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(54) Assembly system for glass-ceramic cooking plates

(57) Assembly system for cooking glass-ceramic plates, being of the kind of those cooking plates that have a frame which acts as a support of the whole of the plate and besides as a beautifying element in its fitting into the cavity of the piece of fumiture where it is installed, and characterized because the frame (1) has the means for the subjection of a tray (4) for the assembly of the heating elements and the rest of components, and the means of support of the ceramic glass (5) and the means of tightness of the frame (1) in relationship to the piece of fumiture (6) and to the own ceramic glass (5).

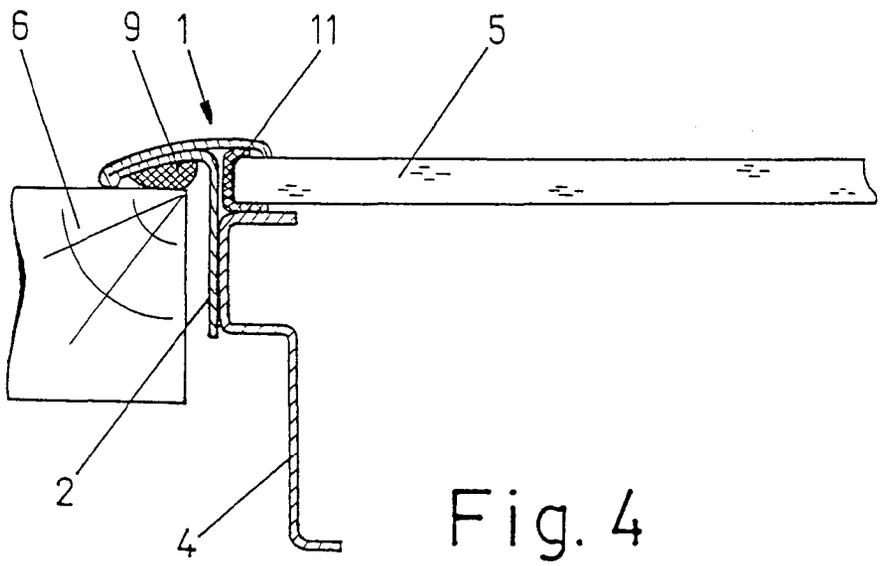

Fig. 4

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Description

OBJECT OF THE INVENTION.

[0001] As it is expressed in the title of the present descriptive report, the following invention consists on an assembly system for glass-ceramic cooking plates, which are made up of the beautifying frame that acts as a support of all the whole and besides as a beautifying element, the tray for the location of the heating elements and the rest of the components of control and function and the ceramic glass, being all of them joined, shaping the glass-ceramic for its installation into the corresponding cavity of the worktop.

[0002] The present assembly system for glass-ceramic plates is especially applicable with the frame for ceramic glasses described in the Invention Patent P9700351 of the same applicant which described and claimed a frame with a perimetral gable formed by a profile that defines a closed perimetral frame and a curved upper elvowing to the exterior of the frame, whose upper branch, of convex extemal surface, is prolonged to the exterior of the frame for being finished off with regard to the inner part of the gable, so that the tray of the heating elements will be fixed to the gable of the frame and the ceramic glass will be perimetrally leaned on the upper prolongation of the elbowing of the profile of the frame.

[0003] Thus, the assembly system is based on the joining of the profile of the frame with the tray where the heating elements and the rest of the components of control and function are placed, and on the location of the ceramic glass with regard to the tray and the frame, so that from this generic execution, the material way of carrying it out can change.

[0004] In the other hand, during the assembly of the glass-ceramic plate, we must take into account some matters as the tightness that must exist between the frame and the piece of furniture, and between the frame and the ceramic glass, as well as the ceramic glass can not make contact with metallic parts.

FIELD OF APPLICATION.

[0005] As it is expressed in the title of the own Invention Patent, the presented assembled system is for the assembly of glass-ceramic cooking plates that essentially are formed by the frame, which besides acts as a support of the whole and as a beautifying element, the tray for the location of the heating elements and the ceramic glass, so that once the whole is assembled, it will be installed into the respective cavity made in the worktop.

BACKGROUND OF THE INVENTION.

[0006] With the pass of the time, the ceramic glasses have been used in cooking more and more, but there are some drawbacks that still have not been adequately solved and thus at nowadays it was without some solution the fact of that the perimetral sealing cord, that acts as a tight element, remains visible between the ceramic glass and the support frame, with the drawbacks that it implies.

[0007] In this way, conventionally the ceramic glasses are leaned on perimetrally on a frame that is obtained by inlaying starting from a base plate that acts as a beautifying element at the same time. This execution has a drawback in that if the support plate of the ceramic glass is materialized with marked angles, there are acumulations of stresses that can cause the break of the same one, doing it useless, so that there is a tendency in practice to realize it with the angles not much marked.

[0008] This drawback is bigger in the vertexes for the seat base of the ceramic glass of the inlayed plate, so that for avoiding the contact among the ceramic glass and the vertexes of the seat base, the ceramic glass must be manufatured, being rounded their vertexes, which increases considerably its cost.

[0009] This is thus, since the direct contact between the ceramic glass and the seat base can cause the break of the same one, so that a minimum break does the ceramic glass to be useless, because it does not keep the minimum guarantees since in this situation has a behaviour totally unpredictable.

[0010] To solve these problems, the applicant of the present dossier is also the applicant of the Invention Patent P9201348 in which some "Improvements in the support plate for the cooking ceramic glass" are claimed, which are basically based on realizing a punching in the vertexes of the seat base of the ceramic glass in the inlayed plate, in order to when there is a partial loosening of a particle of the same vertex, the same one remains under the support plan of the ceramic glass in relationship to its seat base.

[0011] With this, the support plate of the ceramic glass can be manufactured by inlaying without very marked angles that can cause its break by the accumulation of stretchings in some points such as the vertexes.

[0012] In this way, the possible breaks of the ceramic glass, that can emerge during its manipulation before the installation as a consequence of the existing vibrations, are avoided and therefore some considerable economic losses because of the high cost of the ceramic glass are also avoided.

[0013] In spite of this, there are still some drawbacks, and thus in the assembly of the ceramic glass in the support plate, respective flexible strips must be placed on the vertexes of the seat plate in the support plate of the same one, placing next a silicone cord manually or automatically on the seat base, for placing the ceramic glass on it.

[0014] Later, a second silicone cord must be placed in the space that remains between the perimetral edge of the ceramic glass and the seat plate, so that the amount of stored silicone is much bigger than amount that is necessary for closing all the space and leaving it

at the level of the ceramic glass, so that later an scrupulous cleaning must be done manually for eliminating the amount of remaining silicone.

[0015] This must be thus for being able to absorb all the remains that can be both in the base plate and in the ceramic glass, for the amount of stored silicone always remains at the level of the ceramic glass after the execution of the cleaning.

[0016] This execution has the drawback of the high cost of the discarded silicone that can be established as around the 50% of the placed silicone, as well as the high cost of the time that is spent in the cleaning, with the added cost of the stripping knives specially used for this purpose, which have a short duration.

[0017] All that means a high economic cost because of the assembly cost of the ceramic glasses with their corresponding cleaning, with the added drawback of that the perimetral silicone cord remains visible since the beautifying frame of the support plate remains to the extemal part of the same one, because of the cited support plate has been obtained by inlaying.

[0018] Likewise, we can quote other Patents in which several different executions are described but that in the same ones, the element of perimetral seat remains visible between the ceramic glass and the support plate and thus, we can quote the French Patent number 2424486-A, in which several embodiments are described in the structure of the support plate but in all them, both the seat element of the ceramic glass and the perimetral cord of the sealing element are perimetrally visible.

[0019] We can also quote the Utility Model 285.008 with priority of the German Patent P3242026.9 in which a trough placement for cooking is claimed, with a cooking plate that have some cooking places, in particular a plate of vitreous ceramic in which a whole of characteristics refered to all the whole are claimed, and in which a seat frame moulded by pressure tapping is foreseen, but its union with the vitreous plate also remains visible, and whose support frame is fixed to the own worktop through a whole of screws.

DESCRIPTION OF THE INVENTION.

[0020] In the present report, an assembly system for cooking glass-ceramic plates is described, being of the kind of those cooking plates that have a frame which acts as a support of the whole of the plate and besides as a beautifying element in its fitting into the cavity of the piece of furniture where it is installed, so that it is formed by the perimetral frame which has the means for the subjection of a tray for the assembly of the heating elements and the rest of components, the means of support of the ceramic glass and the means of tightness of the frame in relationship to the piece of furniture of fitting and the own ceramic glass.

[0021] The means for the subjection of the assembly tray of the heating elements and the rest of the components of control and function are defined by a set of inlayings done in the perimetral gable of the profile of the frame, which remain centrally open for materializing the fixing by means of the respective screws and nuts, which pass through the central opening of the inlayings and through holes in the lateral walls of the own tray of assembly of the heating elements.

[0022] The support means of the ceramic glass are defined by a perimetral scaling to the exterior of the lateral walls of the tray on which the ceramic glass is placed with the interposition of the corresponding sealing cord of silicone.

[0023] The tightness means of the frame in relationship to the piece of furniture and to the own ceramic glass are defined by each sealing cords, made of silicone, silicone foam or some similar material, that are manually or automatically incorporated on the intemal side of the wings relative to the beautifying stretch, once the frame has been configurated.

[0024] The support frame of the whole of the cooking plate is directly joined through its gable to the tray of assembly of the heating elements and the rest of components, since this tray has a U-shaped upper projecting with horizontal wings, so that it is joined to the gable for its fixing, remaining the ceramic glass leaned on the upper wing of the cited projecting with an U-shaped profile, with the interposition of a sealing cord of silicone, silicone foam or a similar element, while into the hollow defined in the intemal side of the beaytifying stretch of the profile of the frame, it is placed a sealing liquid which flows for covering all the hollow.

[0025] For the assembly of the ceramic glass, it is perimetrally surrounded by a silicone joint with a C-shaped general section, remaining its lower wing leaned on the upper wing of the U-shaped projecting of the tray of assembly of the heating elements, while its upper wing remains under the intemal wing of the stretch of the beautifying element of the profile of the frame.

[0026] The silicone joint, that perimetrally surroundes the ceramic glass with a C-shaped general transverse section, has its lower wing longer than its upper wing which is finished off by an adittion of thickness which remains under the intemal wing of the beautifying stretch of the frame, in order to do tight the ceramic glass in the inner part of the cooking plate.

[0027] Likewise, the silicone joint that perimetrally surroundes the ceramic glass with a C-shaped general transverse section, has its lower wing longer than its upper wing, having a concavity in the side of joining next to the ceramic glass, so that the upper surface of the upper wing has some little projectings which remain under the intemal wing of the stretch of the beautifying element of the frame, in order to obtain the tightness between the ceramic glass and the interior of the cooking plate.

[0028] The silicone joint that perimetrally surroundes the ceramic glass with a C-shaped general transverse section, has its wings with the same length and there is

a concavity defined in the side of joining to the lateral of the ceramic glass, so that both wings of the silicone joint have, in the external surface, some little projectings for making their adaptation easy and obtaining the tightness of the ceramic glass.

[0029] In order to complement the description which is done hereinafter and with the purpose of providing a better understanding of its characteristics, the present descriptive report is accompanied by a set of drawings, in whose figures the most significant details of the invention described in the present report are represented, in an illustrative and not limitative way.

BRIEF DESCRIPTION OF THE DESIGNS.

[0030] Figure 1.- It shows a plan view of the profile that shapes the closed frame according to an intemal view, where it is observed the gable before the embodiment of the inlayings for the fastening of the tray for the location of the heating elements and the rest of the components of control and function, so that the ceramic glass first will be placed perimetrally leaned on the intemal prolongation of the beautifying element of the profile that defines the stretch.

[0031] Figure 2.- It shows a detailed sectioned view of the way of fastening of the tray where the heating elements of the cooking plate and the rest of components necessary for its working are assembled with the frame where they are screwed in relationship to a set of open inlayings, and the location of the ceramic glass and the own piece of fumiture on the worktop of the kitchen in which it is fitted into the corresponding cavity.

[0032] Figure 3.- It shows a sectioned detailed view of the way of assembly and installation of the cooking plate according to a variant of execution where the tray of assembly of the heating elements of the cooking plate is fixed to the gable of the profile of the frame, so that the tray defines a seat for a flange bent to the interior and the ceramic glass is leaned on the cited seat with the interposition of a sealing element while in relationship to the intemal wing of the beautifying element, there is a levelling element defined by a fluid sealing liquid.

[0033] Figure 4.- It shows a sectioned detailed view of the way of assembly and installation of the cooking plate acording to a variant of execution where, in relationship to the perimetral edge of the ceramic glass, it is placed a silicone joint with a C-shaped general section surrounding the same one, si that it remains placed on the bent upper flange of the tray where the heating elements and the rest of components are assembled.

[0034] Figure 5.- It shows a sectioned view of a silicone joint for surrounding the ceramic glass perimetrally, which has a C-shaped general form with its lower wing of bigger length and with some little projectings in its upper wing.

[0035] Figure 6.- It shows a sectioned view of a silicone joint for surrounding the ceramic glass perimetrally, which has a C-shaped general form with its lower wing of bigger length with an addition of thickness that finished off its upper wing of less length.

[0036] Figure 7.- It shows a sectioned view of a silicone joint for surrounding the ceramic glass perimetrally, which has a C-shaped general form with the same length in its wings and being endowed of some little projectings.

DESCRIPTION OF A PREFERRED EMBODIMENT.

[0037] In view of the above cited figures and in accordance with the adopted numbering, it is observed as starting from the frame (1) claimed in the main Patent P9700351 with a T-shaped transverse general section, it is obtained that the same one acts as a support element of the whole of the plate since in the perimetral gable (2) of the cited frame (1), there are a set of inlayings (3) whose central part is open for materializing the fixing of the tray (4) of assembly of the heating elements and the components for the working of the same ones, by means of the corresponding screws and nuts while at the same time, it supportes the ceramic glass (5) and it is placed into the cavity done in the piece of fumiture (6) for the location of the cooking plate

[0038] For this, the ceramic glass (5) is placed on a upper scaling of the lateral walls of the tray (4) of assembly of the heating elements with the interposition of a sealing cord (7) of silicone, silicone foam or other similar element at the same time that the upper perimetral edge of the cited ceramic glass remains hidden under the intemal wing of the upper part of the beautifying element of the frame, with the interposition of the corresponding sealing cord (8) of silicone, silicone foam or a similar element.

[0039] In this way, all the whole relative to the cooking plate defines a unit so that for makingeasy the assembly of the cited unitary whole, the extemal wing of the beautifying stretch of the frame is susceptible of presenting a sealing cord (9) of silicone, silicone foam or other similar element which will act as a tightness element during the assembly.

[0040] In the other hand, the frame (1) can lack of the cited cord (9) of silicone, so that at the moment of the assembly, the worker can place, perimetrally to the seat of the frame on the piece of fumiture, an strip of gum for boing the same function as a tightness element.

[0041] In this way, one ot two cords of silicone can be placed on the own metallic frame configurated and this operation can be done at the same time or separately, so that the cited cords of silicone, silicone foam or a similar element placed on the intemal sides of the wings relative to the beautifying element of the frame, can be incorporated manually or automatically.

[0042] In a variant of practical execution of the invention, the frame (1) of the cooking plate is directly fixed through its gable (2) to the tray (4), since this tray has a U-shaped upper projecting with horizontal wings and it is joined to the gable (2) of the frame (1) for its fixing, so

that the upper wing defines a seat on which the sealing element (7) of silicone, silicone foam or other similar material is placed, while into the hollow defined by the internal wing of the beautifying element of the profile (1) it is placed a fluid sealing liquid (3) which makes its levelling easy and can flow easily to the lateral of the ceramic glass (5).

[0043] For obtaining the tightness of the beautifying element with the piece of furniture (6) on the internal sides of the extemal wings relative to the beautifying element, a sealing cord (9) of silicone, silicone foam or other similar element will be placed, while the tightness with the ceramic glass (5) is obtained by the sealing element (10) previously cited which flows filling all the hollow defined by the intemal side of the intemal side of the beautifying stretch of the profile (1).

[0044] Likewise, in a second variant of practical execution of the invention, the ceramic glass (5) will remain perimetrally surrounded by a silicone joint (11) with a C-shaped general transverse section, so that in its assembly, it is placed like a sandwich between the beautifying element of the frame (1) and the tray (4) for the assembly of the heating elements and the rest of the components of control and function for the correct working of the apparatus.

[0045] Thus, during the assembly of the ceramic glass (5) endowed of the perimetral joint (11) of silicone, the same one will remain leaned on the horizontal upper wing of the U-shaped projecting of the tray (4) through its lower wing, while on the upper wing of the cited joint (11) with C-shaped general section, it press the intemal wing of the beautifying element of the profile of the frame (1), obtaining the tightness with regard to ceramic glass (5) in order to avoid filtrations through itself to the intemal part of the cooking plate.

[0046] Starting from this general shape of the joint (11) of silicone, the same one can adopt different sections similar among them, so that in the figure 6 of the designs, it is observed as the silicone joint (11) has its lower wing bigger, than its upper wing, which is finished off by an addition of thickness (13) that will be pressed by the intemal wing of the profile of the frame (1) in order to obtain the tightness with regard to the ceramic glass (5).

[0047] Also, the joint (11) of silicone can present a C-shaped general section with its lower wing shorter than its upper wing, on whose upper surface there are some little projectings (12) that will allow an easy retraction and adaptation to the intemal wing of the profile of the beautifying frame for obtaining a perfect tightness with regard to the ceramic glass (5), while its intemal part has a concavity that allows its adaptation to the lateral of the ceramic glass since the glass has a similar convex lateral surface.

[0048] Likewise, the joint (11) of silicone can have a C-shaped general section with the same length in its wings, which are endowed of some little projectings (12) in relationship to the external surface of its two wings, in order to obtain a perfect adaptability in its seat on the tray (4) and on the internal wing of the profile of the beautifying frame.

Claims

1. ASSEMBLY SYSTEM FOR GLASS-CERAMIC COOKING PLATES, being of the kind of those cooking plates that have a frame which acts as a support of the whole of the plate and besides as a beautifying element in its fitting into the cavity of the piece of fumiture where it is installed, and characterized because the frame (1) has the means for the subjection of a tray (4) for the assembly of the heating elements and the rest of components, and the means of support of the ceramic glass (5) and the means of tightness of the frame (1) in relationship to the piece of fumiture (6) and to the own ceramic glass (5).

2. ASSEMBLY SYSTEM FOR GLASS-CERAMIC COOKING PLATES, according to the first claim and characterized because the means for the subjection of the assembly tray (4) of the heating elements and the rest of the components of control and function are defined by a set of inlayings (3) done in the perimetral gable (2) of the profile of the frame (1), which remain centrally open for materializing the fixing by means of the respective screws and nuts, which pass through the central opening of the inlayings (3) and through holes in the lateral walls of the own tray (4).

3. ASSEMBLY SYSTEM FOR GLASS-CERAMIC COOKING PLATES, according to the first claim and characterized because the support means of the ceramic glass (5) are defined by a perimetral scaling to the exterior of the lateral walls of the tray (4) on which the ceramic glass (5) is placed with the interposition of the corresponding sealing cord (7) of silicone.

4. ASSEMBLY SYSTEM FOR GLASS-CERAMIC COOKING PLATES, according to the first claim and characterized because the tightness means of the frame (1) in relationship to the piece of fumiture (6) and to the own ceramic glass (5) are defined by each sealing cords (8) and (9), made of silicone, silicone foam or some similar material, that are manually or automatically incorporated on the intemal side of the wings relative to the beautifying stretch, once the frame (1) has been configurated.

5. ASSEMBLY SYSTEM FOR GLASS-CERAMIC COOKING PLATES,according to the first claim and characterized because the frame (1) is directly joined through its gable (2) to the tray (4) of the as-

sembly of the heating elements and the rest of components, so that it is joined to the gable (2) for their fixing, remaining the ceramic glass (5) leaned on the upper wing of the cited projecting with an U-shaped profile, with the interposition of a sealing cord (7) of silicone, silicone foam or a similar element, while into the hollow defined in the intemal side of the beaytifying stretch of the profile (1), it is placed a sealing liquid (10) which flows for covering all the hollow.

6. ASSEMBLY SYSTEM FOR GLASS-CERAMIC COOKING PLATES, according to the first claim and characterized because for its assembly, the ceramic glass (5) is perimetrally surrounded by a silicone joint (11) with a C-shaped general section, remaining its lower wing leaned on the upper wing of the U-shaped projecting of the tray (4), while the intemal wing of the stretch of the beautifying element of the profile (1) remains on its upper wing .

7. ASSEMBLY SYSTEM FOR GLASS-CERAMIC COOKING PLATES, according to the first and sixth claims and characterized because the silicone joint (11), that perimetrally surroundes the ceramic glass with a C-shaped general transverse section, has its lower wing longer than its upper wing which is finished off by an adittion of thickness (13) which remains under the intemal wing of the beautifying stretch of the frame (1), in order to do tight the ceramic glass (5) in the inner part of the cooking plate.

8. ASSEMBLY SYSTEM FOR GLASS-CERAMIC COOKING PLATES, according to the first and sixth claims and characterized because the silicone joint (11) that perimetrally surroundes the ceramic glass (5) with a C-shaped general transverse section, has its lower wing longer than its upper wing, having a concavity in the side of joining to the lateral of the ceramic glass (5), so that the upper surface of the upper wing has some little projectings (12) which remain under the internal wing of the stretch of the beautifying element of the frame (1), in order to obtain the tightness between the ceramic glass (5) and the interior of the cooking plate.

9. ASSEMBLY SYSTEM FOR GLASS-CERAMIC COOKING PLATES, according to the first and sixth claims and characterized because the silicone joint (11) that perimetrally surroundes the ceramic glass (5) with a C-shaped general transverse section, has its wings with the same length and there is a concavity defined in the side of joining to the lateral of the ceramic glass (5), so that both wings of the silicone joint (11) have, in the external surface, some little projectings (12) for making their adaptation easy and obtaining the tightness of the ceramic glass.

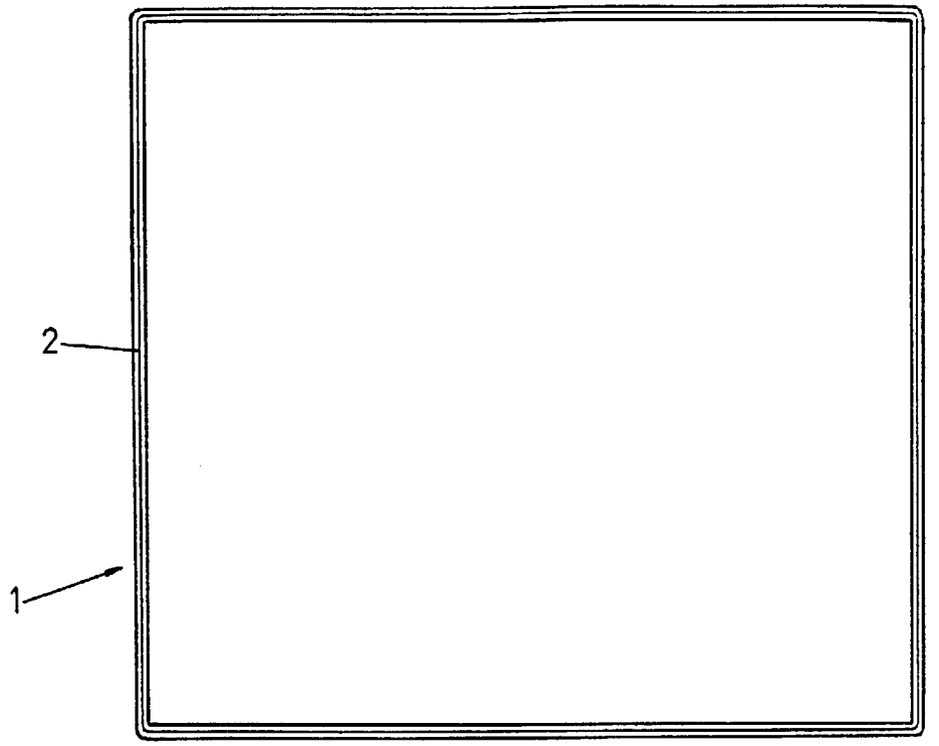

Fig. 1

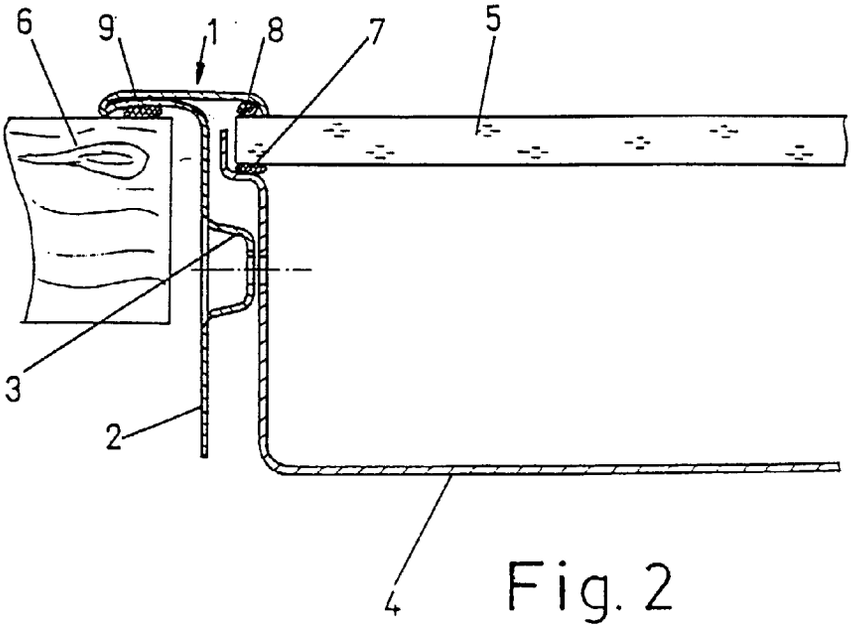

Fig. 2

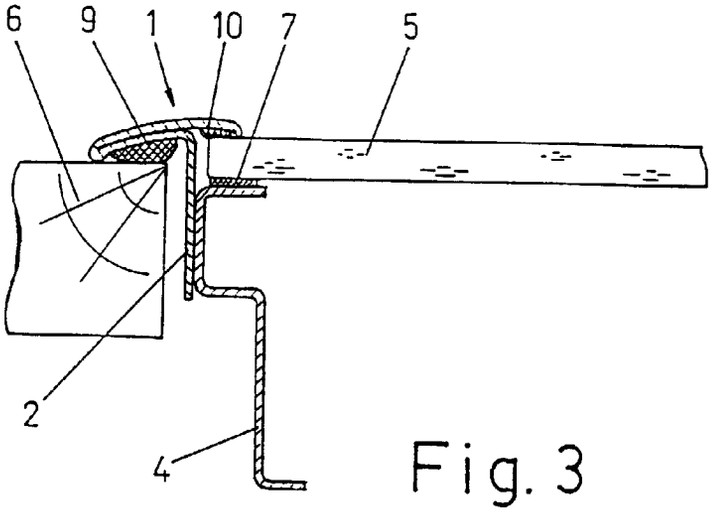

Fig. 3

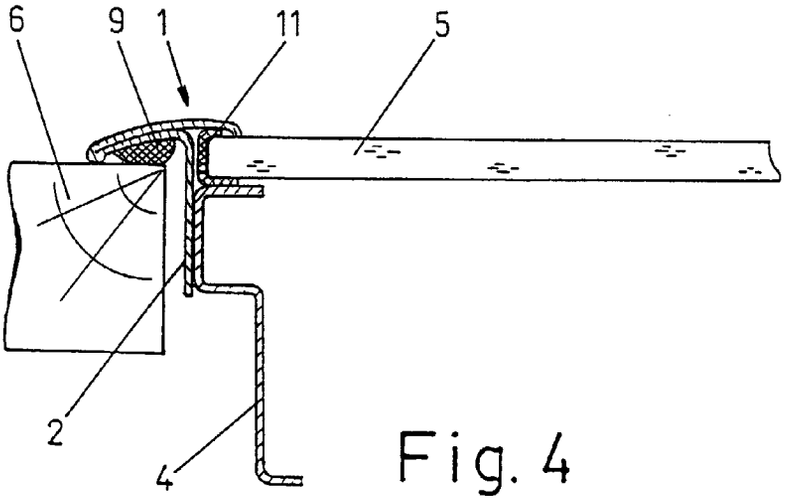

Fig. 4

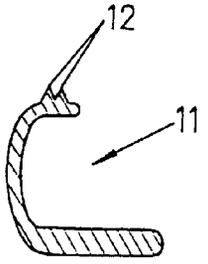

Fig. 5

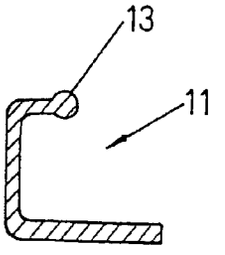

Fig. 6

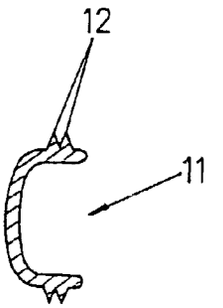

Fig. 7