealing means may be applicable after the installation of the cooking hob in the cut-out of the kitchen worktop, in particular performed by a kitchen installer. Preferably, however, the sealing means is already applied on the bottom side of the cooktop in the assembly line, which may be formed by a circumferential gasket element, which also includes the previously mentioned gasket means adjacent to the edge decorating and/or protecting means. Additionally, or as an alternative, the gap may be closed by positioning a mechanical part, e. g. a flat rail or bar in the gap. This positioning may also be performed together with, or after, the installation of the cooking hob in the cut-out of the kitchen worktop or favourably already in the assembly line, where the mechanical part can be attached to, preferably glued on, the bottom side of the cooktop. Said mechanical part is preferably made of aluminium, steel or a plastic material. A particularly preferred mechanical part provides for the same visual impression as the edge decorating and/or protecting means, in particular by using the same material and/or performing the same surface finish.

[0016] According to embodiments, in order to eliminate the effect of tolerances, which particularly occur when providing glass ceramic parts, the edge decorating and/or protecting means is designed shorter than the allocated outer edge of the cooktop, or more specifically the allocated outer edge of a glass ceramic plate of the cooktop. In that case, where the edge decorating and/or protecting means is arranged at a lateral edge, more specifically on the right-hand side and/or the left-hand side of the cooktop, it may be fastened flush with the outer edge or the outer edges on the front side of the cooktop, or more specifically on the front side of a glass ceramic plate of the cooktop. As a consequence, the edge decoration and/or protecting means is reduced in its length compared to the cooktop, with the effect that it may end before the rear edge of the cooktop. In the specific case of a rectangular shape of the cooktop, said outer edge on the front side is formed by a front corner of the cooktop. However, it is noted that besides the favoured design of a rectangular cooktop, any other design shape can be realized as well.

[0017] A particularly preferred solution of the present invention is characterized by a cooking hob, which provides for a second area or portion of the edge decorating and/or protecting means that comprises a first flat surface and a second flat surface arranged at an angle to the first flat surface. The first flat surface is in particular a horizontally aligned surface, while the second flat surface may be chamfered towards the worktop, in that sloping towards its free edge. The second flat surface preferably forms an angle of between 25 and 65 degrees, more preferably an angle of between 35 and 55 degrees, most preferably an angle of around 45 degrees, with the horizontal plane. Such kind of edge decoration and/or protecting means sloping to the outside may increase the protective effect of this element for the outer edge of the glass ceramic cooktop, specifically for the usual situation of a pot sliding over this outer edge, when the cooking person moves it from the worktop onto the cooktop for initiating a cooking process. Besides the favoured design of first and second flat surfaces forming an angle, any other design shape can be realized as well, which serves the purpose of protecting the outer edge of the cooktop and enables a smooth gliding of pots, e. g. a curved top surface, particularly an S-shaped top surface.

[0018] In some implementations, a top surface of the edge decorating and/or protecting means, which may be the first flat surface, is arranged flush with the top surface of the cooktop. Alternatively, it may be arranged at a lower level than the top surface of the cooktop. This construction shall avoid any contact between pot and edge decorating and/or protecting means, when shifting the pot from the cooking zone towards the kitchen worktop. Such contact, which could be a strike causing a damage on the edge decorating and/or protecting means, frequently occurs when the edge of the edge decorating and/or protecting means adjacent to the glass ceramic plate of the cooktop overtops the top surface of the cooktop.

[0019] According to a specific embodiment, the gasket means is compressible, in particular under the weight of the cooking hob, to that extent that a bottom side of the edge decorating and/or protecting means rests upon the cut-out edge of the worktop, in particular with the entire surface of the bottom side resting upon the cut-out edge. The gasket means has preferably a respective Shore hardness allowing such compression, which hardness favourable is tuned that way, that on the one hand the desired compression factor allows said bottom side of the edge decorating and/or protecting means securely resting on the cut-out edge, and on the other hand the sealing effect of the gasket means is guaranteed as well. In this case, a tight contact is provided, wherein, moreover, the sealing is not only provided solely by the gasket means, but also by a tight surface contact, i. e. without any gap, between the bottom surface of the edge decorating and/or protecting means and the worktop surface is supporting the sealing.

[0020] Advantageously, the gasket means is placed closer to a central axis of the cooktop than the edge decorating and/or protecting means, or more specifically, the gasket means is placed closer to the central axis of the cooktop than the free edge of the fixing rail or of the exterior fixing flap. An even more preferred solution provides that the gasket means touches the entire free edge of the fixing rail or of the exterior fixing flap. With such arrangement of the gasket means being attached to the bottom surface of the cooktop instead of fastening it on a bottom side of the edge decorating and/or protecting means, a tight contact of the entire bottom surface of the edge decorating and/or protecting means onto the work-

top is guaranteed, resulting in a combination of two sealing effects, performed on the one hand by the gasket means and on the other hand by edge decorating and/or protecting means touching the worktop surface in full-surface manner.

[0021] One specific solution according to the present invention is characterized in that the gasket means is a foam sealing strip, which is particularly applied by means of a spray foam process. Moreover, a circumferential application is preferred, so that the gasket is applied without any break, and a complete peripheral seal is provided. Said application of the gasket means is particularly provided in an assembly line, what may be executed before or after attachment of the edge decorating and/or protecting means. Nevertheless, the application is preferably independent from any attachment of an edge decorating and/or protecting means, which leaves the option to produce, on the one hand, a frameless cooktop as one specific embodiment of a cooking hob range and, on the other hand, to equip the cooktop with an edge decorating and/or protecting means as another specific embodiment.

[0022] Favourably, the edge decorating and/or protecting means is made of aluminium. It may be manufactured in an aluminium extrusion process. Further, the edge decorating and/or protecting means may by processed by surface anodizing and/or by providing a natural, brushed or blasted surface. This way of processing provides for a high scratch resistance of the final component. Moreover, various colours can be realized with this process and electrical insulation is obtained by the received specific surface. It is noted that the use of aluminium allows the production by an extrusion process, which is a cheap manufacturing process, particularly due to a utilization of low-cost extrusion tools. As a result, a switch from one design to another is inexpensive, and, consequently, the desired model differentiation is realized on a low-cost basis.

[0023] Finally, foam sealing material may be used as gasket means, wherein a closed porous material is preferred. A particularly preferred material for this kind of gasket is polyurethane foam.

[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 drawings, in which

Fig. 1 illustrates schematically a perspective view of a cooking hob;

Fig. 2 is a detail view indicated by II in Fig. 1, but showing a cooking hob equipped with a side trim;

Fig. 3 is a schematic detail view indicated by III, IV in Fig. 2, but illustrating a non-installed cooking hob;

Fig. 4 is a schematic view of an alternative solution to Fig. 3;

Fig. 5 is a detail of a schematic bottom perspective view of the cooking hob of Figs. 2 to 4;

Fig. 6 is a schematic top perspective view of a first example of the cooking hob of Figs. 2 to 5, but installed in kitchen worktop; and

Fig. 7 is a second example, different to the embodiment according to Fig. 6.

[0026] In all figures the same or equivalent part are marked with the same reference numbers.

[0027] Fig. 1 illustrates schematically a cooking hob 10, which is designed to be installed in a cut-out of a kitchen countertop. The cooking hob 10 comprises four cooking zones 12 indicated by circles imprinted on a cooktop 14 of the cooking hob 12. Cookware is placeable on the cooking zones 12 for performing the cooking process, indicated by pots 16 in the figures. The cooktop 14 comprises a cooktop plate, which is made of a glass ceramic material and the embodiment illustrated by Fig. 1 is an example of a frameless cooktop 14, i. e. the glass ceramic cooktop plate is not bordered by any frame part, e. g. any metallic frame.

[0028] The cooking zones 12 are heated by means of heating elements (not shown) arranged underneath and close to the cooktop 14. Said heating elements may be of electric nature as indicated in the figures, but other heating systems like gas cooking elements are considerable as well. One preferred cooking solution provides for induction cooking and, respectively, the heating elements are induction coils.

[0029] The cooking hob 10 is operable by a user by means of a user interface 18, which is arranged at a front edge of the cooktop 14. The user interface 18 may be laterally arranged as illustrated in Fig. 1 or centrally arranged (not shown). The user interface 18 may include any types of control units for providing control inputs to a control unit of the cooking hob 10. The present example is characterized by touch control elements and the control inputs are provided by the user on a touch surface of the user interface 18. Fig. 1 further illustrates a bottom part of the cooking hob 10, represented by a hob casing 20, which includes the electrical and electronic components of the cooking hob 10 and which is fastened on the bottom side of the cooktop 14, more specifically fastened to frame parts, which are glued to the cooktop bottom side.

[0030] The detail view of Fig. 2 provides more information about the fastening of the hob casing 20 to the bottom side of the cooktop 14. As already indicated above, a frame part, more specifically a bracket 22, is fastened to the cooktop 14 by means of a glue joint 24, and the metallic hob casing 20 is hooked into an opening 26 arranged in the bracket 22. Fig. 2 further illustrates the installation mechanism of the cooking hob 10 built in a cut-

out 28 of a kitchen worktop 30. In order to install the cooking hob 10 in the cut-out 28, the width of the cut-out 28 is provided in that way, that in both lateral directions a small installation gap d is provided, i. e. the width of the hob casing 20 is smaller than the width of the cut-out 28. By means of four spring clamps 32, one each arranged close to the four corners of the rectangular hob casing 20, said hob casing 20 is clamped in the cut-out area, so that the hob casing 20 is not only mounted without backlash, but it is also held in place by spring force. Furthermore, Fig. 2 provides also insight about the cooking hob 10 resting on a circumferential cut-out edge 34 with its circumferential protrusion 36 beyond the sidewalls of the hob casing 20. This protrusion 36 includes both the overlapping border 38 of the pure glass ceramic plate 39 and an aluminium trim 40 fastened at a lateral outer edge of the cooktop 14, serving as a decorating and protecting frame element, as will be explained in more detail further down below. In order to avoid spilled liquids to enter into the cut-out 28 of the worktop 30, a circumferential foam gasket 42 is arranged between the bottom side of the overlapping boarder 38 of the glass ceramic plate 39, thereby entirely sealing the cut-out area in a liquid-tight manner.

[0031] More details of the assembly and combination of the glass ceramic plate 39 and the trim 40 are presented in Fig. 3, in which figure only a trim 40 on the right-hand side of the cooking hob 10 is shown, however, the glass ceramic plate 39is also equipped with at least a second trim 40 arranged on the left-hand side of the cooking hob 10. A further trim 40 may be arranged at the front and/or the rear side of the cooking hob 10. The general setup of the trim 40 is formed by a side section 44, arranged laterally from the lateral surface 46 of the glass ceramic plate 39, and a bottom section 48, arranged beneath, and thereby supporting, the bottom side of the overlapping boarder 38 of the glass ceramic plate 39. Consequently, cooktop 14, which is formed by the assembly of the glass ceramic plate 39 and the attached trims 40, rests on the bottom sections 48 of the trims 40, arranged on left-hand and right-hand outer edges of the glass ceramic plate 39, as well as on the lower sides of the side sections 44 of the trim 40. Further, in order to provide for a fixed assembly between glass ceramic plate 39 and the trim 40, a double-sided adhesive tape 50 is arranged between the upper surface of the bottom section 48 and the lower surface of the overlapping border 38 of the glass ceramic plate 39. Accordingly, the bottom section 48 forms a fixing rail for the trim 40.

[0032] A first key function of the trim 40 is to work as an edge protecting means for the outer edge of the glass ceramic plate 39. However, according to a second key function, trim 40 also works as a design element and as an element for distinguishing different models of a cooking hob product range from each other. To this end, besides the partitioning of trim 40 into side section 44 and bottom section 48, a different partitioning of trim 40 is indicated in Fig. 3 by virtual dividing line 52, which divides the side section 44 into a first segment 54 and a second segment 56, wherein the first segment 54 is positioned adjacent to the lateral surface 46 of the glass ceramic plate 39 and the second segment follows the first segment in outward direction. The function of the first segment 54 is to ensure an exactly positioned fastening of the trim 40 to the glass ceramic plate 39, in cooperation with the bottom section 48 of the trim 40, which elements 48, 54 form a stable unit and particularly include a 90 degrees angle. Therefore, the first segment 54 is shaped in a fixed and non-modifiable manner, which is constant over the entire cooking hob range. In contrast to that, the second segment 56 is characterized by a variable shape, i. e. its shape and structure may differ from one cooking hob model to another. In particular, the second segment 56 comprises a chamfer 58 at its outer side. According to the example illustrated in Fig. 3, the chamfer 58 forms a 45 degrees angle with the horizontal plane, however, any different angle may be used, e. g. for another cooking hob model. Any other shaping of the second segment 56 may be taken into account, e. g. a curved top side sloping towards the outer side, specifically an S-shaped sloping curve.

[0033] Fig. 3 also shows a direct touching between the lateral surface 46 of the glass ceramic plate 39 and the adjacent lateral surface of the first segment 54, i. e. there is no gap in between in order to make sure that no spilled liquid or debris can enter into such space. In order to make this junction at these two lateral surfaces tighter, a sealing agent may be arranged. Alternatively, in addition to the double-sided tape 50 at the bottom section 48, or even as an alternative, a double-sided tape may be arranged between these two lateral surfaces as well. In case of using double-sided tapes at both mentioned positions, the fastening may be strengthened. Fig. 3 finally illustrates a stepped passage 60 from the top surface of the glass ceramic plate 39 to the top surface of trim 40, which allows a smooth gliding of pots 16 shifted from the cooktop 14 to the kitchen worktop 30. This construction avoids any contact between pot 16 and trim 40 during this kind of pot shifting. Such contact, which could be a strike causing a damage on the trim 40, frequently occurs in those constructions, where the edge of the trim 40 adjacent to the glass ceramic plate 39 overtops the top surface of the glass ceramic plate 39.

[0034] Fig. 4 shows an alternative fastening of the trim 40 to the bottom side of the glass ceramic plate 39, more specifically to the overlapping border 38 of the glass ceramic plate 39. Instead of the double-sided adhesive tape 50, a glue layer 62 takes over the fastening task. Preferably, the upper side of the bottom section 48 of the trim 40 includes a recess 64 to accommodate the glue material. In order to provide a sufficient indentation depth for receiving the glue material, the total thickness of the bottom section 48 may be increased compared to the embodiment according to Fig. 3 and may directly touch the lower surface of the overlapping border 38 of the glass ceramic plate 39 at the area surrounding the recess 64.

[0035] A bottom view of one of the corners of the rectangular cooktop 14, which may be a random one of the four corners but specifically presents the front left one, is shown by Fig. 5. The view from below onto the trim 14 illustrates a diagonal end section 66, which is tapered from the side section 44 towards a free edge 40' of the bottom section 48 of the trim 40. There is further shown in Fig. 5 a section, more specifically a first section 42' on the left-hand side of the cooktop 14 and a second section 42" on the front side of the cooktop 14, of the circumferential foam gasket 42 formed as a sealing bead, e. g. a PU foam bead, which is regularly applied with a distance to the four outer edges of the rectangular glass ceramic plate 39, especially also to the front edge of the glass ceramic plate 39 as illustrated by the second section 42". Another option may be to position the second section of the foam gasket 42 closer to the front side of the cooktop 14, i. e. the second section shifted towards the front edge of the glass ceramic plate 39, as indicated in Fig. 5 by Arrow A and by the shifted second section 42'''. This also allows an application of the foam gasket 42 in the entire corner area 68, which guarantees the sealing effect, specifically at the position, where the application tool changes the direction, what may reduce the foam gasket volume in the corner position. Said corner area 68 is specifically enlarged due to the free space provided by the diagonal end section of the bottom section 48 of the trim 40.

[0036] The schematic illustration of Fig. 6 gives an insight into a further function of the diagonal end section 66. In order to make the front end 74 unremarkable to the user looking onto the front face of the cooking hob 10, said front end 74 is hidden from the user's view by forming it as the illustrated diagonal end section 66, specifically when looking with a perspective top front view. It is noted that due to finite thickness of the bottom section 48 of the trim 40, via which the cooking hob 10 is resting on the worktop 30, a respective small gap is performed between worktop 30 and lower surface of the glass ceramic plate 39. In some embodiments of the cooking hob range, this gap may be left unfilled. In order to improve the visual appearance of the cooking hob 10, the gap may alternatively be filled with a sealing strip 70, as performed in the embodiment according to Fig. 6. The sealing strip 70 may be the shifted second section 42''' of foam gasket 42 that is positioned close to the front edge of the glass ceramic plate 39 as illustrated in Fig. 5. As another alternative option, Fig. 7 shows a solution different from the embodiment according to Fig. 6. In contrast to the sealing strip 70 closing the gap between worktop 30 and lower surface of the glass ceramic plate 39, a flat rail 72 is inserted in order to bridge the gap. The provision of a mechanical part like this flat rail 72 has the advantage of an additional mechanical stabilization of the glass ceramic plate 39 compared to the provision of a sealing strip. Moreover, in order to also take a continuous and uniform design appearance, the front end 74 of the bottom section 48 is not tapered as it is in the embodiment according to Fig. 6. In case of the flat rail 72 being produced with the same material as the trim 40, hence providing the same or a similar visual appearance, specifically the same colour, a user looking onto the front face of the cooking hob 10, and particularly onto the combination of flat rail 72 and front end 74 of the bottom section 48, will have the impression of a continuous line.

[0037] 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 these precise embodiments, 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. More specifically, although a cooking hob 10 with specific dimensions and a specific number of cooking zones is presented by Figs. 1 to 7, the herein described setup of the cooking hob 10 may be applicable to all usual sizes of cooking hobs 10 and comprising all usual numbers of cooking zones.

[0038] Moreover, features which are described in the context of separate aspects and embodiments of the invention may be used together and/or be interchangeable. Similarly, features described in the context of a single embodiment may also be provided separately or in any suitable sub-combination.

List of reference numerals

[0039]

10	cooking hob
12	cooking zones
14	cooktop
16	pots
18	user interface
20	hob casing
22	bracket
24	glue joint
26	opening
28	cut-out
30	kitchen worktop
32	spring clamp
34	cut-out edge
36	protrusion
38	overlapping border
39	glass ceramic plate
40	trim
40'	free edge
42	foam gasket
42'	first section
42"	second section
42'''	shifted second section
44	side section
46	lateral surface
48	bottom section

50	double-sided adhesive tape
52	virtual dividing line
54	first segment
56	second segment
58	chamfer
60	stepped passage
62	glue layer
64	recess
66	diagonal end section
68	corner area
70	sealing strip
72	flat rail
74	front end
d	installation gap
A	arrow

Claims

1. A cooking hob (10) configured to be mounted in a cut-out (28) of a worktop (30), in particular a kitchen worktop (30), in a way that at least one outer edge of a cooktop (14), in particular a glass ceramic cooktop, of the cooking hob (10) rests at least partially on a circumferential cut-out edge of the worktop (30), wherein a gasket means (42), particularly a sealing strip or bead, is arrangeable or arranged on, preferably firmly attached to, an outer zone (38) of the bottom side of the cooktop (14), the gasket means (42) being configured to provide a sealing between the bottom side of the cooktop (14) and the worktop (30), wherein the at least one outer edge, in particular at least one lateral edge, is at least partially equipped or equippable with and/or comprises an edge decorating and/or protecting means (40), particularly of an arbitrary and/or variable design, wherein the edge decorating and/or protecting means (40)

   - comprises a first area or portion (48, 54) with a fixed and non-modifiable shape or structure and a second area or portion (56) with a customized design, which is particularly adapted to the respective cooking hob model;
   and/or
   - is configured to contact, preferably to be attached to, a lower surface of the cooktop (14), in particular a glass ceramic plate (39) of the cooktop (14), close to the at least one outer edge at a position next to or adjacent to the gasket means (42), in particular in parallel alignment with the gasket means (42).

2. The cooking hob (10) according to claim 1, wherein the edge decorating and/or protecting means (40) is a bar or strip, in particular a trim strip, comprising at least one first contact surface, which abuts or is configured to abut a side surface (46) of the cooktop (14), and at least one second contact surface, which abuts or is configured to abut a lower surface of the cooktop (14), in particular a glass ceramic plate (39) of the cooktop (14), close to the at least one outer edge.

3. The cooking hob (10) according to claim 2, wherein

   - the at least one first contact surface fits tightly, preferably by means of a gap-free contact, on the side surface (46) of the cooktop (14), or
   - the at least one first contact surface is fastened on the side surface (46) of the cooktop (14) by complete gluing, or
   - the gap between the at least one first contact surface and the side surface (46) of the cooktop (14) is filled with a sealing material.

4. The cooking hob (10) according to anyone of the preceding claims, wherein the edge decorating and/or protecting means (40) is fastened or configured to be fastened on a lower surface of the cooktop (14), in particular a glass ceramic plate (39) of the cooktop (14), and/or on a side surface of the cooktop (14), in particular on a side surface (46) of a glass ceramic plate (39) of the cooktop (14), preferably on at least one of the first and second contact surfaces, the fastening particularly

   - being formed by gluing or by an application of a double-sided tape
   and/or
   - being performed in a contiguous or intermittent manner.

5. The cooking hob (10) according to anyone of the preceding claims, wherein the at least one outer edge that is allocated to the edge decorating and/or protecting means (40), in particular allocated to the first and second contact surfaces of the edge decorating and/or protecting means (40), preferably all outer edges of the cooktop (14), is an angled edge, preferably forming a 90 degrees angle and/or comprising at least one flat machined surface.

6. The cooking hob (10) according to anyone of the preceding claims, wherein the edge decorating and/or protecting means (40), in particular the first area or portion (48, 54) of the edge decorating and/or protecting means (40), comprises a fixing rail (48) or fixing flaps protruding from a main body (44) of the edge decorating and/or protecting means (40), wherein the at least one second contact surface is or are preferably arranged on the fixing rail (48) or the fixing flaps.

7. The cooking hob (10) according to claim 6, wherein a lateral edge (74) of the fixing rail (48) or of an exterior fixing flap, which lateral edge (74) is positioned

at one of the ends of the edge decorating and/or protecting means (40), at least partially is tapered towards a free edge (40' of the fixing rail (48) or of the exterior fixing flap, which free edge (40') is arranged opposite to the main body (44) of the edge decorating and/or protecting means (40), in particular by providing

- a linear tapering with an exterior angle between the lateral edge (74) and the free edge (40'), which is set between 20 and 70 degrees, preferably between 35 and 60 degrees, more preferably around 45 degrees,
or
- any non-linear shaping of the lateral edge (74), in particular formed by an S-shaped edge.

8. The cooking hob (10) according to claim 6 or 7, wherein the cooking hob (10) rests on the fixing rail (48) or the fixing flaps of a left hand side edge decoration and/or protecting means (40) and on the fixing rail (48) or the fixing flaps of a right hand side edge decoration and/or protecting means (40), wherein at least one gap between the bottom surface of the cooktop (14), in particular of a glass ceramic plate (39) of the cooktop (14), and the top surface of the worktop (30), which gap is particularly situated on the front edge and/or on the rear edge of the cooktop (14) and is caused by the thickness of the fixing rail (48) or fixing flaps, is filled

- by providing a sealing means (70), preferably by a circumferential gasket element, for example a sealing profile,
and/or
- by positioning a mechanical part, e. g. a flat rail (72) or bar, preferably made of aluminium, steel or a plastic material.

9. The cooking hob (10) according to anyone of the preceding claims, wherein the edge decorating and/or protecting means (40) is shorter than the allocated outer edge of the cooktop (14), in particular of a glass ceramic plate (39) of the cooktop (14), and wherein particularly the edge decorating and/or protecting means (40), when being arranged at a lateral edge of the cooktop (14), is flush with the outer edge on the front side of the cooktop (14), in particular on the front side of a glass ceramic plate (39) of the cooktop (14).

10. The cooking hob (10) according to anyone of the preceding claims, wherein the second area or portion (56) of the edge decorating and/or protecting means (40) comprises a first flat surface, in particular a horizontally aligned surface, and a second flat surface arranged at an angle to the first flat surface, in particular a surface chamfered towards the worktop (30), the second flat surface preferably forms an angle of between 25 and 65 degrees, more preferably an angle of between 35 and 55 degrees, most preferably an angle of around 45 degrees, with the horizontal plane.

11. The cooking hob (10) according to anyone of the preceding claims, wherein a top surface of the edge decorating and/or protecting means (40), in particular the first flat surface, is arranged flush with the top surface of the cooktop (14) or is arranged at a lower level than the top surface of the cooktop (14).

12. The cooking hob (10) according to anyone of the preceding claims, wherein the gasket means (42) is compressible, preferably having a Shore hardness allowing a compression, in particular under the weight of the cooking hob (10), to that extent that a bottom side of the edge decorating and/or protecting means (40), in particular over the entire surface, rests upon the cut-out edge of the worktop (30).

13. The cooking hob (10) according to anyone of the preceding claims, wherein the gasket means (42) is placed closer to a central axis of the cooktop (14) than the edge decorating and/or protecting means (40), preferably than the free edge of the fixing rail (48) or of the exterior fixing flap, the gasket means (42) more preferably touching the entire free edge of the fixing rail (48) or of the exterior fixing flap.

14. The cooking hob (10) according to anyone of the preceding claims, wherein the gasket means (42) is a foam sealing strip, which is particularly applied by means of a spray foam process.

15. The cooking hob (10) according to anyone of the preceding claims, wherein the edge decorating and/or protecting means (40) is made of aluminium material, preferably

- manufactured in an aluminium extrusion process
and/or
- processed by surface anodizing and/or by providing a natural, brushed or blasted surface.

Fig.1

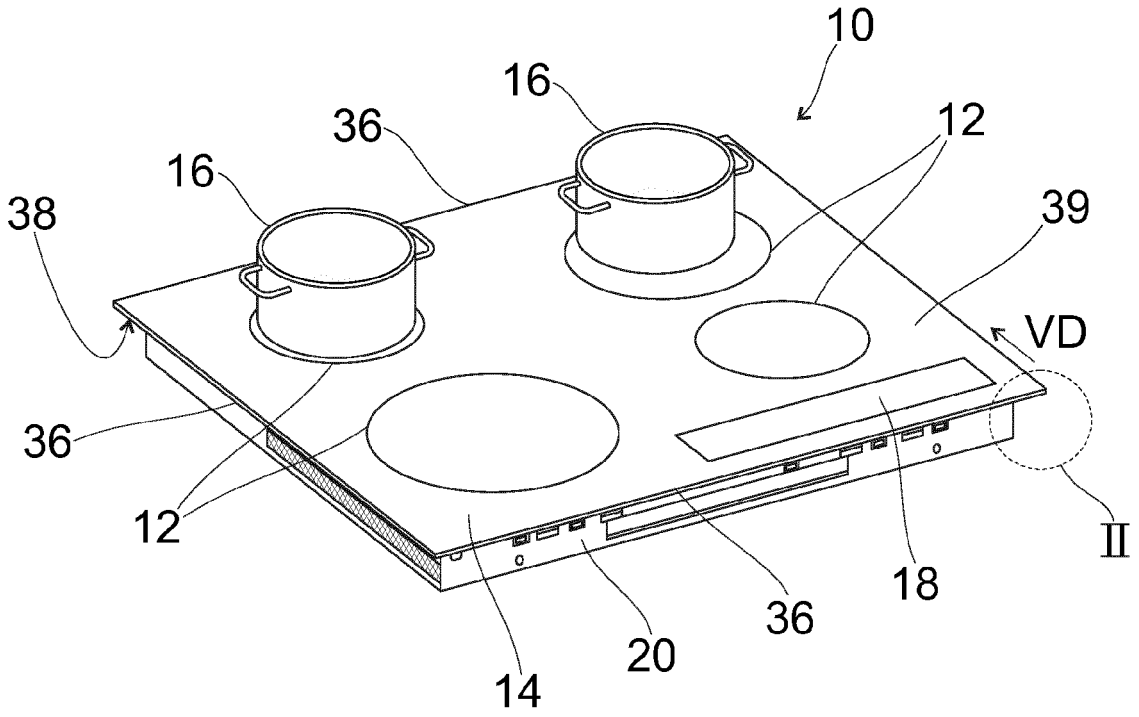
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Fig.2

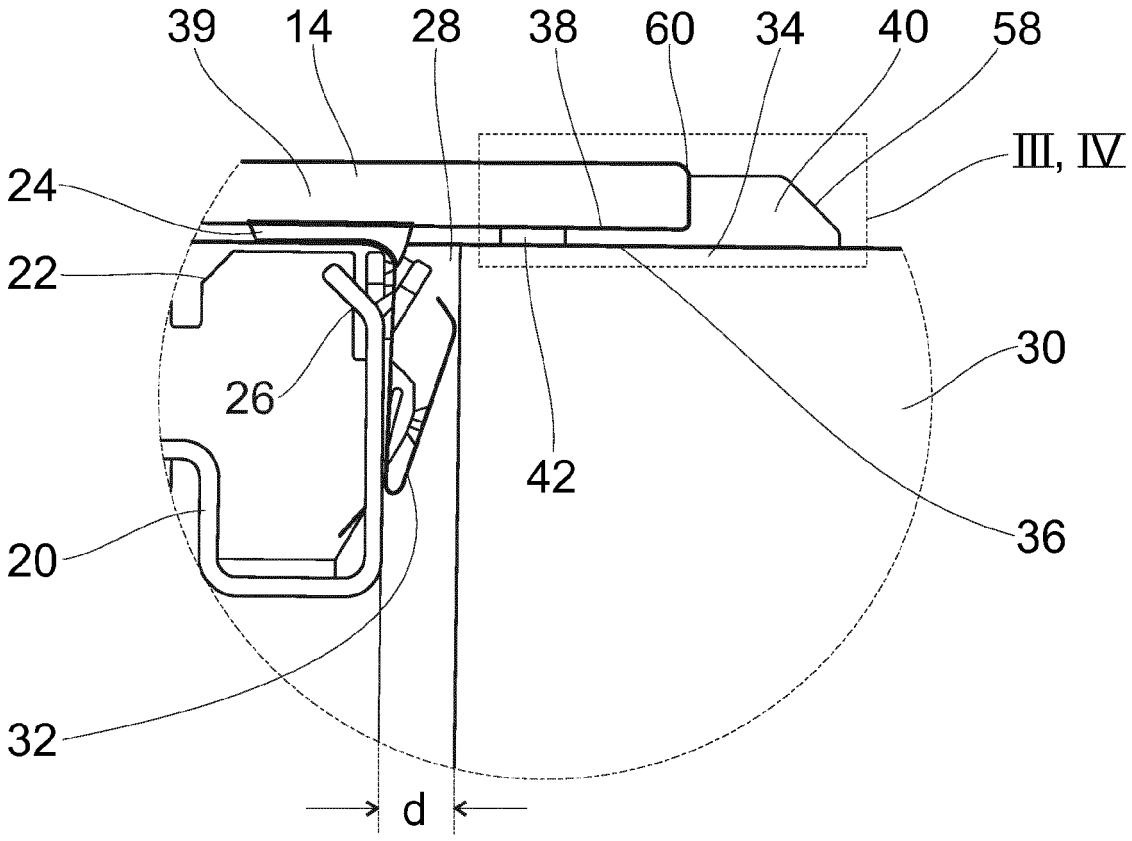
39
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Fig.3

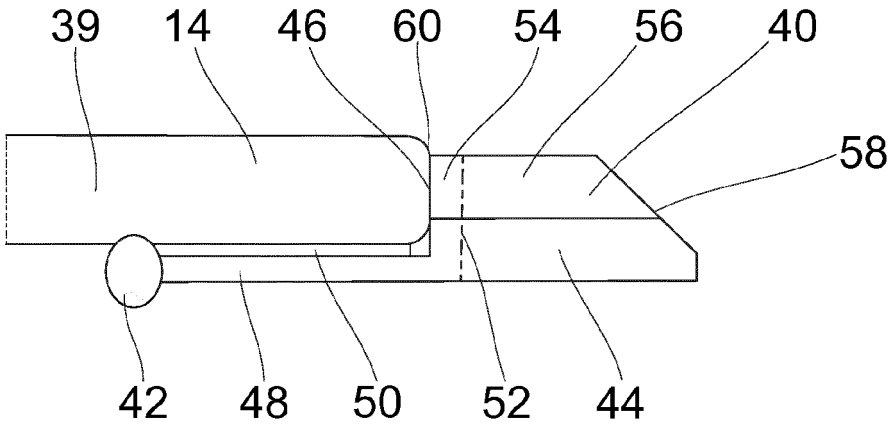


Fig.4

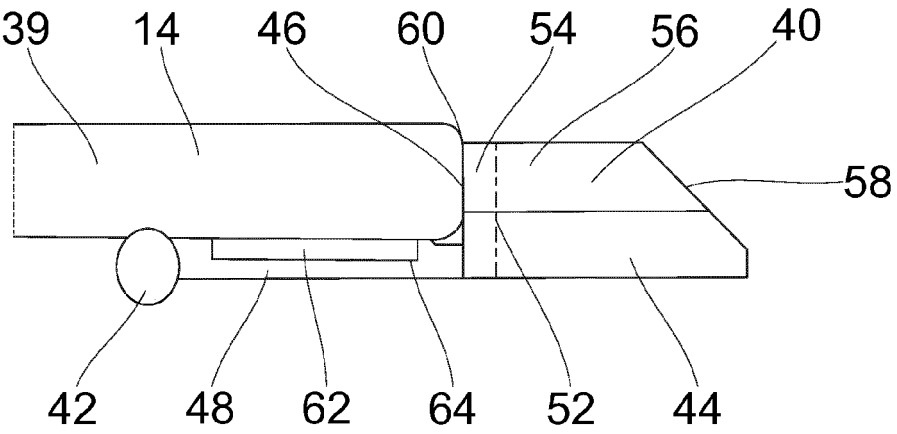


Fig.5

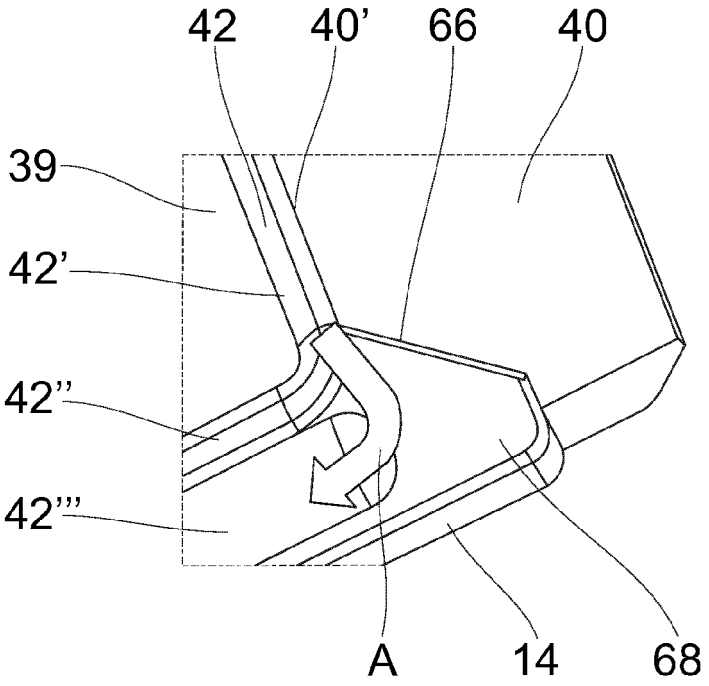


Fig.6

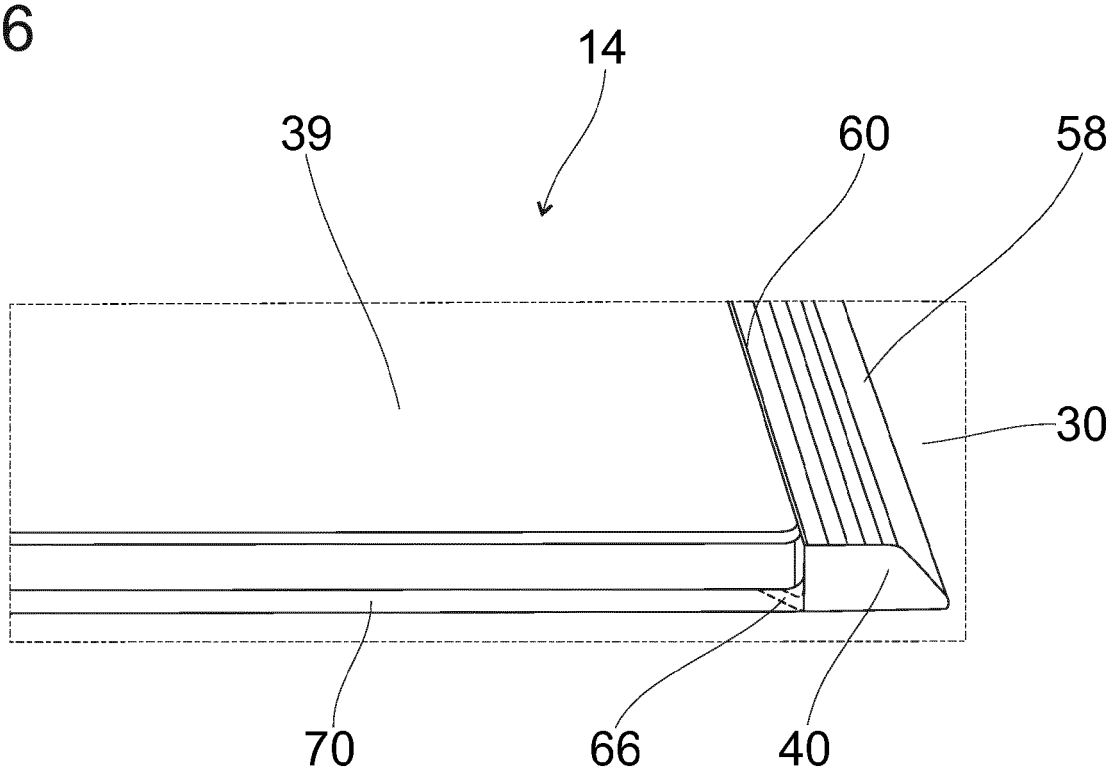
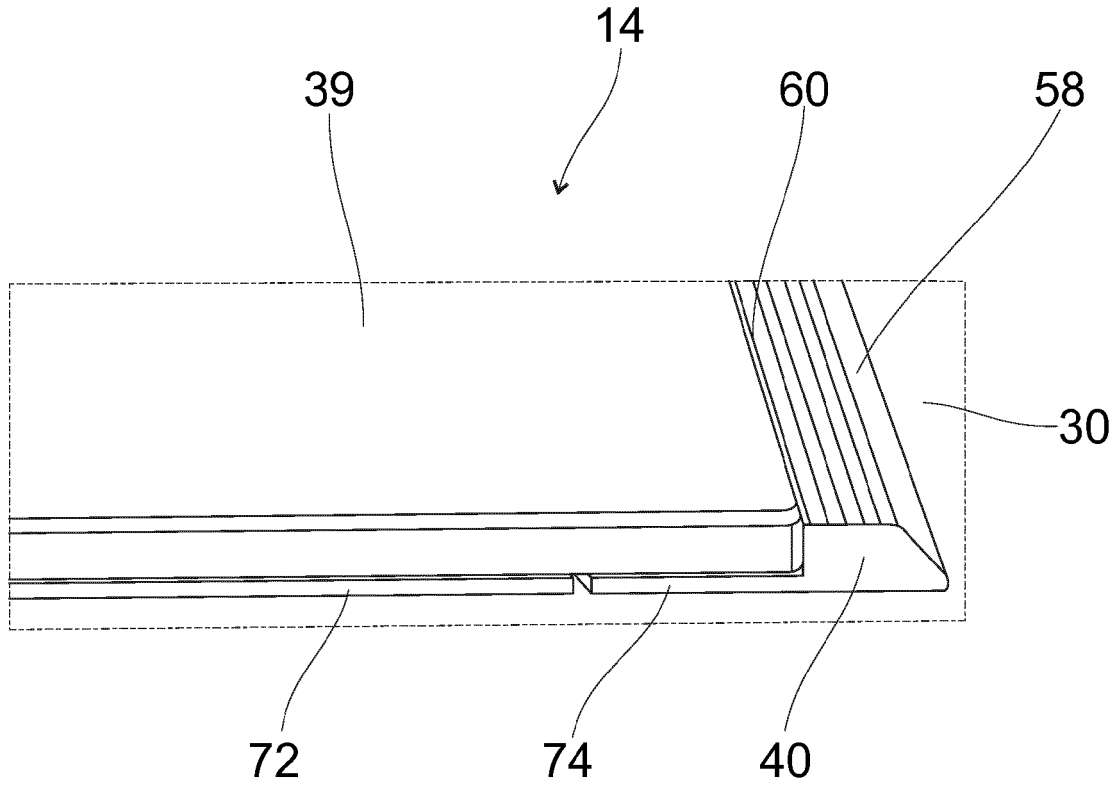


Fig.7



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EUROPEAN SEARCH REPORT

Application Number
EP 22 17 3654

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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F24C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	4 October 2022	Fest, Gilles

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