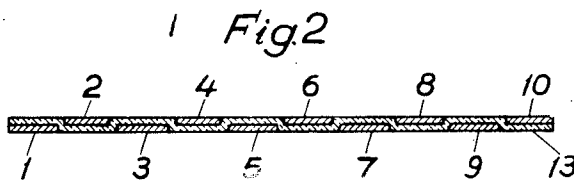
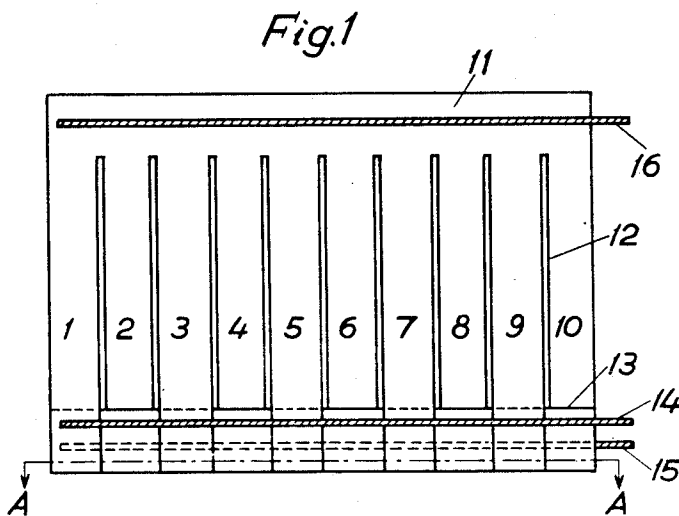


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BO SÄRNÖ ET AL
ELECTRIC WARMING ELEMENT

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ELECTRIC WARMING ELEMENT

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2 Claims. (Cl. 219-46)

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This invention relates to an improved design of electric warming elements the warming body of which is made from a semi-conducting vinyl-sheet or other plastic material protected on the outside by an insulating plastic covering.

It is difficult to manufacture semi-conducting vinyl sheets having exactly the volume resistivity desired. The semi-conducting vinyl compound is prepared in batches, certain divergences from batch to batch thus being unavoidable. In manufacturing elements for warming pads, for instance, it is therefore necessary to calibrate the resistance of the warming body. It is an object of the present invention to facilitate this operation and to solve, at the same time, the power control problem. This is achieved by punching the warming body in the shape of a comb, so that it forms a plurality of parallel flaps of substantially equal width extending from a part of the original sheeting untouched by the punching operation.

The invention will be described more clearly reference being made to the accompanying drawing showing one embodiment of the invention. Fig. 1 is a front view of a warming body and Fig. 2 is a cross-section taken along the line A—A in Fig. 1.

The warming body is punched in the shape of a comb from a sheet of semi-conducting vinyl material. The comb consists of a plurality of teeth or flaps 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, extending from a part 11 of the original sheeting untouched by punching. The resistance of the sheet is measured prior to the punching of the slots 12 which form the flaps. For the punching a die is used having such a construction that the width of the slots may be varied and adjusted in order to compensate the deviation of the resistance from its normal value. A strip of insulating vinyl sheet 13 is inserted between the free ends of the flaps in such a manner that every even-numbered flap of the warming body will lie, for instance, on one side of the strip and every odd-numbered flap on the other side thereof. A stranded lead 14 is pressed into the warming body on one side to make contact with the flaps 1, 3, 5, 7, 9. Another lead 15 is pressed into the other side thus making contact with the flaps 2, 4, 6, 8, 10. The leads 14 and 15 are insulated from each other. A third lead 16 is pressed into the back of the comb, i. e. into the part 11 which is untouched by punching. After attaching the stranded leads a warming body is obtained, the resistance of which corresponds closely to the desired resistance.

With the embodiment shown three control positions are obtained. The lowest heating power is achieved when the voltage is supplied between the leads 14 and 15, the current will then flow in series through pairs of adjacent "teeth," such pairs being connected in parallel. Medium heating power is obtained by supplying the voltage between the leads 14 and 16. Thereby only the

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"teeth" connected to the lead 14 will be warmed, whilst the current does not flow to the "teeth" connected to the lead 15. Maximum heating power is obtained when the voltage is supplied between the lead 16 and the joined leads 14 and 15, whereby all "teeth" will be warmed.

Thermostats may be inserted in a conventional manner, but care must be taken that they are connected to such "teeth" which are loaded in a control position for medium heating power. In order to insulate electrically the thermostats and the conductors from the warming body, the element may be covered entirely or partly by an insulating sheet, the thermostats and conductors being laid on that side of the sheet which is turned away from the element.

We claim as our invention:

1. An electric warming element, comprising a warming body of semi-conducting single ply non-rigid vinyl material in the shape of a comb with a plurality of parallel flaps of substantially equal width extending from the integral part of the comb and forming the teeth, an insulating strip of sheet material interposed between the ends of the flaps with said ends alternately located at opposite sides of said strip, a common lead connected to the ends of the flaps at one side of said strip, and a common lead connected to the ends of the flaps at the other side of said strip.

2. An electric warming element, comprising a warming body of semi-conducting single ply non-rigid vinyl sheet material in the shape of a comb with a plurality of parallel flaps forming the teeth, an insulating strip of sheet material interposed between the free ends of said flaps with the flaps alternately located at opposite sides of said strip, a lead connecting the free ends of the flaps at one side of the strip, a lead connecting the free ends of the flaps at the other side of said strip, and a lead connected to the integral part of the comb.

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