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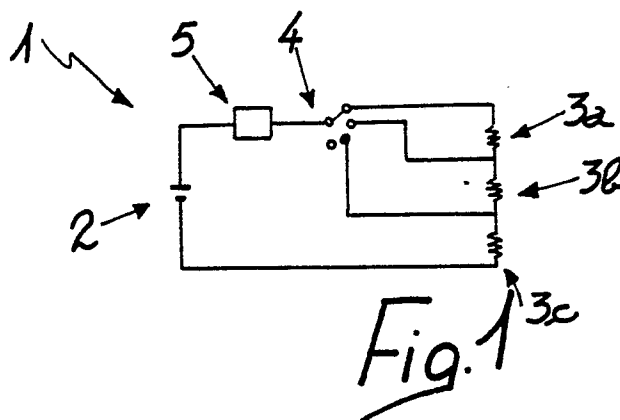
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(54) **Device for adjusting the power in a heating circuit for ski boots.**

(57) Device for adjusting the power in a heating circuit usable particularly for ski boots and including at least one power source (2,7,102,302a,302b,302c,202a,202b,202c) for at least one resistor (3a,3b,3c,103a,103b,203,303), having the peculiarity of comprising at least one switch (4,104,204,304) sectioning and/or selecting said at least one power source and/or said at least one resistor. Said switches, together with adapted discharge limiters (5,105,205a,205b,205c,305) for the power sources, allow an effective adjustment of thermal power according to specific contingent requirements.



DEVICE FOR ADJUSTING THE POWER IN A HEATING CIRCUIT FOR SKI BOOTS

The present invention relates to a device for adjusting the power in a heating circuit for ski boots.

It is currently known to heat the boot by means of the application of an electric resistor at the insole or in other regions of said boot.

Said electric resistors are powered by means of adapted accumulators accommodatable within convenient seats provided for example on the shell and/or on the quarters.

In some of said known types of heating circuit, power adjustment occurs by means of generally electronic devices which, the maximum value of delivered current being equal, act on the duration of the pulse of current.

Said devices, besides being rather complicated, have a large number of components, and are therefore uneconomical and difficult to integrate in the boot.

The main aim of the present invention is therefore to eliminate the disadvantages described above in known types by providing a device which allows to adjust the power in a heating circuit, according to the specific and contingent requirements of the skier, while being at the same time structurally very simple.

Within the above described aim, another important object is to provide a device which is reliable in use and allows an effective adjustment of thermal power.

Not least object is to provide a device which has modest costs and is easily integratable in the boot.

This aim, as well as these and other objects which will become apparent hereinafter, are achieved by a device for adjusting the power in a heating circuit for ski boots, comprising at least one power source for at least one resistor, characterized in that it is constituted by at least one switch sectioning and/or selecting said at least one power source and/or said at least one resistor.

Advantageously, at least one discharge limiter for said at least one power source is present in said circuit.

Conveniently, said at least one switch is manually actuatable by the skier.

Further characteristics and advantages of the invention will become apparent from the detailed description of some embodiments, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is an electric circuitry according to the invention;

figure 2 is a practical application of the device at an insole;

figure 3 is an electric circuitry according to a second aspect of the invention;

figure 4 is an electric circuitry according to a third aspect of the invention; and

figure 5 is an electric circuitry according to a fourth aspect of the invention.

With reference to the above described figures, the numeral 1 indicates an electric circuit particularly for the heating of ski boots.

As illustrated in figure 1, the electric circuit comprises a power source 2 and three resistors indicated respectively by the numerals 3a, 3b and 3c arranged in series to one another.

Said resistors may advantageously be identical.

The circuit furthermore comprises a switch, indicated by the numeral 4, having four different positions.

Said switch allows the supply of power to all three resistors 3a, 3b and 3c or the supply of only the resistors 3b and 3c or the supply of only the resistor 3c or the interruption of the electric circuit.

Advantageously, a discharge limiter, indicated by the numeral 5, is present in the circuit between the power source 2 and the switch 4.

Figure 2 illustrates a practical use of the circuit applied at an insole 6.

In this case the power source is constituted by accumulators 7 connected to a resistive film 8 associated at the foot tip region of the insole 6, a box-like structure 9, accessible to the skier, accommodating the switch 4 and/or the discharge limiter 5.

The use of the discharge limiter allows to prevent phenomena of reverse polarization due to deep discharging of the accumulators.

The use of the device allows the skier to select the switch 4 in the position most suitable to obtain the desired degree of heating of the boot; in fact, according to the inner temperature thereof, he may opt for a different degree of heating therefore effectively adjusting the thermal power.

It has thus been observed that the invention achieves the intended aim and objects, a device having been obtained which allows to adjust the power in a heating circuit according to the specific requirements of the skier, the device being at the same time structurally very simple, reliable in use and easy to integrate in the boot.

The effective adjustment of thermal power furthermore allows to achieve the heating of the boot in an economical and completely reliable manner, the skier being able to manually select different electric configurations according to the desired amount of heat.

Naturally the invention thus conceived is susceptible to numerous modifications and variations, all of which are within the scope of the same inventive concept.

Thus, for example, figure 3 illustrates a circuit 101 comprising a power source 102 and a three-position switch 104, a discharge limiter 105 being arranged between said switch and said power source.

The switch 104 allows to alternately select, in the circuit, either the resistor 103a or the resistor 103b, both naturally having different values.

The third position of the switch 104 allows to keep the circuit open.

Figure 4 instead illustrates a circuit 201 comprising three power sources, indicated by the numerals 202a, 202b, 202c, arranged in series.

The circuit furthermore comprises a single resistor 203 and a four-position switch 204 adapted to select the desired one among the three power sources.

Advantageously, separate discharge limiters, indicated by the numerals 205a, 205b and 205c, are present between said power sources and the switch 204.

Naturally said limiters have different limit values to take into account the different voltages in the circuit.

Figure 5 illustrates a third circuit 301 comprising three separate power sources arranged mutually in series and indicated by the numerals 302a, 302b and 302c.

The circuit furthermore comprises a single resistor 303.

The circuit furthermore comprises a double four-position switch 304, adapted to select the desired power source, and a discharge limiter 305 arranged downstream the switch and having separate internal circuits according to the selected power source.

Naturally, the materials, as well as the dimensions of the individual components of the device, such as for example the values of the resistors, of the power sources and their number, may be the most suitable according to the specific requirements.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. Device for adjusting the power in a heating circuit for ski boots, comprising at least one power source (2,7,102,302a,302b,302c,202a,202b,202c) for at least one resistor (3a,3b,3c,103a,103b,203,303), characterized in that it is constituted by at least one switch (4,104,204,304) sectioning and/or selecting said at least one power source and/or said at least one resistor.

2. Device according to claim 1, characterized in that it comprises at least one discharge limiter (5,105,205a,205b,205c,305) for said at least one power source arranged upstream and/or downstream said at least one switch.

3. Device according to one or more of the preceding claims, characterized in that said at least one switch is manually actuatable by the skier.

4. Device according to claims 1 and 3, characterized in that it comprises a four-position switch (4) sectioning three resistors (3a,3b,3c) mutually arranged in series, the fourth position allowing the opening of the circuit.

5. Device according to claims 1 and 3, characterized in that it comprises a three-position switch (104) selecting two separate resistors (103a,103b), the third position allowing the opening of the circuit.

6. Device according to claims 1 and 3, characterized in that it comprises three power sources (202a,202b,202c), a single resistor (203) and a four-position switch (204) selecting one of said power sources.

7. Device according to claims 1 and 6, characterized in that a separate discharge limiter (205a,205b,205c) is arranged between each of said power sources and said switch.

8. Device according to claims 1 and 3, characterized in that it comprises a double switch (304) selecting separate power sources (302a,302b,302c), at least one discharge limiter (305) being present downstream said double switch.

