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## (54) A cooking device with a pan support

(57) The present invention relates to a cooking device (10) having pan support (30) with a transverse arm pair (32) positioned on each burner (14), a cooktop plate (12), and at least two burners (14) provided on said cooktop plate (12). Said cooking device (10) comprises a foot (36) provided at the end of at least one arm (34) of each transverse arm pair (32) and seated to the cooktop plate (12); and at least one bridge member (42) connecting at least one each parallel arms (40) of the transverse arm pairs (32), which are adjacent to the foot (36). The transverse arm pair (32) and the bridge member (42) are configured so as to balance the pan support (30) on the cooktop plate (12).

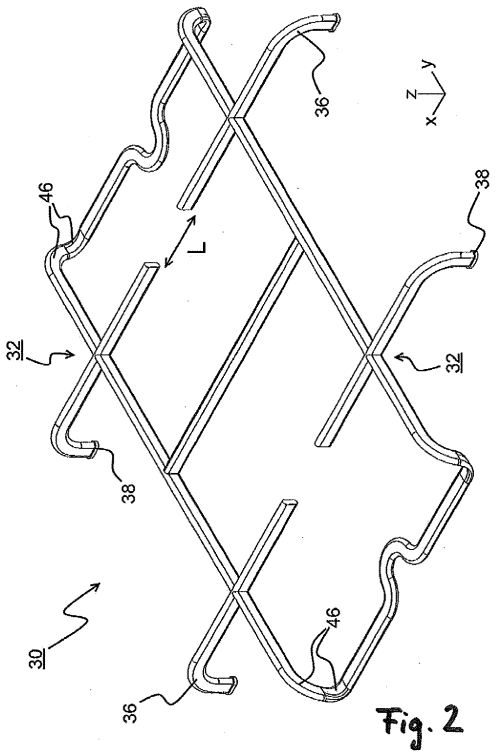



Fig. 2

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## Description

### TECHNICAL FIELD

**[0001]** The present invention relates to a cooking device having a cooktop plate thereon and a pan support provided on the cooktop plate.

### KNOWN STATE OF THE ART

**[0002]** In the cooktops, utilized as integrated with home appliances such as ovens or in a standalone manner; pan supports are used in order to carry the vessels, to be heated, on the burners. However, most of the pan supports utilized in the present art comprise a main frame. Said vessel to be heated is carried by means of the 4 arms provided around the burner by extending from said frame. Some of the pan supports known in the present art comprise cross elements provided on the burner in order to carry the vessel.

**[0003]** As an example to the pan supports utilized in the technical field, the pan support described in patent application WO2008068585 A2 can be given. In the related application, a cooking top is described, having pluralities of burners. There are pluralities of support (stand) members on the surface. The support members have a rest ridge extending on the cooking surface such that there are rest ridges on the front and on the rear side. Two of the strips, provided at the support elements, are flat. In one of them, the rear strip is flat and the front strip is in U shape. Movement constraining means are adapted to the peripheral stop strips. The constraining means are extending from arms connected in plus sign form.

**[0004]** Another example is the trivet described in the patent application US2011/0095142 A1. The trivet described in said application is a modular trivet. The trivet comprises a first rod, a first foot at the first end thereof, a second foot at the second end thereof and one or more transversely extending rods. The transversely extending rods are intersecting with the first rod. Moreover, the trivet has a third foot at the first end thereof and a second rod having a fourth foot at the second end thereof. The intersection points of the first and second rods may support a cooking pot. The modular trivet has one or more joining slots.

### BRIEF DESCRIPTION OF THE INVENTION

**[0005]** The object of the present invention is to increase combustion efficiency of the burners provided on the cooking device having pan support.

**[0006]** In order to realize said object, the present invention is a cooking device having pan support with a transverse arm pair positioned on each burner, a cooktop plate, and at least two burners provided on said cooktop plate. In the preferred embodiment of the present invention, the cooking device comprises a foot provided at the end of at least one arm of each transverse arm pair and seated to the cooktop plate; and at least one bridge member connecting at least one each parallel arms of the transverse arm pairs, which are adjacent to the foot; and the transverse arm pair and the bridge member are configured so as to balance the pan support on the cooktop plate. Thus, there is no external frame utilized in the present art and preventing the fresh air, which is important for the combustion efficiency, from reaching the burner. Moreover, since the material utilized in production is decreasing, the production costs are also decreasing.

**[0007]** In a preferred embodiment of the present invention, one arm of the transverse arm pair is parallel with respect to one arm of the other transverse arm pair. Thus, the pan support, whereon load is applied, can be provided in a balanced manner.

**[0008]** In a preferred embodiment of the present invention, the feet are provided at the opposite arm ends of different transverse arm pairs. Thus, in order to balance the pan support, support is provided from the points which are furthest with respect to each other. By means of this, a balanced structure is obtained.

**[0009]** In a preferred embodiment of the present invention, the feet have a base plate at the ends thereof contacting the cooktop plate. Thus, the structural damages and the noise which may occur on the cooktop plate are prevented.

**[0010]** In a preferred embodiment of the present invention, the feet are resting onto the lateral edges of the cooktop plate. Thus, in the present art, the pan support is balanced without the pan support alignment recesses and tabs provided on the cooktop plate and provided on the pan support.

**[0011]** In a preferred embodiment of the present invention, the bridge member is seated onto the cooktop plate. By means of this, even if the pan support comprises two feet, the third support point providing balance is also provided.

**[0012]** In a preferred embodiment of the present invention, the bridge member comprises connection ends which are in upward direction and connected to the transverse arm pair provided at a higher level than the cooktop plate level. By means of this, the bridge member, forming the third support point, is connected to the foot by means of the adjacent arms without preventing fresh air flow.

**[0013]** In a preferred embodiment of the present invention, the bridge member comprises a base plate provided on

the surface thereof contacting the cooktop plate. Thus, the structural damages and the possible noise formation on the cooktop plate are prevented.

**[0014]** In a preferred embodiment of the present invention, there are recesses and tabs provided mutually on the cooktop plate and on the pan support so as to align the pan support on the cooktop plate. Thus, even if a one-piece pan support is obtained, the pan support is aligned and it preserves the position thereof.

**[0015]** In a preferred embodiment of the present invention, there are at least three burners, and the arms of the transverse arm pairs, whose feet are in the same direction, extending towards each other are in integrated form. By means of this, the pan support is provided to be one-piece and the resistance of the pan support is preserved.

**[0016]** In a preferred embodiment of the present invention, a bridge member is provided so as to form an H form together with two parallel integrated arms and at least four transverse arm pairs. Thus, the integrity of the pan support is preserved and it is provided to be taken from the cooktop plate with one hand. Moreover, the resistance of the pan support is increased.

## BRIEF DESCRIPTION OF THE FIGURES

**[0017]** In Figure 1, the top view of the subject matter cooking device is given.

**[0018]** In Figure 2, the perspective view of the pan support provided in the subject matter cooking device is given.

**[0019]** In Figure 3, the views of the A-A and B-B cross-sections and the top view of the pan support provided in the subject matter cooking device are given.

## REFERENCE NUMBERS

**[0020]**

| | | | |
|---|---|---|---|
| **10.** | Cooking device | **40.** | Arm adjacent to the foot |
| **12.** | Cooktop plate | **42.** | Bridge member |
| **14.** | Burner | **44.** | Housing |
| **16.** | Side wall | **46.** | End |
| **18.** | Tab | **48.** | Base plate |
| | | **50.** | Vertical extension |
| **30.** | Pan support | **52.** | Recess |
| **32.** | Transverse arm pair | | |
| **34.** | Arm | **L** | Intermediate distance |
| **36.** | Foot | | |
| **38.** | Base plate | | |
| **39.** | Housing | | |

## THE DETAILED DESCRIPTION OF THE INVENTION

**[0021]** In this detailed description, the preferred embodiments of the subject matter cooking device (10) are explained with references to examples without forming any restrictive effect in order to make the subject more understandable.

**[0022]** The present invention relates to a cooking device (10) having a cooktop plate (12); at least two burners (14) provided on the cooktop plate (12); and pan support (30) having a transverse arm pair (32) positioned on each burner (14).

**[0023]** The present invention is characterized by comprising:

- a foot (36) provided at the end of at least one arm (34) of each transverse arm pair (32) and seated to the cooktop plate (12);
- bridge member (42) interconnecting one each parallel arms (40) of the transverse arm pairs (32) adjacent to the foot (36);

and the present invention is characterized in that

- the transverse arm pair (32) and the bridge member (42) are configured so as to balance the pan support (30).

**[0024]** The preferred embodiment of the present invention is utilized in ovens, cooking devices (10) known in the present art, and/or in cooktops utilized externally. One of the important properties of the present invention is that the frame, encircling the whole cooktop plate (12), is not utilized in the known state of the art. Moreover, in plates (12) comprising pluralities of burners (14), one of the properties of the present invention is that the pan support (30), comprising

pluralities of pieces, is obtained as one-piece.

**[0025]** In order to provide the described properties, transverse arm pairs (32) are formed which are preferably provided in plug sign form and positioned on the burners (14). Afterwards, the transverse arm pairs (32) are joined with each other so as to form a one-piece pan support (30).

**[0026]** In the preferred embodiment presented in Figure 1 and Figure 3, the pan support (30) is provided which is formed for a cooktop plate (12) having four burners (14). As described, a foot (36) is formed at the end of an arm (34) of each transverse arm pair (32). Optionally, a foot (36) can be formed at the other end of the same arm (34). The foot (36) is formed in the form of a spring preferably with 90 degrees in the vertical direction from the end of the arm (34). At the end of the foot (36) contacting the cooktop plate, a base plate (38) is positioned so as to prevent damaging of the cooktop plate (12). The base plate (38) is preferably obtained from heat-resistant polymer material. The base plate (38) has housing (39) like a shoe where the foot (36) is seated (Detail C).

**[0027]** In case there are at least three burners (14), the arms (extending towards each other) (40) of the transverse arm pairs (32) whose feet (36) are in the same direction are in integrated form. However, said transverse arm pair (32) does not have arm connection to the other adjacent transverse arm pair (32) through the arm (34) whereon foot is provided. On the contrary, there is a certain intermediate distance (L) between the two transverse arm pairs (32).

**[0028]** The transverse arm pairs (32) are connected by means of the bridge member (42) to the adjacent transverse arm pairs (32) which are not connected to the foot by means of the adjacent arm (40). As exemplified in Figure 2, the bridge member (42) can be formed in the form of a rod connecting the arms (40) to each other and extending between the arms (40) of the two transverse arm pairs which are adjacent to the foot and the arm (40) of the other two transverse arm pairs adjacent to the foot. Thus, the bridge member (42) forms an H-like structure together with the arms (40) adjacent to the foot. In this embodiment, there is a certain elevation difference between the bridge member (42) and the cooktop plate (12). This difference is preferably the same as the difference between the transverse arm pairs (32) and the cooktop plate (12).

**[0029]** In a preferred embodiment of the present invention, the bridge member (42) is seated onto the cooktop plate (12). Because of the elevation difference between the transverse arm pairs (32) and the bridge member (42), the connection of the bridge member (42) to the arm (40) adjacent to the foot is realized by means of the ends (46) of the bridge member (42) which are in spring form preferably with 90 degrees. The end (46) comprises a spring with 90 degrees rotating from the x axis towards the z axis and a spring with 90 degrees rotating towards the y axis. There is a base plate (48) positioned for not giving damage to the cooktop plate (12) under the bridge member (42). The base plate (48) is preferably obtained from heat-resistant polymer. The base plate (48) has a T-like cross section (Detail D). The vertical extension (50) of the T shape is placed to the housing (44) formed under the bridge member (42). Thus, the base plate (48) is fixed.

**[0030]** The bridge member (42), seated to the cooktop plate (12), has recesses (52) compliant to the tabs (18) provided on the cooktop plates (12) in the present art in order to align the pan support (30) and in order to preserve the position of the pan support (30). The recess (52) preferably has a form compliant to the tab (18) provided on the cooktop plate. Optionally, for the same purpose, a recess may be formed on the cooktop plate (12) and a tab may be formed on the bridge member (42). The recess (52) formed on the bridge member (42) is preferably in the form of a semi-circle when viewed from above.

**[0031]** If the feet (36) provided in the present invention are formed so as to be rested onto the edge wall (16) of the cooktop plate, the described recess and tab (18, 52) may not be used.

**[0032]** In the preferred embodiment, the bridge member (42) is used together which is seated onto the cooktop plate (12) and which is extending between the arms (40) adjacent to the foot.

**[0033]** The subject matter pan support (30) is preferably a metal pan support (30) which is preferably obtained by casting. All of the rods forming the pan support (30) preferably have a horizontal cross section in quadrangular form whose two mutual edges are longer than the other two mutual edges thereof. However, the corners of the quadrangle are preferably rounded (Figure 3).

**[0034]** Preferably the arms (34, 40) of the transverse arm pairs are corresponded to the regions of the burners (14) where there is no flame output. Thus, the enamel is prevented from being burnt and deteriorated. Moreover, optionally, the transverse arm pairs (32) may contact the burner (14) or may exist above the burner (14) at a certain elevation.

**[0035]** If the pan support (30), utilized in the present invention and presented in Figure 1 and Figure 3, is described in a different manner, said pan support (30) comprises a quadrangular main frame formed of arms (40) adjacent to the foot and a bridge member (42) seated to the cooktop plate (12). The mutual edges formed by the arms (40) adjacent to the foot are passing above the burners (14). Arms (34) are formed, where there are feet at the same point, in a vertical manner with respect to the arms (40) adjacent to the foot passing through the center points of the circular burners (14). Thus, a pan support (30) is obtained having a one-piece frame and however not preventing the fresh air from reaching the burners (14) and covering all four burners (14) in a functional manner.

## Claims

1. A cooking device (10) having pan support (30) with a transverse arm pair (32) positioned on each burner (14), a cooktop plate (12), and at least two burners (14) provided on said cooktop plate (12), **characterized in that** it comprises a foot (36) provided at the end of at least one arm (34) of each transverse arm pair (32) and seated to the cooktop plate (12); and at least one bridge member (42) connecting at least one each parallel arms (40) of the transverse arm pairs (32), which are adjacent to the foot (36); and **in that** the transverse arm pair (32) and the bridge member (42) are configured so as to balance the pan support (30) on the cooktop plate (12).

2. A cooking device (10) according to any one of the preceding claims, wherein one arm (34, 40) of the transverse arm pair (32) is parallel with respect to one arm (34, 40) of the other transverse arm pair (32).

3. A cooking device (10) according to any one of the preceding claims, wherein the feet (36) are provided at the opposite arm (34) ends of the different transverse arm pairs (32).

4. A cooking device (10) according to any one of the preceding claims, wherein the feet (36) have a base plate (38) at the ends thereof contacting the cooktop plate (12).

5. A cooking device (10) according to any one of the preceding claims, wherein the feet (36) are resting onto the lateral edges (16) of the cooktop plate.

6. A cooking device (10) according to any one of the preceding claims, wherein the bridge member (42) is seated onto the cooktop plate (12).

7. A cooking device (10) according to Claim 6, wherein the bridge member (42) comprises connection ends (46) which are in upward direction and connected to the transverse arm pair (34, 40) provided at a higher level than the cooktop plate (12) level.

8. A cooking device (10) according to Claim 6, wherein the bridge member (42) comprises at least one base plate (48) provided on the surface thereof contacting the cooktop plate (12).

9. A cooking device (10) according to Claim 6, wherein there is at least one recess (52) and at least one tab (18) provided mutually on the cooktop plate (12) and on the pan support (30) so as to align the pan support (30) on the cooktop plate (12).

10. A cooking device (10) according to any one of the preceding claims, wherein when the cooking device (10) comprises at least three burners (14), the arms (40) of the transverse arm pairs (32), whose feet (36) are in the same direction, extending towards each other are in integrated form.

11. A cooking device (10) according to Claim 10, wherein a bridge member (42) is provided so as to form an H form together with two parallel integrated arms (40) adjacent to the foot, when the cooking device (10) comprises at least four transverse arm pairs (32).

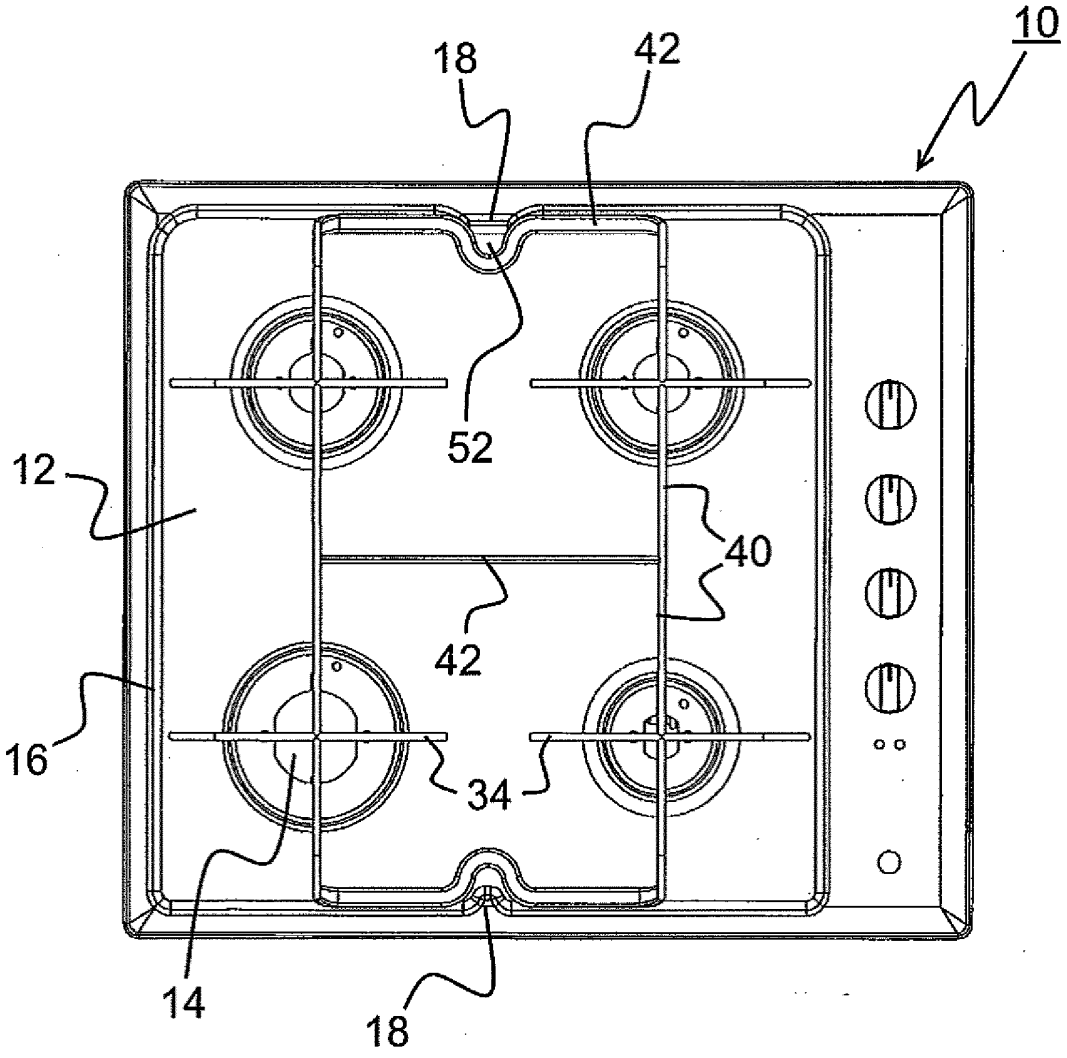



Fig. 1

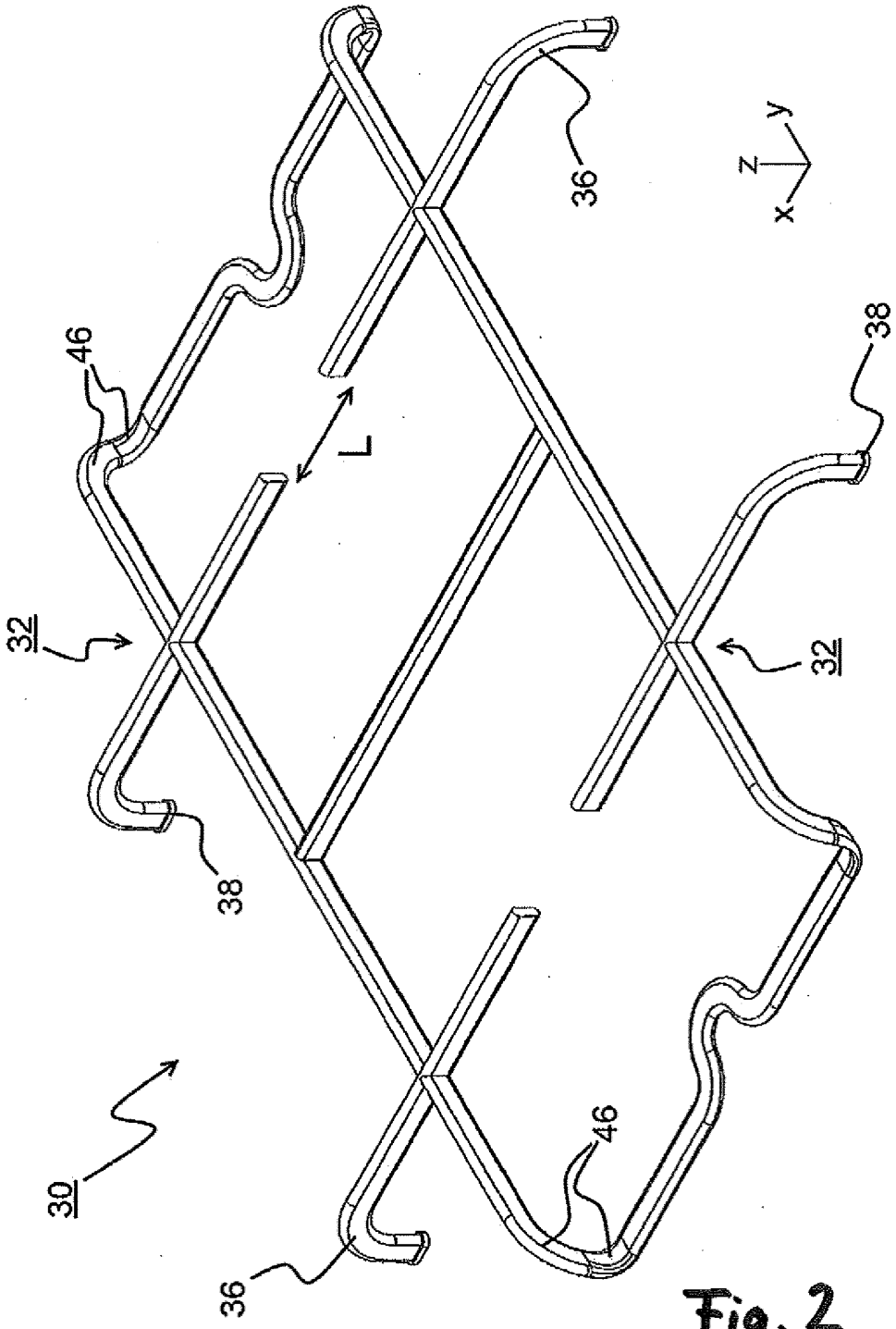



Fig. 2

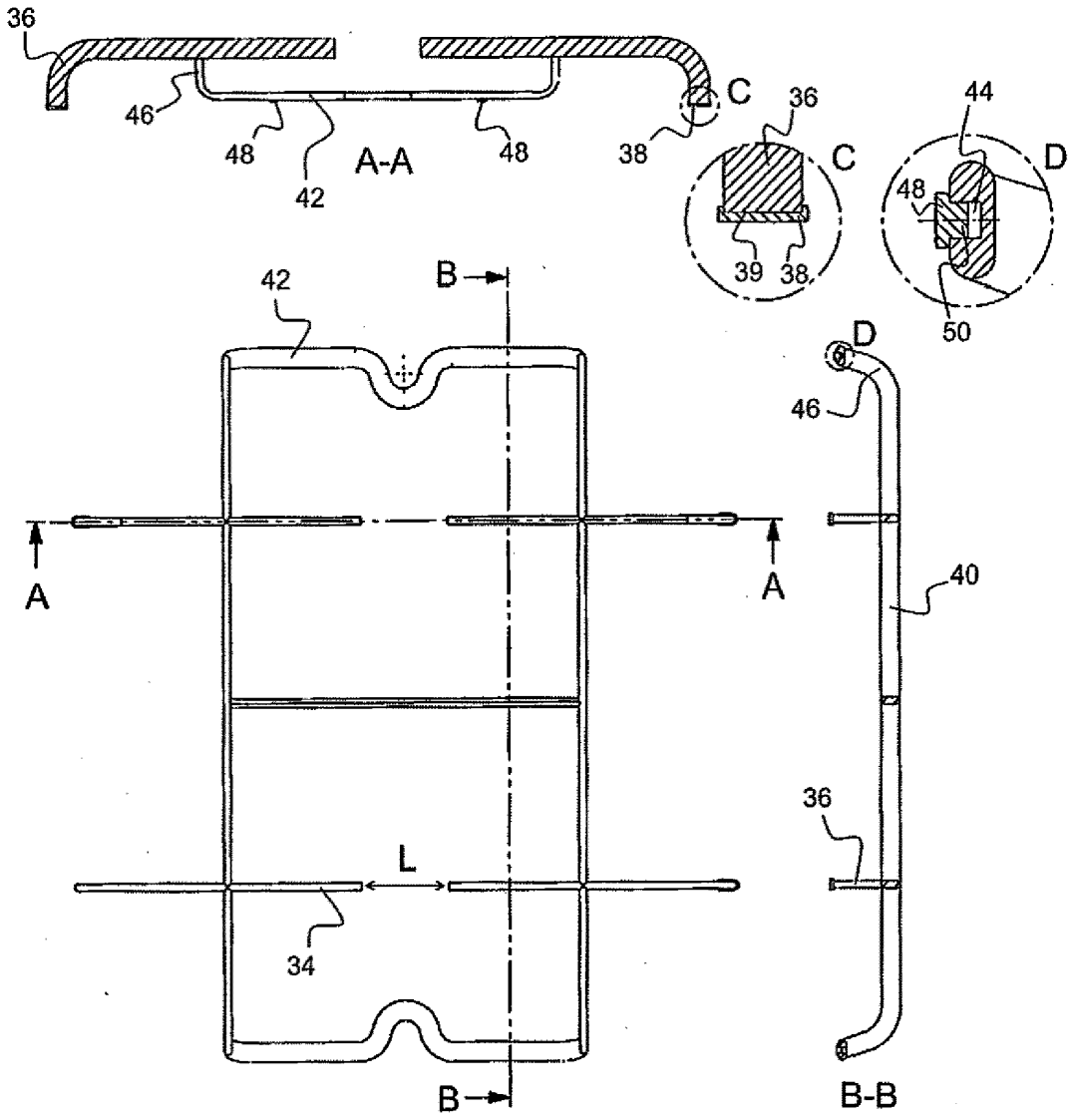



Fig. 3

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Application Number
EP 13 16 3250

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The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 26 July 2013 | Fest, Gilles |

CATEGORY OF CITED DOCUMENTS

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## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 13 16 3250

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