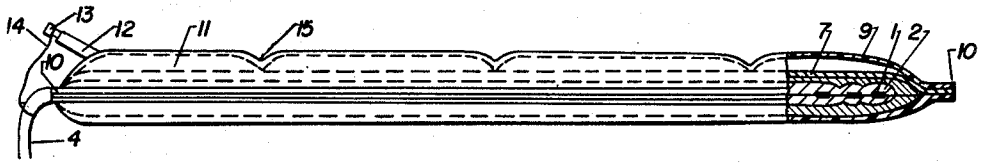
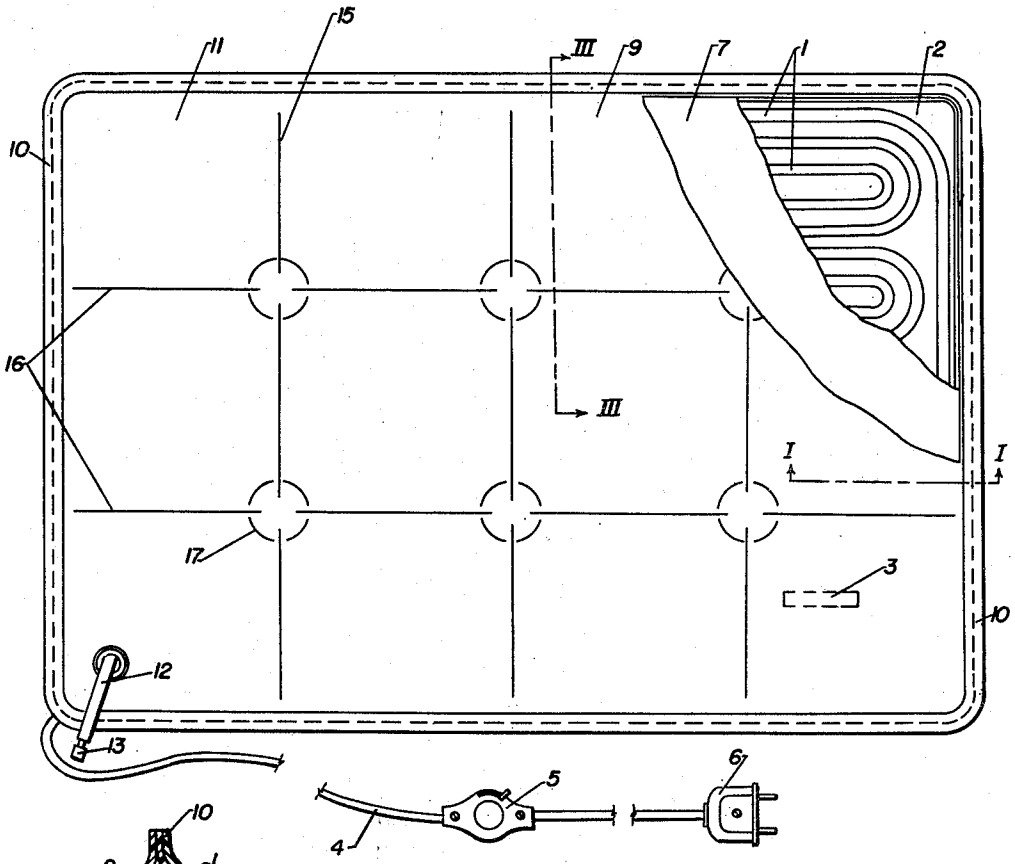
Jan. 19, 1954 E. W. BOETEL 2,666,839

ELECTRIC HEATING PAD

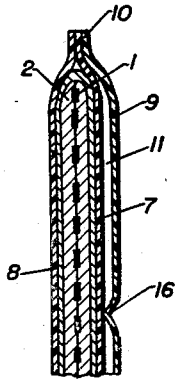
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Fig—1



Fig—2



Fig—3

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ELECTRIC HEATING PAD

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1 Claim. (Cl. 219—46)

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My invention relates to an electric heating pad which incloses a heating cord insulated with asbestos, imbedding a chromium nickel wire as heating unit, assured against too high temperature by cut-in thermostats, and embraced by a fireproof stuffing.

One object of my invention is to improve this heating pad so as to achieve a uniform heat at all points of the pad.

Another object of my invention is to free people from discomfort caused by the substantiality of the heating pad, i. e. of the heating coil and the cut-in thermostats, which bring along a certain pressure on the part of the body treated with the pad, which pressure is prevailing with the usual pads being manufactured till now and causing a certain feeling of unease and trouble.

These tasks are solved by the object of my invention as shown in the accompanying drawings in which:

Figure 1 represents a sectional view on the approximate plane I—I of Fig. 2 of the object of my invention,

Figure 2 is a vertical view on the heating pad the outer covers of which are partially removed,

Figure 3 is a sectional view on the heating pad, in the approximate plane III—III of Fig. 2.

Referring now to the drawings, 1 is a heating coil insulated with asbestos and consisting of a chromium nickel wire as heating unit. The bent heating coil 1 is imbedded in a fireproof stuffing 2 which may consist of glass texture. Both the thermostats 3 are cut into the bends of the heating coil 1, which is connected to the electric supply by the electric cable 4, a three step switch 5, and a wall plug 6.

The stuffing 2 containing the heating coil 1 is embraced by a foil 7 on its upper side and by a foil 8 on its lower side. Both these foils 7 and 8 consist of a thermoplastic material impermeable to air, e. g. of polyvinyl chloride, polyethylene, or of a material on the basis of polyamide. A third foil 9 of the same material is fastened on the foil 7, which covers the upper side of the heating coil 1. The margins of said foil 9 are firmly linked up with the margins of foil 7 and 8 by a close welded seam 10, which is procured by a known short length wave high frequency welding process and therefore exhibits a large solidity. The upper foil 9 in conjunction with the foil 7 beneath it forms an air cushion 11 which may be blown up or emptied by a valve 12 being admitted into foil 9 and consisting of a small tube of like material. The valve 12 is closed by a plug 13, the latter held by a cord 14 which is fastened to the cable 4. By several welded seams 15 and 16 running perpendicular to one another the air cushion 11 is divided into a plurality of smaller air chambers, as to be seen from Fig. 2. At their crossing points these welded seams 15 and 16 are interrupted by circular weld points 17; both these the former and the latter are procured by the same short length wave high frequency welding process as the marginal welded seam 10.

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Thus the heating pad is outwardly closed by the air cushion 11 on its upper side, and on its lower side by the even foil 8. Pursuant to this fact the warmth produced in the heating coil 1 is transmitted indirectly to the portion of the body being treated on account of the medium air inclosed in the air cushion. This air being uniformly warmed by the heating coil, the nests of heat prevailing with those heating pads known till now, which sometimes do even burn the part of the body to be treated, are assured to be avoided. Besides the parts of the body treated cannot any longer be bothered by pressure of the heating device as they are comfortably bedded on a soft and flexible cushion. This is of particular importance with regards to rheumatism, tissue inflammations, etc.

The even side of the heating pad not being provided with the air cushion is directly heated and therefore shows up a higher temperature than the upper side. As the step switch 5 generally has three steps there are six different stages of heat made available, depending which side of the heating pad is laid on the portion of the body to be treated.

The heating pad may be provided with an air cushion at both its sides, in which case both sides are of like form and material and shape.

Being provided with a foil of plastic material impermeable to air and moisture the heating pad offers the further advantage of having waterproof, acidproof, and scentless covers. Therefore the pad may easily be sterilized which makes it meet with all requirements of hygiene. As the covers are welded together the heating pad is assured to be very solid and completely impermeable to moisture. Thus the warmth supplied is bare of any moisture content. One also achieves a long service life of the heating pad as the heating coil is completely protected against corrosion by being surrounded with said foils.

The spirit of my invention may also be realized in other combinations which are fully within the scope of my claim. Thus instead of the foils of polyvinyl, polyethylene or on the basis of poly-

amides there may also be used gum foils for closing the heating pad and air cushion. The combination of an electric heating device with air cushions covering the former at least from one side, as provided according to the invention may in principle the same way be applied with other sorts of cushions, too, e. g. mattresses, blankets, and similar objects, for those objects do also to their fullest extent render appliable the improvements achieved by this invention. It is therefore to be understood that my invention is not limited to the details hereabove shown and described.

Having thus described my invention, my claim is:

An electric heating pad, comprising upper and lower smooth sheets of thermoplastic synthetic material in sealed connection at their margins, a heating coil interiorly of said sheets, fireproof stuffing interiorly of the sheets embracing said heating coil, a third sheet of thermoplastic material in sealed contact with the margins of the other two sheets and connected with one of the two other sheets by welded seams running substantially perpendicular to one another and interrupted by circular welded seams, an air cushion formed by the enclosure of the upper sheet and third sheet and divided by said seams into a plurality of small air chambers, said chambers being in open connection with one another, and a valve-controlled conduit extending into the enclosure and adapted to fill and empty said air chambers, said plurality of air chambers inclusive of the third sheet forming one cover and one of said smooth sheets forming the opposite cover of the heating pad.

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