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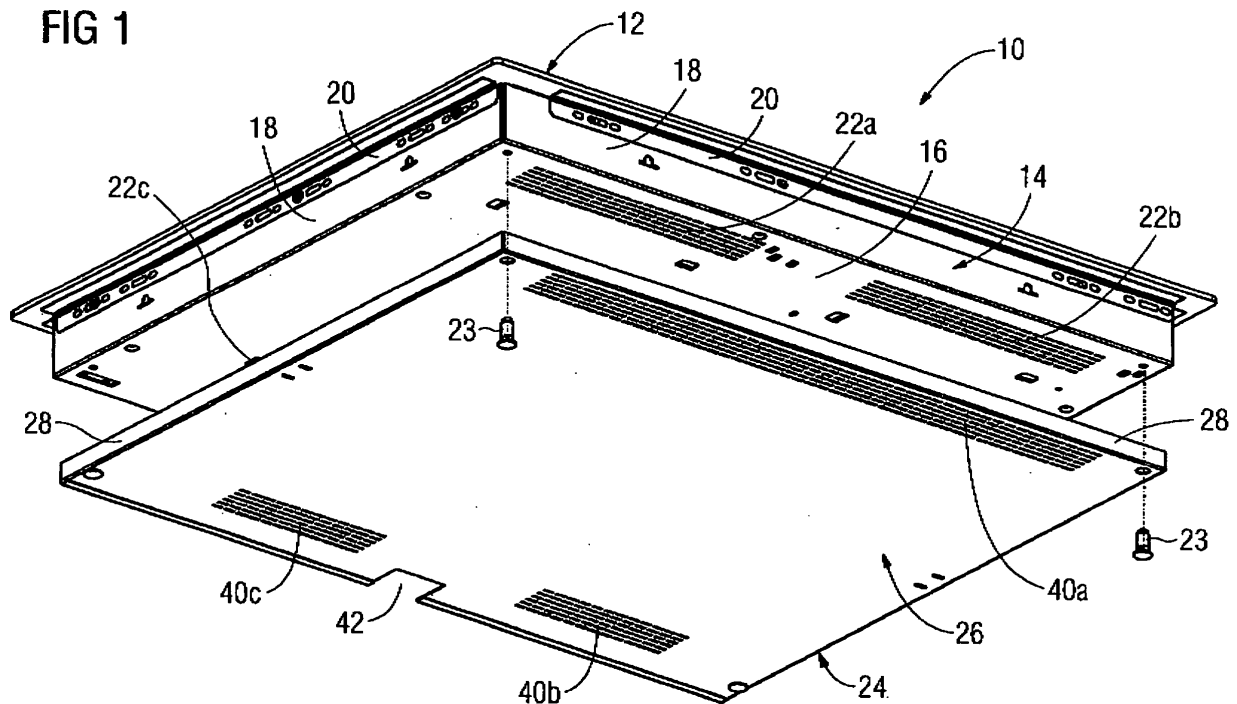
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(54) **Domestic hob**

(57) Domestic hob (10; 50) comprising a housing (14) with a bottom wall (16), wherein at least one thermally and/or electrically isolating and/or flame resistant, pro-

tection plate (24) is attached to the hob (10; 50) underneath the bottom wall (16), wherein a main plane (26) of the protection plate (24) is spaced apart from the bottom wall (16) by a predetermined distance.



Description

[0001] The present invention relates to a domestic hob comprising a housing with a bottom wall.

[0002] Domestic hobs of the above-mentioned kind are known in prior art. If such domestic hobs are to be installed in built-in furniture, such as in a floor cupboard, it is to be considered that the temperature within the furniture does not exceed an admissible threshold due to the heat dissipation of the hob in order to prevent a damage of the furniture.

[0003] In this context DE-A-10 2005 053 173 proposes a domestic hob of the above-mentioned kind comprising two temperature sensors. The sensors detect and monitor the temperature of the furniture or rather the heat yielded to the furniture. However, the detection and monitoring of the temperature is expensive due to the necessary electronic equipment.

[0004] A further domestic hob of the above-mentioned kind is described in DE-U-20 2005 018 776. This domestic hob is installed in a floor cupboard, wherein a drawer is provided directly beneath the hob. In order to provide a space for stowing the cables of the hob, an intermediate plate is arranged between the upper edges of the drawer and the bottom side of the hob. Moreover, the furniture comprises a heat resistant and/or thermally isolating protection plate or protection layer arranged between the intermediate plate and the bottom side of the hob. This intermediate plate or intermediate layer can be provided directly on the intermediate plate. One draw-back of this solution is that the size of the intermediate plate as well as the size of the protection plate or the protection layer have to be adapted to the dimensions of the floor cupboard when assembling the hob. This adaption makes the assembly of the hob very time-consuming and expensive.

[0005] It is an object of the present invention to provide a domestic hob of the above-mentioned kind giving the user protection against thermal and/or electrical dangers emanating from the bottom side of the hob, and which is inexpensive to manufacture and to assemble.

[0006] In order to solve this object the present invention provides a domestic hob of the above-mentioned kind which is **characterized in that** at least one thermally and/or electrically isolating and/or flame resistant protection plate is attached to the hob underneath the bottom wall, wherein a main plane of the protection plate is spaced apart from the bottom wall by a predetermined distance.

[0007] Such a domestic hob is inexpensive to manufacture thanks to its simple construction. Moreover, since the protection plate is attached to the hob its size does not need to be adapted to the dimensions of the furniture in which the hob is to be housed, e.g. to the dimensions of a floor cupboard. Accordingly, the domestic hob according to the present invention is easy and inexpensive to assemble.

[0008] According to one embodiment of the present

invention at least one spacer is provided for maintaining the predetermined distance between the main plane' of the protection plate and the bottom wall of the housing. The at least one spacer can be made integral with the protection plate and/or the bottom wall. For example, one or more border areas of the protection plate can form upwardly bent sections, which abut against the bottom wall of the hob and thus maintain the predetermined distance between the main plane of the protection plate and the bottom wall of the housing. Due to the integral configuration of the at least one spacer and the protection plate and/or the bottom wall, the number of components is reduced such that in particular the assembly of the domestic hob can be simplified.

[0009] Alternatively, the at least one spacer is provided as a separate component, such as a spacer bushing, a spacer pin or the like extending between the main plane of the protection plate and the bottom wall of the housing. Of course it is also possible to use a combination of separate spacers and spacers, which are made integral with the protection plate and/or the bottom wall.

[0010] According to one embodiment of the present invention the protection plate is screwed and/or riveted and/or bonded to or hooked in the hob.

[0011] Alternatively, snap-fitting means are provided for fixing the protection plate to the hob. Such snap-fitting means are advantageous in that they form a releasable connection between the protection plate and the hob, which is very easy and fast to assemble and to disassemble. Preferably, the snap-fitting means are made integral with the protection plate and/or the housing in order to reduce the number of components and thus to simplify the assembly of the domestic hob.

[0012] According to one embodiment of the present invention the protection plate comprises at least one cable opening for feeding through cables. Accordingly, the cables of the hob can be fed out of the clearance present between the main plain of the protection plate and the bottom wall of the housing in a defined manner. The edges of the cable opening are preferably chamfered and/or provided with a cable protecting means in order to protect the cables from being damaged. As a cable protecting means a plastic rail may be clipped on the edges of the cable opening, only to cite an example.

[0013] Preferably, the protection plate and/or the bottom wall of the housing comprises at least one venting opening for venting the hob.

[0014] According to an embodiment of the present invention a first protection plate section is provided with at least one venting opening for feeding air and a second protection plate section is provided with at least one venting opening for removing air, wherein the protection plate sections are spacially separated from each other in order to ensure an effective air circulation.

[0015] For separating the protection plate sections a separation wall and/or sealing means may be provided.

[0016] Moreover, the present invention provides a protection plate designed to be attached underneath a bot-

tom wall of a housing of a domestic hob such that a main plane of the protection plate is spaced apart from the bottom wall of the housing by a predetermined distance, wherein the protection plate is thermally and/or electrically isolated and/or flame resistant.

[0017] According to one embodiment of the present invention the protection plate comprises at least one spacer for defining the predetermined distance.

[0018] The protection plate may be designed to be screwed and/or riveted and/or bonded to or hooked in the hob.

[0019] Alternatively, the protection plate may comprise snap-fitting means for fixing the protection plate to the hob.

[0020] Preferably, at least one cable opening for feeding through cables is provided whose edges are preferably chamfered and/or provided with a cable protecting means.

[0021] Advantageously, a first protection plate section is provided with at least one venting opening for feeding air and a second protection plate section is provided with at least one venting opening for removing air, wherein the protection plate sections are spatially separated from each other.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

[0022] The detailed configuration, features and advantages of the present invention will become apparent in the course of the following description with reference to the accompanying drawings.

Figure 1 is a perspective, exploded bottom view of a domestic hob according to an embodiment of the present invention.

Figure 2 is an perspective, exploded top view of the hob shown in figure 1.

Figure 3 is an perspective, exploded bottom view of a domestic hob according to a second embodiment of the present invention.

Figure 4 is a perspective, exploded top view of the hob shown in figure 3.

[0023] Figures 1 and 2 show a domestic hob 10 according to a first embodiment of the present invention. The hob 10 comprises a conventional ceramic top plate 12 and a housing 14. In order to accommodate the electronic components of the hob 10 the housing 14 has a box-shape which is defined by a bottom wall 16 and four side walls 18. Along the upper edges of the side walls 18 angle profiles 20 are arranged for receiving the ceramic top plate 12 and for fixing it to the housing 14. The bottom wall 16 of the housing 14 is provided with venting openings 22a, 22b and 22c for cooling the interior of the hous-

ing 14 by the circulation of ambient air. The circulation is caused by means of a fan (not shown) received in the housing 14, which sucks in ambient air through the venting openings 22a and 22b and ejects the air through the venting opening 22c.

[0024] Moreover, the hob 10 comprises a protection plate 24 which is made of a thermally and electrically isolating and fire resistant material and which is fixed to the bottom wall 16 of the housing 14 by means of screws 23. The protection plate 24 includes a square main plane 26 extending essentially in parallel to the bottom wall 16 of the housing 14, wherein three border areas of the main plane 26 are bent upwardly towards the housing 14 of the hob 10 in order to form spacers 28. These spacers 28 abut against the bottom wall 16, such that the main plane 26 of the protection plate 24 is spaced apart from the bottom wall 16 by a predetermined distance. Thus, a clearance is created between the main plane 26 of the protection plate 24 and the bottom wall 16 of the housing 14. The clearance is divided by a separation wall 34, which extends between the two opposing spacers 28 and is fixed to the main plane 26 of the protection plate 24, whereby two protection plate sections 36 and 38 are formed. Within the protection plate section 36 a first venting opening 40a is provided underneath the venting openings 22a and 22b of the housing 14 for feeding air, and in the protection plate section 38 two venting openings 40b and 40c are provided underneath the venting opening 22c of the housing 14 for removing air. Accordingly, ambient air is sucked in by means of the fan through the venting opening 40a formed in the protection plate 24, flows through the venting openings 22a and 22b into the housing 14, receives the heat generated by the electric components arranged within the housing 14 and flows out through the venting openings 22c of the housing 14 and the venting openings 40b and 40c of the protection plate 24.

[0025] Moreover, the main plane 26 of the protection plate 24 is formed with a cable opening 42 for feeding through the cables of the hob 10. The edges of the cable opening 42 may be chamfered and/or provided with a cable protection means (not shown), e.g. a plastic protection rail, which can be clipped on the edges of the cable opening 42 in order to protect the user from getting cut.

[0026] Thanks to the thermally isolated protection plate 24 as well as to the distance between the bottom wall 16 of the housing 14 and the main plane 26 of the protection plate 24 created by the spacers 28 it is prevented that a user, who accidentally comes into contact with the bottom side of the hob 10, gets burned. Moreover, the electrical isolation of the protection plate 24 prevents that the user receives an electric shock. Since the protection plate 24 is not fixed to the furniture but to the hob 10 itself there is no need to adapt the size of the protection plate 24 to the dimensions of the furniture, e.g. to the dimensions of floor cupboard. Thus, the assembly of the hob 10 can be performed in an easy, fast and in-

expensive manner.

[0027] It should be noted that the spacers 28 can also be provided as separate elements, e.g. in the form of spacer bushings arranged around the screws 23.

[0028] Figures 3 and 4 show a hob 50 according to a second embodiment of the present invention. The structure of the hob 50 is very similar to the one of the hob 10 shown in figures 1 and 2 for which reason corresponding components of the hob 50 are designated with the same reference numerals as used in figures 1 and 2 in order to simplify matters. The hobs 50 and 10 only vary in that the hob 50 comprises snap-fitting means 52 instead of the screws 30 for fixing the protection plate 24 to the housing 14 of the hob 50. The snap-fitting means 52 are provided at the exterior of the spacers 28 and project upwardly towards the housing 14. The snap-fitting means 52 comprise snap-fitting projections 54 which project inwards and latch into corresponding snap-fitting openings 56 formed in the side walls 18 of the housing 14.

[0029] Thanks to the snap-fitting means 52 the fixation of the protection plate 24 to the bottom wall 16 of the housing 14 can be performed in a very fast and comfortable manner.

Claims

1. Domestic hob (10; 50) comprising a housing (14) with a bottom wall (16), **characterized in that** at least one thermally and/or electrically isolating and/or flame resistant, protection plate (24) is attached to the hob (10; 50) underneath the bottom wall (16), wherein a main plane (26) of the protection plate (24) is spaced apart from the bottom wall (16) by a predetermined distance.
2. Hob (10; 50) according to claim 1, **characterized in that** at least one spacer (28) is provided for maintaining the predetermined distance.
3. Hob (10; 50) according to claim 2, **characterized in that** the at least one spacer is made integral with the protection plate (24) and/or the housing (14).
4. Hob (10; 50) according to claim 2, **characterized in that** the at least one spacer is provided as a separate component.
5. Hob (10; 50) according to one of the foregoing claims, **characterized in that** the protection plate (24) is screwed and/or riveted and/or bonded to or hooked in the hob (10; 50).
6. Hob (50) according to one of the claims 1 to 4, **characterized in that** snap-fitting means (52) are provided for fixing the protection plate (24) to the hob (50), wherein the snap-fitting means (52) are preferably made integral with the protection plate (24) and/or the housing (14).
7. Hob (10; 50) according to one of the foregoing claims, **characterized in that** the protection plate (24) comprises at least one cable opening (42) for feeding through cables.
8. Hob (10; 50) according to claim 7, **characterized in that** the edges of the cable opening (42) are chamfered and/or provided with a cable protecting means.
9. Hob (10; 50) according to one of the foregoing claims, **characterized in that** the protection plate (24) and/or the bottom wall (16) of the housing (14) comprises at least one venting opening (22a, 22b, 22c; 40a, 40b, 40c).
10. Hob (10; 50) according to claim 9, **characterized in that** a first protection plate section (36) is provided with at least one venting opening (40a) for feeding air and a second protection plate section (38) is provided with at least one venting opening (40b, 40c) for removing air, wherein the protection plate sections (36, 38) are spatially separated from each other.
11. Hob (10; 50) according to claim 9, **characterized in that** a separation wall (34) and/or sealing means are provided for separating the protection plate sections (36, 38).
12. Protection plate (24) designed to be attached underneath a bottom wall (16) of a housing (14) of a domestic hob (10; 50) such that a main plane (26) of the protection plate (24) is spaced apart from the bottom wall (16) of the housing (14) by a predetermined distance, wherein the protection plate is thermally and/or electrically isolated and/or flame resistant.
13. Protection plate (24) according to claim 12, **characterized in that** the protection plate (24) comprises at least one spacer (28) for defining the predetermined distance.
14. Protection plate (24) according to claim 12 or 13, **characterized in that** it is designed to be screwed and/or riveted and/or bonded to or hooked in the hob (10; 50).
15. Protection plate (24) according to claim 12 or 13, **characterized in that** it comprises snap-fitting means (52) for fixing the protection plate (24) to the hob (10; 50).
16. Protection plate (24) according to one of the claims 12 to 15, **characterized in that** at least one cable opening (42) for feeding through cables is provided

whose edges are preferably chamfered and/or provided with a cable protecting means.

17. Protection plate (24) according to one of the claims 12 to 16, **characterized in that** a first protection plate section (36) is provided with at least one venting opening (40a) for feeding air and a second protection plate section (38) is provided with at least one venting opening (40b, 40c) for removing air, wherein the protection plate sections (36, 38) are spacially separated from each other.

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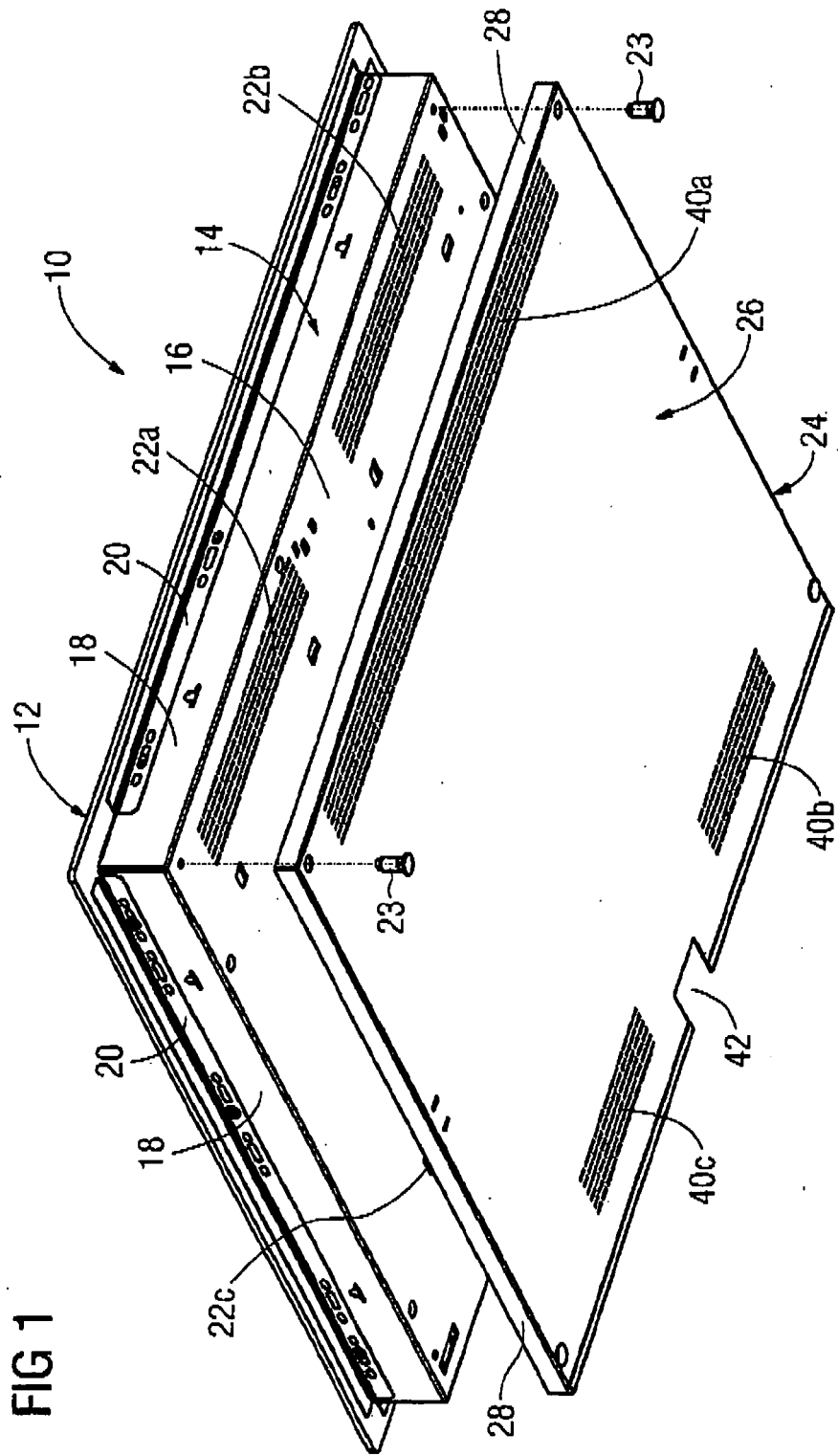


FIG 1

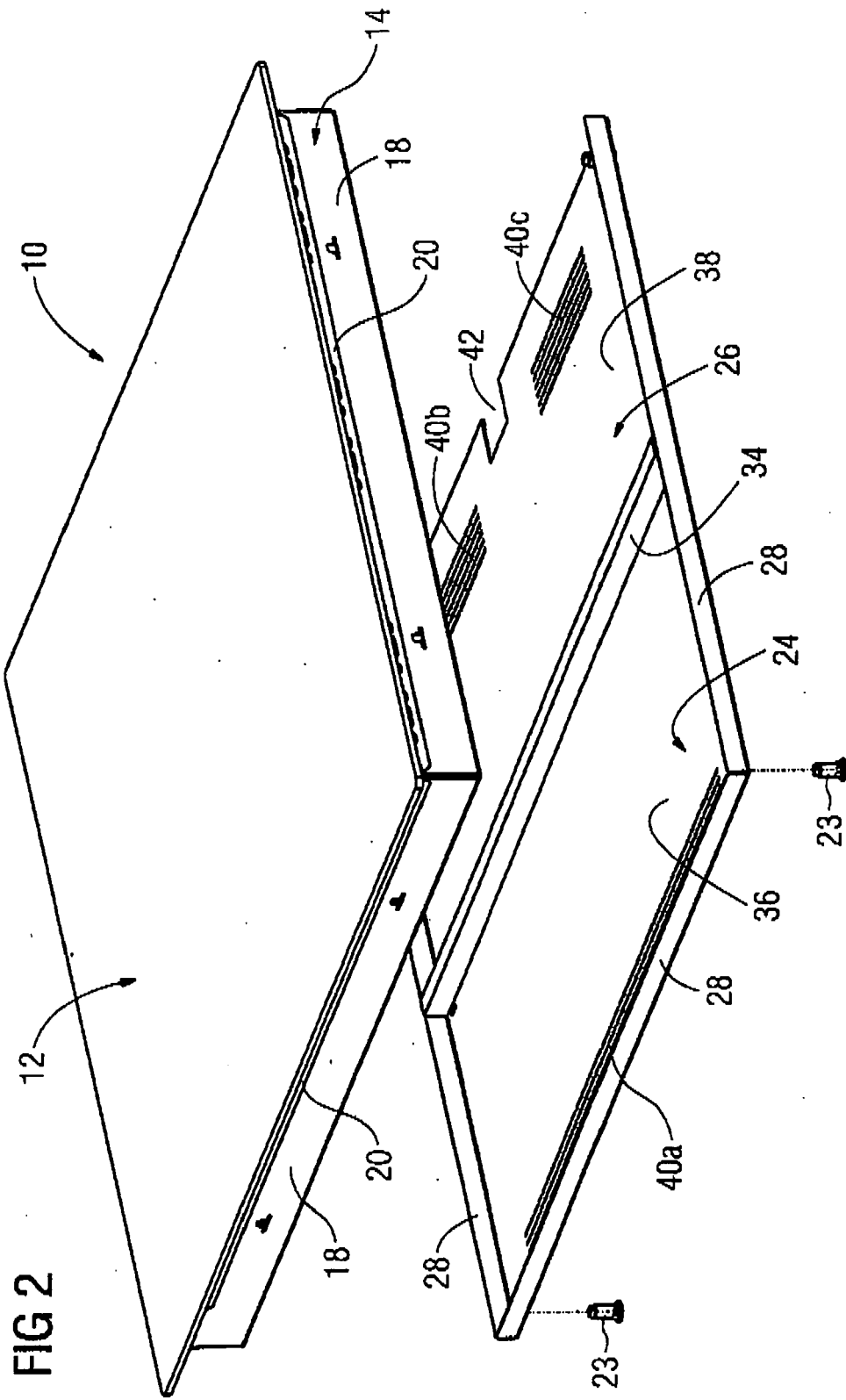


FIG 2

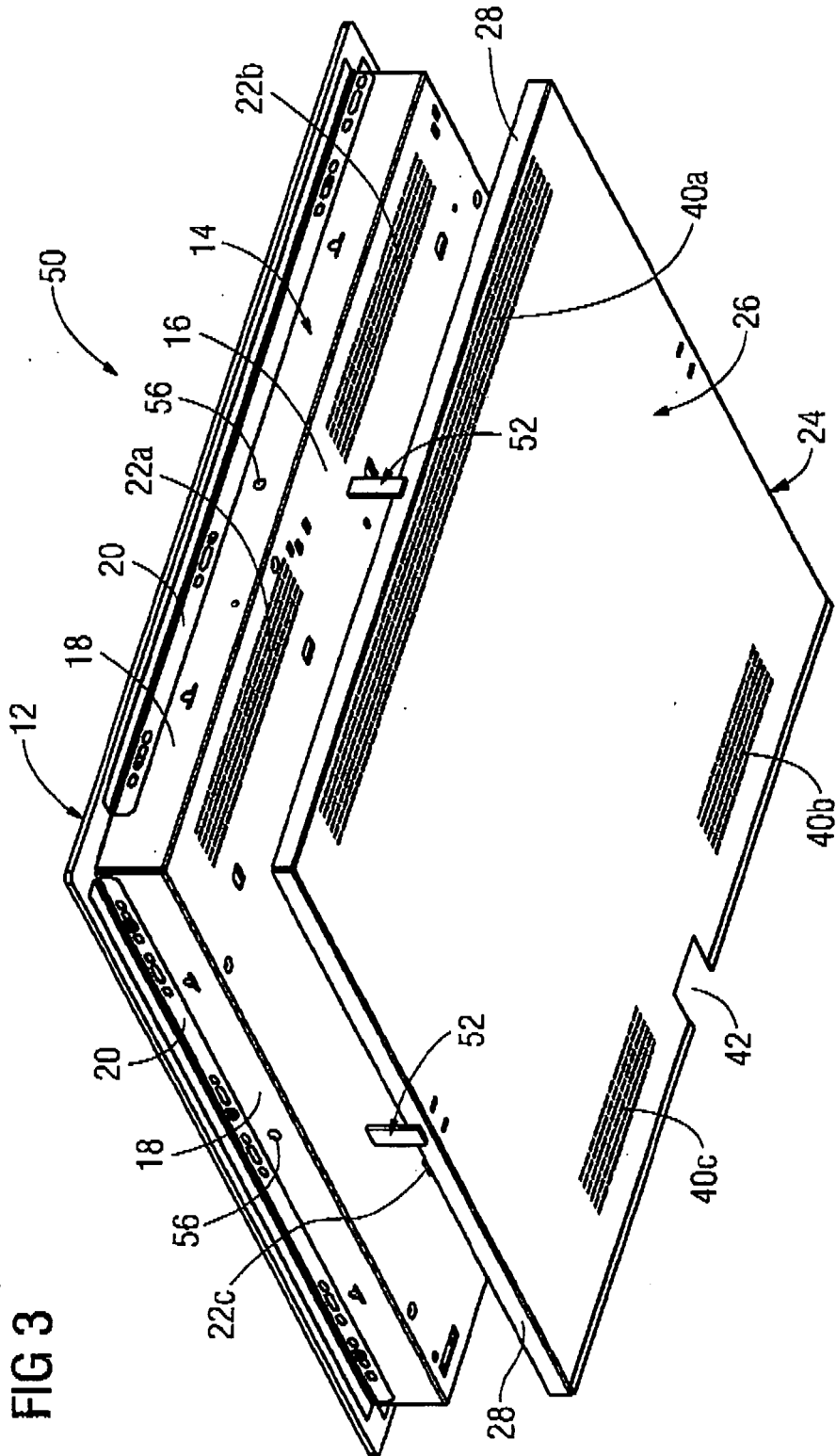
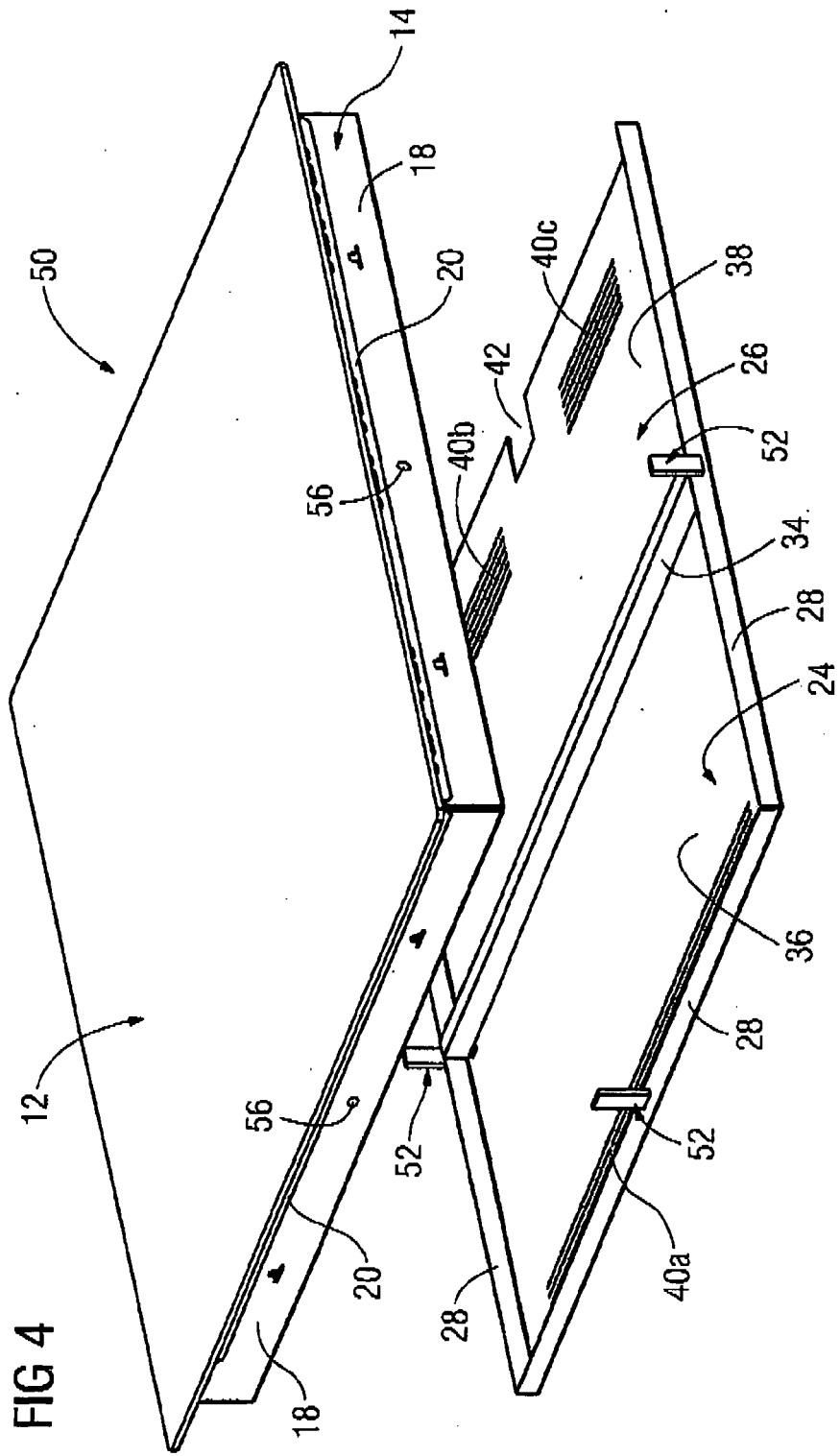


FIG 3





EUROPEAN SEARCH REPORT

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 EP 09 00 5094

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Place of search The Hague		Date of completion of the search 13 August 2009	Examiner Rodriguez, Alexander
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EPO FORM 1503 03.02 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
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