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T. M. DICK

1,997,899

ELECTRICALLY HEATED PAD

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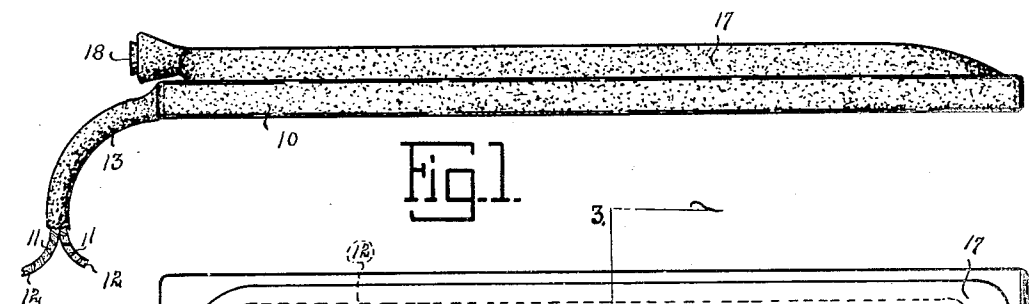


Fig. 1.

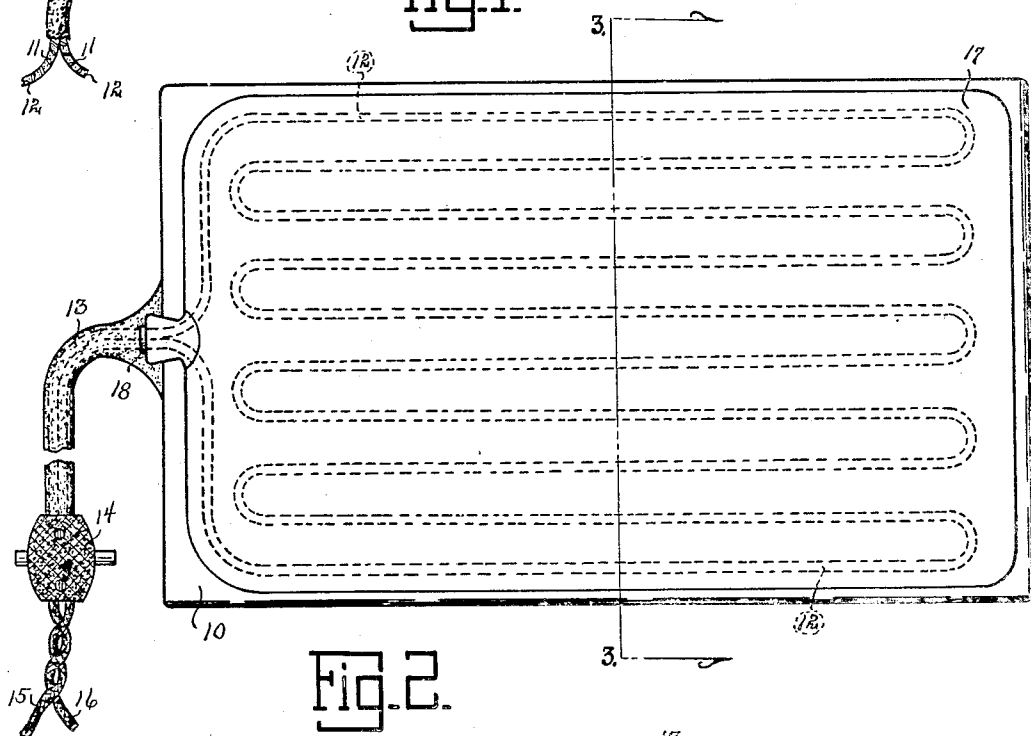


Fig. 2.

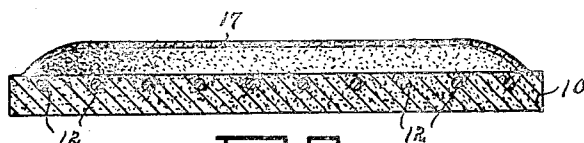


Fig. 3.

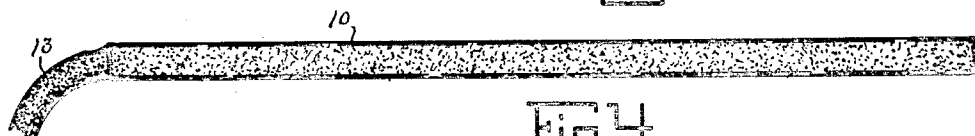


Fig. 4.

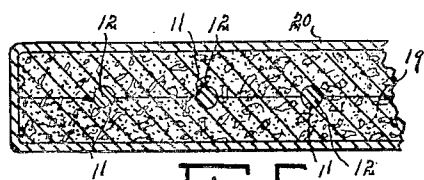


Fig. 5.

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ELECTRICALLY HEATED PAD

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Application August 22, 1931, Serial No. 558,653

6 Claims. (Cl. 219-46)

This invention relates to items made under the principle of molding resistance wire in sheet rubber and is more fully explained and claimed in my co-pending application filed April 18, 1929, Serial Number 356,130.

The principal object of this invention is to provide a stimulating heat pad or like that may be safely used and kept in a sanitary condition.

A further object of my invention is to provide an electrically heated heat pad of flexible and resilient material that easily conforms to the outlines of the body to which it is applied.

A still further object of my invention is to provide an electrically heated pad, for use on any part of the human anatomy, that is moisture-proof and of light weight.

A still further object of my invention is to provide an electrically heated pad that provides a uniform heating surface throughout its side area.

A still further object of this invention is to provide an electrically heated rubber pad that is economical in manufacture and durable in use.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawing, in which:

Fig. 1 is a side view of my complete invention ready for use.

Fig. 2 is a top plan view of the invention.

Fig. 3 is a cross sectional view of my pad taken on line 3-3 of Fig. 2.

Fig. 4 is a side view of my invention with the hot water container eliminated.

Fig. 5 is a sectional view of a heating pad or like manufactured under my invention and using sponge rubber for the base.

I am well aware that many types of heating pads have been manufactured and marketed heretofore and the prior art even teaches the water-proofing of heat pads by using the resistance wire in rubber. However, in such devices the resistance wire was wound around rigid rings or the like, which made the pad incapable of conforming to the outline of the part of the body to which it was applied. I also have found that straight resistance wire does not possess the desired flexibility for heat pads. On the other hand, my invention teaches the making of an electrically heated pad or like by embedding highly flexible resistance wire in a pad sheet of rubber with the resistance wire extended in con-

volutions throughout the area of the pad. By such a construction, a light, flat, desirable pad is provided.

Referring to the drawing, I have used the numeral 10 to designate a flat sheet of flexible and resilient material such as rubber. Inside this sheet pad 10 I have arranged my resistance wire, which I have designated by the numeral 11. This resistance wire is wound around a flexible cord 12 such as a cord of asbestos and provides with the cord, an elongated strand of wire. As shown by dotted lines in Fig. 2, a strand of this constructed wire is distributed throughout the area of the pad 10 in convolutions. The two end portions of this wire 11 extend from the pad through a flexible rubber shaft 13, which has its end integrally formed with the pad portion 10, as shown in the drawing. At the outer end of the flexible rubber shaft 13 may be a switch or like 14 for controlling the current passing into the resistance wire, as the two ends of the resistance wire are operatively connected to the outlet terminals of the member 14. The numerals 15 and 16 designate two electrical lead wires connected in the usual manner to the member 14 and leading to a source of electrical energy, not shown.

In the manufacturing of my pad, the member 10 may be made of two sheets of rubber placed, vulcanized, and molded together after the resistance wire has been placed between the two sheets. In Fig. 3, I show by dotted line the original inner faces of the two sheets that make up the pad. After the item has been completed the two sheets that make up the pad are to all intents and purposes, a single sheet pad of rubber with the resistance wire embedded therein.

By the resistance wire being arranged in convolutions throughout the area of the pad 10, it may easily bend in any direction to conform to the desires of the user and the heat from the pad will be evenly distributed throughout the pad.

It should be further noted that by this construction it is unnecessary to embed any rings or base members inside the pad for the winding and the supporting of resistance wire. As before stated, such base members do not hold the wire apart from itself, are very cumbersome, and make the pad unwieldy. By the two sheets of rubber that make up the sheet pad 10 being pressed and formed integrally with each other, the strand of resistance wire will not only be held in proper positions at all times, but will be successfully held from contacting its own convolutions. In other words, the pad 10 holds and completely embraces

the strand of wire in the pad 10 as it extends in its convolutions.

On one side of the pad 10 I have provided a sheet 17 of resilient and flexible material such as rubber. This sheet is rigidly secured at its marginal edges to the side of the pad portion 10, as shown in the drawing. By being only secured to the pad portion at its marginal edges, a compartment is provided between its inner side and the side of the pad to which it is secured. This compartment may be filled with liquid such as water through the filling cap 18 and this portion of the invention may be likened to that of a hot water bottle.

Naturally, if water exists in the compartment created by the additional sheet 17 and the resistance wire is being energized by a source of electricity, the water therein will be kept in a desirable heated condition for therapeutic purposes. In order that this liquid or water be more successfully heated the resistance wire 11 may be closer to the side of the pad 10 to which the sheet 17 is secured than it is to the opposite side of the pad 10.

By such a construction, the user has a selective heat to choose from. By placing the water bottle side to the part being treated, the user will obtain a hot water bottle type of heat, while if he applies the opposite flat side of the portion 10, he will obtain a dry hot heat application.

As the sheet 17, which forms the outer side of the water container, is of comparatively flexible and resilient material, it will easily conform to the outlines of the part of the body being treated.

In Fig. 5 I show the base portion of the pad made out of sponge rubber which I have designated by the numeral 19. When sponge rubber is used, an extremely light pad is provided. In order to prevent foreign matter penetrating the outer sides of the sponge, the same should be coated with an impervious skin of rubber which I have designated by the numeral 20.

From the foregoing it will readily be appreciated that I have provided a very desirable sanitary electrically heated pad or like, having its resistance wire arranged in convolutions which are entirely supported and held in spaced relationship solely by the surrounding material of the pad.

Some changes may be made in the construction and arrangement of my improved electrically heated pad without departing from the real spirit

and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a heating pad or like, a body member of flexible water-proof resilient material, a circuit of resistance wire embedded in said body member; said circuit of resistance wire extending in convolutions throughout the area of said body member, and a liquid compartment formed on one side of said body member.

2. In a heating pad or like, a comparatively flat body member of flexible resilient water-proof material such as rubber, a strand of resistance wire embedded in said body member and extending in spaced convolutions throughout the area of said body member, and a liquid compartment formed on one side of said body member.

3. In a heating pad or like, a comparatively flat pad-like member of rubber, a heating element embedded in said pad member designed to be in electrical communication with a source of electrical energy, and a liquid compartment integrally formed on one side of said pad member.

4. In a heating pad or like, a flat pad-like member of rubber or like, a circuit of resistance wire embedded in said pad member and arranged in convolutions throughout the area of said pad, and a liquid compartment rigidly secured to one side of said pad member; said circuit of resistance wire being closer to the surface of the side of the pad to which the liquid compartment is secured than it is to the other side of said pad member.

5. In a heating pad or like, a comparatively thin body member of flexible resilient water-proof material such as rubber, a strand of resistance wire embedded in and distributed through said body member designed to be in communication with a source of electrical energy, and a compartment formed on one side of said body member.

6. As a new article of manufacture, a body member of sponge rubber, a circuit of resistance wire embedded in said body member; said circuit of resistance wire being supported and held in spaced relationship solely by the surrounding material of said body member, and a comparatively thin impervious rubber skin secured to and embracing said sponge rubber body.

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