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(54) **FASTENING SYSTEM COMPRISING A GRID LIKE SUPPORT OF GUIDES IN A HOUSEHOLD
APPLIANCE**

BEFESTIGUNGSSYSTEM UMFASSEND EINE GITTERFÖRMIGEN STÜTZE VON FÜHRUNGEN IN
EINEM HAUSHALTSGERÄT

SYSTÈME DE FIXATION COMPRENANT UN SUPPORT DE GUIDES DU TYPE GRILLE DANS UN
APPAREIL DOMESTIQUE

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Description

[0001] The present invention refers to a fastening system for a grid like support of guides in a household appliance, particularly in an oven, comprising a baking chamber defined by a top wall, a bottom wall and two side walls, and is closed at the first end thereof with a back wall and at the opposite end it can be closed by means of a door, a grid like support being arranged at each side wall that can be fixed to the side walls of the baking chamber.

[0002] Fastening system for a grid like support of guides of the aforementioned kind has been disclosed in a publication of a patent application No. WO 2009/107016A1. Screws in D1 are required to hold the muffle of the oven together. The section which connects each wall element of the oven is fixed via said screws to the front and the rear wall of the oven. If said screws would be missing, the muffle of the oven would collapse. In addition, the screws which hold the guides in the position are placed so as to represent an obstacle for a dish tray to be inserted in the oven.

[0003] It is the object of the present invention to create fastening a grid like support of guides in a household appliance, particularly in an oven, which will remedy the drawbacks of the known solutions.

[0004] The object as set above is solved with characteristics as set forth in a characterising clause of claim 1. Details of the invention are disclosed in subclaims.

[0005] The invention is further described in detail by way of non-limiting preferred embodiments, and with a reference to the accompanying drawing, where

Fig. 1 shows a schematic three-dimensional view of an oven,

Fig. 2 shows a three-dimensional view of a screw to fix a grid like support.

[0006] A household appliance, particularly an oven 1, comprises a baking chamber 2 defined in the circumferential direction by a top wall 3, a bottom wall 4 and two side walls 5, 6, and is closed at the first end thereof with a back wall 7 and at the opposite end it can be closed by means of a door, not shown. All said walls 3, 4, 5, 6, 7 are preferably covered with a protective layer of enamel. A grid like support 5.1, 6.1 of guides is arranged at each side wall 5, 6 to receive a baking tray, for instance. A fan cover 9 is attached to said back wall 7 by means of a plurality of screw means 8. Each said screw 8 is arranged in each vertical marginal area of said back wall 7, where in the present and preferred embodiment a pair of said screws 8 being provided in said vertical marginal area. Furthermore, each said screw 8 is fixed by means of a nut, not shown, from the back side of said back wall 7, a washer being optionally arranged between the nut and the back side of the back wall 7. Optionally, said sealing washer can be arranged also between the back wall 7 and the fan cover 9, thus preventing the mutual friction

of the enamelled elements.

[0007] Each said screw 8 is formed with a radially extending head 10 where a shank 11 stems from, each said screw 8 being formed at the side of said head 10 with a threaded hole 12 being concentric with said shank 11. It is understood of course, that the diameter of said threaded hole 12 is smaller in comparison to the diameter of said shank 11. Furthermore, it is provided according to the present invention that said threaded hole 12 is a blind hole, however, an embodiment is possible where said threaded hole 12 is a through hole.

[0008] Each said grid like support 5.1, 6.1 of guides is placed into the baking chamber in a manner that, essentially, a horizontal extension 13, 14 of the grid like support 5.1, 6.1 is inserted into said threaded hole 12 of each screw 8. In order to achieve a suitable cooperation between said hole 12 and said extension 13, 14, a slip fit is provided there between. In order for each said grid like support 5.1, 6.1 to be fixed and secured against unwanted draw out of said holes 12 of the screw 8, each said grid like support 5.1, 6.1 is additionally secured by means of a fixing screw 15 screwed into a threaded hole of the additional screw fixed in each side wall 5, 6. It is provided for according to the present invention that said additional screw is identical to said screw 8. Optionally, each end region of said extension 13, 14 is provided with a washer, not shown, which presses against the head 10 of said screw 8 when said supports 5.1, 6.1 being mounted. Said washer is particularly essential when installing said grid like support 5.1, 6.1 according to the invention into a micro-wave oven, since the occurrence of sparks is prevented between the screw 8 and said support 5.1, 6.1.

[0009] The above described fastening a grid like support 5.1, 6.1 of guides is useful practically with all types of ovens, such as steam ovens, pyrolytic ovens, multi-functional ovens, micro-wave ovens and similar. In this manner, said grid like supports 5.1, 6.1 of guides and said screws 8 are equal for all types of ovens, thus, substantially reducing the production costs and accelerate the assembling of ovens. Additionally, the need for different hoods and fan covers become superfluous, since they are the same for all said ovens.

Claims

1. Fastening system for a household appliance, particularly in an oven, comprising

- a grid like support of guides
- a baking chamber defined by a top wall, a bottom wall and two side walls, wherein the baking chamber is closed at the first end thereof with a back wall and at the opposite end it can be closed by means of a door, the grid like support being arranged at each side wall and being able to be fixed to the side walls of the baking chamber, and

- a plurality of screw means which are screwed in the back wall fixing a fan cover (9),

characterized in that each of said grid like support (5.1, 6.1) comprises a horizontal extension (13, 14) which is inserted into a threaded hole (12) of each screw means (8), wherein an additional screw is screwed into each side wall (5, 6), said additional screw being identical to said screw means (8) for fixing said fan cover (9), and a fixing screw (15) is screwed in said additional screw, wherein said additional screw and said fixing screw (15) fix each grid like support (5.1, 6.1) of guides to each side wall (5, 6) in the baking chamber (2).

2. Fastening system according to claim 1, **characterized in that** each said screw (8) is formed with a radially extending head (10) where a shank (11) stems from, each said screw (8) being formed at the side of said head (10) with a threaded hole (12) being concentric with said shank (11).
3. Fastening system according to claims 1 and 2, **characterized in that** the horizontal extension (13, 14) of the grid like support (5.1, 6.1) is inserted with a loose fit into said threaded hole (12) of each said screw (8) being screwed into said back wall (7) of the baking chamber (2).
4. Fastening system according to any of the preceding claims, **characterized in that** each said screw (8) arranged in each vertical marginal area of said back wall (7) is fixed by means of a nut from the back side of said back wall (7), a sealing washer being optionally arranged between the nut and the back side of the back wall (7).
5. Fastening system according to any of the preceding claims, **characterized in that** said sealing washer is optionally arranged between the back wall (7) and the fan cover (9).
6. Fastening system according to any of the preceding claims, **characterized in that** each end region of said extension (13, 14) is provided with a washer, which presses against the head (10) of said screw (8) when said supports (5.1, 6.1) being mounted.

Patentansprüche

1. Befestigungssystem für ein Haushaltsgerät, insbesondere in einem Ofen, umfassend
 - eine gitterartige Halterung von Führungen
 - eine Backkammer, die durch eine obere Wand, eine untere Wand und zwei Seitenwände begrenzt ist, wobei die Backkammer an deren ers-

ten Ende mit einer Rückwand verschlossen ist und an dem gegenüberliegenden Ende mittels einer Tür verschlossen werden kann, wobei die gitterartige Halterung an jeder Seitenwand angeordnet ist und an den Seitenwänden der Backkammer befestigt werden kann, und
 - eine Mehrzahl von Verschraubungsmitteln, die in die Rückwand geschraubt sind und eine Gebläseabdeckung (9) fixieren,

dadurch gekennzeichnet, dass jede der gitterartigen Halterungen (5.1, 6.1) eine horizontale Verlängerung (13, 14) umfasst, welche in ein Gewindeloch (12) eines jeweiligen Verschraubungsmittels (8) eingesteckt ist, wobei eine zusätzliche Schraube in jede Seitenwand (5, 6) geschraubt ist, wobei die zusätzliche Schraube baugleich zu dem Verschraubungsmittel (8) zur Fixierung der Gebläseabdeckung (9) ist, und wobei eine Befestigungsschraube (15) in die zusätzliche Schraube geschraubt ist, wobei durch die zusätzliche Schraube und die Befestigungsschraube (15) jede gitterartige Halterung (5.1, 6.1) von Führungen an der jeweiligen Seitenwand (5, 6) in der Backkammer (2) fixiert ist.

2. Befestigungssystem nach Anspruch 1, **dadurch gekennzeichnet, dass** jedes der Verschraubungsmittel (8) mit einem sich radial erstreckenden Kopf (10) ausgebildet ist, von dem ein Schaft (11) absteht, wobei jedes Verschraubungsmittel (8) an der Seite des Kopfes (10) mit einem Gewindeloch (12) versehen ist, das konzentrisch zu dem Schaft (11) ist.
3. Befestigungssystem nach einem der Ansprüche 1 und 2, **dadurch gekennzeichnet, dass** die horizontale Verlängerung (13, 14) der gitterartigen Halterung (5.1, 6.1) mit einer Spielpassung in das Gewindeloch (12) von dem jeweiligen in der Rückwand (7) der Backkammer (2) verschraubten Verschraubungsmittel (8) eingesetzt ist.
4. Befestigungssystem nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** jedes Verschraubungsmittel (8), das jeweils in einem vertikalen Randbereich der Rückwand (7) angeordnet ist, mittels einer Mutter von der Rückseite der Rückwand (7) befestigt ist, wobei optional eine Dichtungsscheibe zwischen der Mutter und der Rückseite der Rückwand (7) angeordnet ist.
5. Befestigungssystem nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** optional eine Dichtungsscheibe zwischen der Rückwand (7) und der Gebläseabdeckung (9) angeordnet ist.
6. Befestigungssystem nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** je-

der Endbereich der Verlängerung (13, 14) mit einer Unterlegscheibe versehen ist, welche gegen den Kopf (10) des Verschraubungsmittels (8) drückt, wenn die Halterungen (5.1, 6.1) montiert sind.

Revendications

1. Système de fixation pour un appareil domestique, en particulier dans un four, comprenant:

- un support de guides du type grille,
- une chambre de cuisson définie par une paroi supérieure, une paroi inférieure et deux parois latérales, la chambre de cuisson étant fermée à la première extrémité de celle-ci par une paroi arrière et à l'extrémité opposée elle peut être fermée au moyen d'une porte, le support du type grille étant disposé à chaque paroi latérale et étant apte à être fixé aux parois latérales de la chambre de cuisson, et
- une pluralité de moyens de vis qui sont vissés dans la paroi arrière fixant un capot de ventilateur (9),

caractérisé par le fait que chacun desdits supports du type grille (5.1, 6.1) comprend un prolongement horizontal (13, 14) qui est introduit dans un trou fileté (12) de chaque moyen de vis (8), une vis supplémentaire étant vissée dans chaque paroi latérale (5, 6), ladite vis supplémentaire étant identique auxdits moyens de vis (8) pour fixer ledit capot de ventilateur (2), et une vis de fixation (15) est vissée dans ladite vis supplémentaire, ladite vis supplémentaire et ladite vis de fixation (15) fixant chaque support de guides du type grille (5.1, 6.1) à chaque paroi latérale (5, 6) dans la chambre de cuisson (2).

2. Système de fixation selon la revendication 1, **caractérisé par le fait que** chaque vis précitée (8) est formée avec une tête s'étendant radialement (10) à partir de laquelle une tige (11) s'étend, chaque vis (8) étant formée sur le côté de ladite tête (10) avec un trou fileté (12) concentrique avec ladite tige (11).

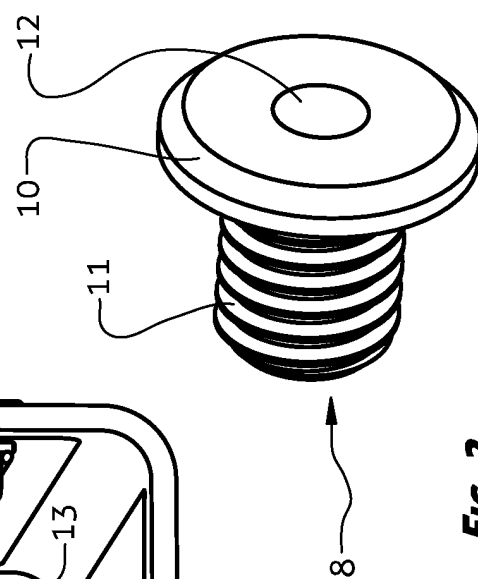
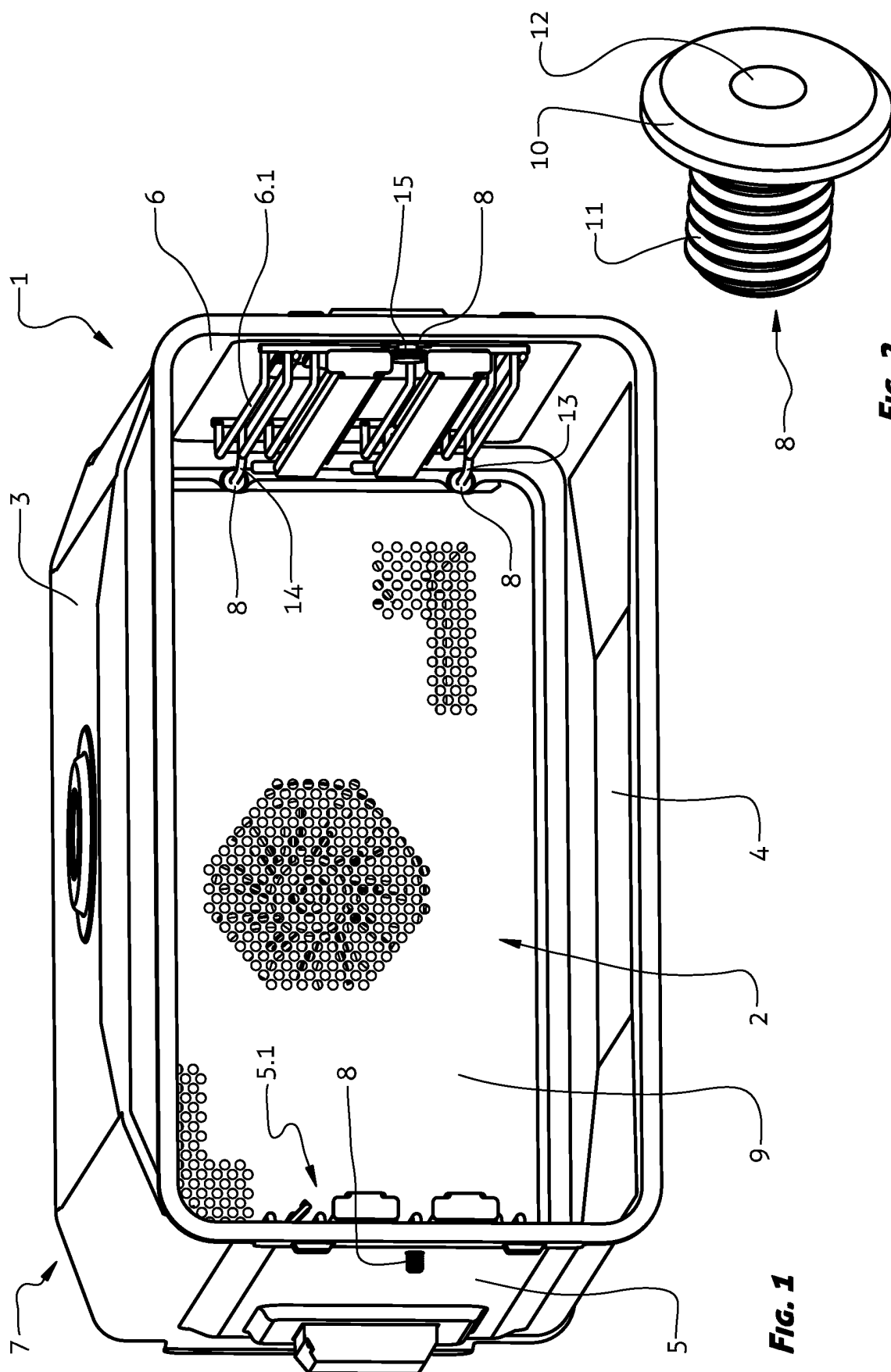
3. Système de fixation selon les revendications 1 et 2, **caractérisé par le fait que** le prolongement horizontal (13, 14) du support du type grille (5.1, 6.1) est introduit avec un ajustement libre dans ledit trou fileté (12) de chaque vis précitée (8) vissée dans ladite paroi arrière (7) de la chambre de cuisson (2).

4. Système de fixation selon l'une quelconque des revendications précédentes, **caractérisé par le fait que** chaque vis précitée (8) disposée dans chaque zone marginale verticale de ladite paroi arrière (7) est fixée au moyen d'un écrou depuis le côté arrière de ladite paroi arrière (7), une rondelle d'étanchéité

étant facultativement disposée entre l'écrou et le côté arrière de la paroi arrière (7).

5. Système de fixation selon l'une quelconque des revendications précédentes, **caractérisé par le fait que** ladite rondelle d'étanchéité est facultativement disposée entre la paroi arrière (7) et le capot de ventilateur (9).

6. Système de fixation selon l'une quelconque des revendications précédentes, **caractérisé par le fait que** chaque région d'extrémité dudit prolongement (13, 14) comporte une rondelle, laquelle appuie contre la tête (10) de ladite vis (8) lors du montage desdits supports (5.1, 6.1).



REFERENCES CITED IN THE DESCRIPTION

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