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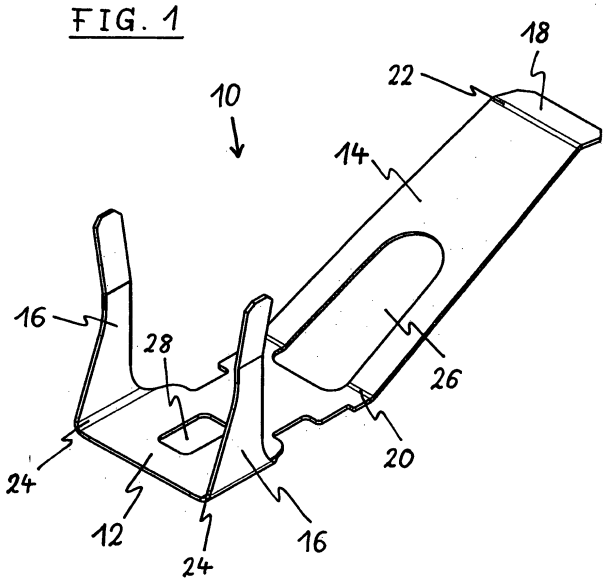
## (54) A supporting bracket for supporting a radiant heating device above a bottom panel of a cooking hob

(57) The present invention relates to a supporting bracket for supporting a radiant heating device (32) above a bottom panel (30) of a cooking hob. The supporting bracket comprises a mountable portion (12), a resilient portion (14) and a rigid portion (16). The mountable portion (12) comprises at least one sheet element and is attachable on the bottom panel (30). The resilient portion (14) comprises at least one sheet element and is bent up at an obtuse angle in relation to the mountable portion (12). The rigid portion (16) comprises at least one sheet element and is bent up substantially at right angles with the mountable portion (12). A bending (20) is formed between the resilient portion (14) and the mountable portion (12). At least one further bending (24) is formed between the rigid portion (16) and the mountable portion (12). The axes of the bending (20) and further bending (24) are arranged substantially perpendicular. The resilient portion (14) is provided for supporting a bottom of the radiant heating device (32). At least one edge of the sheet element of the rigid portion (16) is provided for supporting a sidewall of the radiant heating device (32). Further, the present invention relates to a cooking hob with at least three above supporting brackets (10).

FIG. 1

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## Description

**[0001]** The present invention relates to a supporting bracket 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 three supporting brackets 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 brackets according to the prior art have such a geometric structure, that the supporting brackets may be easily deformed, in particular during the transport of the cooking hob. This may cause that the radiant heating device changes its position within the cooking hob. In this case a correct operation of the cooking hob cannot be guaranteed.

**[0004]** It is an object of the present invention to provide a supporting bracket for supporting a radiant heating device above the bottom panel of the cooking hob, wherein the supporting bracket prevents a motion of the radiant heating device and/or a deformation of the supporting bracket.

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

**[0006]** According to the present invention the supporting bracket for supporting a radiant heating device above a bottom panel of a cooking hob comprises a mountable portion, a resilient portion and a rigid portion, wherein:

- the mountable portion comprises at least one sheet element and is attachable on the bottom panel,
- the resilient portion comprises at least one sheet element and is bent up at an obtuse angle in relation to the mountable portion,
- the rigid portion comprises at least one sheet element and is bent up substantially at right angles with the mountable portion,
- a bending is formed between the resilient portion and the mountable portion,
- at least one further bending is formed between the rigid portion and the mountable portion,
- the axes of the bending and further bending are arranged substantially perpendicular,
- the resilient portion is provided for supporting a bottom of the radiant heating device, and
- at least one edge of the sheet element of the rigid portion is provided for supporting a sidewall of the radiant heating device.

**[0007]** The main idea of the present invention is the geometric form of the supporting bracket. When the resilient portion supports the bottom of the radiant heating device, then the radiant heating device loads the edge of the sheet element of the rigid portion, but not the further bending between the rigid portion and the mountable portion. The right angle between the bending and the further bending as well as the arrangement of the resilient portion in a radial direction effects that the force path from the radiant heating device extends parallel to the plane of the sheet element of the rigid portion.

**[0008]** According to the preferred embodiment of the present invention the rigid portion comprises two sheet elements arranged at two opposite sides of the mountable portion. The two parallel edges of the sheet elements contribute to a stable position of the radiant heating device. For example, the two sheets of the rigid portion are formed symmetrically.

**[0009]** Further, the mountable portion and the resilient portion comprise at least one common recess interrupting the bending between said mountable portion and resilient portion. The resilient properties of the supporting bracket can be affected by the geometric dimensions of the recess.

**[0010]** Additionally, the resilient portion includes an appendix bent down at an obtuse angle in relation to the resilient portion.

**[0011]** For example, the mountable portion comprises at least one recess for fastening the supporting bracket on the bottom panel of a cooking hob.

**[0012]** Preferably, the supporting bracket is a one-piece element made of a metal sheet, in particular of steel, stainless steel or aluminium. In particular, the supporting bracket is made of a T-shaped sheet. This allows a simple production by low costs.

**[0013]** The object of the present invention is also achieved by the cooking hob 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 three supporting brackets as described above, wherein the resilient portions of the support brackets extend in a radial direction of the radiant heating device.

**[0015]** Preferably, the supporting brackets are equally distributed along the circumferential side or sides, respectively, of the radiant heating device. The equal distribution of the supporting brackets contributes also to a stable position of the radiant heating device.

**[0016]** The novel and inventive features believed to be the characteristic of the present invention are set forth in the appended claims.

**[0017]** 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 a supporting bracket according to a preferred embodiment of the present invention,

FIG 2 illustrates a schematic diagram of a perspective view of a radiant heating device with the support- ing bracket according to the preferred embodiment of the present invention,

FIG 3 illustrates a schematic diagram of a detailed

per- spective view of the radiant heating device with the supporting bracket according to FIG 2,

FIG 4 illustrates a schematic diagram of a perspective view of the radiant heating device supported on a bottom panel of a cooking hob according to the pre- ferred embodiment of the present invention,

FIG 5 illustrates a schematic diagram of a sectional view of the radiant heating device supported on the bot- tom panel of the cooking hob according to FIG 4, and

FIG 6 illustrates a schematic diagram of a detailed sec- tional view of the supporting bracket below the ra- diant heating device according to FIG 5.

**[0018]** FIG 1 illustrates a schematic diagram of a perspective view of a supporting bracket 10 according to a preferred embodiment of the present invention. The supporting bracket 10 includes a mountable portion 12, a resilient portion 14 and a rigid portion 16. The resilient portion 14 includes an appendix 18. The supporting bracket 10 may be formed from a metal sheet, in particular of steel, stainless steel or aluminium. In this example, the supporting bracket 10 is formed from a T-shaped sheet.

**[0019]** The mountable portion 12 of the supporting bracket 10 is a plane sheet. It is provided to fix the mountable portion 12 directly on an upper surface of a bottom panel 30 of the' cooking hob. In a mounted state the mountable portion 12 extends in a horizontal plane.

**[0020]** The resilient portion 14 is also a plane sheet element and extends upwards form the mountable portion 12. Thus, the resilient portion 14 forms an inclined plane in the mounted state. A first bending 20 is arranged between the mountable portion 12 and the resilient portion 14. The resilient portion 14 is bent up in relation to the mountable portion 12.

**[0021]** At the end of the resilient portion 14 there is an appendix 18 formed as a sheet element. The appendix 18 is bent down in relation to the resilient portion 14. A second bending 22 is arranged between the resilient portion 14 and the appendix 18. The bending axes of the first bending 20 and the second bending 22 are parallel. The resilient portion 14 and the appendix 18 are formed from the vertical part of the original T-shaped sheet.

**[0022]** The rigid portion 16 includes two sheet elements extending vertically in the mounted state. The planes of said sheet elements are parallel. The two sheets of the rigid portion are formed symmetrically. The distance between the sheet elements of the rigid portion 16 is similar to the widths of the mountable portion 12 and the resilient portion 14. The rigid portion 16 is formed from the horizontal part of the original T-shaped sheet.

**[0023]** Two third bendings 24 are arranged between the mountable portion 12 and the rigid portion 16. The sheet elements of the rigid portion 16 are bent up in relation to the mountable portion 12, so that the rigid portion 16 includes two substantially vertical sheet elements. The bending axes of the third bendings 24 are perpendicular to the bending axis of the first bending 20.

**[0024]** A common recess 26 is formed in the mountable portion 12 as well as in the resilient portion 14. The geometric dimensions of the common recess 26 affects the resilient properties of the supporting bracket 10. A recess 28 in the mountable portion 12 is provided for a fixing element in order to fasten the supporting bracket 10 on the bottom panel 20 of the cooking hob.

**[0025]** FIG 2 illustrates a schematic diagram of a perspective view of a radiant heating device 32 with the supporting bracket 10 according to the preferred embodiment of the present invention. The radiant heating device 32 is substantially formed as a circular tray. At the outside of the radiant heating device 32 there is a control unit 36. Below the control unit 36 the radiant heating device 32 is supported by the supporting bracket 10 of FIG 1. The outer side of the radiant heating device 32 rests against the rigid portion 16 of the supporting bracket 10. The bottom side of the radiant heating device 32 rests against the appendix 18 and/or against the second bending 22 of the supporting bracket 10.

**[0026]** FIG 3 illustrates a schematic diagram of a detailed perspective view of the radiant heating device with the supporting bracket according to FIG 2. FIG. 3 shows the position of the supporting bracket 10 related to the radiant heating device 32.

**[0027]** FIG 4 illustrates a schematic diagram of a perspective view of the radiant heating device 32 supported on a bottom panel 30 of a cooking hob according to the preferred embodiment of the present invention. In this example, the radiant heating device 32 is supported on the bottom panel 30 by three supporting brackets 10 according to FIG 1. The radiant heating device 32 comprises the control unit 34 and heating elements 36 inside its body.

**[0028]** FIG 5 illustrates a schematic diagram of a sectional view of the radiant heating device 32 supported on the bottom panel 30 of the cooking hob according to FIG 4. In particular, FIG 5 shows the positions of the single portions of the supporting bracket 10.

**[0029]** 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.

**[0030]** The resilient portion 14 of the supporting bracket 10 acts as a spring element and supports resiliently the radiant heating device 32 from the bottom. The rigid portion 16 of the supporting bracket 10 supports resiliently the radiant heating device 32 from the sidewall. The forces from the radiant heating device 32 act only to the edges of the sheets of the rigid portion 16.

**[0031]** The supporting bracket 10 according to the present invention is made of one homogenous material.

The special directions of the bending axes allow different elastic properties within the supporting bracket.

**[0032]** 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**

**[0033]**

| | |
|---|---|
| 10 | supporting bracket |
| 12 | mountable portion |
| 14 | resilient portion |
| 16 | rigid portion |
| 18 | appendix |
| 20 | first bending |
| 22 | second bending |
| 24 | third bending |
| 26 | common recess |
| 28 | recess |
| 30 | bottom panel |
| 32 | radiant heating device |
| 34 | heating element |
| 36 | control unit |

**Claims**

**1.** A supporting bracket for supporting a radiant heating device (32) above a bottom panel (30) of a cooking hob, comprising a mountable portion (12), a resilient portion (14) and a rigid portion (16), wherein:

- the mountable portion (12) comprises at least one sheet element and is attachable on the bottom panel (30),
- the resilient portion (14) comprises at least one sheet element and is bent up at an obtuse angle in relation to the mountable portion (12),
- the rigid portion (16) comprises at least one sheet element and is bent up substantially at right angles with the mountable portion (12),
- a bending (20) is formed between the resilient portion (14) and the mountable portion (12),
- at least one further bending (24) is formed between the rigid portion (16) and the mountable portion (12),
- the axes of the bending (20) and further bending (24) are arranged substantially perpendicular,
- the resilient portion (14) is provided for supporting a bottom of the radiant heating device (32), and
- at least one edge of the sheet element of the rigid portion (16) is provided for supporting a sidewall of the radiant heating device (32).

**2.** The supporting bracket according to claim 1, **characterized in, that** the rigid portion (16) comprises two sheet elements arranged at two opposite sides of the mountable portion (12).

**3.** The supporting bracket according to claim 2, **characterized in, that** the two sheets of the rigid portion (16) are formed symmetrically.

**4.** The supporting bracket according to any one of the preceding claims, **characterized in, that** the mountable portion (12) and the resilient portion (14) comprise a common recess (26) interrupting the bending between said mountable portion (12) and resilient portion (14).

**5.** The supporting bracket according to any one of the preceding claims, **characterized in, that** the resilient portion (14) includes an appendix (18) bent down at an obtuse angle in relation to the resilient portion (14).

**6.** The supporting bracket according to any one of the preceding claims, **characterized in, that** the mountable portion (12) comprises at least one recess (28) for fastening the supporting bracket (10) on the bottom panel (30) of a cooking hob.

**7.** The supporting bracket according to any one of the preceding claims, **characterized in, that** the supporting bracket (10) is a one-piece element made of a metal sheet, in particular of steel, stainless steel or aluminium.

**8.** The supporting bracket according to claim 7, **characterized in, that** the supporting bracket (10) is made of a T-shaped sheet.

**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 three sup- porting brackets (10) according to any one the claims 1 to 10, wherein the resilient portions (14) of

the support brackets (10) extend in a radial direction of the radiant heating device (32).

**10.** The cooking hob according to claim 9, **characterized in, that** the supporting brackets (10) are equally distributed along the circumferential side or sides, respectively, of the radiant heating device (32).

FIG. 1

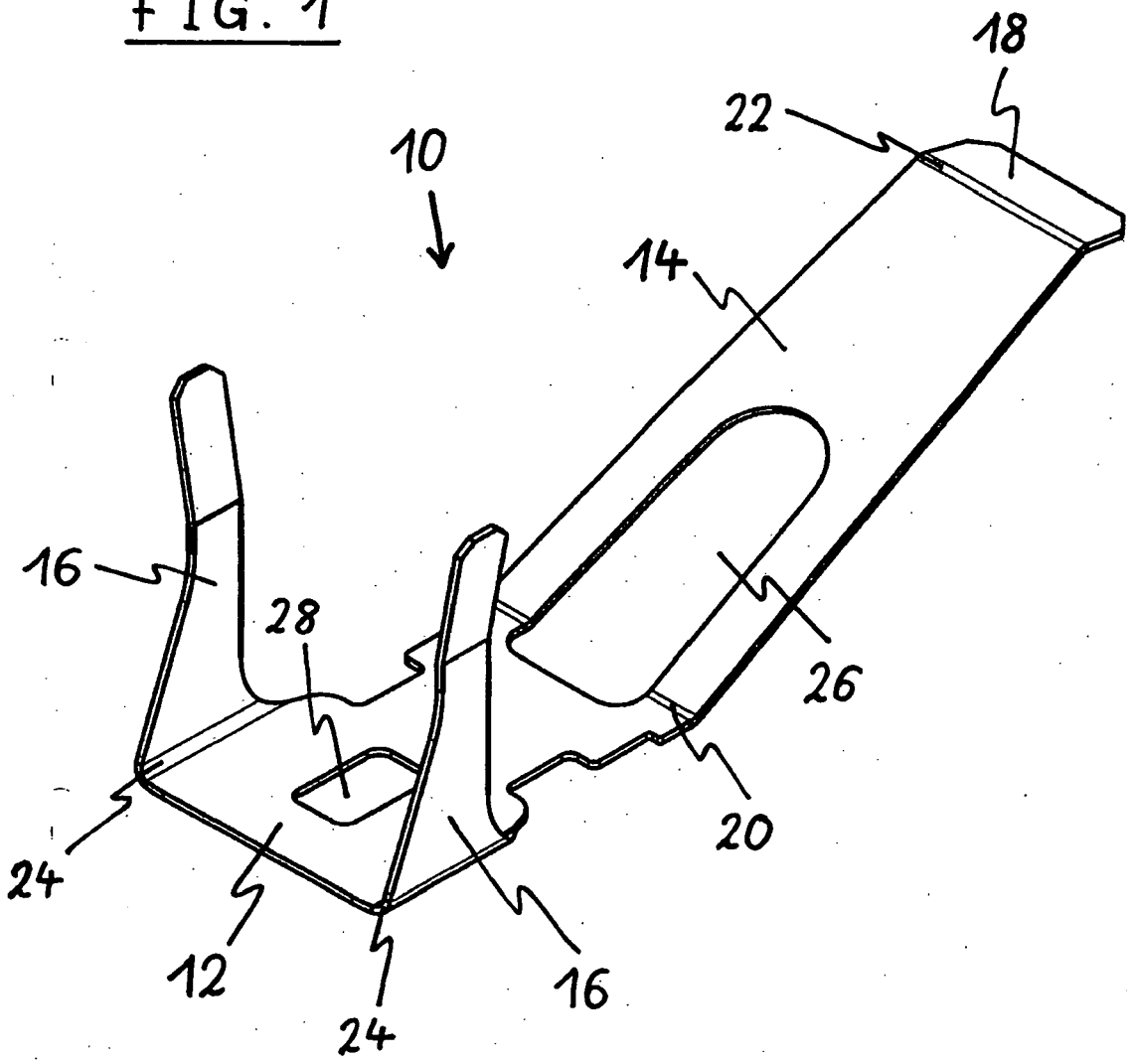


FIG. 2

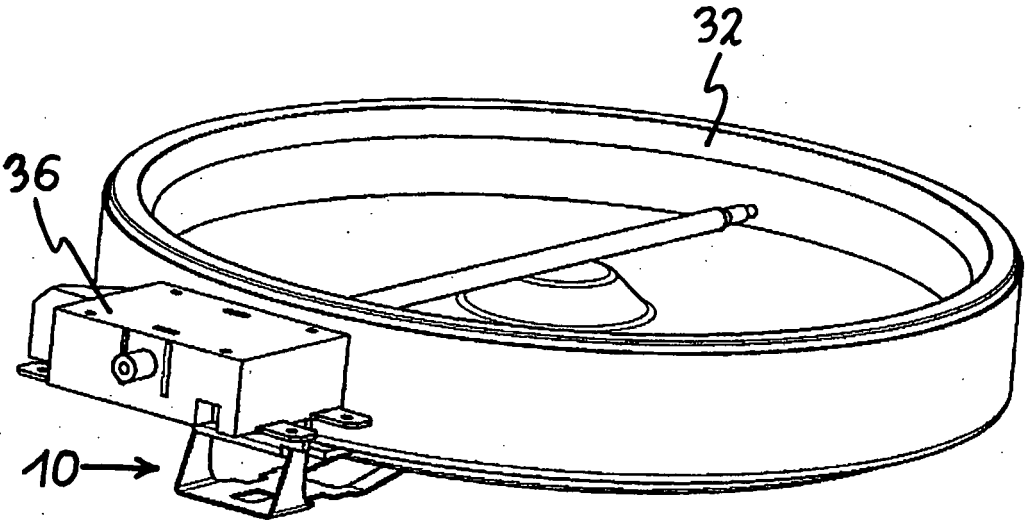



FIG. 3

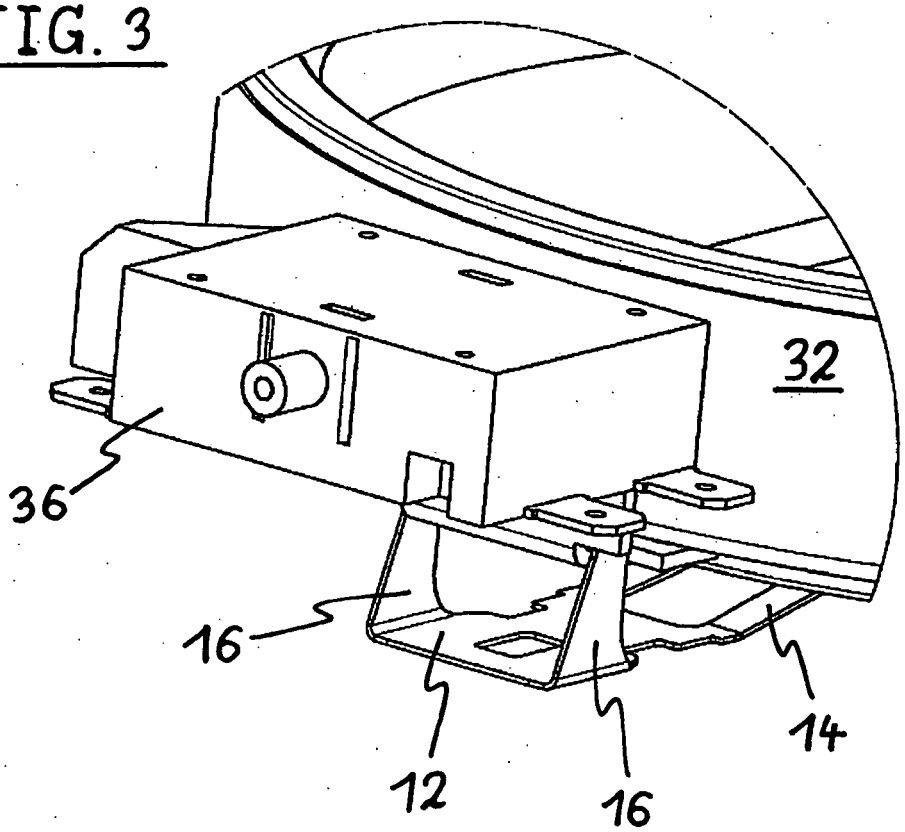


FIG. 4

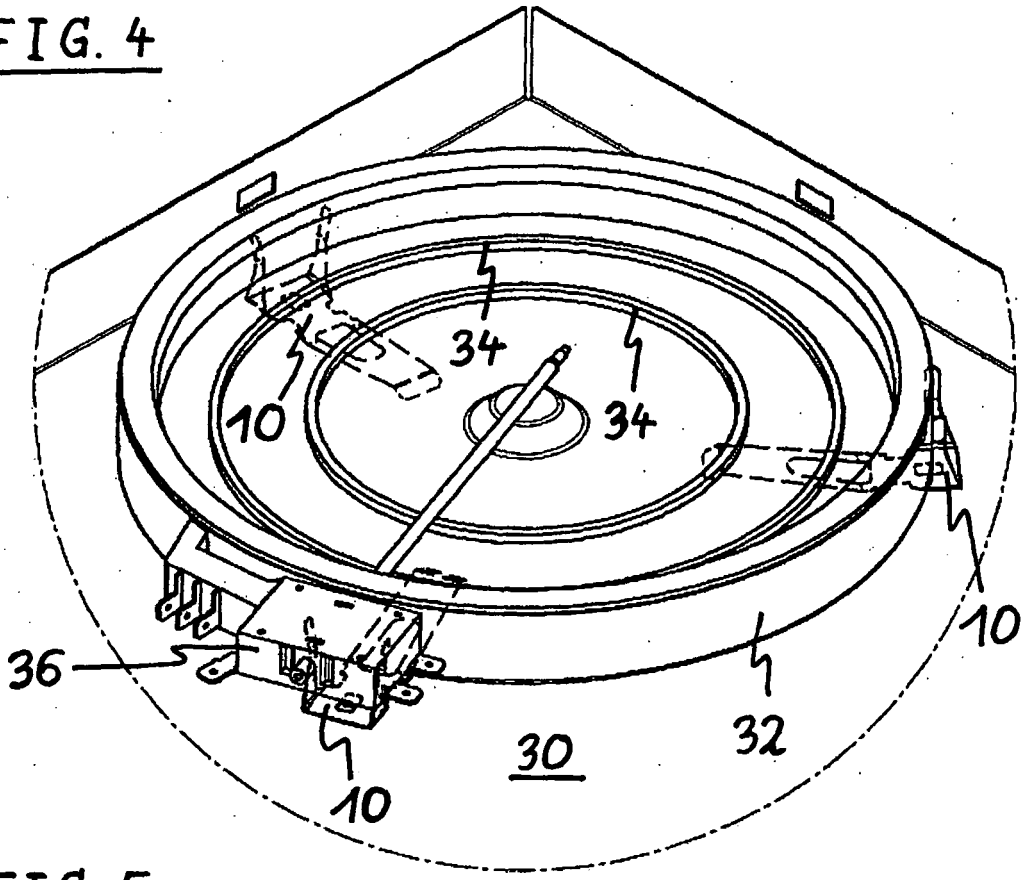



FIG. 5

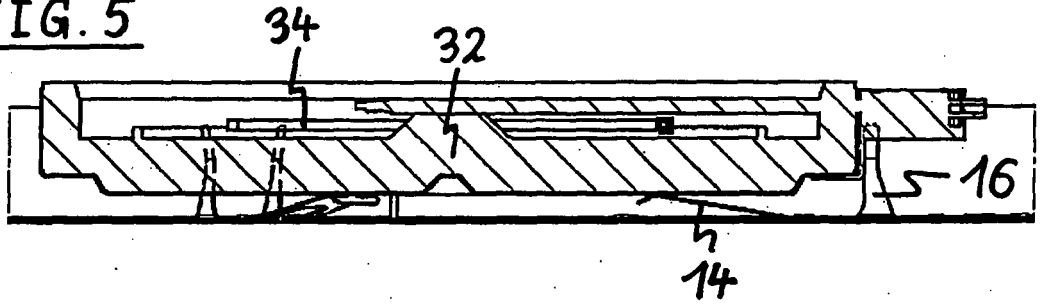
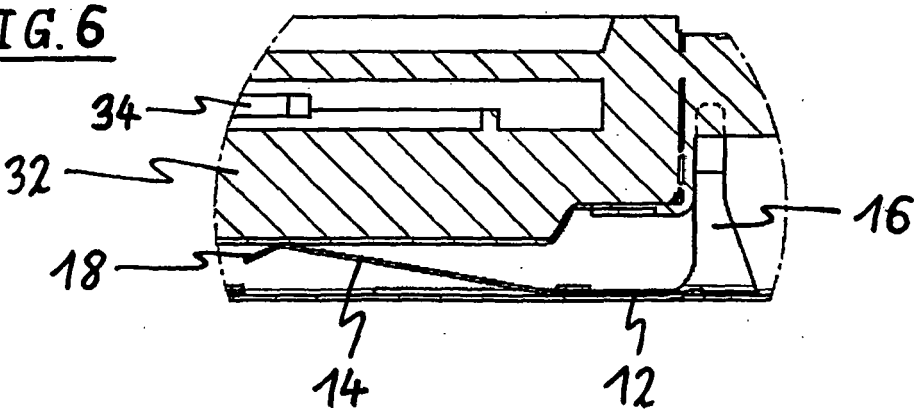



FIG. 6



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# EUROPEAN SEARCH REPORT

Application Number
EP 08 01 2376

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
|---|---|---|---|
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1 The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| Munich | 16 April 2009 | von Mittelstaedt, A |

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 01 2376

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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