

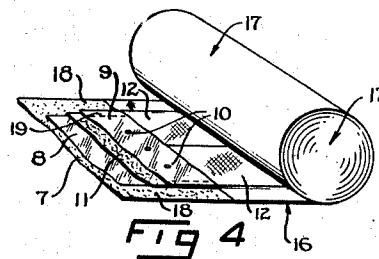
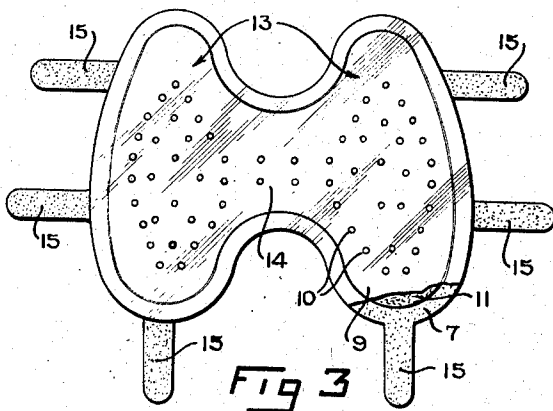
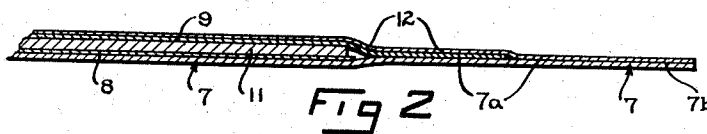
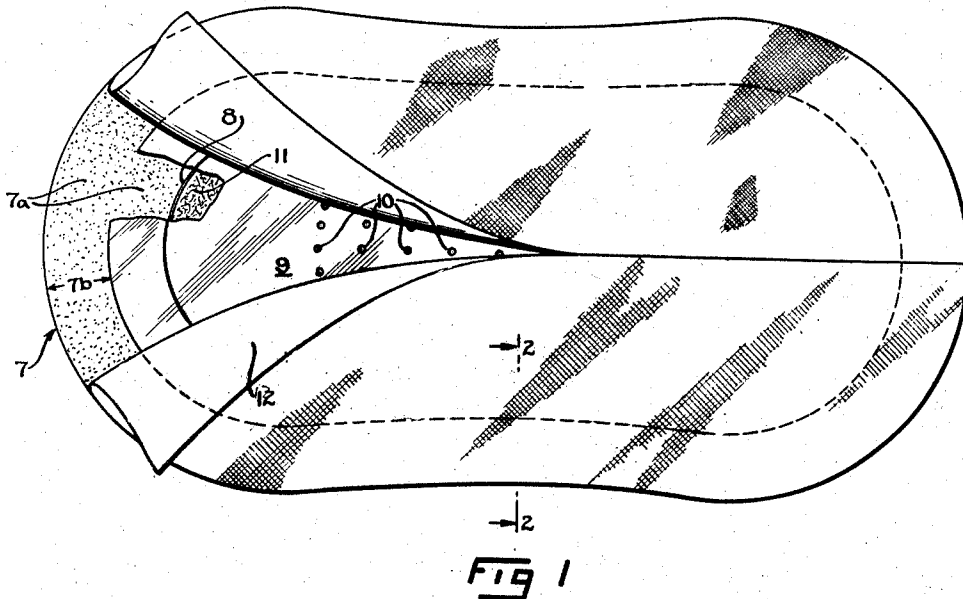
Sept. 15, 1942.

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2,296,207

THERAPEUTIC PAD

Filed April 25, 1941



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2,296,207

THERAPEUTIC PAD

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Application April 25, 1941, Serial No. 390,243

1 Claim. (Cl. 128-268)

This invention relates to a therapeutic pad adapted for ready external application to the body.

The therapeutic effect of heat is well known and various devices, such as pads which are electrically heated or bags for containing heating mediums, have been proposed for the purpose of applying heat to congested and inflamed areas. Devices of this kind require careful handling and considerable attention during use and accordingly, persons using these devices can engage in no other activity during the period of treatment. Moreover, the heating bags do not uniformly heat the area under treatment and the electrical pads tend to overheat the treated area, so that neither is entirely satisfactory in its heat application. Other devices heretofore proposed for relieving congestion served only as vehicles for counter-irritants and accordingly afforded limited relief, required frequent replacement, were expensive, and often produced skin irritations. It is, accordingly, an object of the present invention to provide a novel therapeutic pad adapted to aid in relieving congestions and reducing inflammations without producing the attendant discomforts and disadvantages of the devices heretofore proposed for this purpose.

Another object of the present invention is to provide a novel insulating pad adapted for ready attachment to any desired area of a person's body for retaining the body heat given off at that area.

A further object is to provide a pad of the above type with novel means for preventing any discomfort to the wearer as a result of any excesses in perspiration which may be induced by the retention of body heat at the area of application of the pad.

Still another object is to provide a novel therapeutic pad which can be conveniently worn beneath clothing and which will not hinder the wearer in his normal activities.

A still further object is to provide a pad having a novel body-engaging layer and means for securing said pad to the body.

A further object is to provide a novel therapeutic pad which is compact and relatively thin and which can be economically manufactured.

These and other objects and novel features will more fully appear from the following detailed description when the same is read in connection with the accompanying drawing. It is to be expressly understood, however, that the drawing is for the purpose of illustration only and is not intended as a definition of the limits of the

invention, reference being primarily had for this latter purpose to the appended claim.

In the drawing, wherein like reference characters refer to like parts throughout the several views,

Fig. 1 is a plan view with parts broken away of one embodiment of the novel therapeutic pad of the present invention, said view being taken from the body engaging side of said pad and showing the protective covering of the pad partially removed;

Fig. 2 is a sectional view of the pad taken substantially along line 2-2 of Fig. 1, the thickness of the laminations being exaggerated on this view;

Fig. 3 is a plan view of another pad embodying the invention, said pad having the protective layer therefor removed; and

Fig. 4 is a perspective view of the invention in a form in which it may be readily manufactured and handled in bulk.

The novel therapeutic pad comprises an outer layer of substantially impervious material which includes means for facilitating the attachment of the pad to the body of a wearer at any desired region. An inner or skin-engaging layer, also preferably consisting of an impervious material, and having perforations therein, is attached to the outer layer, for example, by adhesive or by being stitched thereto. It is preferable to treat the inner layer with a suitable material such as a wax which is rendered tacky when in engagement with a wearer's body, whereby the inner pad surface is caused to closely engage the wearer's body and to prevent the circulation of air between the pad and the body. A perspiration absorbing layer of suitable, pliable, porous material preferably having a low thermal conductivity, is provided between the outer and inner layers and serves to absorb the perspiration and to augment the heat insulating properties of the pad.

The pad, as shown in Figs. 1 and 2, is oval-shaped and relatively large in area being adapted in this form for convenient application to the back or chest regions of the wearer's body. It is to be understood, however, that the size and shape of the pad may be varied to suit the shape and area of the part of the body to which the same is to be applied. The outer layer of the pad preferably consists of a waterproof flexible sheet material 1 having an adhesive inner surface facing the skin-engaging side of the pad and a relatively smooth outer surface constituting the exterior of the pad. A layer 8 of

pliable material, such as a paper or a fabric, rendered impervious by suitable treatment, is preferably attached to the adhesive surface of sheet 7. A vegetable paper is preferable as the material for layer 8 and the latter, as shown, is similar in shape to sheet 7 but is of a smaller area so that when attached to said sheet a border 7a of adhesive surface extends on all sides of the layer. It has been found satisfactory to treat sheet 8 with a liquid paraffin containing 2% alum in order to render the layer impervious to air and moisture.

The skin-engaging lamination of the pad comprises a flexible, impervious sheet 9 having a plurality of perforations 10 therein in order to permit the flow of perspiration therethrough. As shown, sheet 9 extends beyond the edges of layer 8 and is adhesively secured to the inner edge of adhesive border 7a so as to leave portion 7b of border 7a uncovered for attachment to the skin of the wearer. Sheet 9 is preferably formed from a fabric, such as rayon silk, impregnated with a material which is adapted to become tacky at body temperatures. It is preferable to employ a liquid paraffin mixture as the impregnant and a novel mixture adapted to produce a very flexible sheet having a very low thermal conductivity comprises approximately 85 per cent by weight of liquid paraffin and approximately 15 per cent by weight of synthetic rubber. The synthetic rubber is preferably one of the polybutenes, i. e., the products having rubber-like properties produced by the polymerization of butene hydrocarbons. This impregnant is preferably mixed and applied to the fabric at a temperature of 120° F. to 130° F. and may be mixed with 2% alum and 2% carbolic acid liquor cresol compound or other suitable disinfectant. The disinfectant is desirable as an ingredient of the impregnant when the pad is to be applied so as to cover an open wound. Liquid paraffin or a mixture of liquid paraffin with small quantities of alum and carbolic acid liquor cresol compound may also be suitably employed as the impregnants.

To absorb the perspiration which flows through openings 10 and to augment the heat insulating properties of the pad, a layer 11 of absorbent material is disposed between skin-engaging sheet 9 and backing sheet 7, 8. Wool flannel is preferred as the material for layer 11, although other liquid-absorbing materials, such as cheese cloth, may be utilized, the materials having the lowest thermal conductivity for a given absorption capacity being preferred. Layer 11 is frictionally retained between sheet 9 and sheet 8 although said sheets and said layer may be sewed to each other and to layer 7.

In order to protect the adhesive border 7b of the pad before the latter is put to use and to protect the skin-engaging surface of layer 11 from dirt and undue handling, a layer 12 of gauze is preferably provided, being detachably secured to said pad. Gauze 12 is formed in two sections separable along a line intermediate the pad edges and can be readily removed prior to the application of the pad.

The pad is applied to congested areas by being pressed into contact therewith so that border 7b thereof adhesively engages the wearer's skin. The body heat tends to soften the wax on layer 9 and the latter is thereby caused to adhere to the skin, bringing the pad into close engagement with the area under treatment. The body heat is retained at the area of application and thus raises the average temperature at said area above that

which normally exists there and produces substantially the same effect as external heating. The perspiration which is induced as a result of the increase in temperature flows through perforation 10 and is absorbed by layer 11 so that the wearer of the pad is subjected to no discomfort. Moreover, the dehydration of the congested area produced by the increased perspiration tends to augment the therapeutic action of the retained body heat.

An embodiment of the present invention shaped for application to an ankle is shown in Fig. 3 and comprises a plurality of layers of material similar to those of the pad of Figs. 1 and 2, and, accordingly, like numerals are used to designate corresponding layers. As shown, the pad consists of a pair of oval-shaped ankle-engaging portions 13 joined by a central portion 14 adapted to extend over the instep when the pad is applied to the ankle. A plurality of adhesive tabs 15 are secured to or formed with adhesive sheet 7, and said sheet preferably has no adhesive border extending along the edges of portions 13 and 14, the tabs serving exclusively as the means for securing the ankle pad. If desired, an adhesive border may be provided by terminating skin-engaging layer 9 short of the edge of the adhesive sheet, in which event tabs 15 may be eliminated and the ankle pad attached to the body by means of said border. It is to be understood that a gauze guard layer (not shown) may be detachably secured in two sections to the inner surface of the pad.

Another novel embodiment of the laminated pad structure whereby large quantities thereof can be fabricated and conveniently handled is shown in Fig. 4. The pad material is manufactured as a single laminated strip 16 of considerable length and is wound as a roll 17 for distribution in bulk, sections of any desired length being cut from the roll when required. Strip 16 preferably comprises the same layers of material as the pad of Fig. 1 and is provided with adhesive borders 18 along both side edges. It is preferable when the pad is manufactured in strips in this manner to secure the several laminations to each other by means of threads 19 which are stitched through the laminations, the stitches extending lengthwise adjacent the side edges of the strip.

There is thus provided a novel therapeutic pad adapted for ready application in substantially any desired form to any portion of the body for relieving congestions and reducing inflammations. For example, a mask having the novel laminated structure of the pad may be fabricated for application to a person's nose and forehead region to alleviate sinus congestions. The pad structure, according to the present invention, is sufficiently thin to be conveniently worn beneath the clothing and does not inconvenience or hinder the wearer in his normal activity. By providing an antiseptic impregnant for the skin-engaging layer, it becomes safe to utilize the pads over open wounds, the pads then serving as bandages in addition to reducing inflammations. The pads provide a simple compact and economical form of local insulation whereby body heat is retained at the area of application and additional perspiration and dehydration is induced at said area. The use of the pads is not limited to human beings as it has been determined that the pads can be utilized on animals, as, for example, to eliminate congestions in cows' udders.

Although only three embodiments of the invention have been illustrated and described, it is to be expressly understood that the same is not limited thereto. For example, it will now be apparent to those skilled in the art that layer 8 of impervious material, which is attached to adhesive sheet 7, can be dispensed with since sheet 7 is impervious and waterproof. The material from which outer layer 9 is formed is therapeutically effective when applied to an inflamed or congested area as a single sheet and, accordingly, is not limited to utility only with the other laminations. Moreover, the central portion of sheet 7 adapted to be covered by layer 11 need not be adhesively coated and instead of using adhesive portions or tabs, other means, such as elastic bands, may be employed for attaching the pads to the body. Various other changes may be made in the design and arrangement of parts without departing from the spirit and scope of the invention. For a definition of the invention, reference will be had primarily to the appended claim.

What is claimed is:

A therapeutic pad for application to living body 25

portions comprising an outer layer of impervious material, said layer having a relatively smooth outer surface and an adhesive inner surface, a porous sheet attached to the central portion of said adhesive surface, said porous sheet being impregnated with a liquid paraffin and thereby rendered impervious to air and moisture, a body-engaging layer of porous material impregnated with a liquid paraffin containing an antiseptic substance, said body-engaging layer being adhesively attached along its edges to the adhesive surface of said outer layer in a manner to provide a border of adhesive surface surrounding said body-engaging layer, a layer of pliable liquid-absorbing material of low thermal conductivity held between said porous sheet and said body-engaging layer, the latter being perforated to allow absorption of perspiration by said liquid-absorbing material and the surface of said layer being of such nature as to become tacky due to confined body heat when the pad is applied to a living body portion, and a detachable gauze guard covering the entire inner surface of said pad.

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