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EUROPEAN PATENT APPLICATION

21 Application number: **90102676.5**

51 Int. Cl.⁵: **F25D 23/10, F25D 19/00**

22 Date of filing: **12.02.90**

30 Priority: **13.02.89 IT 6707989**

43 Date of publication of application:
22.08.90 Bulletin 90/34

84 Designated Contracting States:
DE ES FR GB

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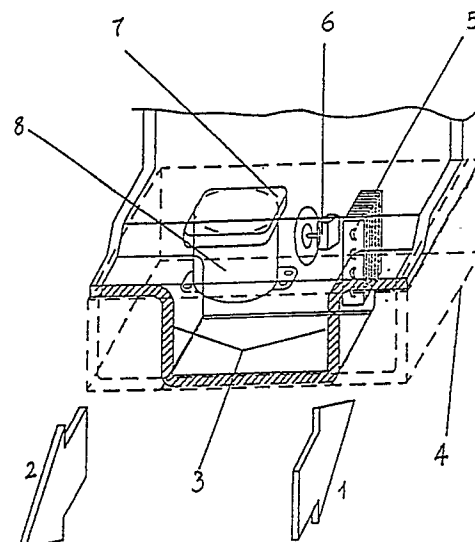
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54 **Built-in type household refrigerator.**

57 The present invention relates to a household refrigerator of the built-in type, comprising a refrigerator compartment and a basement below containing a condenser, a fan and a compressor, said basement being equipped with a front wall provided with intake and exhaust openings for the cooling air of said components of the refrigerating unit.

The main characteristic of the present invention is that a central front portion of the bottom in the refrigerated compartment extends downwards inside the basement defining in it a peripheral U-shaped channel on whose rear length said components of the refrigerating unit are located, aligned parallel to the basement front wall, whereas the two arms of the U-shaped channel come up to said front wall forming said intake and exhaust openings on both side ends.

Fig. 1



BUILT-IN TYPE HOUSEHOLD REFRIGERATOR

The present invention relates to a household refrigerator (where the term applies to any device producing cold, either for the storage of fresh food and/or freezing of food) of a built-in type, comprising a refrigerated compartment and a basement below containing a condenser, an fan and a compressor, said basement being equipped with a front grid provided with intake and exhaust opening for the cooling air of said components of the refrigerating unit.

A refrigerator of the type described above is known against the Italian Utility Model Patent Nr. 203 038, describing a household refrigerator where a lengthwise side portion of the bottom in the refrigerated compartment is recessed downwards and extends inside the basement to form in it two adjacent chambers having a different height and freely intercommunicating; the components of the refrigerating unit to be cooled down (condenser, fan and compressor) are located in the higher chamber and aligned perpendicular to the basement front grid.

According to the conventional solution for these types of refrigerators, the refrigerated compartment has a flat bottom and the basement chamber is divided by a vertical wall thus forming a U-shaped channel to ensure a correct circulation of the cooling air.

The solution described in the above patent offers the advantage, in respect to the usual solution, of increasing the usable space in the refrigerated compartment, but circulation of the cooling air gets worse.

Chest freezers normally have both the compressor and condenser located in a channel whose ends are both open, placed along the freezer rear wall, while the refrigerated compartment extends downwards in the front down to floor level. However, this solution is not practicable in case of built-in refrigerators, since the side walls are not in contact with the environmental air but in general they are in contact with other kitchen cabinets located on the refrigerator sides.

Purpose of the present invention is to indicate a household refrigerator of a built-in type, in which the usable space inside the refrigerated compartment has been increased in comparison to the conventional solution (flat bottom) but where air circulation is maintained as much efficient.

To achieve said purpose it is the aim of the present invention to realize a household refrigerator of a built-in type comprising a refrigerated compartment and a basement below containing a condenser, a fan and a compressor; said basement having a front wall provided with intake and exhaust

openings for the cooling air of said components of the refrigerating unit, characterized in that a central front portion of the bottom in the refrigerated compartment extends downwards inside the basement defining in it a peripheral U-shaped channel where said components of the refrigerating units are located.

Further aims and advantages of the present invention are clearly shown in the following detailed description and annexed drawings, merely shown by way of the explicative but not limiting example, where:

-Fig. 1 shows the lower part of the refrigerator according to the present invention, partially sectioned and in perspective view;

-Fig. 2 shows the same portion of the refrigerator depicted in Fig. 1, in a sectional view from the bottom.

In figure 1, where the lower part of the refrigerator according to the present invention is shown partially sectioned and in perspective view, number 4 indicates the refrigerator basement, whereas number 3 indicates the portion of the refrigerated compartment extending downwards practically to the floor level inside the basement 4. As it is clearly shown in the figure, said portion 3 covers the central front part of the basement 4, defining a peripheral U-shaped channel around it inside the basement.

The cooling air is taken in through the opening indicated with number 1 on the right end of the basement front, whereas the exhaust air is expelled through the opening indicated with number 2 on the left end of the basement front. Both openings are located on the two ends of the U arms.

On the channel rear side, i.e. at the centre of the U, aligned from right to left, are the components of the refrigerating unit, namely the condenser number 5, the fan 6 and the compressor 8.

Number 7 indicates the condensate drip-tray, which is located above the compressor 8.

According to the arrangement above cooling air circulation appears even better than in the conventional solution with a flat bottom and a vertical parting wall.

Fig. 2 - where the same part of the refrigerator seen in figure 1 is now shown in section from the bottom, depicts the same elements described in figure 1 reporting the same reference numbers. As it is shown in the figures, portion 3 of the refrigerator compartment extending inside the basement 4 occupies over one quarter of the basement volume.

The characteristics of the refrigerator described above are clearly illustrated in the description and annexed drawings.

Likewise also the advantages of the refrigerator according to the present invention are clear.

Specifically, they are characterized in that the usable space in the refrigerated compartment has been increased in comparison to the conventional configuration (flat bottom), but where cooling air circulation is maintained as much efficient.

Moreover, since the portion of the refrigerated compartment extending downwards practically reaches the floor level, the usable volume resulting for this compartment is maximized in comparison to the configurations already known.

It is obvious that many other changes to the refrigerator described by way of example are possible for the man skilled in the art, however without departing from the scope of the innovating criteria inherent of the present invention.

Claims

1. Household refrigerator of the built-in type, comprising a refrigerated compartment and a basement below containing a condenser, a fan and a compressor, said basement being equipped with a front wall provided with intake and exhaust openings for the cooling air of said components of the refrigerating unit, characterized in that one central front portion (3) of the bottom in the refrigerated compartment extends downwards inside the basement (4) defining in it a peripheral U-shaped channel, where said components (5, 6, 8) of the refrigerating unit are located.

2. Household refrigerator of the built-in type according to the claim 1, characterized in that said components (5, 6, 8) of the refrigerating unit are located in the rear length of said U-shaped channel, aligned parallel to the basement front wall, whereas the two arms of the U-shaped channel come up to said front wall forming said intake (1) and exhaust (2) openings on both side ends.

3. Household refrigerator of the built-in type according to claim 1, characterized in that said portion (3) of the refrigerated compartment extending inside the basement (4) occupies at least one quarter of said basement volume.

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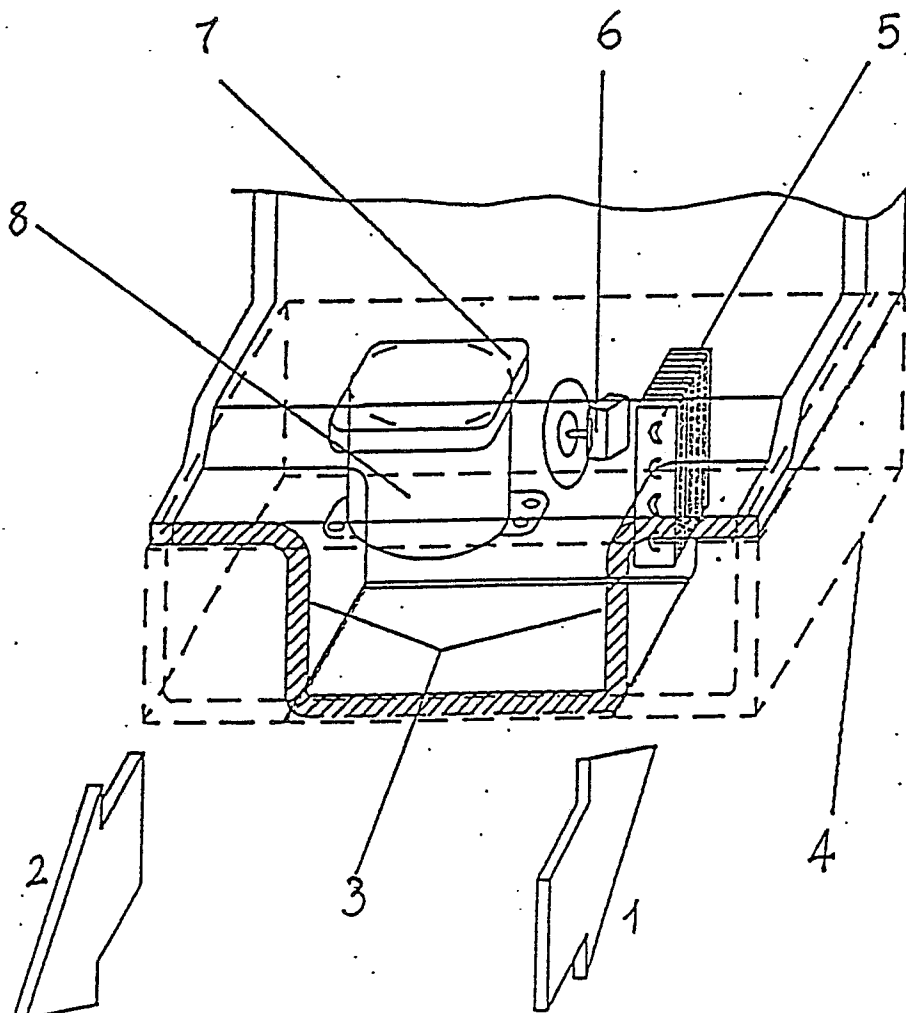
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Fig. 1



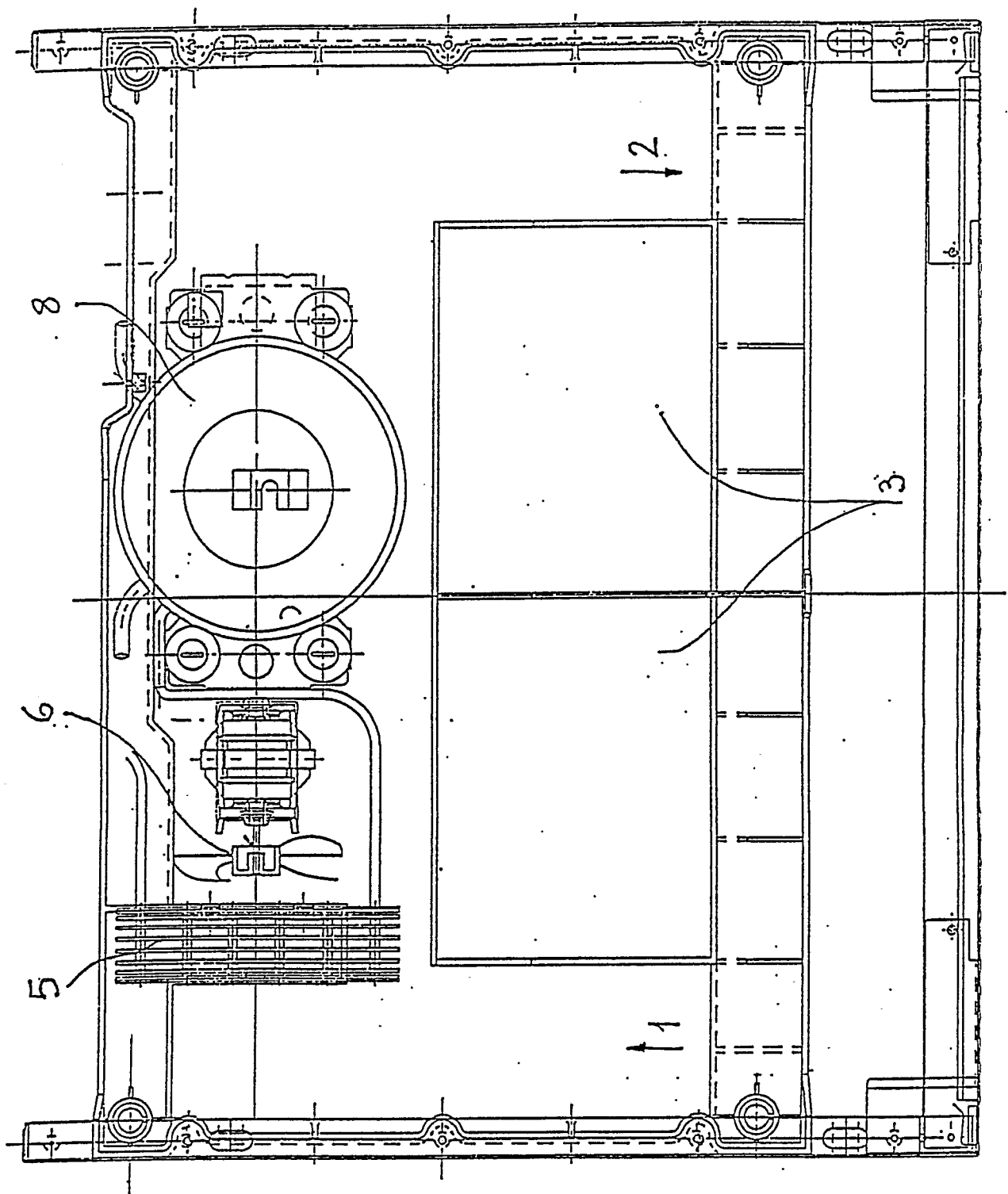


Fig. 2