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(54) An evaporation tray for a compressor.

(57) A compressor (2) for refrigerators or freezers, preferably for household use, provided with a tray (1) supported above the compressor cap, the inside (3) of the tray having a nonlowered edge (4) so as to permit assembly of the cap with a horizontal movement, and with at least two pipes (5, 7) issuing from the compressor and disposed in virtually radial positions with respect to the compressor, wherein the tray is provided with at least one pair of elastic hooked lengthening pieces (8, 10) adapted to engage against the respective pipes (5, 7) and at least one of the lengthening pieces (8) is provided with an end portion (9) bent into a curl.

Furthermore at least one of the lengthening pieces (10) is made of heat-resistant material.

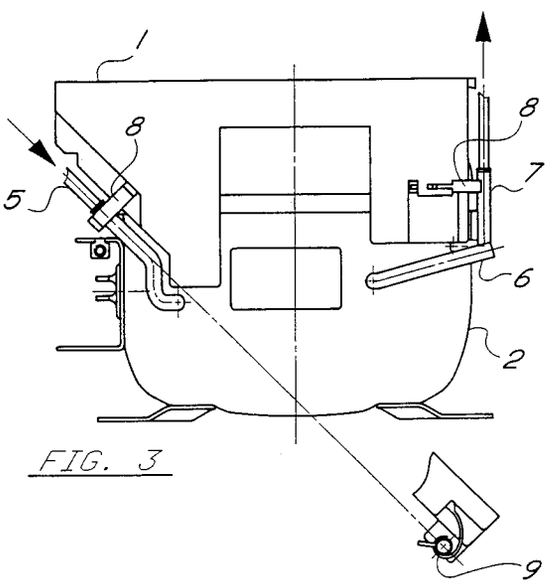

FIG. 3

EP 0 653 597 A1

The present invention relates to an airtight compressor provided with an evaporation tray for condensation water, utilized particularly in household refrigerators and freezers.

This type of compressor is currently provided with a tray mounted above its upwardly open cap and utilized for collecting the amount of water obtained from the thawing of the frost or ice within the refrigerator in which the compressor is installed.

Since this water must be eliminated without resorting to periodic emptying and cleaning of the cell, it has been found that an efficient, safe and automatic solution consists in collecting the water collected within the refrigerator and carrying it outside by means of expedient pipes, and discharging it in the tray that, due to its position, is constantly heated by the compressor cap in operation and therefore in its turn heats the water contained therein thus making it evaporate.

All this is well known to the expert in the field and will therefore not be explained any further.

It is also known that, in order to facilitate the mounting of the tray during assembly of the refrigerator, trays have been disclosed whose inside is formed substantially as a half-barrel in such a way that it is possible to insert the tray above the compressor head with a single horizontal movement, which is extremely advantageous considering that the compressor is normally housed in a space as small as possible to increase the useful volume of the refrigerating space. To lock the position of the tray against the compressor it is known to dispose e.g. a spring locking mechanism between the components, constituted by a first tongued coupling element fixed, usually welded, on the head of the compressor housing and a second spring fixing element for the coupling element, the second element being formed integrally with the material from which the tray is made.

However this situation makes it difficult to assemble and particularly to disassemble the tray with the compressor in action, since it forces the operator to handle tools in uncomfortable conditions and to apply great attention and manual skill to free the spring mechanism.

It would therefore be useful, and is the purpose of the present invention, to improve the construction of such compressors and their water evaporation trays to eliminate the described disadvantage.

The invention has the features substantially described in the following and with particular reference to the adjoined claims and figures, in which:

Fig. 1 shows a bottom view of a tray according to the invention,

Fig. 2 shows a lateral view from the operator's side of the same tray,

Fig. 3 shows from the operator's side the tray of Fig. 2 mounted on the corresponding compressor,

Fig. 4 shows a top view of the tray and the compressor of Fig. 3,

Fig. 5 shows an enlarged section of a detail of the invention.

The invention substantially consists in eliminating the previous fixing device and utilizing two of the pipes that issue from the compressor and are used for discharging, for returning and for feeding the refrigerating gas in the refrigerator circuit, as a support for expedient engagement elements disposed on the tray.

With reference to the figures one can see tray 1, compressor 2 and the profile of side 3 that has nonlowered edge 4 utilized to make the tray slide horizontally on the compressor head.

The latter is provided with pipes 5, 6, 7 for circulating the refrigerator fluid, the pipes issuing from positions situated "at the front" (from the point of view of the operator who must work there) and laterally from the body of the compressor housing, and being inclined upward.

The tray is stabilized with respect to the compressor head by the application of at least two lengthening pieces, first flexible lengthening piece 8 having end portion 9 bent into a curl. The diameter of the curl, the fact that it is made of flexible material, the position, orientation and general arrangement and dimension of the lengthening piece are such that when the tray is applied to the compressor cap the engagement operation of the curl on pipe 5 corresponding to it in position is immediate, elementary and devoid of any problem since the coupling elements are in full view and, as mentioned, lengthening piece 8 is flexible.

Lengthening piece 8 is preferably formed integrally by the mold for forming the tray.

As far as second lengthening piece 10 is concerned, it can be realized in quite similar ways to be applied to second pipe 7 of the compressor, so that further explanation is unnecessary.

However if pipe 7 to which this lengthening piece is applied is the discharge pipe, i.e. a metal pipe that can heat to high temperature during operation, the lengthening piece cannot be made of plastic material that softens with the temperature of the pipe to which it is applied, and it is therefore necessary for its material to be resistant and flexible at high temperatures, like special types of plastic.

A useful improvement consists in realizing a flexible metal foil disposed so as to be easily engaged against hot pipe 7. The expert in the field is readily able to plan the position, the orientation and the form of this foil so that it can be easily engaged with the corresponding pipe so as to

strengthen the stabilization of the tray on the head of the compressor housing. However the use of a thin metal foil involves a constructional problem: since it cannot be formed integrally with the tray it is necessary to apply it thereto by a subsequent operation, which can be done by forming, preferably molding, hollow 12 in an expedient position on a side of the tray and inserting an end of foil 10 in the hollow.

However this procedure has the disadvantage that since the foil is very thin the corresponding hollow must also be very thin to be able to confine the foil, but this is difficult to realize in a mold not for precision molding.

A useful improvement therefore consists in realizing hollow 12 with increased dimensions and artificially increasing the thickness of foil 10 by bending its end to be inserted with at least one reentrant curve 13. This artificially increases the dimension required for housing the foil utilizing the forced interference between curves 13 and the inside walls of the hollow and finally permits a safe and easy locking of the foil on the tray, without any further aid.

Although the invention has been described by the example of preferred solutions and with a commonly known terminology, it is not considered to be limited thereto since the expert in the field can provide numerous variations and modifications of construction and circuitry.

Claims

1. A compressor (2) for refrigerators or freezers, preferably for household use, provided with a tray (1) supported above the compressor cap, the inside (3) of the tray having a nonlowered edge (4) so as to permit assembly of the cap with a horizontal movement, and with at least two pipes (5, 7) issuing from the compressor and disposed in virtually radial positions with respect to the compressor, characterized in that the tray is provided with at least one pair of flexible hooked lengthening pieces (8, 10) adapted to engage against the respective pipes (5, 7).

2. The compressor of claim 1, characterized in that at least one of the lengthening pieces (8) is provided with an end portion (9) bent into a curl.

3. The compressor of claim 1 or 2, characterized in that at least one of the lengthening pieces (10) is made of heat-resistant material.

4. The compressor of claim 3, characterized in that the lengthening piece is made of a metal foil.

5. The compressor of claim 4, characterized in that the metal foil is locked with its end fixed to the tray within an expedient hollow (12) formed in the side of the tray.

6. The compressor of claim 5, characterized in that the end locked within the hollow (12) has at least one reentrant curve (13) adapted to facilitate locking by interference of the foil in the hollow (12).

7. The compressor of any of the previous claims, characterized in that at least one of the lengthening pieces (8) is realized integrally with the tray.

8. The compressor of any of the previous claims, characterized in that the lengthening pieces (8, 10) are engaged on the pipes (5, 7) with directions substantially perpendicular to the axis of the respective pipes.

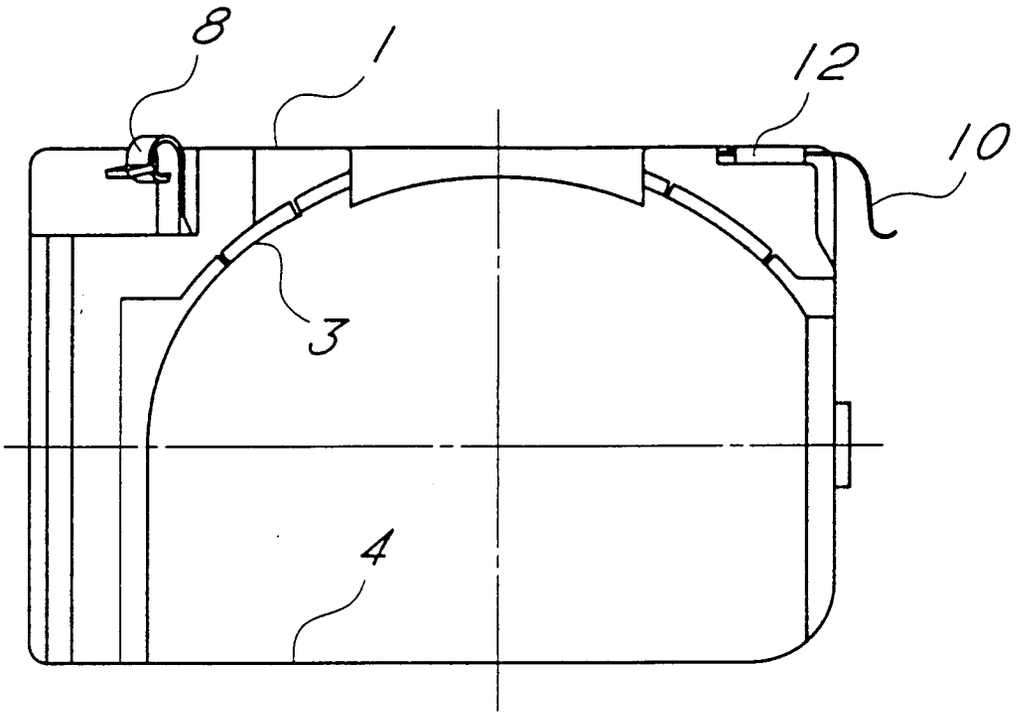

FIG. 1

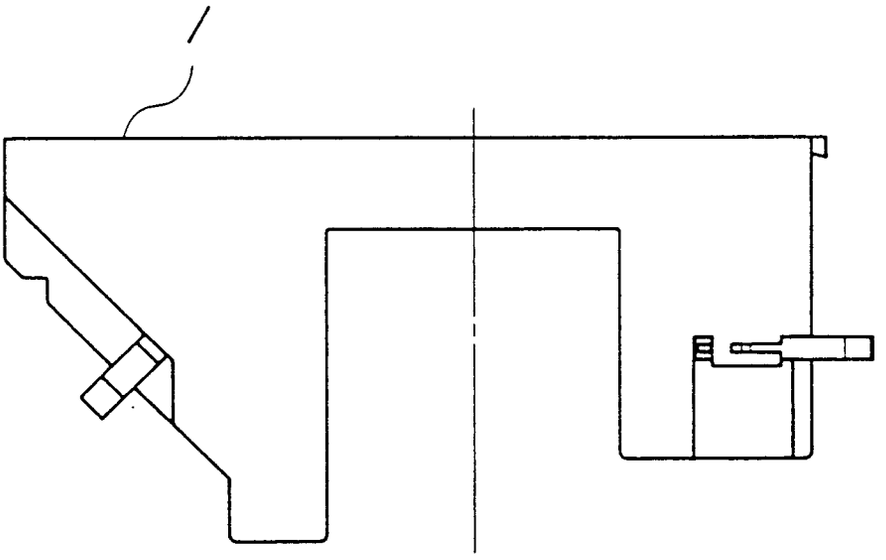

FIG. 2

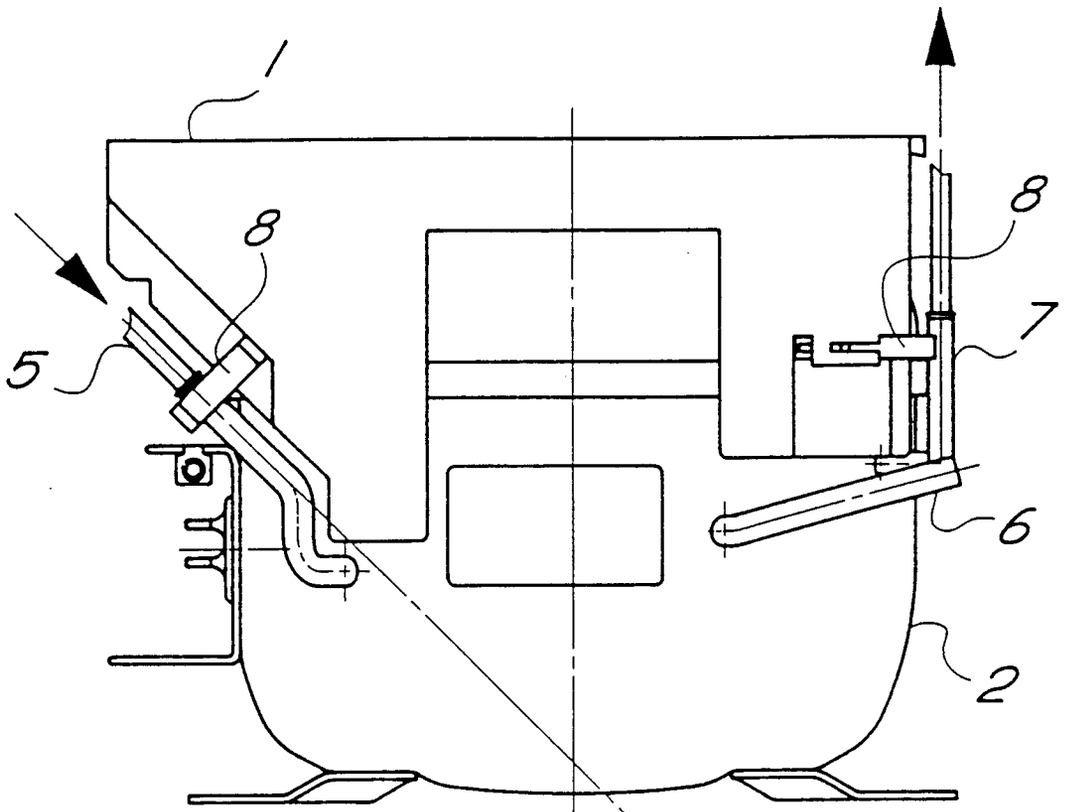

FIG. 3

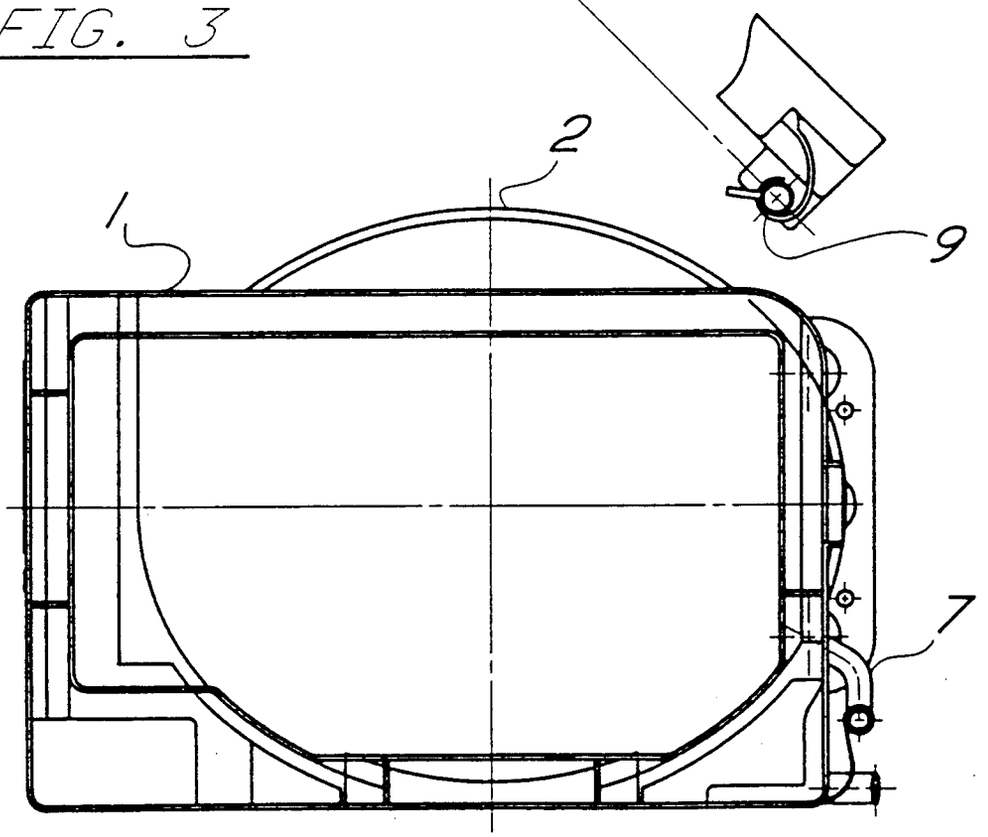

FIG. 4

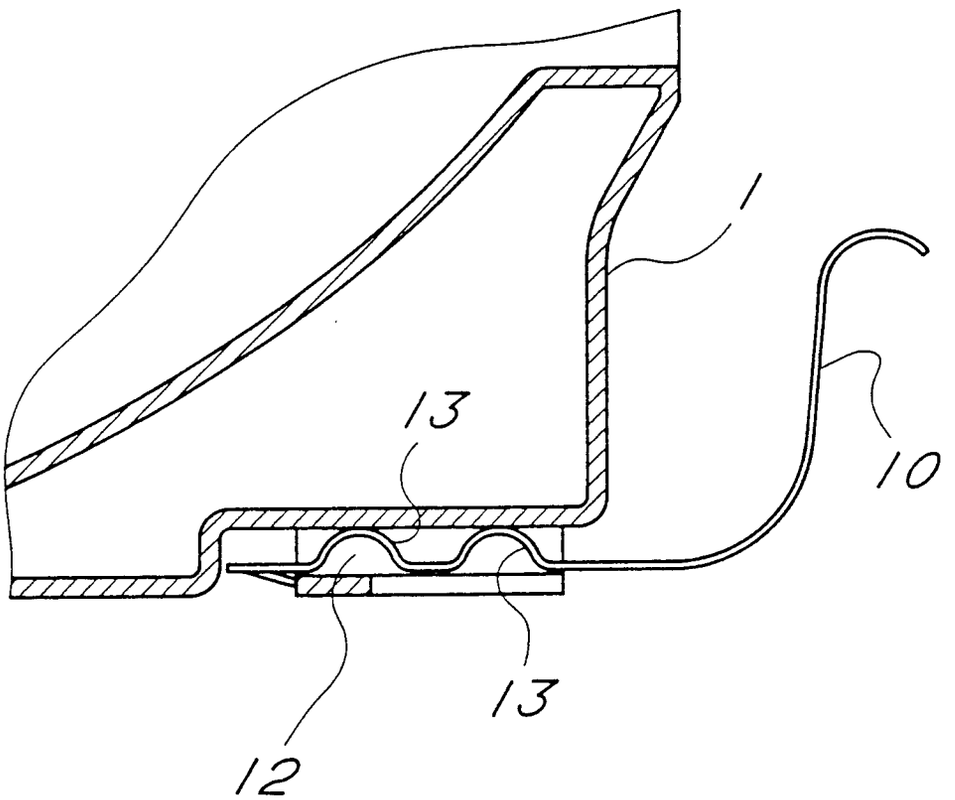

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 94 11 7293

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	FR-A-2 444 176 (BOSCH-SIEMENS HAUSGERATE) * page 2, line 21 - page 4, line 20; figures 1-4 *	1	F25D21/14
A	FR-A-2 237 531 (BOSCH-SIEMENS HAUSGERÄTE)		
A	DE-U-84 37 286 (LICENTIA)		
A	US-A-4 554 794 (KHAN)		

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

F25D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	3 March 1995	Boets, A

CATEGORY OF CITED DOCUMENTS

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