



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.10.2008 Bulletin 2008/44

(51) Int Cl.:
F24C 15/10 ^(2006.01)

(21) Application number: **07008273.0**

(22) Date of filing: **24.04.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

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(54) **Cooking hob**

(57) The invention relates to a cooking hob (1), in particular for an oven (2), especially for a domestic oven, comprising a panel shaped carrier element (3) with an upper side (4) and a bottom side (5), wherein at least one electrical heating element (6, 7, 8, 9) is arranged on the upper side (4) of the carrier element (3), wherein the heating element (6, 7, 8, 9) is connected to at least one wire (10, 11, 12, 13) and wherein the wire (10, 11, 12, 13) is

fed to an electrical connector plug (14) for the supply with electrical energy. To protect the wires against heat the invention is characterized in that the at least one wire (10, 11, 12, 13) is arranged at least partially at the bottom side (5) of the carrier element (3), wherein an electrical connector (15) between the wire (10, 11, 12, 13) and the heating element (6, 7, 8, 9) penetrates at least one opening (16) in the carrier element (3).

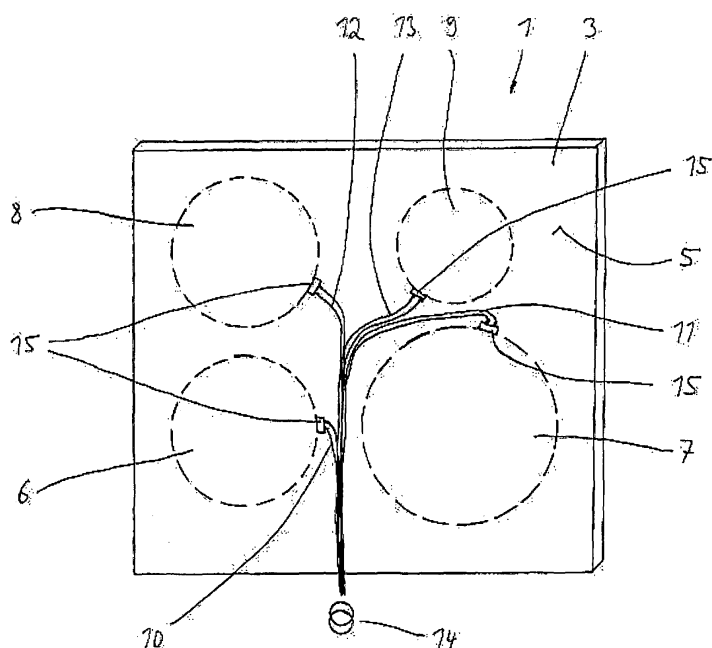


FIG 4

Description

[0001] The invention relates to a cooking hob, in particular for an oven, especially for a domestic oven, comprising a panel shaped carrier element with an upper side and a bottom side, wherein at least one electrical heating element is arranged on the upper side of the carrier element, wherein the heating element is connected to at least one wire and wherein the wire is fed to an electrical connector plug for the supply with electrical energy.

[0002] Cooking hobs of the kind mentioned above are known in the art. Reference is made to FIG 1 where a pre-known domestic oven is depicted. The domestic oven 2 has a hob 1 on its top. The hob 2 has a carrier element 3 with an upper side 4 and a bottom side. On the upper side 4 of the carrier element 3 a plurality of heating elements 6, 7, 8, 9 are located and fixed to the carrier element 3. In the case of the depicted oven 2 the hob 1 further comprises a cover made of glass ceramics.

[0003] In FIG 2 the hob 1 is depicted without the cover of glass ceramics. On the upper side 4 of the carrier element 3 the electrical heating elements 6, 7, 8, 9 are placed. Each heating element 6, 7, 8, 9 has an electrical connection which fixes a wire 10, 11, 12, 13 to the heating element 6, 7, 8, 9 for supply of the heating elements 6, 7, 8, 9 with electrical energy. The wires 10, 11, 12, 13 are fed along the upper side 4 of the carrier element 3 and can be guided through an opening in the carrier element 3. Then, the wires are fed to an electrical connector plug 14.

[0004] It has been found detrimental that the wires can become quite hot during use of the hob. Problems can occur with failure of the electrical supply of the heating elements in the case that the wires become too hot during cooking.

[0005] Furthermore, the assembly of the hob is quite complicated and thus expensive when using the pre-known design. One aspect is that an automatisisation of the assembly process is only possible with a high effort because it is complicated and thus expensive. Also, wiring of all heating elements can cause errors; this demands correction. Finally, the wire material is quite expensive and an economical use is not ensured.

[0006] Therefore, it is an object of the invention to further develop a cooking hob of the above mentioned kind which eliminates the discussed drawbacks. The cables should thus be better protected against heat during the use of the oven. Furthermore, the assembly process should be facilitated to save costs and to allow automatisisation of it. Finally, the wires for the supply of the heating elements with electrical energy should be used as economical as possible.

[0007] The solution of this object according to the invention is characterized in that the at least one wire for the supply of the heating element with electrical energy is arranged at least partially at the bottom side of the carrier element, wherein an electrical connector between the wire and the heating element penetrates at least one

opening in the carrier element. Preferably, the wire is arranged totally at the bottom side of the carrier element.

[0008] By the suggested design, it becomes possible to better protect the wires against heat produced by the heating elements during the use of the hob.

[0009] A plurality of heating elements can be arranged on the upper side of the carrier element, wherein each heating element is connected with an electrical connector which penetrates the carrier element.

[0010] A preferred embodiment of the invention comes up with the electrical connector consisting of at least two parts which are joined, wherein one part is arranged on the upper side and one part is arranged on the bottom side of the carrier element.

[0011] Both parts can e. g. be connected by a snap-on connection. Also other kinds of connection are possible. Basically the connector can also be made as a one-piece part having two different sections, one for remaining beside the heating element and one for penetrating the opening in the carrier element.

[0012] The electrical connector is preferably directly connected with the heating element.

[0013] Normally, more than one heating element is arranged on the carrier element to provide different cooking stations on the hob. Thus, preferably four heating elements are arranged on the upper side of the carrier element.

[0014] As known from prior art domestic ovens, at least two of the heating elements can have different sizes for the different cooking applications.

[0015] The heating elements are resistance heating elements according to one embodiment of the invention. Of course, also other kinds of heating elements can be employed, e. g. induction heating elements.

[0016] Preferably, the at least one opening in the carrier element is produced by punching. Normally, a thin sheet metal panel is used for the carrier element.

[0017] The wires and a plurality of heating elements can be bundled at the bottom side of the carrier element to a cable loom. This cable loom is then guided to the electrical connector plug.

[0018] The hob can be a stand-alone or autarkic hob or part of an oven, in particular a domestic oven, and/or built-in or free-standing.

[0019] Preferably, the hob can have a design using a ceramic or glass ceramic hob or stove top.

[0020] By the suggested design it becomes possible to protect the cables from the heat produced by the heating elements. Furthermore, an automatisisation process of the assembly becomes quite easy.

[0021] In the drawings an embodiment of the invention is depicted.

FIG 1 shows a perspective view of a domestic oven with a hob on its top side,

FIG 2 shows the hob in perspective view without its glass ceramic cover panel according to the prior

- art,
- FIG 3 shows the same view as FIG 2 according to an embodiment of the invention, where the upper side of the hob is visible,
- FIG 4 shows the hob of FIG 3 in perspective view, where the bottom side of the carrier element is visible and
- FIG 5 shows the detail "Z" according to FIG 3.

- 7 Electrical heating element
 8 Electrical heating element
 9 Electrical heating element
 10 Wire
 5 11 Wire
 12 Wire
 13 Wire
 14 Electrical connector plug
 15 Electrical connector
 10 16 Opening
 17 Part of the electrical connector
 18 Part of the electrical connector

[0022] FIG 3 shows a cooking hob 1, in particular of an oven (depicted in FIG 1), according to one possible embodiment of the invention. The hob 1 consists of a carrier element 3 which has a panel shape; more specifically the carrier element 3 has a rectangular shape and consists of a thin sheet metal. On the upper side 4 of the carrier element 3 four heating elements 6, 7, 8 and 9 are located and fixed (fixing means not shown) wherein the heating elements are resistance heaters in the depicted embodiment. Also other heating elements can be employed, e. g. induction heating elements.

[0023] As can be further seen from FIG 3 no wires run on the upper side 4 of the carrier element 3. Each heating element 6, 7, 8, 9 is in contact with an electrical connector 15, which is described in more detail later.

[0024] The wiring of the heating elements 6, 7, 8, 9 becomes apparent from FIG 4 where the bottom side 5 of the carrier element 3 is visible. The heating elements 6, 7, 8, 9 are shown in dashed lines as they are not visible. In the synopsis with FIG 5 it can be seen that the electrical connector 15 penetrates an opening 16 which is machined into the carrier element 3. Preferably the opening is produced by punching.

[0025] As can be seen from FIG 5 the electrical connector 15 consists of two parts 17 and 18. The upper part 17 is located - in the mounted state of the hob - beside the heating element 6, 7, 8, 9 and directly connected to it, while the lower part 18 protrudes through the opening 16. The wires 10, 11, 12, 13 are connected to the part 18 on the bottom side 5.

[0026] Of course the electrical connector 15 can also be designed in any other way.

[0027] The wires 10, 11, 12, 13 are collected in a central region of the carrier element 3 and run as a cable loom to an electrical connector plug 14 as in the prior art.

Reference Numerals

[0028]

- 1 Hob
 2 Oven
 3 Carrier element
 4 Upper side
 5 Bottom side
 6 Electrical heating element

15 Claims

1. Cooking hob (1), in particular for an oven (2), especially for a domestic oven, comprising a panel shaped carrier element (3) with an upper side (4) and a bottom side (5), wherein at least one electrical heating element (6, 7, 8, 9) is arranged on the upper side (4) of the carrier element (3), wherein the heating element (6, 7, 8, 9) is connected to at least one wire (10, 11, 12, 13) and wherein the wire (10, 11, 12, 13) is fed to an electrical connector plug (14) for the supply with electrical energy,
characterized in that
 the at least one wire (10, 11, 12, 13) is arranged at least partially at the bottom side (5) of the carrier element (3), wherein an electrical connector (15) between the wire (10, 11, 12, 13) and the heating element (6, 7, 8, 9) penetrates at least one opening (16) in the carrier element (3).
2. Hob according to claim 1, **characterized in that** the wire (10, 11, 12, 13) is arranged totally at the bottom side (5) of the carrier element (3).
3. Hob according to claim 1 or 2, **characterized in that** a plurality of heating elements (6, 7, 8, 9) are arranged on the upper side (4) of the carrier element (3), wherein each heating element (6, 7, 8, 9) is connected with an electrical connector (15) which penetrates the carrier element (3).
4. Hob according to claim 3, **characterized in that** the electrical connector (15) consists of at least two parts (17, 18) which are joined, wherein one part (17) is arranged on the upper side (4) and one part (18) is arranged on the bottom side (5).
5. Hob according to at least one of claims 1 to 4, **characterized in that** the electrical connector (15) is directly connected with the heating element (6, 7, 8, 9).
6. Hob according to at least one of claims 3 to 5, **characterized in that** four heating elements (6, 7, 8, 9) are arranged on the upper side (4) of the carrier el-

ement (3).

7. Hob according to at least one of claims 3 to 6, **characterized in that** at least two of the heating elements (6, 7, 8, 9) are different in size. 5
8. Hob according to at least one of claims 1 to 7, **characterized in that** the heating elements (6, 7, 8, 9) are resistance heating elements. 10
9. Hob according to at least one of claims 1 to 8, **characterized in that** at least one opening (16) in the carrier element (3) is produced by punching. 15
10. Hob according to at least one of claims 1 to 9, **characterized in that** the wires (10, 11, 12, 13) of a plurality of heating elements (6, 7, 8, 9) are bundled at the bottom side (5) of the carrier element (3) to a cable loom. 20
11. Hob according to at least one of claims 1 to 10, **characterized in that** it is designed as a ceramic or glass ceramic hob or stove top. 25

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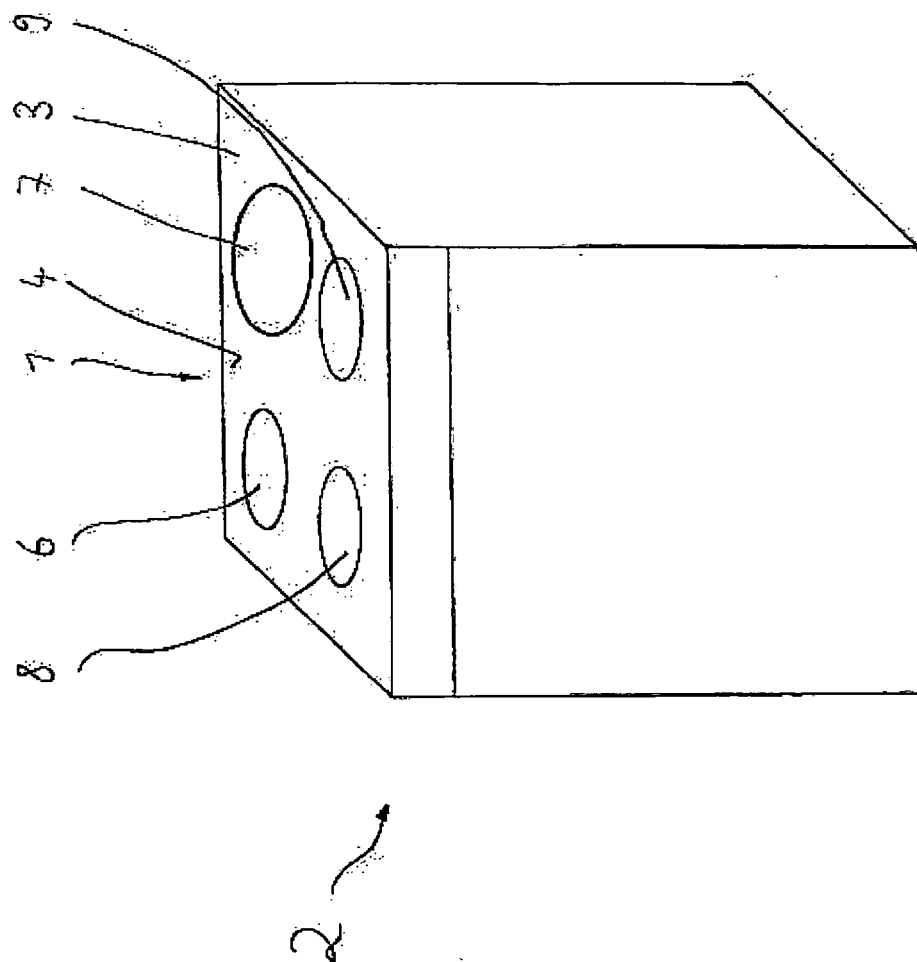


FIG 1

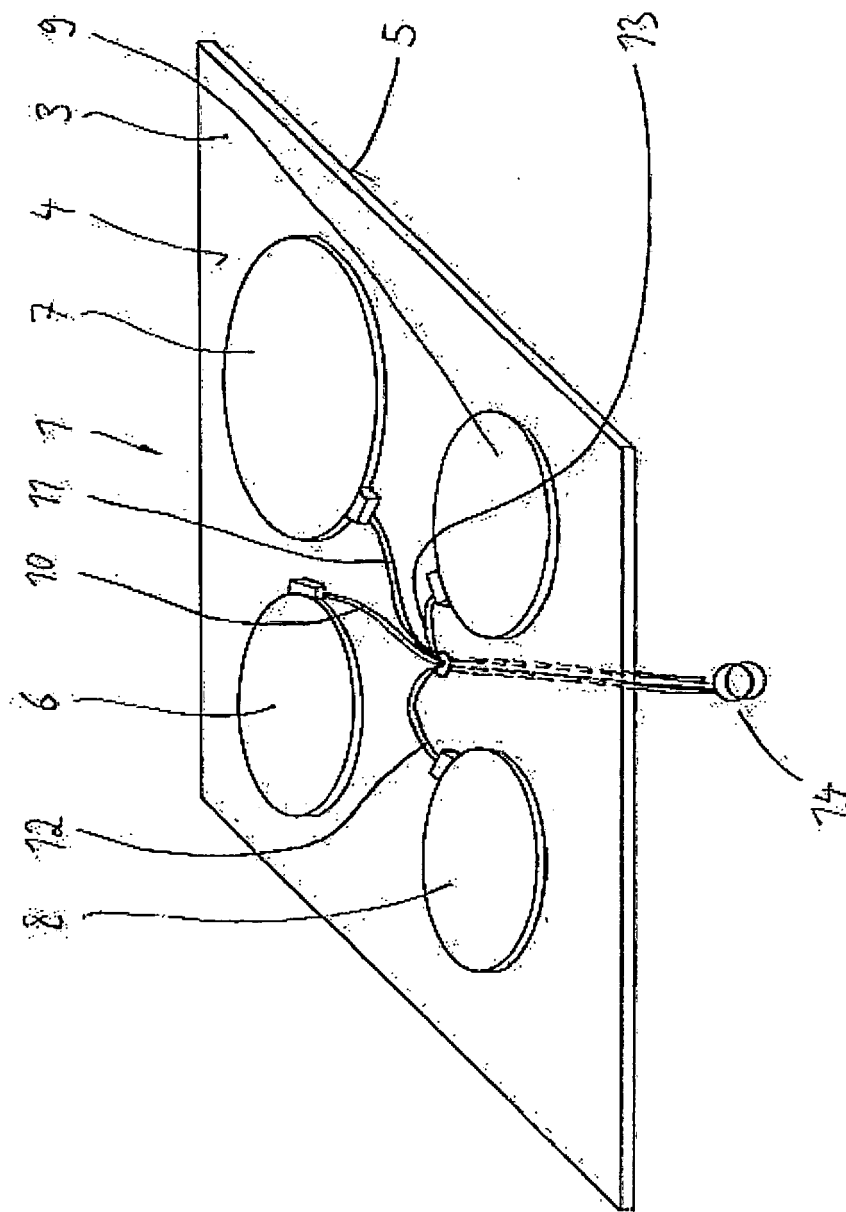


FIG 2
(Prior art)

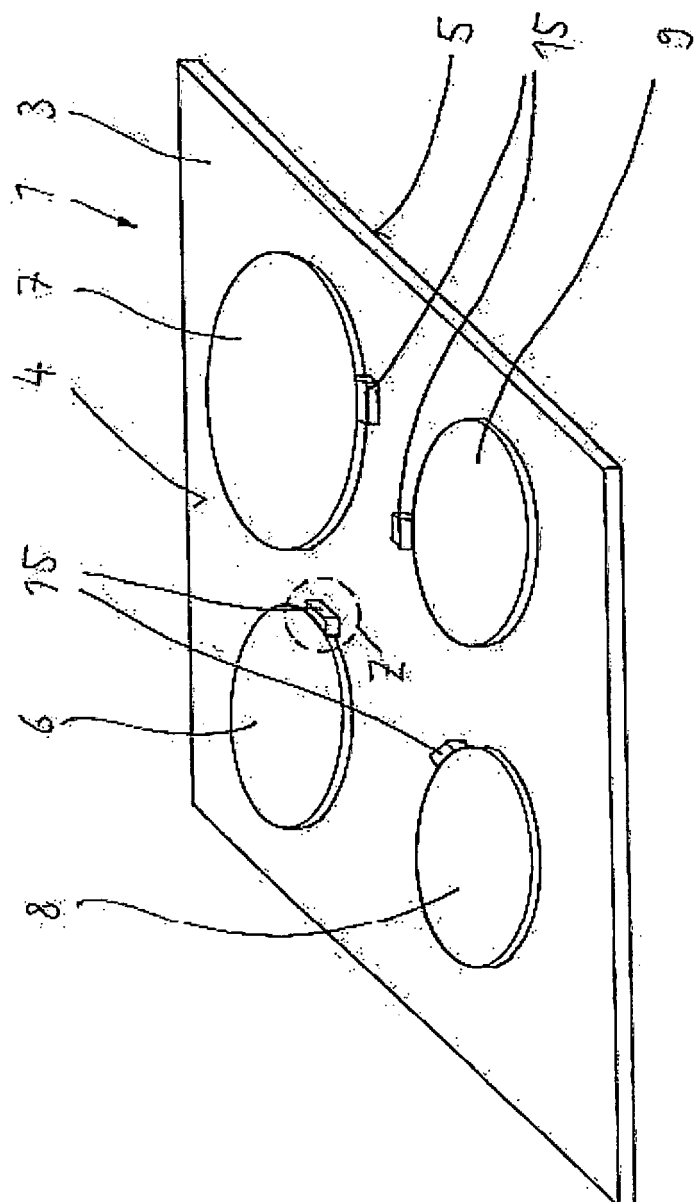


FIG 3

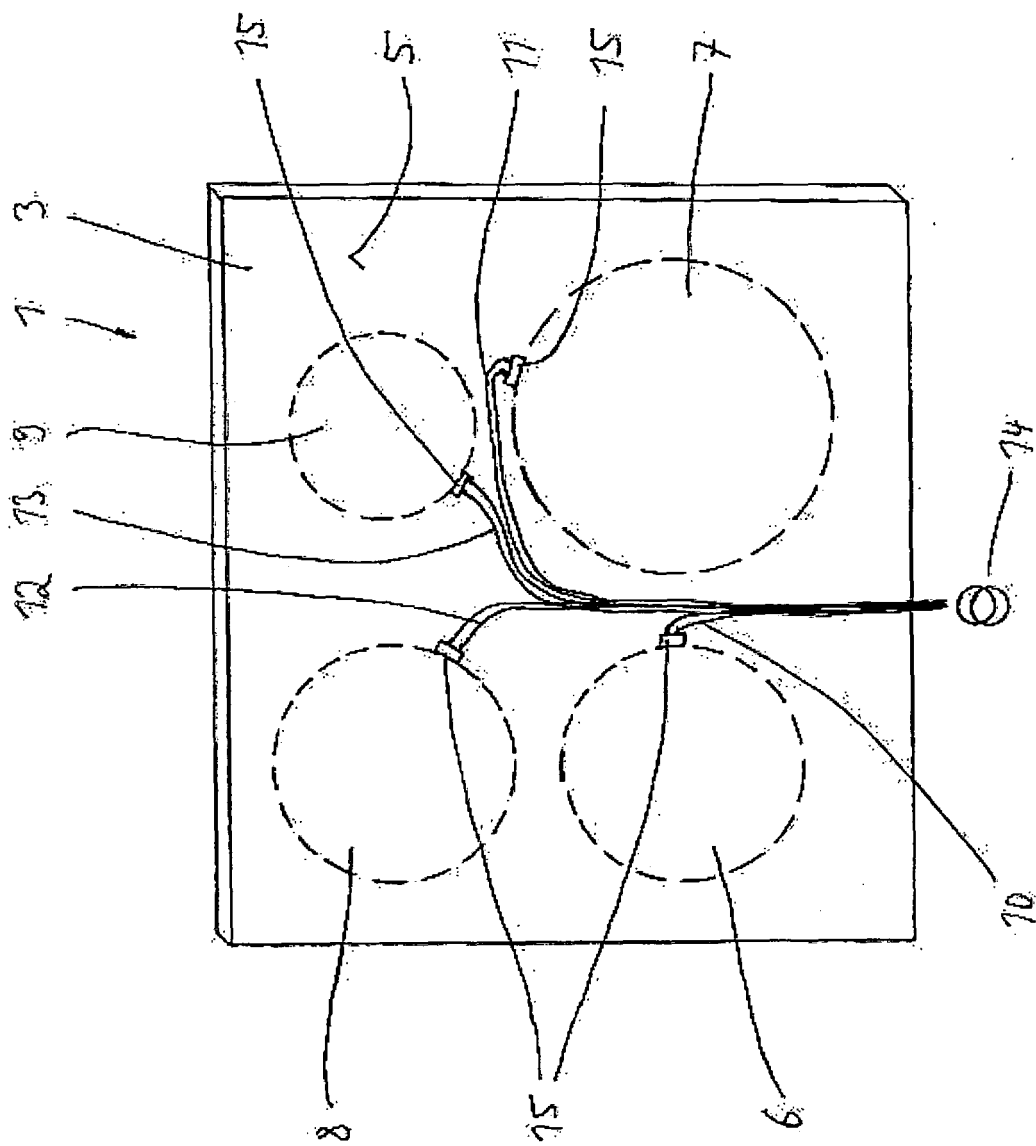


FIG 4

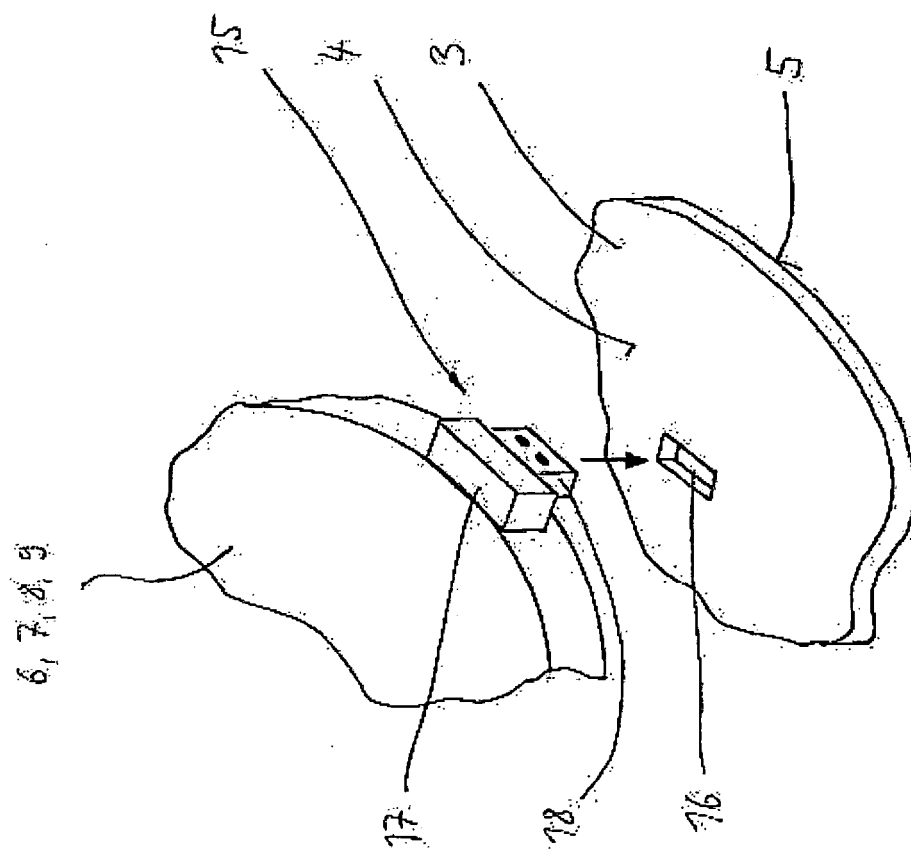


FIG 5



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 07 00 8273

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Place of search		Date of completion of the search	Examiner
Munich		21 January 2008	Blot, Pierre-Edouard
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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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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