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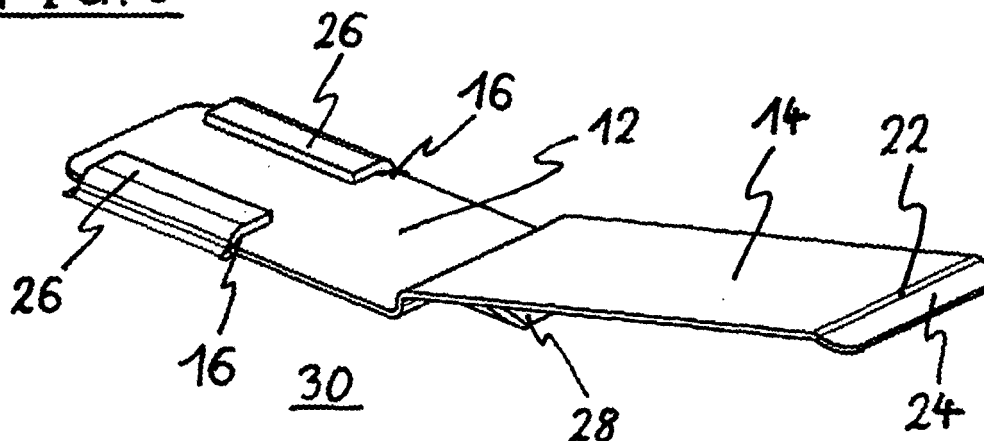
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(54) **A mounting system for supporting a radiant heating device above a bottom panel of a cooking hob**

(57) The present invention relates to a mounting system for supporting a radiant heating device (32) above a bottom panel (30) of a cooking hob. The mounting system comprises at least one supporting bracket (10) and dedicated receptacle means (26, 28) in the bottom panel (30). The supporting bracket (10) is formed as a leaf-spring with a mountable portion (12) and a free end portion (14). The supporting bracket (10) comprises at least one bending (18, 20) between the mountable portion (12) and the free end portion (14). The receptacle means (26, 28) include at least two parallel guiding elements (26), which are cut in the bottom panel (30) and bent up, so that the mountable portion (12) is slidable along the longitudinal axis of said guiding elements (26). The mountable portion (12) comprises at least one stop unit (16), so that the mountable portion (12) can be inserted between the guiding elements (26) only until to a predetermined position. The receptacle means (26, 28) include at least one barbed hook (28) cut in the bottom panel (30) and bent up. The bending (18) between the mountable portion (12) and the free end portion (14) is provided for snapping-in at the barbed hook (28) in order to prevent the motion of the supporting bracket (10) in the direction of the free end portion (14). Further, the present invention relates to a cooking hob with at least one mounting system.

gitudinal axis of said guiding elements (26). The mountable portion (12) comprises at least one stop unit (16), so that the mountable portion (12) can be inserted between the guiding elements (26) only until to a predetermined position. The receptacle means (26, 28) include at least one barbed hook (28) cut in the bottom panel (30) and bent up. The bending (18) between the mountable portion (12) and the free end portion (14) is provided for snapping-in at the barbed hook (28) in order to prevent the motion of the supporting bracket (10) in the direction of the free end portion (14). Further, the present invention relates to a cooking hob with at least one mounting system.

FIG. 3



Description

[0001] The present invention relates to a mounting system for supporting a radiant heating device above a bottom panel of a cooking hob according to claim 1. Further, the present invention relates to a cooking hob with at least one mounting system according to claim 9.

[0002] In a cooking hob with a glass-ceramic panel at least one radiant heating device is arranged below said glass-ceramic panel. The radiant heating device has to be resiliently supported above the bottom panel of the cooking hob.

[0003] Resilient supporting systems according to the prior art have fastening element projecting at the lower surface of the bottom panel of the cooking hob. This may cause damages on other surfaces. The resilient supporting systems of the prior art have no linear spring characteristics, so that the pressure of the radiant heating device is very high and can bend the glass-ceramic panel.

[0004] It is an object of the present invention to provide a mounting system for supporting a radiant heating device and a corresponding cooking hob, which allows a stable arrangement of the mounting system without any fastening elements on the lower surface of the bottom panel of the cooking hob.

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

[0006] According to the invention the mounting system for supporting a radiant heating device above a bottom panel of a cooking hob comprises at least one supporting bracket and dedicated receptacle means in the bottom panel, wherein:

- the supporting bracket is formed as a leaf-spring with a mountable portion and a free end portion,
- the supporting bracket comprises at least one bending between the mountable portion and the free end portion,
- the receptacle means include at least two parallel guiding elements, which are cut in the bottom panel and bent up, so that the mountable portion is slidable along the longitudinal axis of said guiding elements,
- the mountable portion comprises at least one stop unit, so that the mountable portion can be inserted between the guiding elements only until to a predetermined position,
- the receptacle means include at least one barbed hook cut in the bottom panel and bent up, and
- the bending between the mountable portion and the free end portion is provided for snapping-in at the barbed hook in order to prevent the motion of the supporting bracket in the direction of the free end portion.

[0007] The main idea of the present invention is the geometric form of the supporting bracket and the receptacle means. The supporting bracket and the receptacle means are simple constructions, which allow a non-mov-

able supporting bracket on the bottom panel. There are no projecting elements at the lower surface of the bottom panel. The supporting bracket and the receptacle means allow a spring characteristic, so that a constant force acts onto the radiant heating device independently of the level of said radiant heating device.

[0008] According to the preferred embodiment of the present invention the mountable portion comprises a narrow part at its end and a wide part besides the centre of the supporting bracket, so that the narrow part is complementary to the inner space between the guiding elements. This form of the supporting bracket may be cut in a simple way.

[0009] For example, at least one stop unit, in particular two stop units, is formed by the resulting broadening between the narrow part end and the wide part of the mountable portion. The motion of the mountable portion is limited by a simple construction.

[0010] Preferably, the guiding elements are formed as L-profiles above the bottom panel, wherein the open longitudinal sides of said L-profiles are facing. This defines the path for inserting the mountable portion.

[0011] Further, a first bending and a second bending are arranged between the mountable portion and the free end portion, wherein the first bending is bent up and the second bending is bent down. Thus, an S-section is formed in the supporting bracket. The first bending of said S-section can snap in at the barbed hook. Preferably, the distance between the first bending and the second bending is marginally bigger than the height of the barbed hook.

[0012] According to the preferred embodiment of the present invention the free end portion comprises a buckled appendix provided as a contact surface for the radiant heating device. The appendix may be formed as a sheet element extending in a substantially horizontal direction.

[0013] The object of the present invention is also achieved by the cooking hob with a glass-ceramic panel and at least one radiant heating device according to claim 9.

[0014] According to the present invention the radiant heating device is supported above a bottom of the cooking hob by at least one supporting bracket as described above.

[0015] Additionally, the radiant heating device is supported at its circumferential side or sides, respectively, by outer supporting elements in order to prevent a horizontal motion of said radiant heating device.

[0016] Preferably, the outer supporting elements are cut in the bottom panel and bent up, so that the outer supporting elements are vertical sheet elements. Also the bent up outer supporting elements guarantee that there are no projecting elements at the lower surface of the bottom panel.

[0017] Further, the planes of the outer supporting elements extend in a radial direction related to the radiant heating device. Thus, the outer supporting elements are stable and cannot be deformed by the radiant heating

device, since the force act parallel to plane of the sheet elements.

[0018] The novel and inventive features believed to be the characteristic of the present invention are set forth in the appended claims.

[0019] The invention will be described in further detail with reference to the drawings, in which

FIG 1 illustrates a schematic diagram of a perspective view of receptacle means for a supporting bracket according to a preferred embodiment of the present invention,

FIG 2 illustrates a schematic diagram of a perspective view of the supporting bracket according to the preferred embodiment of the present invention,

FIG 3 illustrates a schematic diagram of a perspective view of the receptacle means with the supporting bracket in a mounted state according to the preferred embodiment of the present invention,

FIG 4 illustrates a schematic diagram of a perspective view of a radiant heating device supported on a bottom panel of a cooking hob by the supporting bracket according to the preferred embodiment of the present invention,

FIG 5 illustrates a schematic diagram of a sectional view of the radiant heating device supported by the supporting bracket according to the preferred embodiment of the present invention, and

FIG 6 illustrates a schematic diagram of a detailed sectional view of the supporting bracket below the radiant heating device according to FIG 5.

[0020] FIG 1 illustrates a schematic diagram of a perspective view of receptacle means 26 and 28 for a supporting bracket 10 according to a preferred embodiment of the present invention. The receptacle means 26 and 28 are arranged on a bottom panel 30 of a cooking hob. The receptacle means include two parallel guiding elements 26 and a barbed hook 28.

[0021] The guiding elements 26 are cut in the bottom panel 30 and bent up, so that each guiding element 26 forms an L-profile above the bottom panel 30. The open longitudinal sides of the parallel guiding elements 26 are facing, so that a complementary rectangular sheet is slidable between said guiding elements 26.

[0022] The barbed hook 28 is cut in the bottom panel 30 and bent up, so that the barbed hook 28 extends in the direction of the guiding elements 26. The barbed hook 28 is arranged in front of the narrow sides of the guiding elements 26. In this example the distance between the barbed hook 28 and the guiding elements 26 is similar to the length of the guiding elements 26.

[0023] The guiding elements 26 and the barbed hook 28 are bent up, so that the guiding elements 26 as well as the barbed hook 28 are arranged above the bottom panel 30, but not below the bottom panel 30 of the cooking hob. Thus, the guiding elements 26 and the barbed hook 28 cannot damage any surface, on which the cooking hob is parked.

[0024] FIG 2 illustrates a schematic diagram of a perspective view of the supporting bracket 10 according to the preferred embodiment of the present invention. The supporting bracket 10 comprises a mountable portion 12 and a free end portion 14.

[0025] The mountable portion 12 includes a narrow part at the end and a wide part beside the centre of the supporting bracket 10. The narrow part of the mountable portion 12 is substantially complementary to the space between the guiding elements 26. Thus, the narrow part of the mountable portion 12 is slidable between the guiding elements 26 along the longitudinal axis of said guiding elements 26.

[0026] Two stop units 16 are formed at the lateral longitudinal sides of the mountable portion 12 because of the different widths of the narrow part and the wide part of said mountable portion 12. The stop units 16 limit the motion of the supporting bracket 10 between the guiding elements 26. The narrow part of the mountable portion 12 can be inserted between the guiding elements 26, until the stop units 16 reach said guiding elements 26. Thus, the stop units 16 limit the motion of the supporting bracket 10 in the direction to the mountable portion 12.

[0027] A first bending 18 and a second bending 20 are arranged between the mountable portion 12 and the free end portion 14. The distance between the first bending 18 and the second bending 20 is marginally bigger than the height of the barbed hook 28 in the bottom panel 30. The first bending 18 has substantially a right angle, so that the supporting bracket 10 has a vertical section in its centre. The second bending 20 has an obtuse angle, so that the free end portion 14 extends upward and away from the mountable portion 12. In the first bending 18 the supporting bracket 10 is bent up. In the second bending 20 the supporting bracket 10 is bent down.

[0028] A third bending is arranged near the upper end of the free end portion 14, so that a buckled appendix 24 is formed at the upper end of said free end portion 14. The appendix 24 is substantially a horizontal sheet element. The appendix 24 is provided as a support surface for a radiant heating device 32. In the third bending 22 the supporting bracket 10 is bent down.

[0029] FIG 3 illustrates a schematic diagram of a perspective view of the receptacle means 26 and 28 with the supporting bracket 10 in a mounted state according to the preferred embodiment of the present invention. The supporting bracket 10 according to FIG 2 is fastened at the receptacle means 26 and 28 according to FIG 1.

[0030] The narrow part of the mountable portion 12 is completely inserted between the guiding elements 26. The supporting bracket 10 is snapped-in between the

receptacle means 26 and 28, while the first bending 18 is snapped-in at the barbed hook 28. The stop units 16 prevent a motion of the supporting bracket 10 in the direction of the mountable portion 12. The barbed hook 28 prevents a motion of the supporting bracket 10 in the direction of the free end portion 14.

[0031] The supporting bracket 10 is fixed at the receptacle means 26 and 28 and can only be released by lifting the free end portion 14, so that the first bending 18 overcomes the barbed hook 28.

[0032] FIG 4 illustrates a schematic diagram of a perspective view of a radiant heating device 32 supported on a bottom panel 30 of the cooking hob by the supporting bracket 10 according to the preferred embodiment of the present invention. The radiant heating device 32 comprises heating elements 34 inside its body and a control unit 36. The radiant heating device 32 has the form of a circular disk.

[0033] In the bottom panel 30 are outer supporting elements 38. The outer supporting elements 38 are cut in the bottom panel 30 and bent up, so that the outer supporting elements 38 are vertical sheet elements. The outer supporting elements 38 are tongue shaped. The outer supporting elements 38 are provided to support the radiant heating device 32 at its circumferential side in order to prevent a horizontal displacement of said radiant heating device 32. In this example, four outer supporting elements 38 are associated to the radiant heating device 32. The outer supporting elements 38 are arranged around the radiant heating device 32.

[0034] The receptacle means 26 and 28 and the supporting bracket 10 according to FIG 3 are arranged below the radiant heating device 32. The supporting bracket 10 is fixed by the receptacle means 26 and 28 and supports resiliently the radiant heating device 32 at its bottom side.

[0035] FIG 5 illustrates a schematic diagram of a sectional side view of the radiant heating device 32 supported on a bottom panel 30 by the supporting bracket 10 according to the preferred embodiment of the present invention. The outer supporting elements 10 support the radiant heating device 32 at its circumferential side. The supporting bracket 10 supports resiliently the radiant heating device 32 at its bottom side.

[0036] FIG 6 illustrates a schematic diagram of a detailed sectional side view of the supporting bracket 10 below the radiant heating device 32 according to FIG 5. FIG 6 shows how the supporting bracket 10 supports resiliently the radiant heating device 32 at its bottom side. The guiding elements 26 and the barbed hook 28 prevent that the supporting bracket 10 can be displaced within and out of the guiding elements 26.

[0037] The supporting bracket 10 is a spring element, which supports resiliently the radiant heating device 32. The form of the supporting bracket 10 and the arrangement of the guiding elements 26 and the barbed hook 28 allow a linear spring characteristic of the supporting bracket 10. Thus, the resilient properties of the supporting bracket 10 are independent of the level of the radiant

heating device 32.

[0038] 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 those preferred 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.

List of reference numerals

[0039]

10	supporting bracket
12	mountable portion
14	free end portion
16	stop unit
18	first bending
20	second bending
22	third bending
24	appendix
26	guiding element
28	barbed hook
30	bottom panel
32	radiant heating device
34	heating element
36	control unit
38	outer supporting bracket

Claims

1. A mounting system for supporting a radiant heating device (32) above a bottom panel (30) of a cooking hob, comprising at least one supporting bracket (10) and dedicated receptacle means (26, 28) in the bottom panel (30), wherein:

- the supporting bracket (10) is formed as a leaf-spring with a mountable portion (12) and a free end portion (14),
- the supporting bracket (10) comprises at least one bending (18, 20) between the mountable portion (12) and the free end portion (14),
- the receptacle means (26, 28) include at least two parallel guiding elements (26), which are cut in the bottom panel (30) and bent up, so that the mountable portion (12) is slidable along the longitudinal axis of said guiding elements (26),
- the mountable portion (12) comprises at least one stop unit (16), so that the mountable portion (12) can be inserted between the guiding elements (26) only until to a predetermined position,
- the receptacle means (26, 28) include at least

- one barbed hook (28) cut in the bottom panel (30) and bent up, and
 - the bending (18) between the mountable portion (12) and the free end portion (14) is provided for snapping-in at the barbed hook (28) in order to prevent the motion of the supporting bracket (10) in the direction of the free end portion (14).
2. The mounting system according to claim 1,
characterized in, that
 the mountable portion (12) comprises a narrow part at its end and a wide part besides the centre of the supporting bracket (10), so that the narrow part is complementary to the inner space between the guiding elements (26).
 3. The mounting system according to claim 2,
characterized in, that
 at least one stop unit (16), in particular two stop units (16), are formed by the resulting broadening between the narrow part end and the wide part of the mountable portion (12).
 4. The mounting system according to any one of the preceding claims,
characterized in, that
 the guiding elements (26) are formed as L-profiles above the bottom panel (30), wherein the open longitudinal sides of said L-profiles are facing.
 5. The mounting system according to any one of the preceding claims,
characterized in, that
 a first bending (18) and a second bending (20) are arranged between the mountable portion (12) and the free end portion (14), wherein the first bending (18) is bent up and the second bending (20) is bent down.
 6. The mounting system according to claim 5,
characterized in, that
 the distance between the first bending (18) and the second bending (20) is marginally bigger than the height of the barbed hook (28).
 7. The mounting system according to any one of the preceding claims,
characterized in, that
 the free end portion (14) comprises a buckled appendix (24) provided as a contact surface for the radiant heating device (32).
 8. The mounting system according to claim 7,
characterized in, that
 the appendix (24) is formed as a sheet element extending in a substantially horizontal direction.
 9. A cooking hob with a glass-ceramic panel and at least one radiant heating device (32),
characterized in, that
 the radiant heating device (32) is supported above a bottom (30) of the cooking hob by at least one supporting bracket (10) according to any one of the claims 1 to 9.
 10. The cooking hob according to claim 9,
characterized in, that
 the radiant heating device (32) is supported at its circumferential side or sides, respectively, by outer supporting elements (38) in order to prevent a horizontal motion of said radiant heating device (32).
 11. The cooking hob according to claim 10,
characterized in, that
 the outer supporting elements (38) are cut in the bottom panel (30) and bent up, so that the outer supporting elements (38) are vertical sheet elements.
 12. The cooking hob according to claim 11,
characterized in, that
 the planes of the outer supporting elements (38) extends in a radial direction related to the radiant heating device (32).

FIG. 1

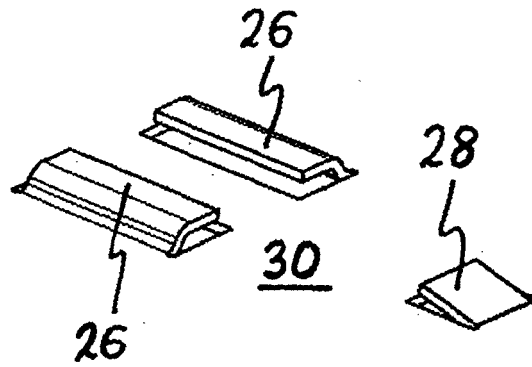


FIG. 2

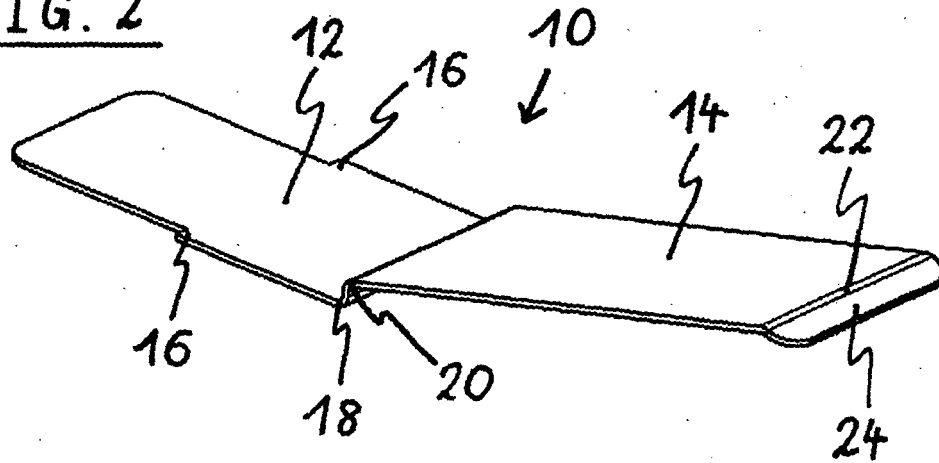


FIG. 3

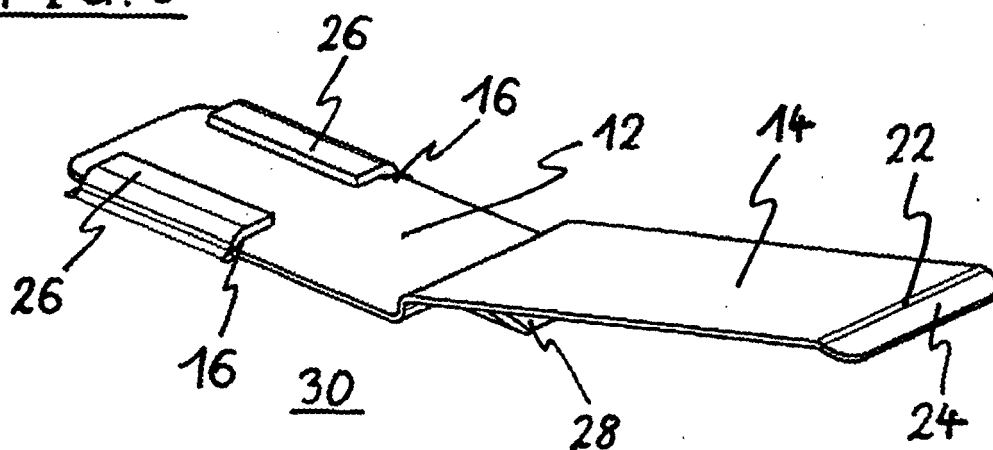


FIG. 4

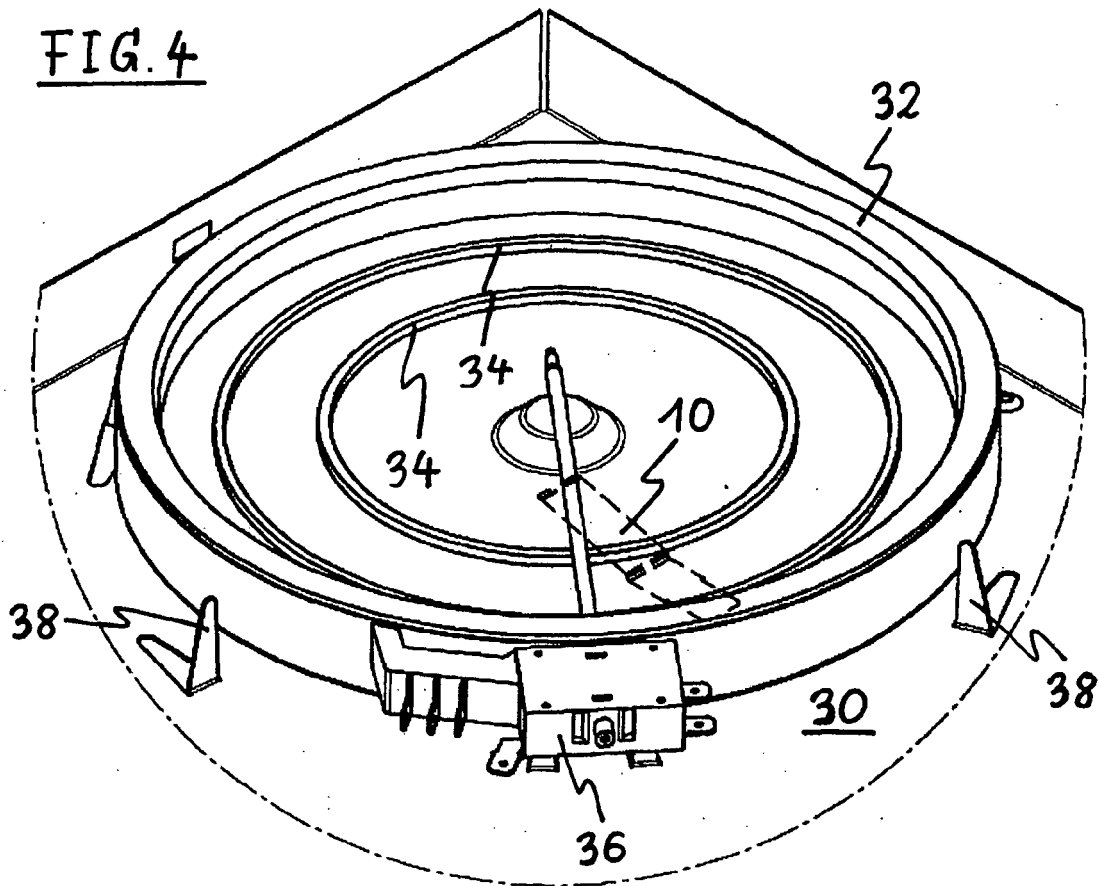


FIG. 5

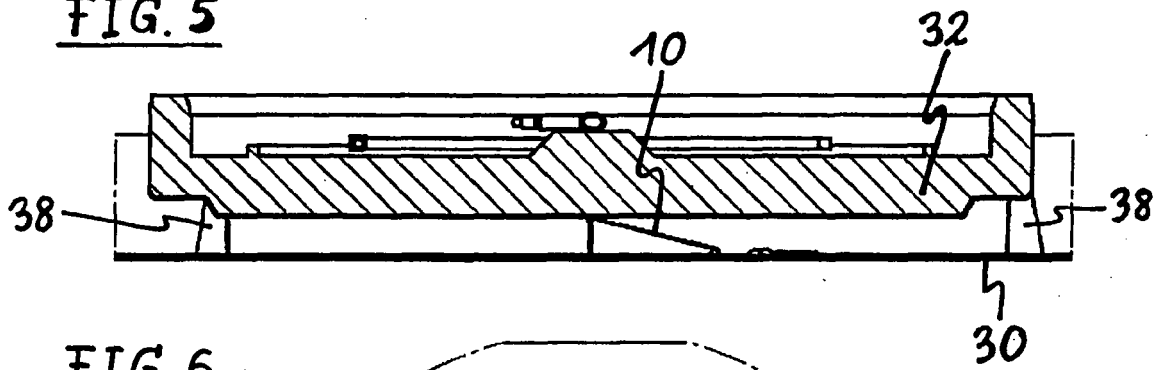
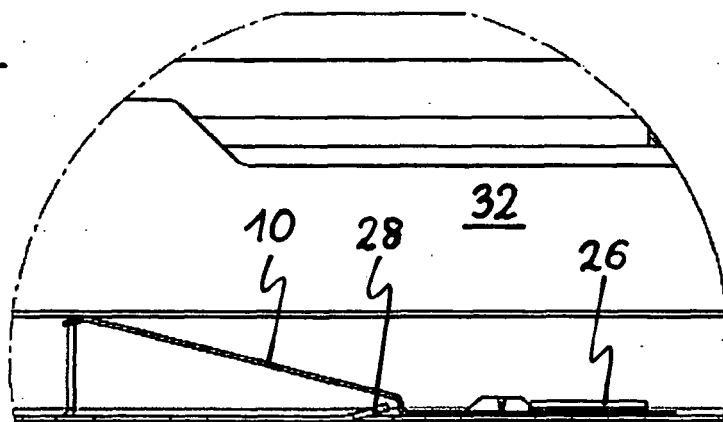


FIG. 6





EUROPEAN SEARCH REPORT

Application Number
EP 08 01 2378

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 April 2009	Examiner von Mittelstaedt, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 08 01 2378

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