ELECTRICALLY HEATED SINUS PAD

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Application May 22, 1941, Serial No. 394,611

3 Claims. (Cl. 128—399)

This invention relates to an electrically heated face pad or sinus pad.

It has been proposed heretofore to provide hot water bags shaped to apply heat to the sinus area of the face, but the weight of such bag upon a sore or inflamed portion of the face may be uncomfortable, and the fact that the bag gradually loses its heat and needs to be refilled from time to time is an objectionable feature.

It has also been proposed heretofore to provide hoods or masks having electrically heated wires for supplying heat thereto, but such heating wires are not well adapted for use in a soft flexible facial pad.

The present invention contemplates an electrically heated face pad or sinus pad which may be shaped to supply heat to the desired portions of the face, and which is of light weight and so soft and flexible that it forms a highly comfortable pad to wear even when the face is sore and inflamed, and is capable of supplying heat uniformly at any desired temperature.

More specifically the present invention resides in a face pad or sinus pad shaped to apply heat to the sinus area of the face, and which comprises a support of soft flexible material such for example as felt or woven wool fabric shaped to cover the desired portions of the face and having secured thereto a novel form of electrical heating element or elements consisting of one or more strips of sheet material treated with a current conductive plastic or rubber to thereby form a heating sheet which will generate heat uniformly throughout its area, when a different electric potential is maintained between its opposite side edges. Such a heating element is peculiarly well adapted for supplying heat to the desired portions of the face, as it is highly flexible to conform to the contour of the face and is free from the usual heating wires, and is also adapted to generate heat uniformly over its entire area.

The heating element herein contemplated may consist of a strip of woven cotton fabric or other sheet material which is rendered electrically conductive and capable of generating heat throughout its area by treating the same with a conductive plastic, or conductive rubber such as rubber cement containing current conducting carbon particles. The operating current may be conveniently supplied to the sides of such current conducting strip by folding its side edges around conductor wires extending longitudinally of the strip, so that when a different electric potential is maintained between such wires current will flow across the strip from one wire to the other and generate heat uniformly throughout its area.

The heating pad herein contemplated is preferably provided with means for strapping it in place upon the face so that it may be conveniently worn to apply heat to the face when the wearer is in a seated position as well as when lying down.

Other features of the invention in addition to the above and novel combination of parts will be hereinafter described in connection with the accompanying drawing which illustrates one good practical form thereof.

In the drawing:

Fig. 1 shows a person wearing the electrically heated pad of the present invention;

Fig. 2 is a perspective view showing the pad of Fig. 1 in its extended condition; and

Fig. 3 is a plan view of the pad, the outer covering fabric being partly removed to disclose the underlying electrical heating elements of the pad.

An electrically heated pad embodying the features of the present invention may be constructed to apply heat to various portions of the face and as shown in the drawing has been designed to apply heat across the forehead, down the bridge of the nose and to the sinus area of the face below the eyes, and as will be apparent from Fig. 1 of the drawing the pad is cut away adjacent the eyes so as not to interfere with the view of the wearer.

The electrical heating element, which will presently be described in detail, is preferably sandwiched between two sheets 10 and 11 of protecting fabric formed of any suitable material which is soft and comfortable to the face, such as felt material or a soft woven fabric such as woolen goods. The sheets 10 and 11 together form a support and protecting cover for the heating elements provided therebetween and are preferably sewed together, around their outer marginal edges as indicated by 12.

The support formed of the materials 10 and 11 in the construction shown comprises a forehead covering band portion 13, a band portion 14 for covering the central portion of the face below the eyes, and a connecting bridge portion 15 adapted to cover the bridge of the nose.

Each of these portions 13, 14 and 15 is provided with a sheet-like heating element as will be apparent from Fig. 3, wherein the portion 13 is shown as provided with the heating element 16, the portion 14 is provided with the two heat-
ing elements 17 and 18 and the portion 18 is provided with the heating element 19.

Each of the heating elements is preferably formed of a light weight flexible strip of fabric or other sheet material 20 such as woven cotton fabric, and this sheet is electrically conductive by treating it with a conductive plastic material such as for example as rubber cement or rubber dispersions containing a sufficient amount of conductive carbon particles it impart the desired current carrying properties to the sheet so that it will generate heat when a different electrical potential is maintained between spaced portions thereof.

One example of a good practical electrically conductive cement which may be used to coat the fabric heating element 20 is as follows:

<table>
<thead>
<tr>
<th>Parts by weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubber</td>
</tr>
<tr>
<td>Carbon black</td>
</tr>
<tr>
<td>ZnO</td>
</tr>
<tr>
<td>Antifadant</td>
</tr>
<tr>
<td>Accelerator</td>
</tr>
<tr>
<td>Deodorant</td>
</tr>
<tr>
<td>Softener</td>
</tr>
<tr>
<td>Vulcanizing agent</td>
</tr>
<tr>
<td>Gasoline</td>
</tr>
</tbody>
</table>

In order that the sheet 20 may generate heat uniformly over its area current supply wires 21 and 22 are provided which are secured along its side edges, preferably by folding marginal side edge portions of the sheet 20 over around these wires and adhesive securing these folded portions to the bare conductor wires 21 and 22 to provide a good electrical contact between these wires and the sheet 20 throughout the length of such sheet.

The heating elements 17, 18 and 19 may have the same general construction as the heating element 16, and the heating elements are connected substantially in parallel as will now be described.

Operating current is conveniently supplied to the sinus pad by providing the forehead covering band portion 13 of this pad with the male elements 23 and 24 of snap fasteners secured thereto near one end as shown. The snap fastener 23 has the conductor wire 21 secured thereto and the snap fastener 24 has the conductor wire 22 secured thereto so that these snap fasteners serve to supply the operating current to the heating elements. As will be seen from Fig. 3 the portion of the wire 21 remote from the snap fastener 23 extends downwardly around the end of the heating element 20 and then in a left hand direction as at 25 to supply current to the heating element 18. This wire 25 after extending lengthwise of the element 18 extends in a right hand direction to the end of the heating element 16, where it extends in a left hand direction along the upper marginal edge portion of the heating elements 16 and 17.

Current is supplied to the opposite marginal edge of the heating elements 17, 18 and 19 by a wire 26 which leads from the wire 22 adjacent the snap fastener 24 on a marginal side edge of the heating element 19, and then in a left hand direction and downwardly to extend along the lower edge portion of the heating elements 17 and 18. The stitching shown may be provided to hold the heating elements from moving relative to the covering sheets. When it is desired to heat the face pad or sinus pad of the present invention it is merely necessary to engage the female snap fastener elements 27 and 28 upon the carrier 29 with the corresponding male elements 23 and 28. The elements 21 and 28 are supplied with electric current by the conductor wires 30.

The portion 15 of the pad is provided at its upper portion with the straps 21 and 33 adapted to be fastened around the back of the head as will be apparent in Fig. 1, while the pad portion 16 is provided with similar straps 23 and 33. The arrangement is such that the heating pad may be readily secured in place upon the face to be worn for any desired length of time and the heating current may be supplied thereto by merely connecting the snap fasteners above described. When desired the pad may be retained in place upon the face as a soft warm covering for the same, after the current has been cut off from the pad by disengaging the snap fasteners.

The heating pad shown in the drawing was designed to be operated by a current at 8, 10 or 12 volts depending upon the amount of heat desired. This current may be provided from the ordinary 110 volts A. C. source by employing a simple and well known type of transformer adapted to supply the reduced voltage just mentioned, or a rheostat may be used in connection with the ordinary household current to supply the desired amount of energy to the heating pad.

It will be seen from the foregoing that the present pad is soft and comfortable and is free from heating wires which are likely to become broken or may burn the wearer of the pad in case the insulation upon such wires is displaced. Furthermore the construction is such that current will flow uniformly across the fabric 20 from one conductor wire to the other, throughout the length of such fabric, to generate heat uniformly throughout the area of the entire pad, and makes it unnecessary to operate any portion thereof at a temperature high enough to feel uncomfortable to the touch even if the heating element should become exposed by the removal of the covering material 10 or 11.

Having thus described my invention, what I claim and desire to protect by Letters Patent is:

1. An electrically heated face pad comprising a support of soft flexible material adapted to cover a substantial portion of the face and consisting of a fabric strip treated with electrically conductive plastic composition to form a sheet conductor having current supply wires secured along its side edges and adapted when a different electrical potential is maintained between the wires of said elements to cause current to flow substantially uniformly across the conductive strips and heat said portions of the pad, the operating temperature of the sheet conductor being only a few degrees above that applied to the face.

2. An electrically heated face pad comprising a support of soft flexible material adapted to cover a substantial portion of the face and provided with means for holding it in place upon the face, and having extending over its surface a fabric strip of sufficient width to cover a substantial area of the face and treated with electrically conductive plastic composition to form a non-metallic sheet conductor provided with current supply wires secured along its side edges, and adapted when a different electrical potential
is maintained between said wires to cause current to flow substantially uniformly across the strip and heat the pad, the operating temperature of the sheet conductor being only a few degrees above that applied to the face.

3. An electrically heated sinus pad comprising, a forehead covering band portion, a band portion for covering the central portion of the face below the eyes and a connecting bridge portion for covering the bridge of the nose, said portions together forming a fabric support for heating elements, a pair of conductor wires extending along each of said portions in spaced relation to each other, a non-metallic heating element for each of said portions and each consisting of a fabric strip wide enough to cover a substantial portion of the face and rendered conductive by conductive rubber applied thereto to form a sheet conductor, each strip having its side edges secured to said wires whereby to cause a heating current to flow substantially uniformly across these strips when a different electric potential is maintained between said wires, the operating temperature of the sheet conductor being only a few degrees above that applied to the face.

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