

(19)



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(11)

EP 0 773 414 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
14.05.1997 Bulletin 1997/20

(51) Int. Cl.⁶: **F24F 13/20**

(21) Application number: **96660068.6**

(22) Date of filing: **10.10.1996**

(84) Designated Contracting States:
DE DK GB NL SE

(30) Priority: **13.10.1995 FI 954869**

(71) Applicant: **Fincoil-Teollisuus Oy**
01740 Vantaa (FI)

(72) Inventors:
• **Kahila, Seppo**
03600 Karkkila (FI)
• **Mielonen, Kari**
01360 Vantaa (FI)

(74) Representative: **Pitkänen, Hannu Alpo Antero**
Patent Agency Pitkänen Oy,
Savilahdentie 6 L 3
70210 Kuopio (FI)

(54) Construction of a casing of an air cooler

(57) The present invention concerns an enclosure structure for an air cooler, said structure comprising a frame (1) housing at least one cooler element, a drip water collecting tray (2) detachably fixed underneath said cooler element(s), at least one locking element (3) for fixing said drip water tray to said frame, support members (4) formed to said drip water tray (2) and supports (5) placed to the sides of said frame and having a shape cooperating with said support members. In the

enclosure structure according to the invention are the supports (5) arranged to project outward from the frame (1) and the support members (4) of the tray are formed to the upward bent walls of the tray (2) and shaped projecting inward, whereby the tray (2) can be lowered in its detached position to rest on the supports (5) of the frame.

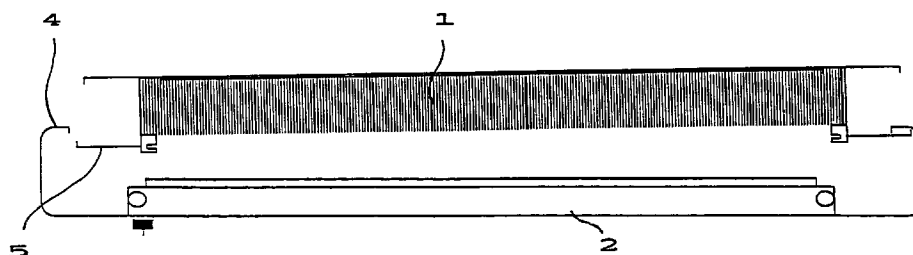


Fig. 4

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Description

The present invention relates to an enclosure structure for an air cooler, said structure comprising a frame housing at least one cooler element, a drip water collecting tray detachably fixed underneath said cooler element(s), at least one locking element for fixing said drip water tray to said frame, support members formed to said drip water tray and supports placed to the sides of said frame and having a shape cooperating with said support members.

Air coolers, and particularly lamellar fin elements with fan-assisted air circulation, require a drip water collecting tray for drainage of condensate water formed in the cooler apparatus. In fan-assisted cooler equipment, the drip water tray is sealed from the exterior in order to prevent air leaks. However, the air cooler element and its drip water tray must be cleaned at certain intervals, which is important to the function of the equipment and even mandatory when using cooler equipment in spaces intended for handling foodstuffs. Different types of locking and fixing mechanisms are known in the art suitable for detachable fixing of the drip water tray to its support frame. The tray is fixed by, e.g., hinges, chains or other similar means. Prior-art embodiments are, however, characterized by having the tray pivotally attached at one edge of the tray, whereby the tray can be detached only by its other edge. When detached, the tray remains in a tilted position making the cleaning of the cooler equipment and the tray awkward, because in its tilted position the tray will not any more pass water away. Thence, cleaning of The cooler equipment and the tray with water is clumsy, since the water will overflow to the surroundings.

A further disadvantage of conventional drip water trays is that their dismantling needs cooperation of two persons. Here, the detachment of the trays requires simultaneous use of a tool and upward supporting of the tray. The tray may drop while being detached, unless two persons are attending the operation.

Some types of refrigeration equipment use drip water trays having projecting support members, whereby the tray is supported by the projecting members on a frame. Such drip water trays are removed by pulling them horizontally off from the support frame and respectively are installed in place by pushing them into the support frame.

It is an object of the present invention to provide an enclosure structure for an air cooler capable of overcoming the disadvantages of conventional enclosure structures. It is a particular object of the invention to provide an enclosure structure suited for cleaning with water by a single person. It is still a further object of the invention to provide an enclosure structure suited for detachment and drainage of the drip water tray from the enclosure structure by a single person entirely without the need for using tools.

The goal of the invention is achieved by virtue of an enclosure structure characterized by what is stated in

the annexed claims.

In a drip water tray according to the invention, the supports are arranged to project outward from the frame, and the support members of the tray are formed to the upward bent walls of the tray and shaped projecting inward, whereby the tray can be lowered in its detached position to rest on the supports of the frame. When thus lowered onto the supports, the drip water tray stays horizontal and permits easy cleaning of the tray using water, for instance. Besides, such a structure guarantees positive resting of the tray on the supports. A still further benefit of the structure is that such a drip water tray may be readily removed by pushing the tray toward one of its supported sides. By virtue of proper dimensioning of the support members, the support members of one side of the tray can be slipped off from the supports, after which also the other side of the tray can be detached easily. Depending on the application of the invention, the structure of the supports may be varied. Hence, the support may be designed into, e.g., a lever-like, bar-like or other functional element.

In a preferred embodiment of the invention, the supports are comprised of essentially planar support lips formed to project outward at opposite sides of the support frame. Such a structure is simple and cost-advantageous to manufacture, yet fully fit for the intended application.

In the following, the invention is explained in greater detail with reference to the annexed drawings, in which

Figure 1 shows end and side views of an embodiment of the enclosure structure according to the invention for an air cooler;

Figure 2 shows end and side views of the enclosure structure of Fig. 1 with the drip water tray detached at its one side;

Figure 3 shows end and side views of the enclosure structure of Fig. 1 with the drip water tray detached and resting on its supports; and

Figures 4 - 6 show the drip water tray of Fig. 1 being detached from its support frame.

Referring to the diagrams, the drip water tray shown therein comprises a support frame 1 with a drip water tray 2 placed thereunder. Using a prior-art arrangement, the drip water tray 2 is attached by conventional locking means 3 to the edges of the support frame 1. In the illustrated embodiment, the locking means are locking screws placed to the lower part of the frame. To the lower edge of the support frame 1, in the mid-part of the end sides of the frame, are adapted essentially horizontal, planar supports 5. The supports are projecting a certain length outward from the frame itself and their outer ends are bent to project upward.

To the drip water tray 2 are formed support members 4, herein formed by the edges of the end sides of

the tray, bent inward so as to project inward essentially horizontally. The outermost tip of the edges acting as the load-bearing support members is additionally bent downward orthogonally to the main part of the support member. When the enclosure structure is closed with the tray inserted in place, the outermost edge parts of the support member 4 rest against the upper edge 6 of the support frame. The supports 5 are dimensioned and shaped so that the distance between the outer ends of the supports is larger than the distance between the inward projecting tips of the support members. Thus, while the drip water tray 2 can be directly lowered to rest on the supports, complete removal of the tray is also possible by applying a small lateral shift thereto. The supports 5 are made so wide as to support the drip water tray even when the tray is opened on one side only. Thus, the tray can be readily opened without using any tools, because the supports prevent inadvertent dropping of the tray. Water drain from the tray can be arranged at a point facilitating the lowering of the tray. In practice, drip water is drained via a flexible hose or a quick-connect tap arrangement. Thus, water can be drained during equipment servicing with the help of, e.g., a detachable hose and collecting vessel.

Now referring to Fig. 1, therein the enclosure structure of an air cooler is shown in its normal operating position. Inside the support frame 1 is placed one or a greater number of cooler elements (not shown in the diagrams), through which the air to be cooled is circulated. The drip water tray 2 is attached under the element(s) with the help of screws 3 acting as locking means.

In Fig. 2, the locking means 3 are shown detached on one side of the drip water tray 2 and the tray is still hanging by its other side locked to the support frame. Here, the drip water tray is in a tilted position and its support members 4 are partially resting on the supports 5. When also the locking means of the other side of the tray are opened, the drip water tray can be lowered into the position shown in Fig. 3. In this position, the support members rest on the supports and the drip water tray is horizontal lowered by a certain amount below the frame. Here, the support frame and the drip water tray can be readily cleaned.

In Figs. 4 - 6 is shown the removal of the drip water tray from the support frame. As shown in Fig. 4, the tray is first moved toward its one side. Then, the support members farthest in the direction of this lateral movement can be shipped off from the supports and that end of the tray may be tilted downward into the position shown in Fig. 5. From this position, the tray is easily removed by laterally shifting it in the opposite direction so as to slip also the other support members off from their respective supports. In Fig. 6, the drip water tray is shown entirely removed from the frame. The insertion of the tray into its place in the frame occurs through reversing the above steps.

The above-described preferred embodiments must not be understood to limit the applications of the inven-

tion, but rather, it can be varied within the scope and spirit of the annexed claims.

Claims

1. An enclosure structure for an air cooler, said structure comprising a frame (1) housing at least one cooler element, a drip water collecting tray (2) detachably fixed underneath said cooler element(s), at least one locking element (3) for fixing said drip water tray to said frame, support members (4) formed to said drip water tray (2) and supports (5) placed to the sides of said frame and having a shape cooperating with said support members, **characterized** in that the supports (5) are arranged to project outward from the frame (1), and the support members (4) of the tray are formed to the upward bent walls of the tray (2) and shaped projecting inward, whereby the tray (2) can be lowered in its detached position to rest on the supports (5) of the frame.
2. An enclosure structure for an air cooler as defined in claim 1, **characterized** in that said supports (5) are comprised of essentially planar support lips formed to project outward at opposite sides of the support frame.
3. An enclosure structure for an air cooler as defined in claim 1 or 2, **characterized** in that said supports (5) and said support members (4) are aligned essentially horizontal.
4. An enclosure structure for an air cooler as defined in any of claims 1 - 3, **characterized** in that said supports (5) are placed in the mid-part of the end sides of the frame.

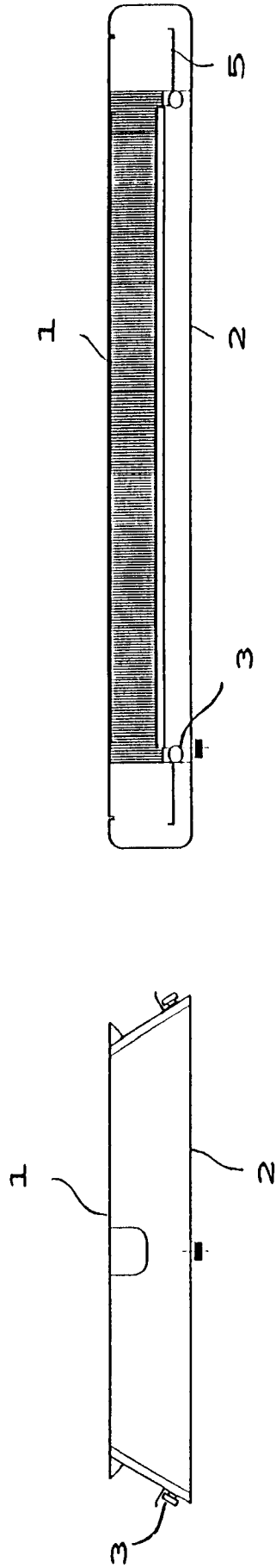


Fig. 1

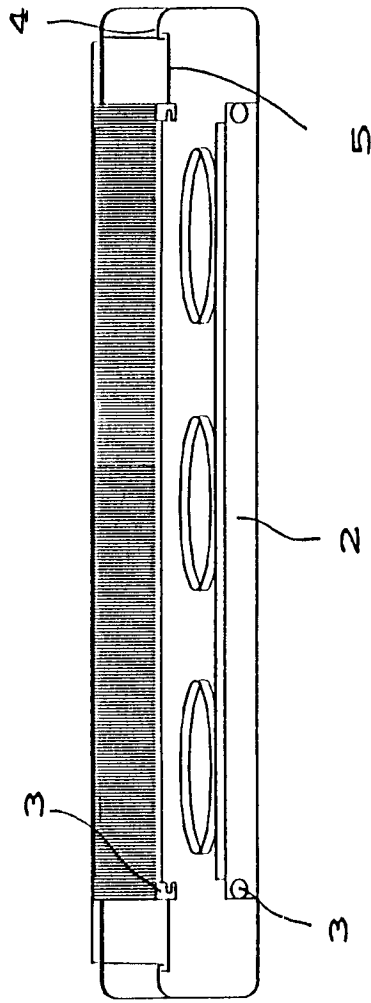
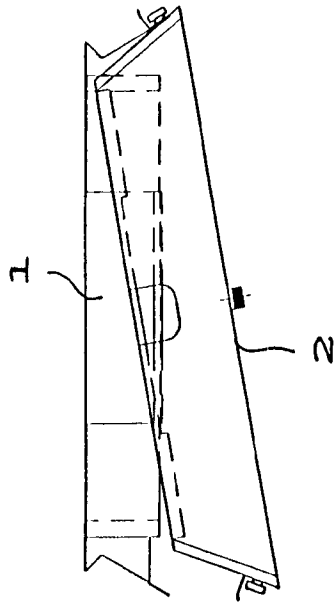


Fig. 2



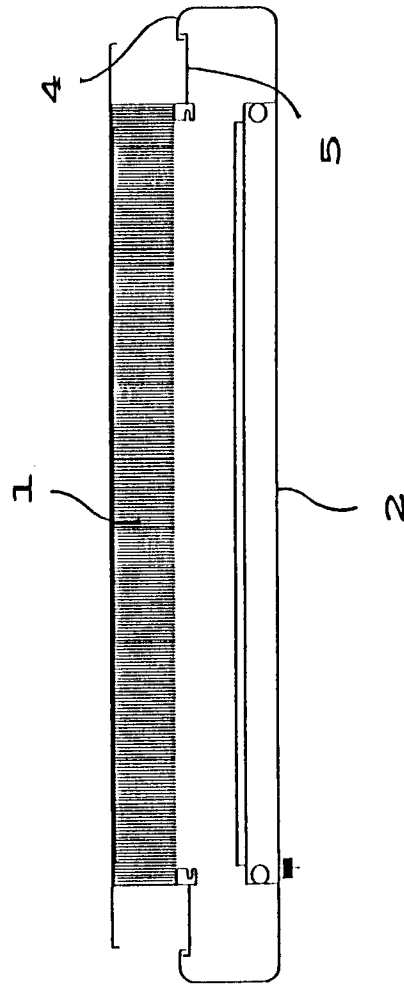
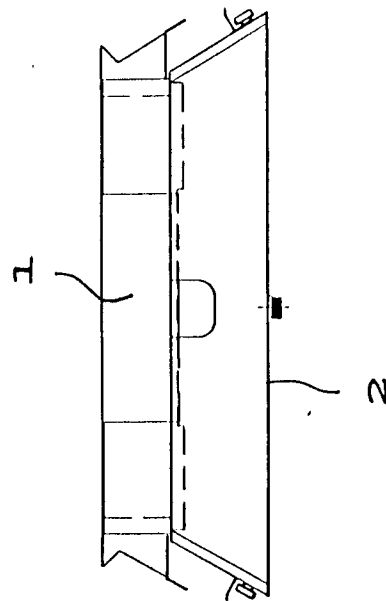


Fig. 3



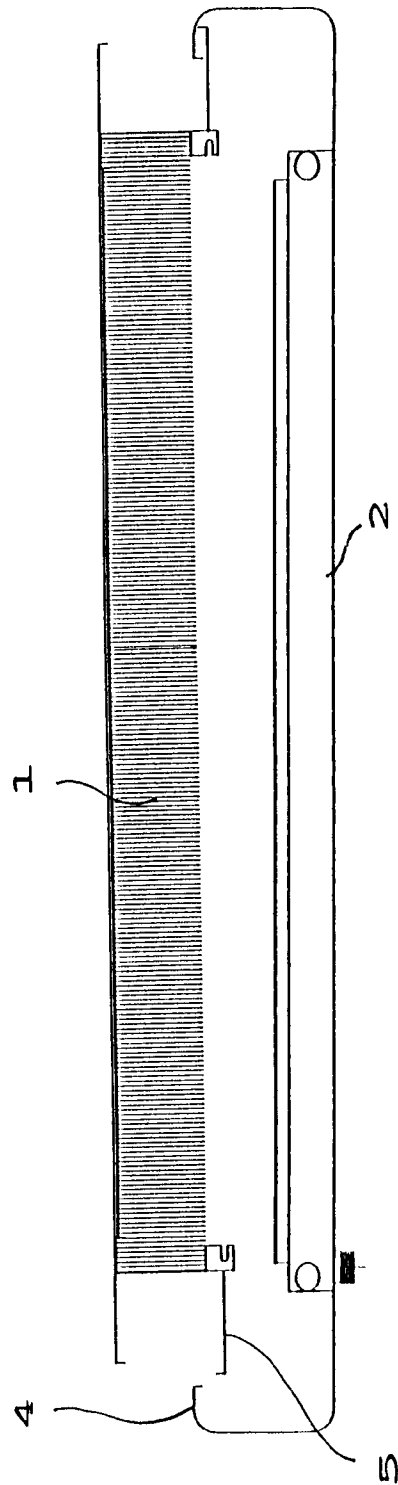


Fig. 4

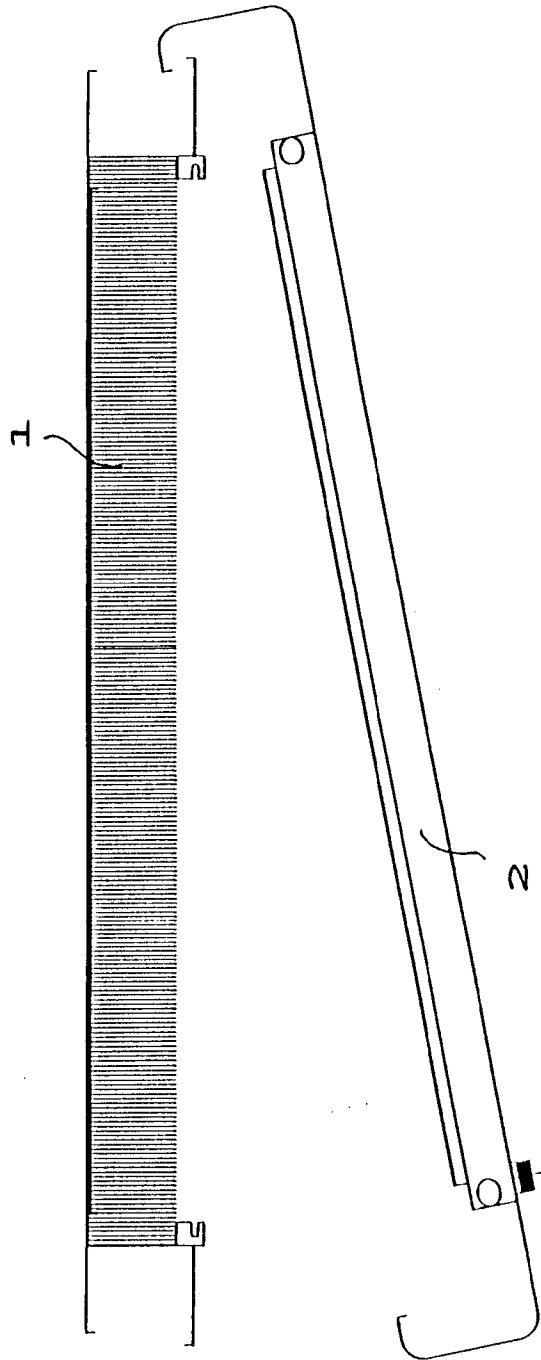


Fig. 5

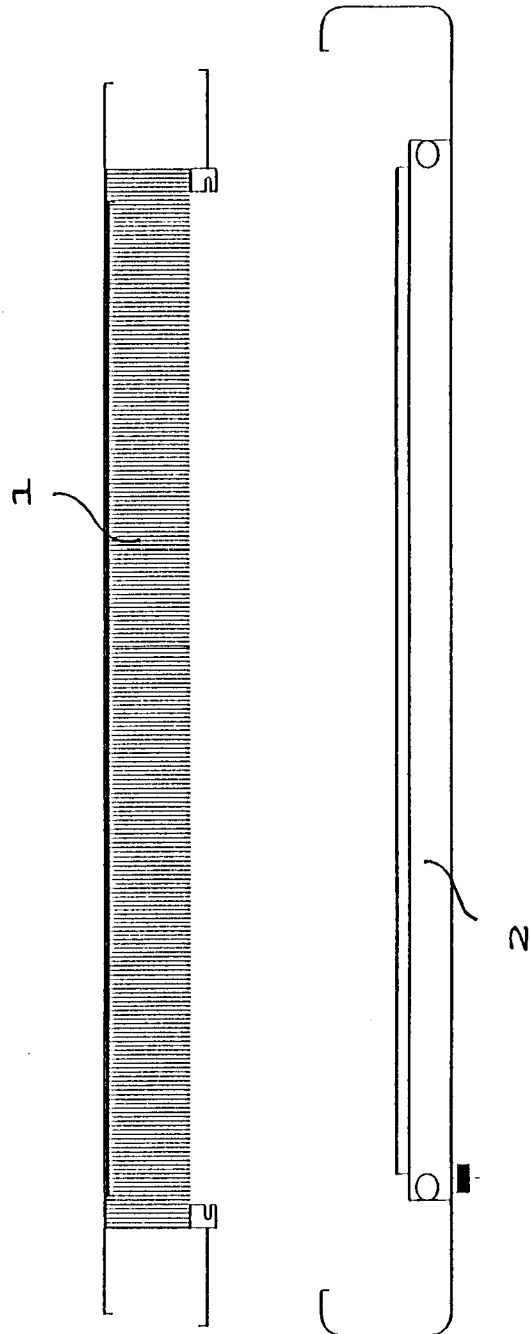


Fig. 6