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(12) # EUROPEAN PATENT APPLICATION

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(54) **Improved domestic radiator.**

(57) IMPROVED DOMESTIC RADIATOR, caracterized in that it is formed by slats of a non-essential variable geometry, being coupled together by the perimeters thereof, there being mounted in the interior thereof a continuous flexible sheet which acts as a support for the resistive conductors; these latter being covered with a protective sheet against indirect contact.

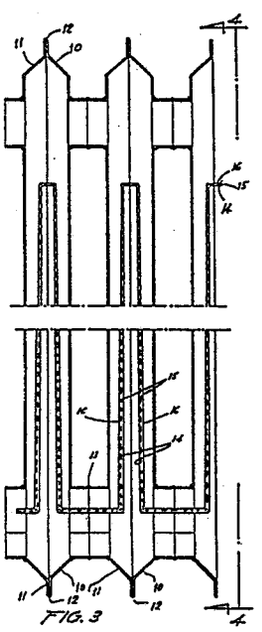

FIG. 3

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Description

"IMPROVED DOMESTIC RADIATOR".

This patent of invention, as indicated in the title thereof, relates to an "IMPROVED DOMESTIC RADIATOR".

At the present time there are very many domestic heating systems on the market, among which there are those based on heating the rooms in which they are installed by one or several radiators, the purpose of which is to raise the temperature of a mass of oil contained in the interior thereof, by an electric heating element located at the bottom thereof, up to a preset value, depending both on the power of the heating element and on the mass of oil and the built-in thermostat.

The foregoing radiators are very popular among the public since the oil contained in their interior maintains the temperature almost stable for a certain period of time with the heating element out of operation, which is rather a drawback since when the temperature has attained the optimum value and the thermostat cuts the operation of the heating element, an appreciable amount of heat is still given off, exceeding the desired room temperature and, on other hand since they are provided with small wheels at the bottom, it is easy to transfer them from one room to another.

Nevertheless, from a constructional point of view, their manufacture is costly and has a number of drawbacks which will be commented hereinafter. The problem of the costs is based fundamentally, in the first place, on having to use a special, non-corrosive, non-toxic thermal oil capable, at the same time, of maintaining these properties for a long period of time and, furthermore, on the construction itself of the radiator comprising a battery of several elements, each formed by two previously moulded slats which are faced together to carry out a long complex welding operation which must be fluid-tight around the whole external perimeter of the said slats. Finally the coating of the heating element must be of sufficient quality to avoid the corrosive action of the oil which decomposes with time.

To overcome the abovementioned drawbacks, but without changing what might be considered as the advantageous part of the system, the radiator itself, it has been completely redesigned in the interior thereof and in the basic heating process which it will contain, which is completely novel and unknown up-to-date.

The radiator of this invention is characterised in that it comprises elements of any type of geometry in keeping with the radiator design or battery which will be attached to each other with conventional linking systems, there being disposed in the interior thereof some continuous sheets of resistive electrical circuit having total width and height less than those of the said slats to which a protective sheet has been adhered.

The resistive electric circuit will be compensated vertically in such a way that the lower portions thereof provide a greater amount of heat, to avoid overheating at the top portion thereof, which could damage the structure thereof or for a better heat distribution. Said structure will be formed by a flexible continuous bellows-like continuous sheet which is housed in the interior of each and everyone of the radiator elements.

Since the radiators of this invention does not have to support any internal pressure because it does not contain oil, the slats may be lighter, being maintained without the indispensable requisite of complete fluid-tightness, doing away therefore with complicated welding processes. Also, the radiator in question will reach its operating temperature in a much shorter time since it dissipates heat practically on the slats and does not have to heat the mass of oil in the conventional systems, since the width thereof is only sufficient to house the sheets of the resistive circuit.

The heat power is regulated by incorporating an automatic thermostat in the radiator, allowing the user to select the appropriate degree of comfort.

Other details and features of this patent will be disclosed during the following description, in which reference is made to the drawings accompanying this specification in which, rather schematically, there are represented the preferred details. These details are given as an example, with reference to one possible embodiment, but it is not limited to the details given here; therefore this description should be considered from an illustrative point of view without limitations of any kind.

Figure no. 1 is a perspective elevation view of the radiator.

Figure no. 2 is a side elevation view of one element of the battery.

Figure no. 3 is a cross section elevation view of the radiator.

Figure no. 4 is a cross section elevation view of the radiator along the line 4-4 of figure no. 3.

The object of the invention is constituted by a number of slats (10 and 11) attached together by their perimeter (12 and 13) forming a radiator, the dimensions and configuration of the slats (10 and 11) being independent of the object of the present invention. Mounted in the interior of the sets of slats (10 and 11) there is a continuous flexible sheet (14) provided with the resistive circuits (15) which are designed so as to offer a heat compensation according to height, this being achieved since the resistive surface of (15) is greater in the lower portions of (14) to attain a better distribution and avoid overheating and irreversible damage to the upper portions thereof, a protective sheet (16) being adhered to (15).

Likewise, another embodiment of the same radiator of the invention may be formed by the slats (10 and 11) duly joined together by their perimeters (13 and 12) mounting in the interior thereof respective independent sheets (14) with resistive surfaces (15) and protective sheets (16) covering both sides of (14), the assembly of covered sheets (14) being duly electrically connected in series, and like in the

previous case with the resistive surfaces (15) duly electrically compensated.

Obviously from the foregoing description it is shown that the different radiator embodiments do not alter the unity of invention since their essence relates to the substitution of a particular mass of oil and steel reinforced heating element by the continuous or interrupted sheet or sheets (14) provided with resistive surfaces (15) and protective sheets (16), with it being possible for the thickness of the slats (10 and 11) to be smaller than the conventional ones for oil radiators on not having to support any type of internal pressure, as well as it being unnecessary to make the fluid-tight seal on the perimeters (12 and 13) of the slats (10 and 11), which may be attached together by any cheaper system, including spot welding. All the above will allow the manufacture of a lighter and cheaper radiator, which attains the desired service temperature in a shorter time.

Having sufficiently described of what the present patent consists in correspondence with the enclosed drawings, it is understood that any modifications of detail as deemed desirable may be introduced therein provided that the essence of the patent as summarized in the following CLAIMS is not altered.

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Claims

1- An "IMPROVED DOMESTIC RADIATOR, caracterized in that it is formed by the slats (10 and 11) of a non-essential variable geometry, being coupled together by the perimeters (12 and 13), thereof there being mounted in the interior thereof the continuous flexible sheet (14) which acts as a support for the resistive conductors (15), these latter being covered with the protective sheet (16), resulting in a completely flexible and continuous assembly formed by (14), (15) and (16).

2.- An "IMPROVED DOMESTIC RADIATOR, according to the previous claim, characterized in that the continuous sheet (14) may be formed by independent sheet covered by the resistive conductors (15) on both sides with respective protective sheets (16) adhered thereto and electrically connected to one another in series.

3.- An "IMPROVED DOMESTIC RADIATOR", according to the previous claims, characterized in that the resistive surfaces of (15) may vary with the height to compensate the temperature of (14), as well as of (11) and (10), said surface being larger in the lower portions of (14).

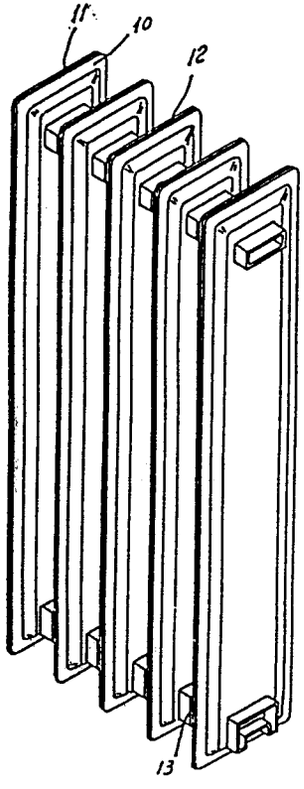

FIG. 1

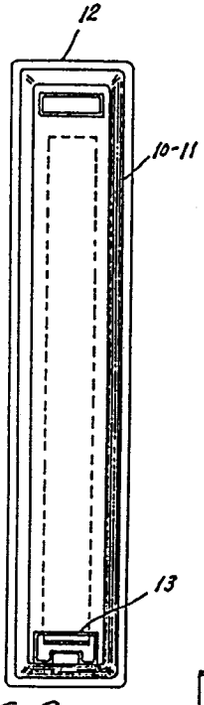

FIG. 2

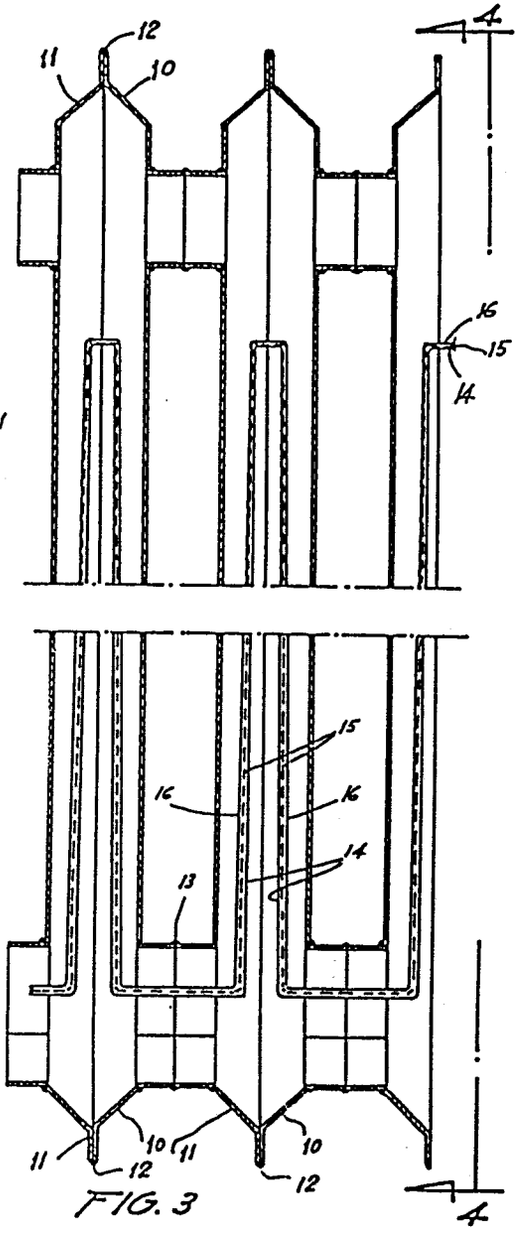

FIG. 3

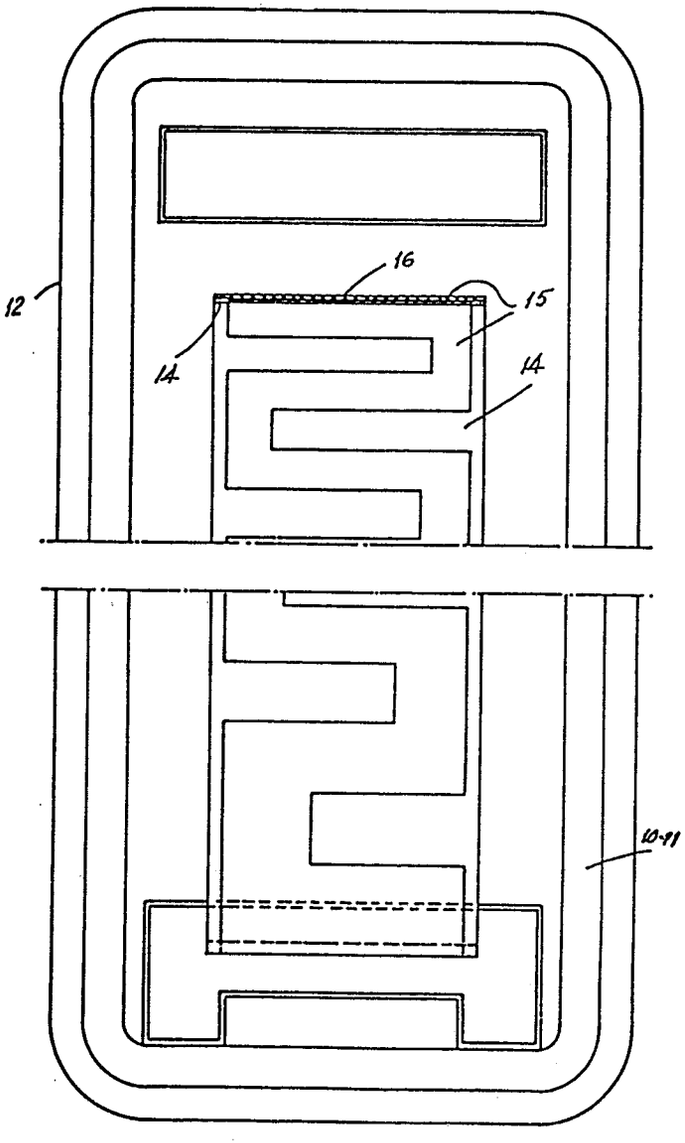

FIG. 4