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(71) Applicant: **Laminox - S.r.l.**
62028 Sarnano (MC) (IT)

(72) Inventor: **Arra, Giuseppe**
Sarnano (MC) (IT)

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(74) Representative: **Baldi, Claudio**
Piazza Ghislieri, 3
60035 Jesi (Ancona) (IT)

(54) **Oil radiator equipped with heat exchanger for the production of hot water**

(57) This invention concerns an electric oil radiator (1) with heat exchanger for the production of hot water, consisting of one or more coils (2a,2b) inserted in the

series of aligned hubs by means of which the various radiating elements (1a) are connected and intercommunicate.

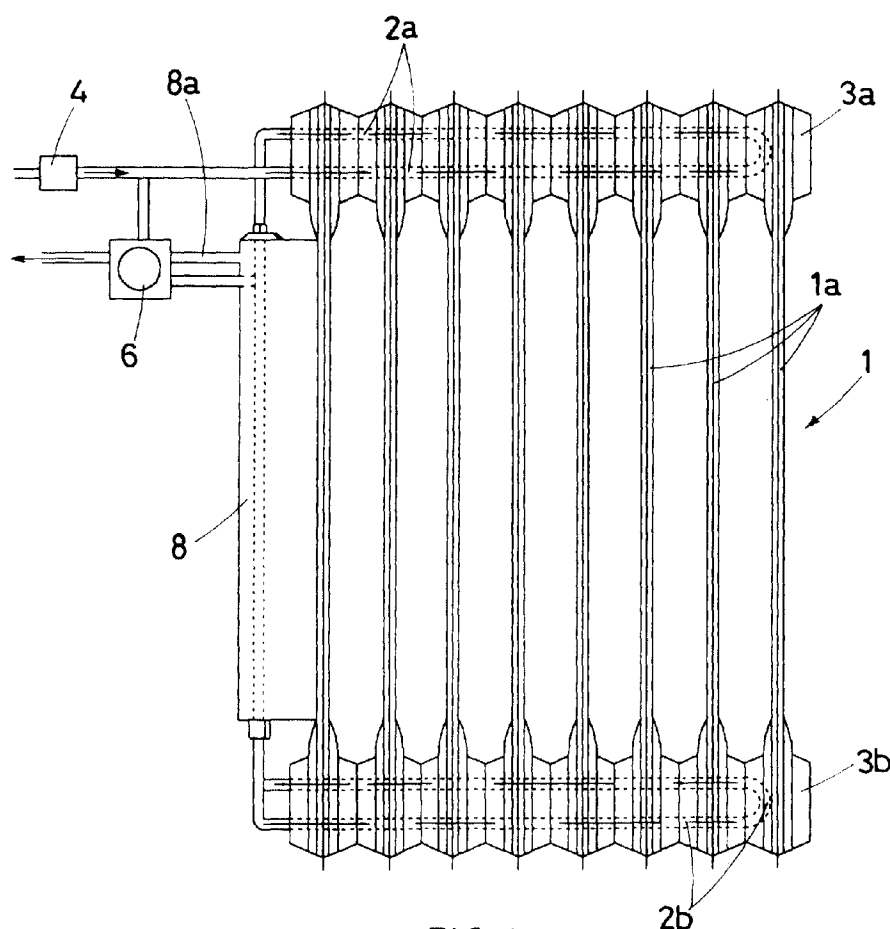


FIG. 1

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Description

This patent application concerns an electric oil radiator with heat exchanger for the production of hot water.

Conventional oil radiators consist of a bank of adjacent metal radiating elements containing diathermic oil heated by means of a heating element, generally positioned at the base of the radiator and inserted through the series of aligned hubs by means of which said radiating elements are connected at the bottom and intercommunicate.

These oil radiators are commonly and successfully used to heat rooms which are not very large such as a room in a home which does not have a heating system or a system which is not sufficient to increase the air temperature to the required value. At times the home owner may wish to turn the central heating system off in order to save energy and costs and may prefer to heat only several rooms at a time with these oil radiators rather than the entire house.

This often happens if the home is a large one in which just one or two people live, or in the case of seaside or mountain flats which are not used all the year round but opened and used for perhaps a few hours outside the holiday period.

The new oil radiator model according to the invention was designed in consideration of the fact that when a central heating system does not exist or is not used, the problem of requiring hot water for bathrooms etc. may arise.

Accordingly, the inventive idea involves equipping a conventional electric oil radiator with a heat exchanger which produces hot water using the heat produced by the radiator itself.

The thermal energy used to produce hot water is moreover not lost if the hot water is not used since, during cooling, the heat previously absorbed during the heating stage is returned to the room.

In its most simplified embodiment, the radiator according to the invention is characterised by a coil immersed in diathermic oil connected by means of fast couplings to the water mains.

In this embodiment, the cold water from the mains enters and flows along the entire coil and then out of the coil outlet as a continuous flow of hot water at about 40°C, for a temperature of the diathermic oil of about 110°C

In a more sophisticated embodiment, the radiator according to the invention includes, in addition to the above coil immersed in thermal oil, one or more hot water storage tanks, thus forming a reserve of very hot water which at full running rate may reach temperatures almost equal to the maximum temperatures of the diathermic oil.

The position and shape of the tank may vary according to requirements in that the same may be divided into several chambers placed between each pair of ad-

jacent radiating elements or may be positioned above the series of adjacent radiating elements.

In any case, the connection between the coil and the tank is made according to conventional techniques so that - in the intervals when hot water is not used - spontaneous convective movements occur thanks to which the water in the tank enters the coil immersed directly in the oil, while the water in the coil returns to the storage tank.

For major clarity the description continues with reference to the enclosed drawings which are intended for purposes of illustration and not in a limiting sense, whereby:

- fig. 1 is a schematic side view of the radiator according to the invention;
- fig. 2 is a schematic top view of the radiator according to the invention.

With reference to the above figures the electric oil radiator model according to the invention has a conventional structure in terms of shape, position and coupling of the different radiating elements.

In particular said radiator (1) consists of a bank of adjacent metal radiating elements (1a), containing the diathermic oil which is heated by means of a heating element positioned at the base of the radiator and inserted through the aligned series of bottom hubs of said radiating elements (1a).

The radiator (1) in question is equipped, in a totally innovative way, with a heat exchanger for the production of hot water, which consists, in the case in question, of two identical horizontal tubular coils (2a e 2b), connected in series and fitted respectively in the upper series (3a) and in the lower series (3b) of hubs, by means of which said radiating elements (1a) are connected and intercommunicate.

Said heat exchanger is provided at its inlet with a coupling (4), which in the preferred embodiment should be a rapid coupling, and which makes it possible to connect the same to the water mains.

The second coil (3b) is provided downstream with a fork leading off to two hot water supply pipes: the first (5) supplying the hot water supply tap (6) directly and the second (7) supplying a hot water storage tank (8) provided with pipe (8a) to draw the hot water stored in the same.

Said tap (6) being provided with two opening positions, one to draw hot water from the tank (8) and the other to draw hot water from the heat exchanger through pipe (5).

Claims

1. An electric oil radiator provided with heat exchanger for the production of hot water of the kind consisting of a bank of adjacent metal radiating elements (1a)

containing diathermic oil in which a heating element is immersed, characterised in that the radiator (1) is provided with a heat exchanger for the production of hot water consisting of one or more tubular coils fitted in the aligned series of hubs by means of which said radiating elements (1a) are connected and intercommunicate; it being provided that said heat exchanger has a coupling (4) at its inlet for connection to the water mains and a tap (6) at its outlet for drawing hot water.

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2. An electric oil radiator provided with heat exchanger for the production of hot water according to the previous claim, characterised in that the same is provided with a hot water storage tank (8) supplied by the heat exchanger and is fitted with a pipe (8a) for drawing the hot water contained in the same. 3) An electric oil radiator provided with heat exchanger for the production of hot water according to the previous claims, characterised in that the heat exchanger is provided downstream with a fork leading off to two hot water supply pipes: the first (5) supplying tap (6) directly and the second (7) supplying the hot water storage tank (8).

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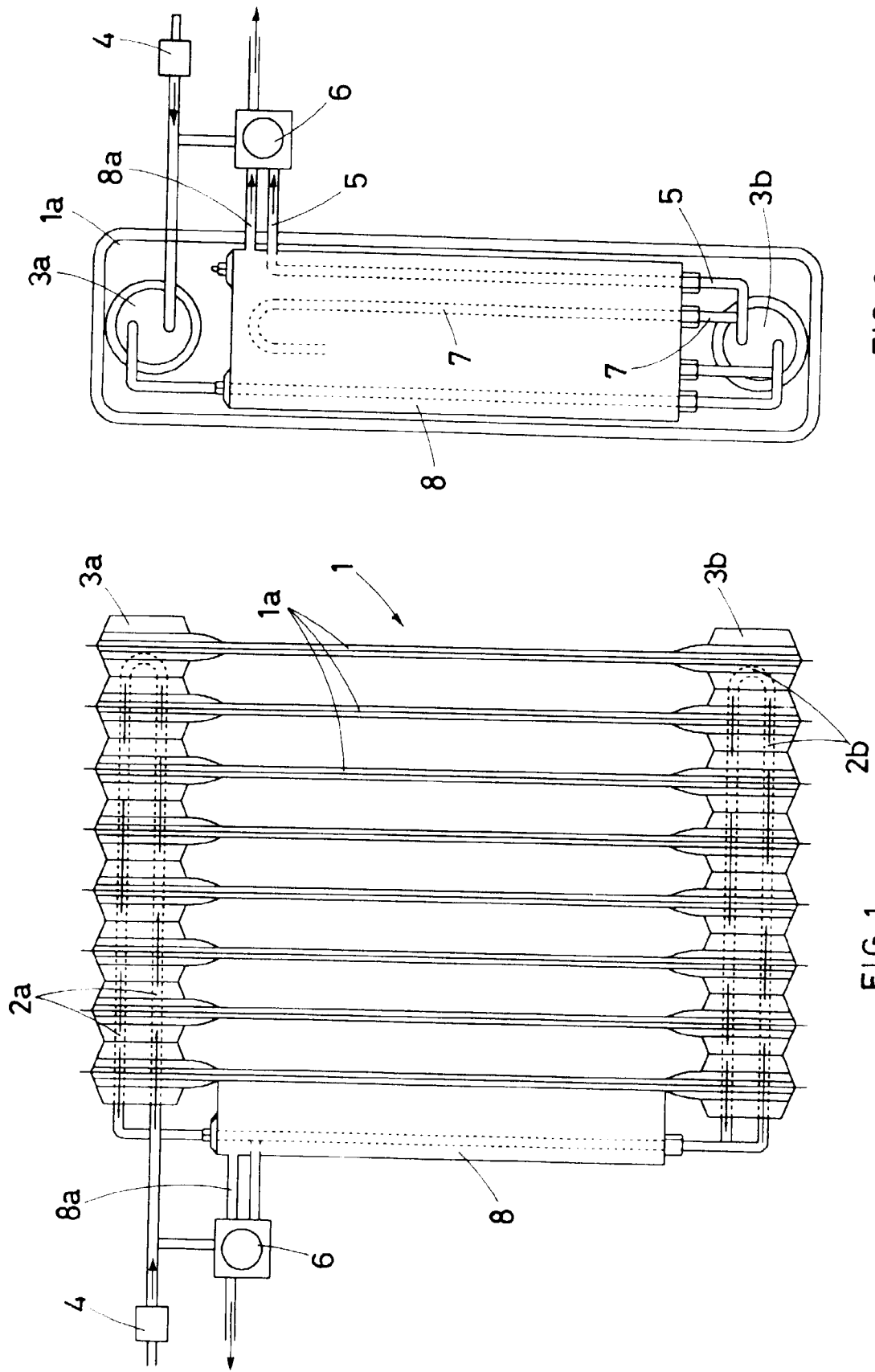
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FIG. 2

FIG. 1