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Evaporator with an electric heating cable for defrosting

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(71) Applicant(s)

AB Electrolux

(72) Inventor(s)

Jan Carlstedt; Mauri Stahl

(74) Agent/Attorney

DAVIES COLLISON CAVE,1 Little Collins Street,MELBOURNE VIC 3000

(56) Related Art

FR 1343691

A B S T R A C T (Fig. 1)

An evaporator (10) having an electric heating cable (20) for defrosting the evaporator comprises a tubular element (12), through which a refrigerant flows. The element (12) is constituted by an inner pipe (16) and an outer pipe (22) arranged on the outside of the inner pipe. The heating cable (20) is arranged between the pipes (16, 22) in a groove (18) arranged on the outside of the inner pipe (16).

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COMPLETE SPECIFICATION

NAME OF APPLICANT(S):

AB Electrolux

ADDRESS FOR SERVICE:

DAVIES COLLISON CAVE
Patent Attorneys
1 Little Collins Street, Melbourne, 3000.

INVENTION TITLE:

Evaporator with an electric heating cable for defrosting

The following statement is a full description of this invention, including the best method of performing it known to me/us:–

The invention refers to an evaporator with an electric heating cable for defrosting the evaporator, which comprises a tubular element, through which a refrigerant flows, the heating cable extending along the wall of the element and surface enlarging means being arranged on the element.

Such an evaporator is known through FR Patent No. 1 343 691. At this known evaporator the tubular element is constituted by a pipe, the outside of which having a groove, in which the heating cable is arranged embedded in a heat conductive mass.

At the known evaporator the embedment of the heating cable must be carried out with great carefulness, so that the cable shall not protrude above the groove and get damaged by surface enlarging flanges, which are attached to the pipe.

The object of the invention is, in comparison with the known evaporator, to bring about an improved protection of the heating cable and to bring about a good heat conduction between the heating cable and the tubular element without the aid of a heat conductive mass.

According to the present invention there is provided an evaporator with an electric heating cable for defrosting the evaporator, which evaporator includes a tubular element, through which a refrigerant flows, the heating cable extending along the wall of the element and surface enlarging means being arranged on the element, characterized in that the element is constituted by an inner pipe and an outer pipe, which encloses the inner pipe, the heating cable being arranged between the pipes.

A preferred embodiment of an evaporator according to the invention is described below in connection with the enclosed drawing, in which Fig. 1 shows a perspective view of a cut off part of an evaporator constituted by a tubular element provided with surface enlarging flanges, the ends of a heating cable being shown to protrude from cut off ends of the tubular element, and Fig. 2 shows an enlarged sectional view of the tubular element.

With reference to Fig. 1 numeral 10 designates a part of an evaporator for refrigerating air in for instance a domestic refrigerator, which air in turn refrigerates goods in the refrigerator. The evaporator, which can be part of a conventional compression refrigerating circuit, comprises a tubular element 12 with a cross section, which has a circular

periphery, in which element the refrigerant in the circuit is evaporated while it absorbs heat from the air surrounding the element. Surface enlarging flanges 14 of e.g. aluminium are in a conventional way arranged in good heat conductive contact with the element 12 on its outside to improve the the heat conduction from the air to the refrigerant.

The element 12 is constituted by an inner pipe 16, e.g. of aluminium, which on its outside has a groove 18, in which a heating cable 20 is located. Furthermore the element 12 is constituted by an outer pipe 22, e.g. of aluminium, which is arranged on the outside of the inner pipe 16 in good heat conductive contact with it.

The heating cable 20 can be constituted by an electric resistance wire 24 surrounded by a plastic insulation 26. In order to obtain a good heat conductive contact between the heating cable 20 and the pipes 16 and 22 the insulation has been made somewhat coarser than the groove 18, so that the heating cable 20 is kept pressed against the wall of the groove by the pipe 22. When the evaporator 12 shall be defrosted electric current is conducted through the resistance wire 24, which by that will develop heat, which is conducted out to the pipes 16 and 22 via the wall of the groove 18 and via the part of the pipe 22, which opposite to the groove 18 presses against the insulation 26.

The groove 18 runs in parallel with the centre axis 28 of the pipes 16 and 22.

On making the evaporator first the tubular element 12 with the heating cable 20 arranged between the pipes 16 and 22 is produced. Then the surface enlarging flanges 14 are threaded on the element 12 and placed on suitable places on it, after which the element 12 with the heating cable 20 is bent, so that an evaporator of desired shape is obtained. It shall be pointed out that the evaporator pipe according to said FR patent No. 1 343 691 also is intended to be bent to desired shape, after its heating cable has been brought in place on the pipe.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An evaporator with an electric heating cable for defrosting the evaporator, which evaporator includes a tubular element, through which a refrigerant flows, the heating cable extending along the wall of the element and surface enlarging means being arranged on the element, characterized in that the element is constituted by an inner pipe and an outer pipe, which encloses the inner pipe, the heating cable being arranged between the pipes.

2. An evaporator according to claim 1, characterized in that the heating cable is located in a groove in the inner pipe.

3. An evaporator according to claim 2, characterized in that the heating cable is kept pressed against the wall of the groove by the outer pipe.

4. An evaporator substantially as hereinbefore described with reference to the drawings and/or Examples.

DATED this 23rd day of August, 1999

AB ELECTROLUX
By its Patent Attorneys
DAVIES COLLISON CAVE

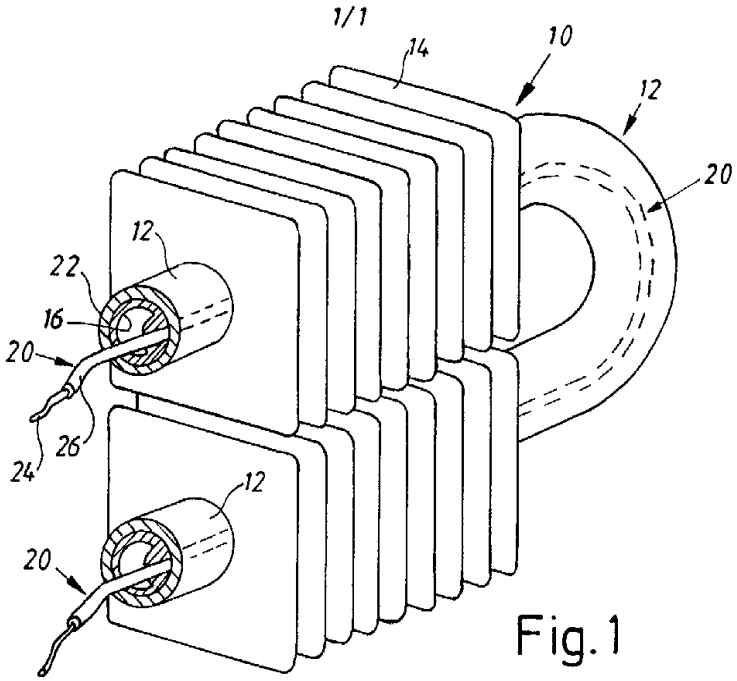

Fig. 1

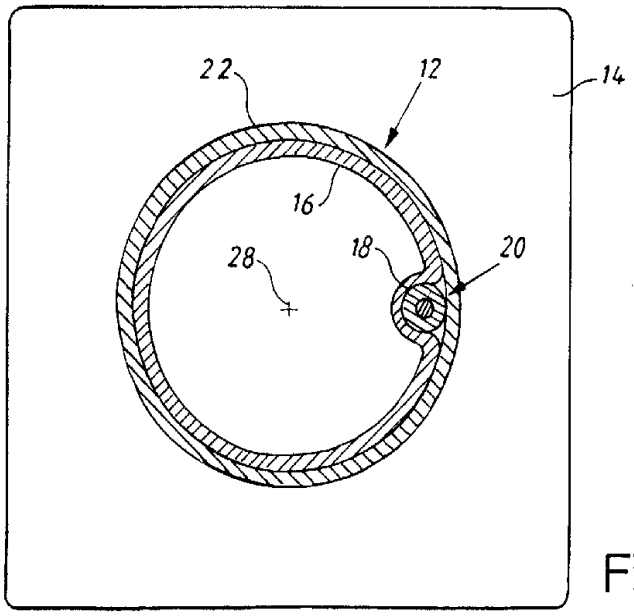

Fig. 2