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(54) **Pan support used in gas cooker and cooker having the same**

(57) A pan support used in a gas cooker and a cooker having the same are provided. The pan support used in a gas cooker includes at least three fins (1), in which the

fins are directly disposed on a gas cooker panel (3) respectively. The pan support is easy to clean, enables the whole cooker to have a more pleasing appearance, and may conveniently have multiple operating positions.

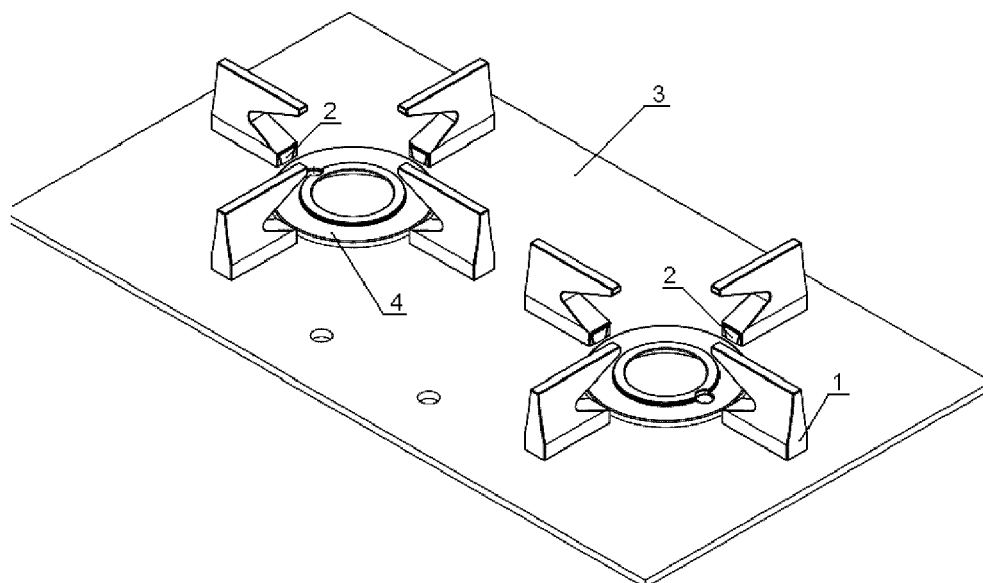


FIG. 4

Description

BACKGROUND OF THE INVENTION

Field of Invention

[0001] The present invention relates to the field of cookers and cooker components, and more particularly to a pan support used in a gas cooker.

Related Art

[0002] An existing pan support used in a gas cooker generally adopts a structure with fins disposed on a fixing ring, that is, the fins are integrally formed on the fixing ring, and the fixing ring is disposed on a gas cooker panel. With the increasingly higher requirements of consumers on quality, the defects of the pan support using such a structure become more prominent, which are mainly embodied in the following aspects. First, the appearance is not pleasing, especially for cookers which are a combination of a gas cooker and an electromagnetic cooker. Secondly, the existing pan support is not easy to clean. Thirdly, the existing pan support easily rotates, and may scratch the gas cooker panel and affect the cooking process. Fourthly, the existing pan support is too bulky, and requires considerable material consumption. Fifthly, the existing pan support has a fixed structure, the operating position of which cannot be changed.

SUMMARY OF THE INVENTION

[0003] In order to solve the above technical problems, the present invention provides a pan support used in a gas cooker and a cooker having the same.

[0004] The pan support used in a gas cooker of the present invention includes at least three fins, in which the fins are directly disposed on a gas cooker panel respectively.

[0005] Preferably, the fins and the gas cooker panel are integrally formed.

[0006] Preferably, the fins and the gas cooker panel are mutually independent; and the fins are disposed on the gas cooker panel in a removable manner respectively, so that the fins are fixedly connected to the gas cooker panel, or removed from the gas cooker panel.

[0007] Preferably, the pan support further includes fixing portions of the same number as the fins; the fins are one-to-one corresponding to the fixing portions; the fins and the corresponding fixing portions are mutually independent; the fixing portions are disposed on the gas cooker panel; and the fin is disposed on the corresponding fixing portion in a removable manner, so that the fin is fixedly connected to the corresponding fixing portion, or removed from the corresponding fixing portion.

[0008] Preferably, the fixing portion is disposed on the gas cooker panel by adhesion, bolt connection, rivet connection, suction-cup attachment, magnetic attraction or

integral forming.

[0009] Preferably, an accommodating cavity of substantially the same shape and size as the corresponding fixing portion is disposed on a bottom of each fin respectively; and the accommodating cavity is used to accommodate the corresponding fixing portion, so that the fin is disposed on the corresponding fixing portion.

[0010] Preferably, a bottom wall opening is disposed on a lower surface of the bottom of each fin; and the fixing portion enters the accommodating cavity through the bottom wall opening.

[0011] Preferably, a bottom wall opening is disposed on a lower surface of the bottom of each fin; a side wall opening is disposed on at least one side wall of the bottom of each fin; the bottom wall opening is in communication with the side wall opening; and the fixing portion is horizontally inserted into the accommodating cavity through the side wall opening.

[0012] Preferably, the fixing portion is in a cylinder structure; and two end surfaces of the fixing portion parallel to each other are both in a trapezoid structure, and an upper bottom of the trapezoid is in contact with the gas cooker panel.

[0013] Preferably, the fixing portion is in a cylinder structure; and two end surfaces of the fixing portion parallel to each other are both in a T-shaped structure.

[0014] Preferably, the fixing portion is in a cylinder structure; and two end surfaces of the fixing portion parallel to each other are both in an H-shaped structure.

[0015] Preferably, the fixing portion is in a cylinder structure; and a side wall of the cylinder structure includes a curved surface and a rectangular surface, and the rectangular surface is connected to the gas cooker panel.

[0016] Preferably, a side wall opening is disposed on two side walls of the bottom of each fin respectively, and the two side walls are adjacent to each other; two bottom wall openings are disposed on a lower surface of the bottom of each fin; the two side wall openings are one-to-one corresponding to the two bottom wall openings; the bottom wall opening is in communication with the corresponding side wall opening; two accommodating cavities of substantially the same shape and size as the corresponding fixing portion are disposed on the bottom of each fin respectively; the two accommodating cavities are one-to-one corresponding to the two side wall openings; and the fixing portion is horizontally inserted into the corresponding accommodating cavities through the two side wall openings respectively, and correspondingly the fin has two operating positions.

[0017] Preferably, a connection portion is disposed on and connected to a bottom of each fin respectively; an accommodating cavity of substantially the same shape and size as the corresponding fixing portion is disposed on each connection portion respectively; and the accommodating cavity is used to accommodate the corresponding fixing portion, so that the fin is disposed on the corresponding fixing portion.

[0018] Preferably, a protrusion portion is disposed on

a bottom of each fin respectively; an accommodating cavity of substantially the same shape and size as the corresponding protrusion portion is disposed on each fixing portion respectively; and the accommodating cavity is used to accommodate the corresponding protrusion portion, so that the fin is disposed on the corresponding fixing portion.

[0019] Preferably, a groove is disposed on a bottom of the fixing portion, and is used to contain an adhesive for adhering the fixing portion onto the gas cooker panel.

[0020] Preferably, the adhesive is a silicone adhesive.

[0021] The present invention further provides a cooker, disposed with the pan support described above.

[0022] Preferably, the cooker is a gas cooker or a combination of the gas cooker and an electromagnetic cooker.

[0023] The present invention mainly has the following beneficial effects.

1. The fins can be removed conveniently, and are easy to clean.
2. When the pan support is not in use, the fins are removed, so that the whole cooker has a more pleasing appearance, especially for the applications to cookers which are a combination of a gas cooker and an electromagnetic cooker.
3. The solutions of the present invention can conveniently enable the pan support to have multiple operating positions.
4. The material consumption of the pan support can also be reduced significantly, which follows the trend of low carbon emission and energy saving technologies.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024]

FIG. 1 is a schematic structural view of an embodiment of a fin according to the present invention;

FIG. 2 is a schematic view of fitting a fin and a fixing portion of an embodiment of a pan support according to the present invention;

FIG. 3 is a sectional view along Line A-A in FIG. 1 after the fin is fitted to the fixing portion;

FIG. 4 is a schematic structural view of a main body of an embodiment of a gas cooker according to the present invention;

FIG. 5 is a top view of an embodiment of a gas cooker according to the present invention;

FIG. 6 is a sectional view along Line B-B in FIG. 5;

FIG. 7 is a partially enlarged view of Part C in FIG. 6;

FIG. 8 is a schematic view of fitting a fin and a fixing portion of another embodiment of a pan support according to the present invention; and

FIG. 9 is a schematic structural view of a main body of another embodiment of a gas cooker according to the present invention.

[0025] In the above drawings: 1 - fin, 2 - fixing portion, 3 - gas cooker panel, 4 - burner, 5 - accommodating cavity, 6 - adhesive.

DETAILED DESCRIPTION OF THE INVENTION

[0026] In order to make the objectives, solutions and beneficial effects of the present invention more comprehensible, the present invention is described in further detail below with reference to the accompanying drawings and preferred embodiments.

[0027] As shown in FIG. 1 to FIG. 7, the present invention provides embodiments of a fin 1 used in a gas cooker and corresponding pan support and gas cooker. The pan support used in a gas cooker of the present invention includes four fins 1. The four fins 1 are directly disposed on a gas cooker panel 3 respectively, and are evenly disposed along a periphery of a burner 4, as shown in FIG. 4. The expression "directly disposed on the gas cooker panel 3" mainly emphasizes the following characteristics. Compared with the existing pan support, the pan support of the present invention eliminates the fixing ring, and the fins 1 are directly disposed on the gas cooker panel 3. The pan support further includes four fixing portions 2. The four fins 1 are one-to-one corresponding to the fixing portions 2, that is, one fin 1 is corresponding to one fixing portion 2. The fins 1 and the corresponding fixing portions 2 are mutually independent. The fixing portions 2 are disposed on the gas cooker panel 3, and are evenly disposed along the periphery of the burner 4. In this embodiment, the fixing portions 2 are disposed pointing to the center of the burner 4; however, the fixing portions 2 also may not point to the center of the burner 4. The fin 1 is disposed on the corresponding fixing portion 2 in a removable manner, so that the fin 1 may be fixedly connected to the corresponding fixing portion 2, or removed from the corresponding fixing portion 2. Herein, the expression "removable manner" shall be construed as being not limited to the preferred solutions of the present invention, but encompassing all connection modes in the prior art that can release the connected state and are applicable to the present invention, such as bolt connection, snap fit, elastic plate compression, spring compression, suction-cup attachment and magnetic attraction. It should be noted that, the expression "removable manner" itself also limits the structure of the

fin 1, because the fin 1 has to meet corresponding structural requirements in order to achieve a particular connection mode. The expression "may be fixedly connected to the corresponding fixing portion 2" refers to that the fin 1 may be relatively fixedly disposed on the fixing portion 2, and at this time the fin 1 is in an operating state and is used to support a cooker. In order to meet the requirements for supporting a cooker, fixed connection shall reach such a degree that movement does not easily occur without manual intervention.

[0028] As shown in FIG. 2, FIG. 3, FIG. 6 and FIG. 7, an accommodating cavity 5 of substantially the same shape and size as the corresponding fixing portion 2 is disposed on a bottom of each fin 1 respectively. The accommodating cavity 5 is used to accommodate the corresponding fixing portion 2, so that the fin 1 is disposed on the corresponding fixing portion 2, thereby achieving the fixed connection between the fin 1 and the corresponding fixing portion 2. The fixing portion 2 is in a cylinder structure; and two end surfaces of the fixing portion 2 parallel to each other and of the same size are both in an isosceles trapezoid structure, and an upper bottom of the trapezoid is in contact with the gas cooker panel 3. The fixing portion 2 is horizontally disposed on the gas cooker panel 3, that is, the two end surfaces parallel to each other and of the same size are perpendicular to the gas cooker panel 3. A groove is disposed on a bottom of the fixing portion 2, and is used to contain an adhesive 6 for adhering the fixing portion 2 onto the gas cooker panel 3. Specifically, the adhesive 6 is a silicone adhesive. A bottom wall opening is disposed on a lower surface of the bottom of each fin 1, a side wall opening is disposed on a side wall of the bottom of each fin 1 facing the burner 4, and the bottom wall opening is in communication with the side wall opening. Definitely, a side wall opening may also be disposed on a side wall of the bottom of each fin 1 away from the burner 4, or side wall openings may also be disposed opposite to each other on two side walls facing and away from the burner 4. The fixing portion 2 may be horizontally inserted into the accommodating cavity 5 through the side wall opening. Herein, it should be noted that, as the fixing portion 2 is adhered to the gas cooker panel 3, "horizontal insertion" is only an abstract expression, and in fact, the insertion process is achieved by moving the fin 1. Definitely, the fixing portion 2 also needs to pass through the bottom wall opening during insertion. It should be further noted that, the depth of the fixing portion 2 horizontally inserted into the accommodating cavity 5 may be adjusted and controlled conveniently to enable the pan support to have multiple operating positions, so as to meet the use requirements of cookers of different sizes. In order to ensure the accuracy of adjustment, scales may be marked on an outer surface of the fixing portion 2 or on the gas cooker panel 3 adjacent to the fixing portion 2. As the two end surfaces of the fixing portion 2 parallel to each other and of the same size are both in an isosceles trapezoid structure, and the upper bottom of the trapezoid is in contact with

the gas cooker panel 3, the overall structure of the fixing portion 2 shrinks from top to bottom, so that after the fixing portion 2 is horizontally inserted into the accommodating cavity 5 through the side wall opening, the fin 1 cannot be directly lifted up, thereby ensuring the stability of the pan support in use. Moreover, as the accommodating cavity 5 is of substantially the same shape and size as the corresponding fixing portion 2, the fixing portion 2 and the fin 1 do not slide in a horizontal direction if no external force is applied. However, the shape of the two end surfaces of the fixing portion 2 in a cylinder structure that are parallel to each other and of the same size is not limited to isosceles trapezoid, as long as the fin 1 cannot be directly lifted up after the fixing portion 2 is horizontally inserted. For example, the two end surfaces of the fixing portion 2 parallel to each other and of the same size may also be in a non-isosceles trapezoid structure, a T-shaped structure or an H-shaped structure. In another example, a side wall of the cylinder structure includes a curved surface and a rectangular surface, and the rectangular surface is connected to the gas cooker panel 3. Definitely, the rectangular surface herein may also be replaced by a square surface.

[0029] Based on the above embodiment, the present invention further provides another embodiment of a pan support used in a gas cooker. The difference between this embodiment and the above embodiment mainly lies in that: a side wall opening is disposed on two side walls of the bottom of each fin 1 respectively, and the two side walls are adjacent to each other; two bottom wall openings are disposed on a lower surface of the bottom of each fin 1; the two side wall openings are one-to-one corresponding to the two bottom wall openings, that is, one side wall opening is corresponding to one bottom wall opening; the two bottom wall openings are in communication with the corresponding side wall openings respectively; two accommodating cavities of substantially the same shape and size as the corresponding fixing portion 2 are disposed on the bottom of each fin 1 respectively; and the two accommodating cavities are one-to-one corresponding to the two side wall openings respectively, that is, one accommodating cavity is corresponding to one side wall opening. Definitely, the two accommodating cavities are also one-to-one corresponding to the two bottom wall openings respectively, that is, one accommodating cavity is corresponding to one bottom wall opening. The fixing portion 2 may be horizontally inserted into the corresponding accommodating cavities through the two side wall openings respectively, and correspondingly the fin 1 has two operating positions, namely, one operating position when the fixing portion 2 is horizontally inserted into the corresponding accommodating cavity through one side wall opening, and the other operating position when the fixing portion 2 is horizontally inserted into the corresponding accommodating cavity through the other side wall opening. Definitely, the fixing portion 2 also needs to pass through the corresponding bottom wall opening during

insertion. The two accommodating cavities may intersect or not intersect. When the two accommodating cavities intersect, the two bottom wall openings also intersect.

[0030] Based on the above embodiment, the present invention further provides another embodiment of a pan support used in a gas cooker. The difference between this embodiment and the above embodiment mainly lies in that: a connection portion is disposed on and connected to a bottom of each fin 1 respectively; an accommodating cavity of substantially the same shape and size as the corresponding fixing portion 2 is disposed on each connection portion respectively; and the accommodating cavity is used to accommodate the corresponding fixing portion 2, so that the fin 1 is disposed on the corresponding fixing portion 2. The connection portions are preferably made of a heat-insulating material. The use of the connection portions has an advantage of preventing the temperature of the fixing portion 2 from being too high. Definitely, two side wall openings, two accommodating cavities and two bottom wall openings may also be disposed on the connection portion as described in the second embodiment above, so as to provide two operating positions.

[0031] The present invention provides embodiments of another fin 1 used in a gas cooker and corresponding pan support and gas cooker. As shown in FIG. 8 and FIG. 9, a protrusion portion is disposed on a bottom of each fin 1 respectively; an accommodating cavity 5 of substantially the same shape and size as the corresponding protrusion portion is disposed on each fixing portion 2 respectively; and the accommodating cavity 5 is used to accommodate the corresponding protrusion portion, so that the fin 1 is disposed on the corresponding fixing portion 2. The protrusion portion is in a cylinder structure; and two end surfaces of the cylinder structure parallel to each other and of the same size are both in an isosceles trapezoid structure, and an upper bottom of the trapezoid is in contact with the gas cooker panel. However, the shape of the two end surfaces of the protrusion portion in a cylinder structure that are parallel to each other and of the same size is not limited to isosceles trapezoid, as long as the fin 1 cannot be directly lifted up after the protrusion portion is horizontally inserted into the accommodating cavity 5 of the fixing portion 2. For example, the two end surfaces of the protrusion portion parallel to each other and of the same size may also be in a non-isosceles trapezoid structure, a T-shaped structure or an H-shaped structure.

[0032] Only a part of preferred embodiments of the present invention are described above, and other embodiments may be derived by making modifications and replacements to some technical features. For example, the number of the fin 1 is one, two, three, five, six or more. In another example, the fins 1 and the gas cooker panel 3 are integrally formed, that is, the pan support and the gas cooker panel 3 are integrated to form a unity. In another example, the fins 1 are disposed on the gas cooker panel 3 by adhesion, bolt connection, rivet connection,

suction-cup attachment or magnetic attraction. In another example, the fixing portions 2 are disposed on the gas cooker panel 3 by adhesion, bolt connection, rivet connection, suction-cup attachment, magnetic attraction or integral forming. In another example, only a bottom wall opening is disposed on the lower surface of the bottom of each fin 1, no side wall opening is disposed, and the fixing portion 2 may enter the accommodating cavity 5 through the bottom wall opening.

[0033] The present invention further provides an embodiment of a cooker which is a combination of a gas cooker and an electromagnetic cooker, disposed with the pan support described above. When the pan support is not in use, the fins can be removed conveniently, so that the whole cooker has a more symmetrical, neater and more pleasing appearance.

[0034] Further, it should be noted that, the present invention shall not be construed as being limited to the implementation manner described above, but shall be construed as encompassing all possible implementation manners determined based on the claims and the disclosure of the specification of the present invention.

Claims

1. A pan support used in a gas cooker, comprising:

at least three fins;

characterized in that the fins are directly disposed on a gas cooker panel respectively.

2. The pan support according to claim 1, **characterized in that:**

the fins and the gas cooker panel are integrally formed.

3. The pan support according to claim 1, **characterized in that:**

the fins and the gas cooker panel are mutually independent; and
the fins are disposed on the gas cooker panel in a removable manner respectively, so that the fins are fixedly connected to the gas cooker panel, or removed from the gas cooker panel.

4. The pan support according to claim 1, **characterized in that:**

the pan support further comprises fixing portions of the same number as the fins;
the fins are one-to-one corresponding to the fixing portions;
the fins and the corresponding fixing portions are mutually independent;
the fixing portions are disposed on the gas cook-

er panel; and
the fin is disposed on the corresponding fixing portion in a removable manner, so that the fin is fixedly connected to the corresponding fixing portion, or removed from the corresponding fixing portion.

5. The pan support according to claim 4, **characterized in that:**

the fixing portion is disposed on the gas cooker panel by adhesion, bolt connection, rivet connection, suction-cup attachment, magnetic attraction or integral forming.

6. The pan support according to claim 4 or 5, **characterized in that:**

an accommodating cavity of substantially the same shape and size as the corresponding fixing portion is disposed on a bottom of each fin respectively; and
the accommodating cavity is used to accommodate the corresponding fixing portion, so that the fin is disposed on the corresponding fixing portion.

7. The pan support according to claim 6, **characterized in that:**

a bottom wall opening is disposed on a lower surface of the bottom of each fin;
and
the fixing portion enters the accommodating cavity through the bottom wall opening.

8. The pan support according to claim 6, **characterized in that:**

a bottom wall opening is disposed on a lower surface of the bottom of each fin;
a side wall opening is disposed on at least one side wall of the bottom of each fin;
the bottom wall opening is in communication with the side wall opening; and
the fixing portion is horizontally inserted into the accommodating cavity through the side wall opening.

9. The pan support according to claim 8, **characterized in that:**

the fixing portion is in a cylinder structure; and two end surfaces of the fixing portion parallel to each other are both in a trapezoid structure, and an upper bottom of the trapezoid is in contact with the gas cooker panel.

10. The pan support according to claim 8, **characterized in that:**

the fixing portion is in a cylinder structure; and two end surfaces of the fixing portion parallel to each other are both in a T-shaped structure.

11. The pan support according to claim 8, **characterized in that:**

the fixing portion is in a cylinder structure; and two end surfaces of the fixing portion parallel to each other are both in an H-shaped structure.

12. The pan support according to claim 8, **characterized in that:**

the fixing portion is in a cylinder structure; and a side wall of the cylinder structure comprises a curved surface and a rectangular surface, and the rectangular surface is connected to the gas cooker panel.

13. The pan support according to claim 6, **characterized in that:**

a side wall opening is disposed on two side walls of the bottom of each fin respectively, and the two side walls are adjacent to each other;
two bottom wall openings are disposed on a lower surface of the bottom of each fin;
the two side wall openings are one-to-one corresponding to the two bottom wall openings;
the bottom wall opening is in communication with the corresponding side wall opening;
two accommodating cavities of substantially the same shape and size as the corresponding fixing portion are disposed on the bottom of each fin respectively;
the two accommodating cavities are one-to-one corresponding to the two side wall openings; and
the fixing portion is horizontally inserted into the corresponding accommodating cavities through the two side wall openings respectively, and correspondingly the fin has two operating positions.

14. The pan support according to claim 4 or 5, **characterized in that:**

a connection portion is disposed on and connected to a bottom of each fin respectively;
an accommodating cavity of substantially the same shape and size as the corresponding fixing portion is disposed on each connection portion respectively; and
the accommodating cavity is used to accommodate the corresponding fixing portion, so that the fin is disposed on the corresponding fixing portion.

tion.

15. The pan support according to claim 4 or 5, **characterized in that:**

a protrusion portion is disposed on a bottom of each fin respectively;
 an accommodating cavity of substantially the same shape and size as the corresponding protrusion portion is disposed on each fixing portion respectively; and
 the accommodating cavity is used to accommodate the corresponding protrusion portion, so that the fin is disposed on the corresponding fixing portion.

16. The pan support according to claim 4, **characterized in that:**

a groove is disposed on a bottom of the fixing portion, and is used to contain an adhesive for adhering the fixing portion onto the gas cooker panel.

17. The pan support according to claim 16, **characterized in that:**

the adhesive is a silicone adhesive.

18. A cooker, disposed with the pan support according to any one of claims 1 to 17.

19. The cooker according to claim 18, **characterized in that:**

the cooker is a gas cooker or a combination of the gas cooker and an electromagnetic cooker.

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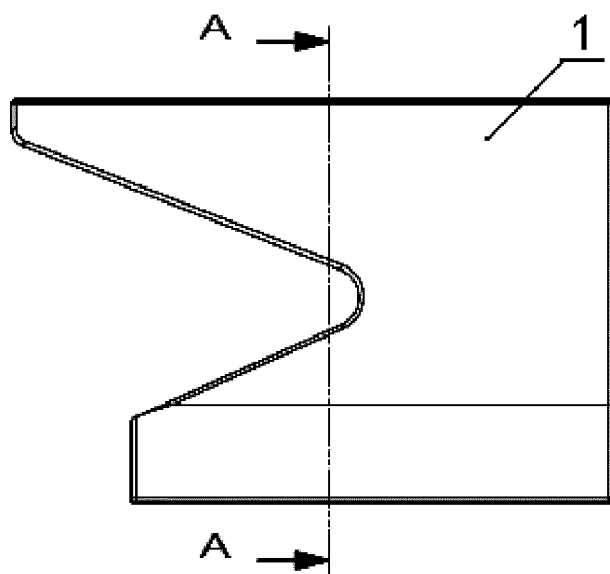


FIG. 1

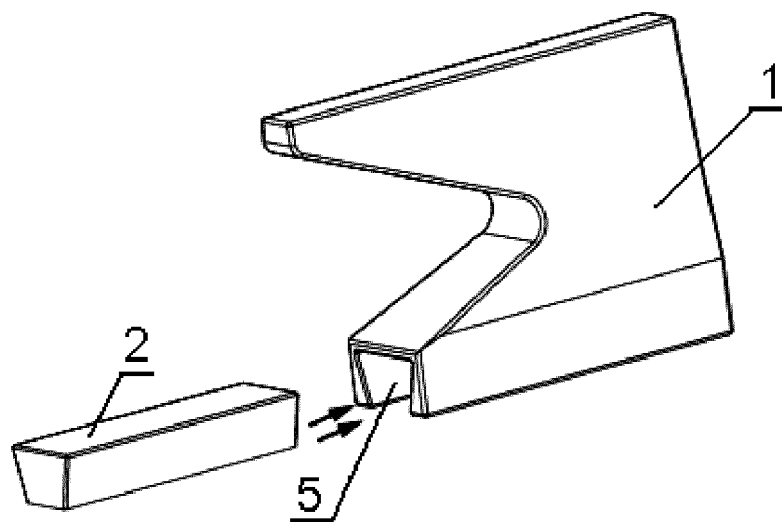


FIG. 2

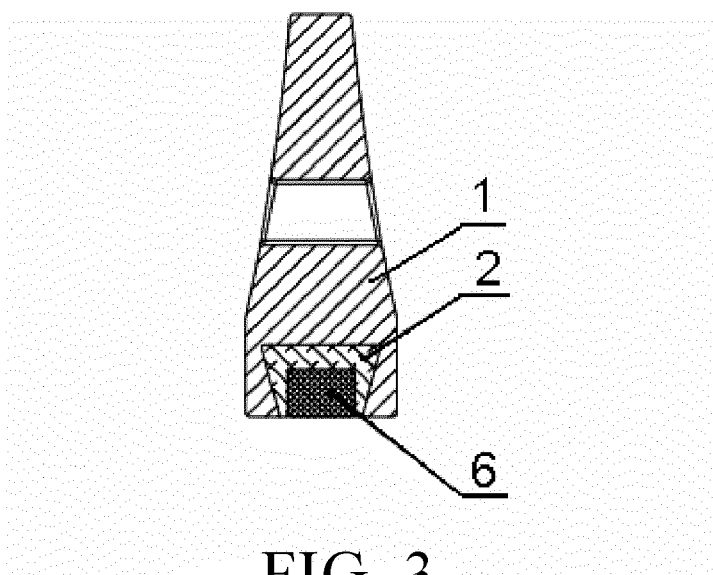


FIG. 3

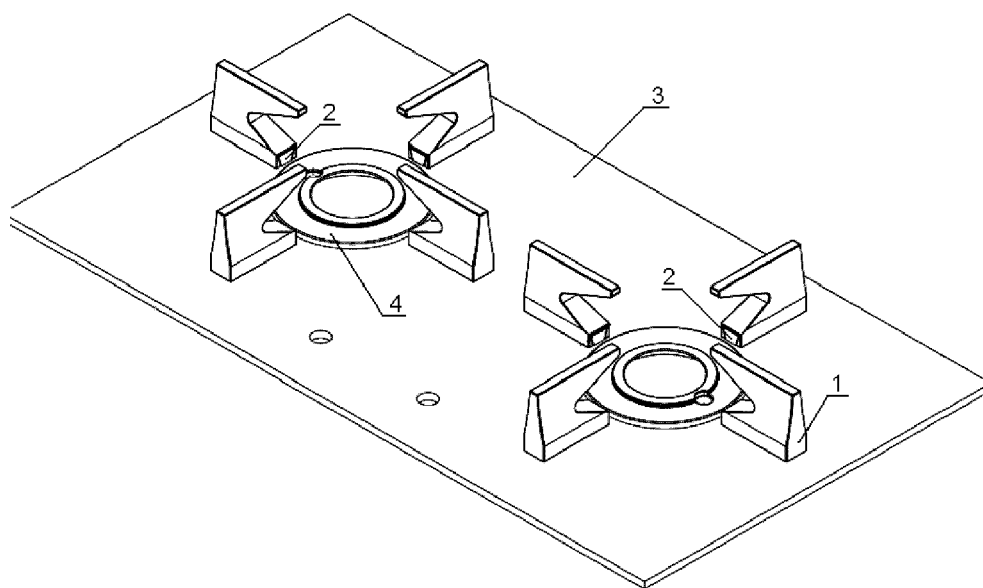


FIG. 4

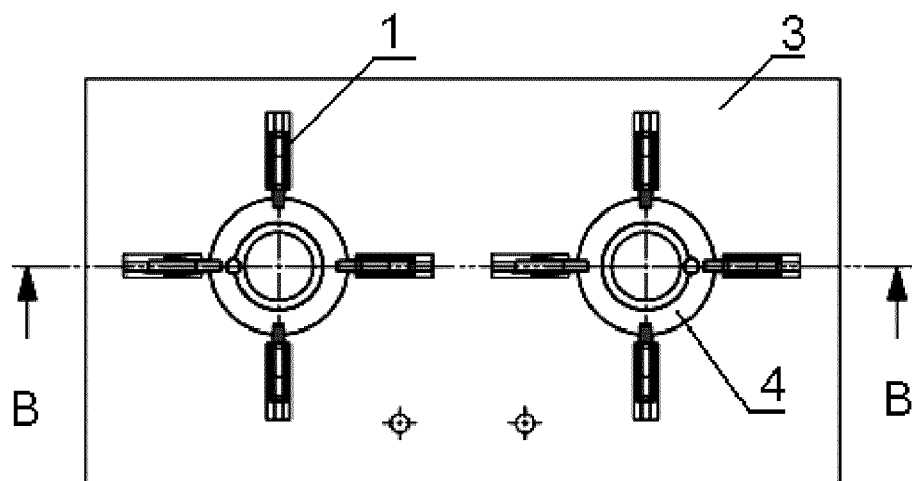


FIG. 5

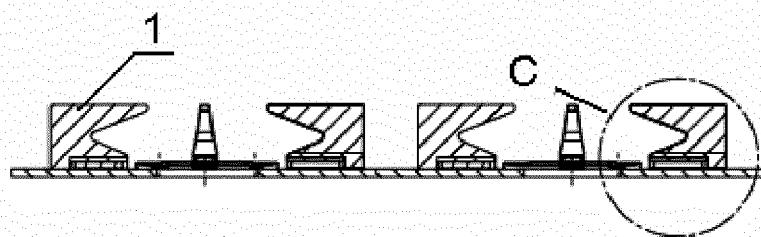


FIG. 6

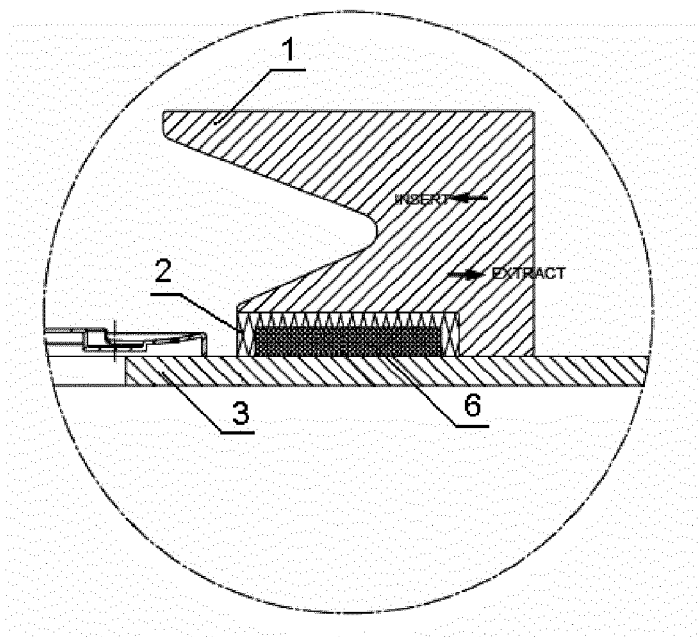


FIG. 7

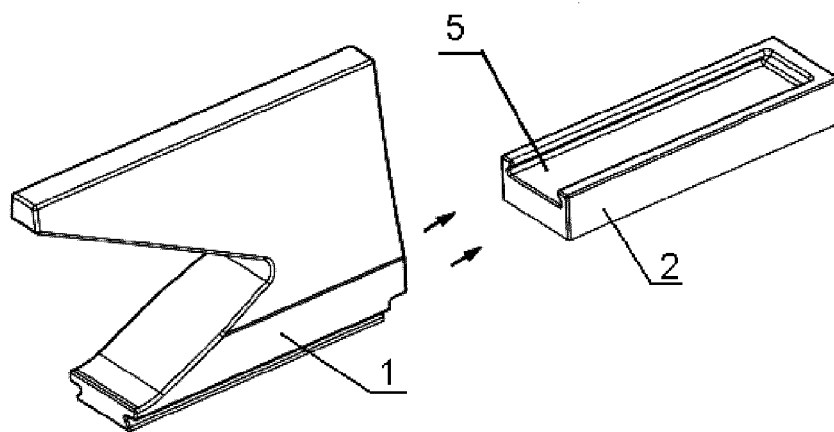


FIG. 8

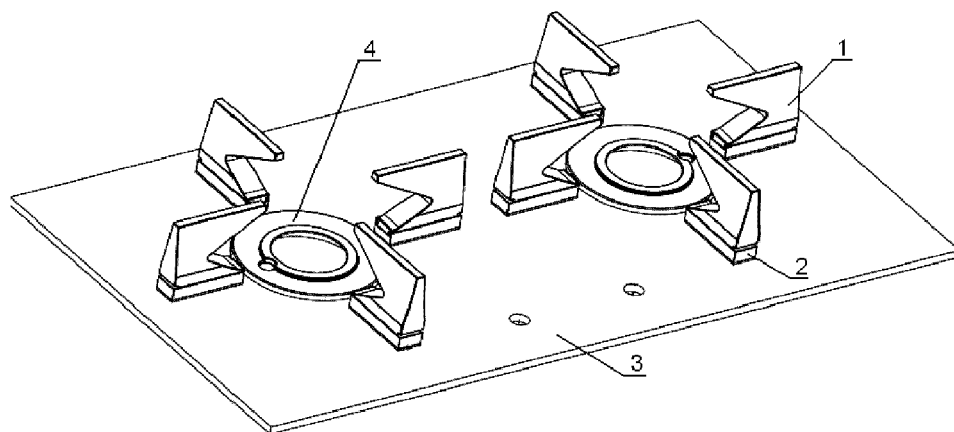


FIG. 9