



(11) **EP 2 048 462 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
15.04.2009 Bulletin 2009/16

(51) Int Cl.:
F25D 23/10 (2006.01)

(21) Application number: **08380014.4**

(22) Date of filing: **24.01.2008**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT
RO SE SI SK TR**
Designated Extension States:
AL BA MK RS

(72) Inventor: **Llamazares Álvarez, Paz**
48970 Basauri (Bizkaia) (ES)

(74) Representative: **Igartua, Ismael**
Dpto. de Propiedad Industrial
Apartado, 213
Barrio San Andrés, s/n
20500 Mondragón (ES)

(30) Priority: **08.10.2007 ES 200702034 U**

(71) Applicant: **FAGOR, S.COOP.**
20500 Mondragón (Gipuzkoa) (ES)

(54) **Built-in domestic electrical appliance**

(57) Built-in domestic electrical appliance that comprises a refrigerator (2) with two compartments that is suitable for being fitted into a kitchen unit, and a base (3) upon which said refrigerator (2) is supported, said base (3) comprising a housing (4) for the condensation means (6) of the refrigerator (2), and said base (3) being height adjustable for disposing the refrigerator (2) at the height required for the kitchen unit it is to be fitted into.

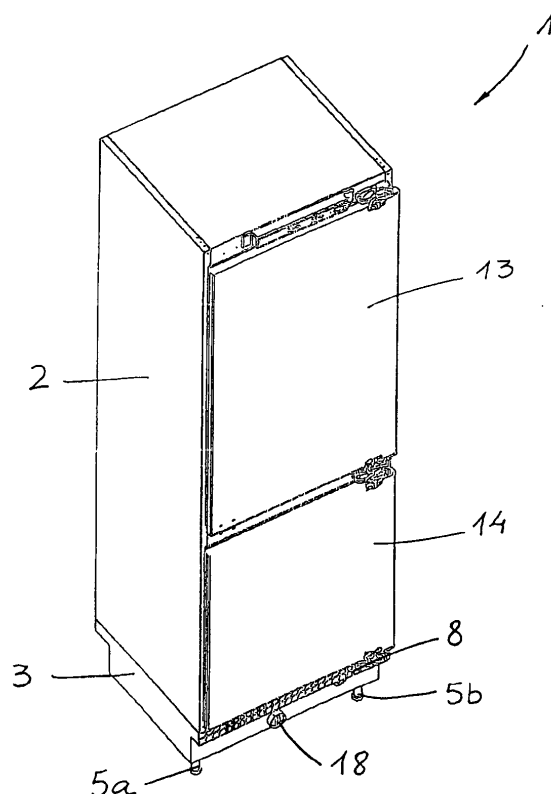


FIG. 1

EP 2 048 462 A2

Description

TECHNICAL FIELD

[0001] The present invention relates to domestic refrigeration appliances and more specifically to domestic refrigeration appliances fitted in a kitchen.

PRIOR ART

[0002] Domestic refrigerators that comprise two compartments are known, in particular refrigerator-freezers. Refrigerator-freezers are those comprising a refrigerator compartment and a freezer compartment. Usually, the refrigerator compartment is disposed in the upper part and the freezer is disposed in the lower part. So-called built-in refrigerator-freezers are those which are fitted into the kitchen unit as another module, unlike free-standing refrigerator-freezers, which are installed in a unit that is independent to the rest of the kitchen.

[0003] Built-in refrigerator-freezers of the prior art are housed in a niche disposed in the kitchen unit. DE 29611646 U1 shows an example of a refrigerator that is housed in a niche of the kitchen unit.

[0004] ES 2 113 592 T3 describes a refrigerator that is housed in a niche that has lateral bracket plates upon which said refrigerator is supported.

DISCLOSURE OF THE INVENTION

[0005] It is the object of the invention to provide a built-in domestic electrical appliance as defined in the claims.

[0006] The domestic electrical appliance of the invention comprises a refrigerator with two compartments suitable for being fitted into a kitchen unit, and also comprises a base upon which said refrigerator is supported. Said base comprises a housing for the condensation means of the refrigerator. In addition, said base is height adjustable so that the refrigerator can be disposed at the height corresponding to the kitchen unit in which it is fitted, depending on the height of the baseboard of said kitchen unit.

[0007] In the domestic electrical appliance of the invention the useful volume of the refrigerator is increased significantly, as the kitchen unit does not need to comprise any niche in which to house the refrigerator nor any type of structure upon which to support said refrigerator, full use therefore being made of the space that would be occupied by the niche.

[0008] In addition, the structure of the compartments of the refrigerator of the domestic electrical appliance of the invention may be the same as the structure of the compartments of a free-standing refrigerator. The fact that the compartments used may be the same both for free-standing refrigerators and built-in refrigerators means that costs can be reduced considerably with regard to moulds, equipment, etc.

[0009] These and other advantages and characteris-

tics of the invention will be made evident in the light of the drawings and the detailed description thereof.

DESCRIPTION OF THE DRAWINGS

[0010]

Figure 1 shows an embodiment of the built-in domestic electrical appliance of the invention.

Figure 2 shows a kitchen unit with the space in which the domestic electrical appliance of figure 1 is disposed.

Figure 3 shows the kitchen unit of figure 2 with the domestic electrical appliance of figure 1 disposed in the corresponding space.

Figure 4 shows the kitchen unit of figure 2 with the domestic electrical appliance of figure 1 disposed in the corresponding space and covered with decorative panels.

Figure 5 shows a longitudinal profile sectional view of the domestic electrical appliance of figure 1, in which the decorative panels on the doors and the baseboard have been added.

Figure 6 shows a perspective view of the base of the domestic electrical appliance of figure 1.

Figure 7 shows a ground view of the base of the domestic electrical appliance of figure 1.

DETAILED DISCLOSURE OF THE INVENTION

[0011] As can be seen in figure 1, the built-in domestic electrical appliance 1 of the invention comprises a refrigerator 2 with two compartments, which in this embodiment is a refrigerator-freezer, and also comprises a base 3 upon which said refrigerator-freezer 2 is supported. Said base 3 is height adjustable so that the refrigerator-freezer 2 can be disposed at the height required for the kitchen unit it is to be fitted into. For this purpose, in this embodiment the domestic electrical appliance comprises two front feet 5a and 5b, and a rear foot 5c, not shown in figure 1, all of them height adjustable. The refrigerator-freezer 2 of this embodiment comprises a refrigerator compartment in the upper part and a freezer compartment in the lower part with its respective doors 13 and 14, although it is possible for the refrigerator compartment to be in the lower part and the freezer compartment in the upper part.

[0012] In order to fit the domestic electrical appliance 1 of the invention into a kitchen unit, it is not necessary for said kitchen unit to have a niche in which can be housed said domestic electrical appliance 1, it being sufficient, rather, as shown in figure 2, that there is a space

10 between the adjoining units 11 and 12 between which the domestic electrical appliance 1 is to be fitted. With reference to figure 3, the domestic electrical appliance 1 is housed in said space 10 and a baseboard 15 is added to it. As shown in figure 4, respective decorative panels 16 and 17 are added to the doors 13 and 14 of the refrigerator-freezer 2, resulting in the kitchen unit of said figure 4.

[0013] With reference to figures 5 to 7, the base 3 comprises a housing 4 for the condensation means 6 of the refrigerator-freezer 2. By removing the condensation means 6 from the rear part of the refrigerator-freezer 2 and disposing them in said housing 4, the compartments of said refrigerator-freezer 2 are provided with greater depth. This, together with the fact that the niche is dispensed with, considerably increases the useful volume of the compartments of the refrigerator-freezer 2 in comparison to the compartments of the built-in refrigerator-freezers of the prior art.

[0014] As the useful volume of the compartments of the refrigerator-freezer 2 may be greater, in this embodiment said compartments have a structure that corresponds with the structure of the compartments of a free-standing refrigerator-freezer. As a result, the same compartments may be used and, therefore, the same interior elements in the compartments, both in free-standing refrigerators and in built-in ones, with the subsequent cost reduction in moulds, equipment, etc. In the domestic electrical appliance 1 of the invention hinges are used by means of which, as well as causing the doors 13 and 14 and the corresponding decorative panels 16 and 17 to swing, also cause them to move frontally, thereby preventing said decorative panels 16 and 17 from banging against the adjoining unit 12 during opening.

[0015] The rear foot 5c of the base 3 is disposed, as shown in figure 6, between the two front feet 5a and 5b. The height of said rear foot 5c is adjusted from the front part of the base 3, thereby making the process of fitting and levelling the domestic electrical appliance 1 in the kitchen unit easier, as it is not necessary to move the domestic electrical appliance 1 from its space 10 in order to carry out said height adjustment. A single rear foot 5c is included to make positioning of the domestic electrical appliance 1 easier.

[0016] The front feet 5a and 5b and the rear foot 5c comprise a respective threaded axis housed in respective threaded holes in the base 3, so that the height of the feet 5a, 5b and 5c can be adjusted by turning them. The turning movement is transmitted to the rear foot 5c from the front part of the base 3 by means of a transmission shaft 9 disposed in a substantially horizontal manner. Said rear foot 5c engages perpendicularly with the transmission shaft 9, thus transmitting the rotation of said transmission shaft 9 to the rear foot 5c. The transmission shaft 9 comprises a trunco-conical cog wheel, not shown in the figures, which engages with another trunco-conical cog wheel connected to the rear foot 5c and which is not shown in the figures either, the rotation movement thus

being transmitted by said cog wheels.

[0017] The transmission shaft 9 is disposed in the housing 4 of the base 3 and passes through the front face of said base 3. Said transmission shaft 9 comprises on its end a control 18 that is operated by the fitter in order to adjust the height of the rear foot 5c. Said control 18 has a transverse groove 19 that allows the control 18 to be operated, for example, by a key.

[0018] The domestic electrical appliance 1 comprises a fan 7 disposed opposite the condensation means 6 on the front part of the housing 4. In this embodiment, the condensation means 6 comprise two condensers 6a and 6b disposed in a zig-zag arrangement on top of each other, thereby doubling the heat exchange surface area. The base 3 comprises in the upper part of its front face a part that projects frontally and which comprises a grille 8 connected to the housing 4 of said base 3 through which air from the exterior enters said housing 4. As can be seen in figure 3, the baseboard 15 is positioned opposite the base 3 and underneath the grille 8, leaving said grille 8 to stand free. As shown in figures 4 and 5 the decorative panel 17 of the lower door 14 ensures that the grille 18 is concealed.

Claims

1. Built-in domestic electrical appliance that comprises a refrigerator (2) with two compartments that is suitable for being fitted into a kitchen unit, **characterised in that** it also comprises a base (3) upon which said refrigerator (2) is supported, said base (3) comprising a housing (4) for the condensation means (6) of the refrigerator (2), and said base (3) being height adjustable for disposing the refrigerator (2) at the height required for the kitchen unit it is to be fitted into.
2. Appliance according to claim 1, wherein the refrigerator (2) is a refrigerator-freezer.
3. Appliance according to any of the preceding claims, wherein the compartments of the refrigerator (2) have a structure that corresponds with the structure of the compartments of a free-standing refrigerator.
4. Appliance according to any of the preceding claims, wherein the base (3) comprises two front feet (5a, 5b) and a rear foot (5c), the rear foot (5c) being disposed between the two front feet (5a, 5b), and said front feet (5a, 5b) and rear foot (5c) being height adjustable.
5. Appliance according to claim 4, wherein the height of the rear foot (5c) is adjusted from the front part of the base (3) by means of a transmission shaft (9) disposed in a substantially horizontal manner.
6. Appliance according to claim 5, wherein the height

adjustment of the feet (5a,5b,5c) is carried out by turning them, and wherein the rear foot (5c) engages perpendicularly with the transmission shaft (9), the rotation of said transmission shaft (9) being transmitted to the rear foot (5c).

5

7. Appliance according to any of the preceding claims, wherein the condensation means (6) comprise at least one condenser (6a) disposed in a zig-zag arrangement in the housing (4) of the base (3), the appliance (1) also comprising a fan (7) disposed opposite the condensation means (6) on the front part of said housing (4). 10
8. Appliance according to claim 7, wherein the condensation means (6) comprise two condensers (6a,6b) disposed in a zig-zag arrangement on top of each other. 15
9. Appliance according to any of the preceding claims, wherein the base (3) comprises on the upper part of its front face a part that projects frontally and which comprises a grille (8) that connects the housing (4) of said base (3) to the exterior. 20

25

30

35

40

45

50

55

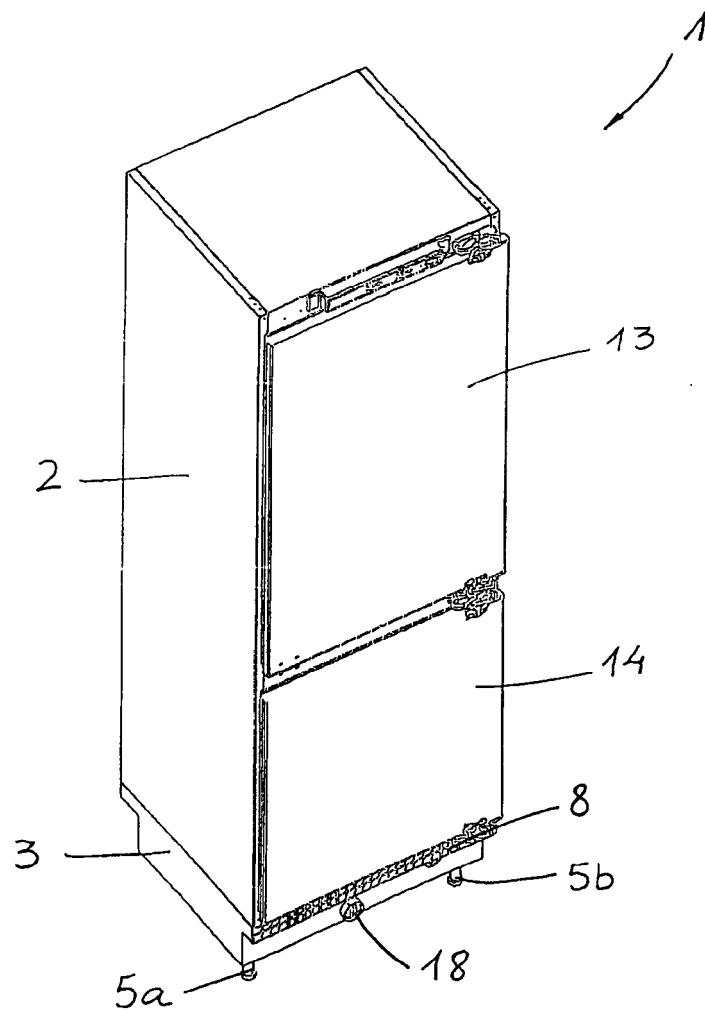


FIG. 1

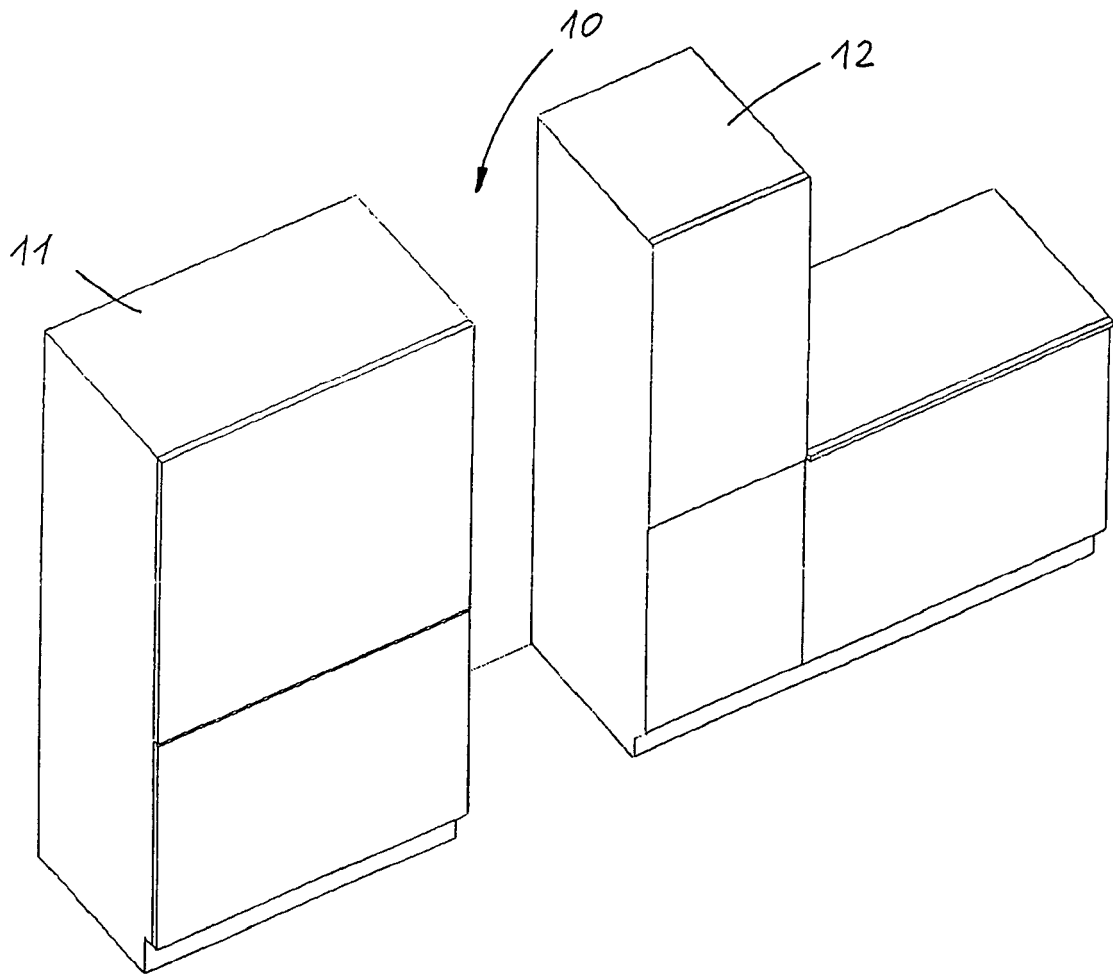


FIG. 2

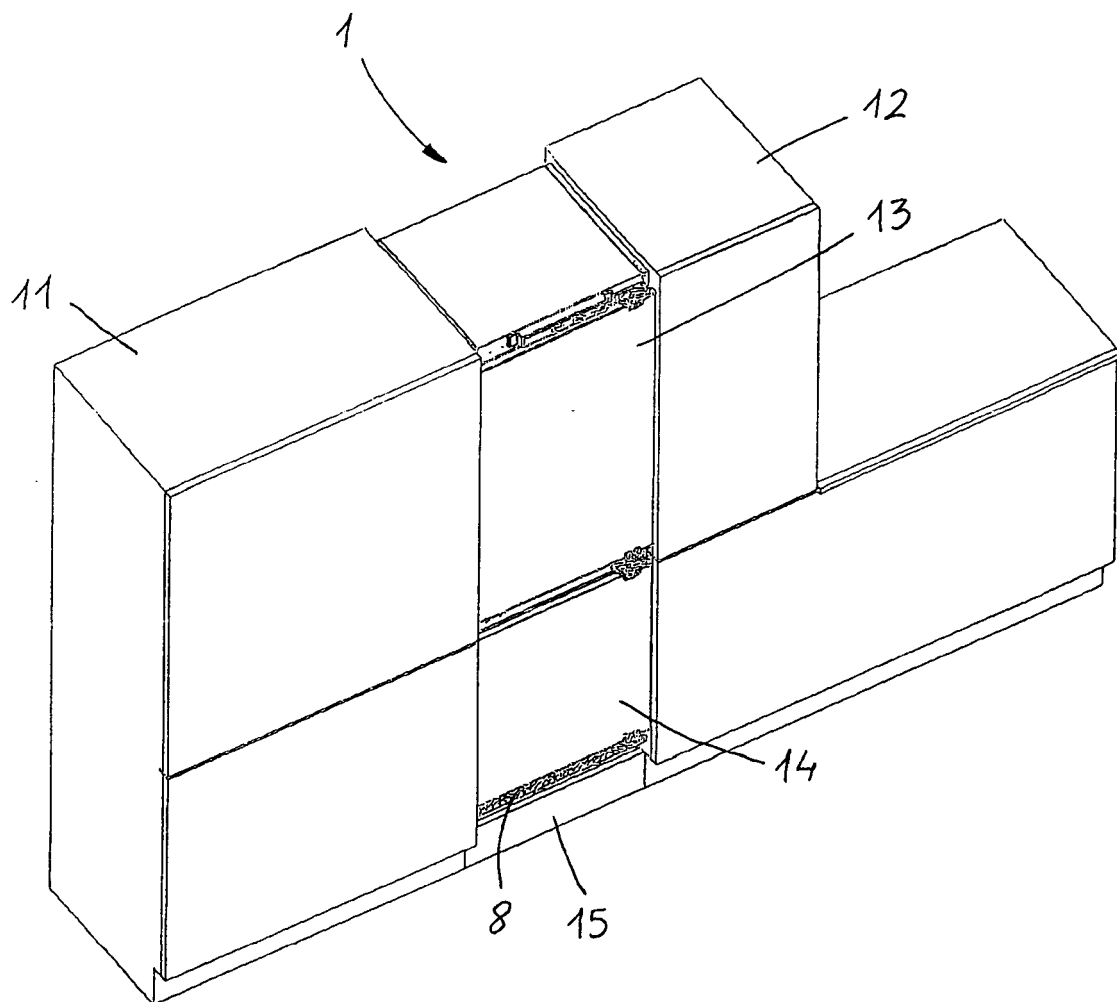


FIG. 3

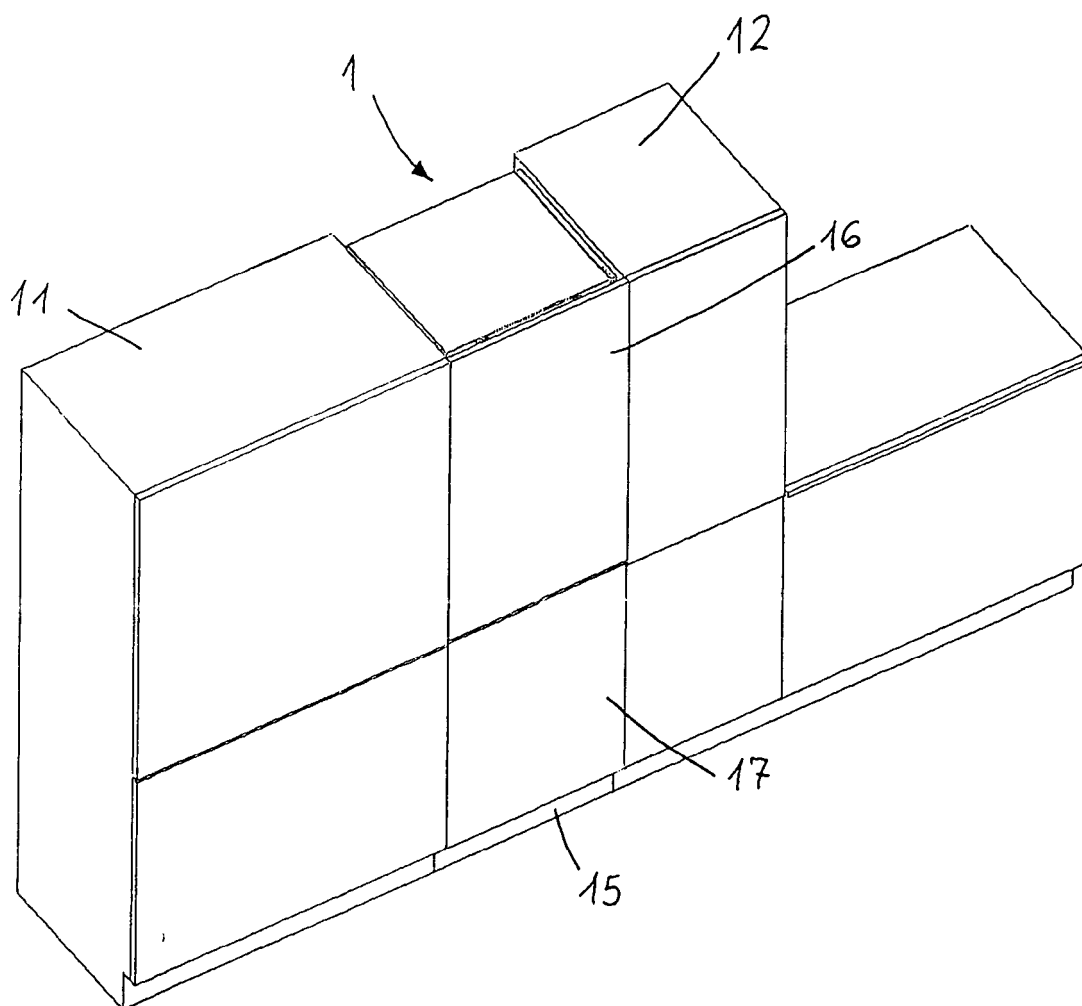


FIG. 4

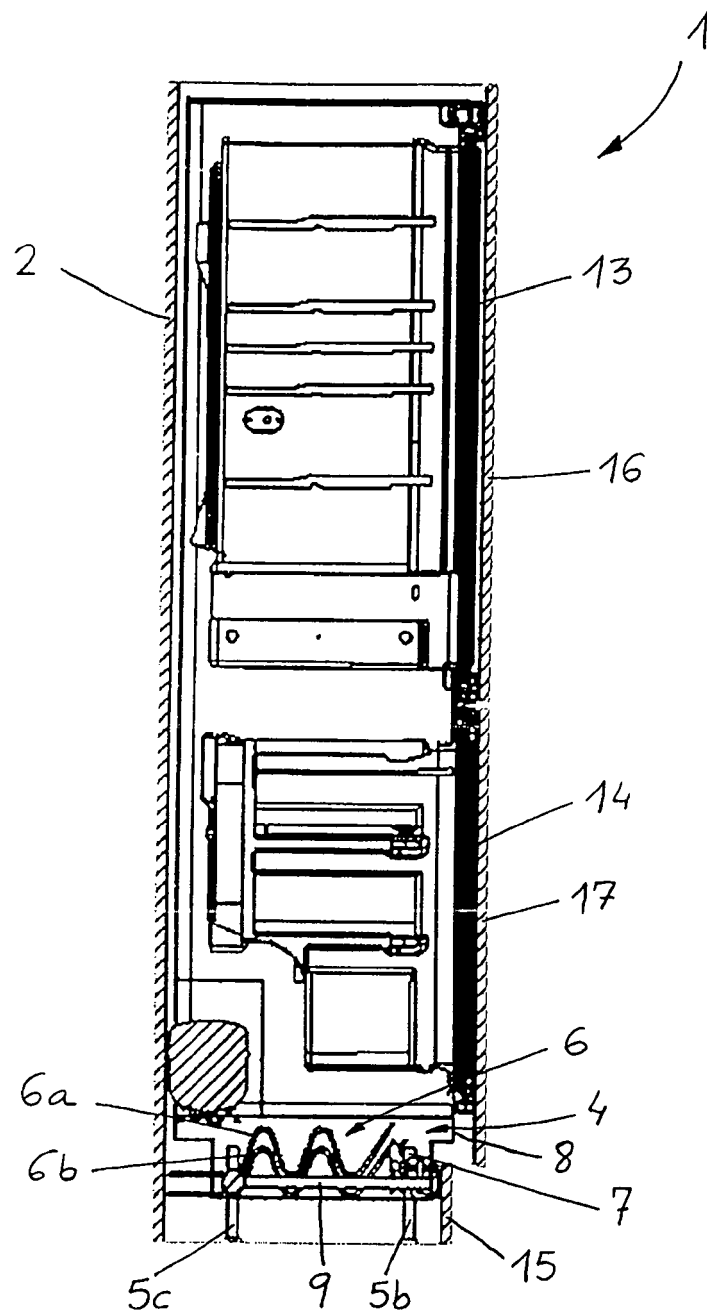


FIG. 5

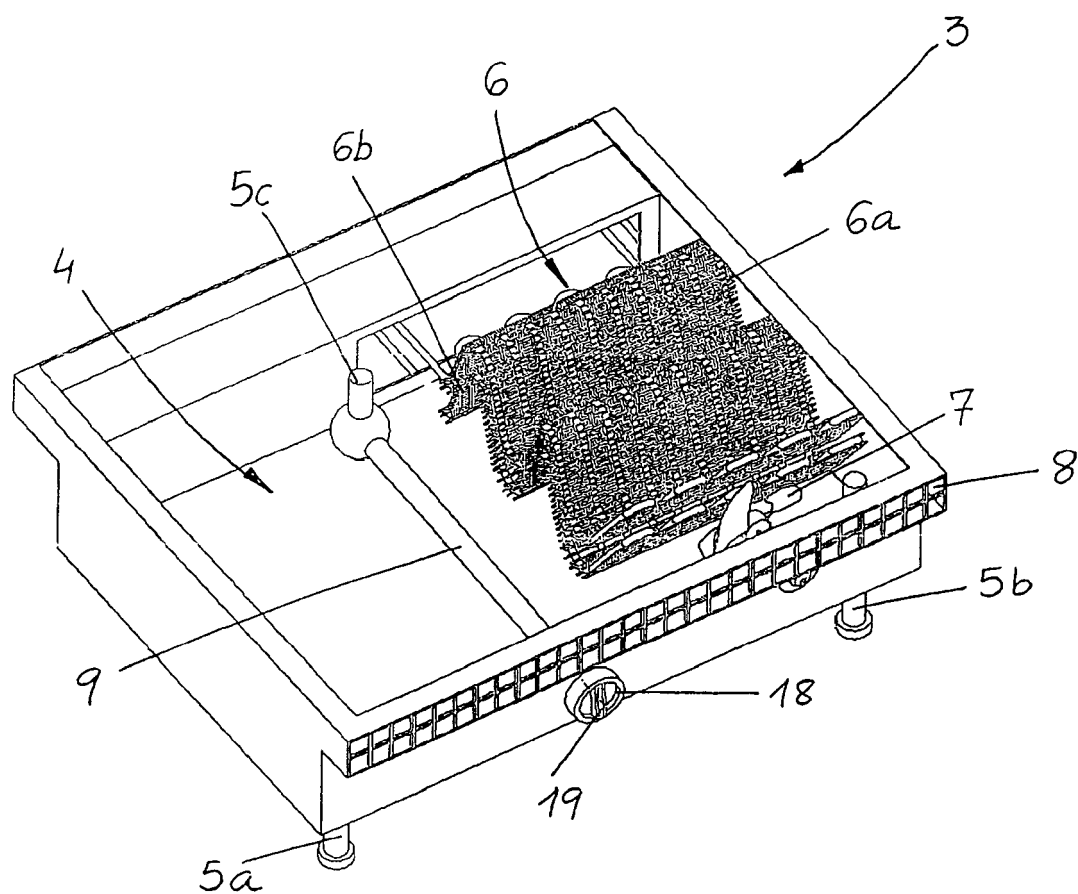


FIG. 6

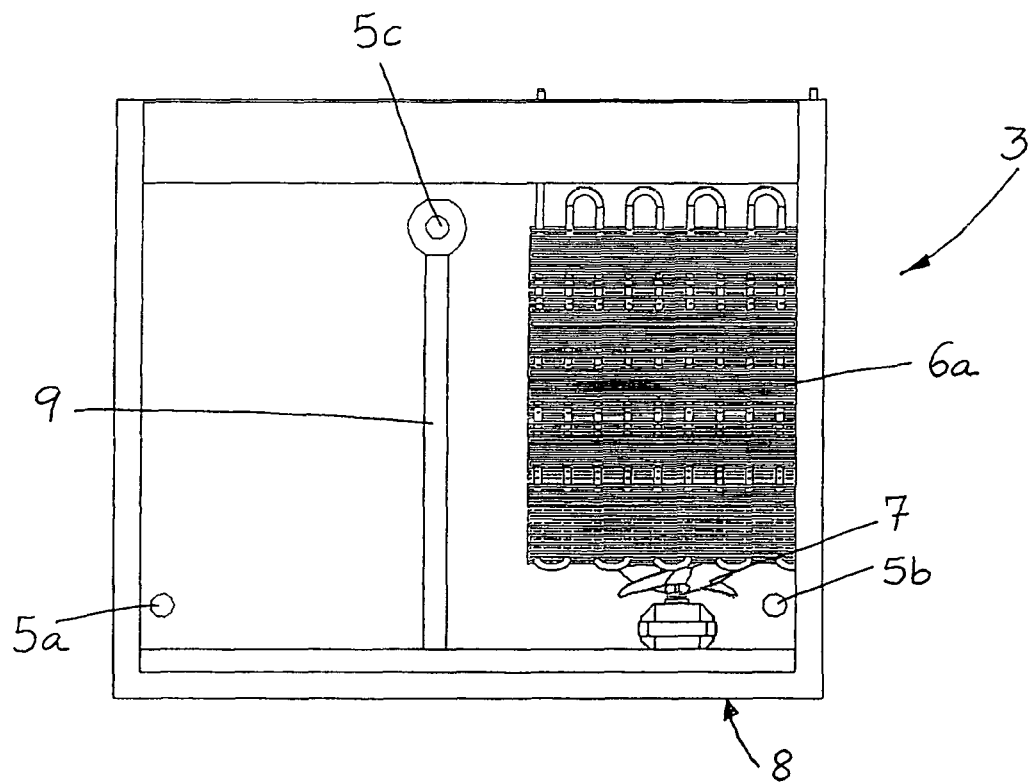


FIG. 7

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DE 29611646 U1 [0003]
- ES 2113592 T3 [0004]