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T. KOBAYASHI

1,573,116

THERMATOLOGIC ELECTRODE

Filed Sept. 2, 1924

Fig. 1.

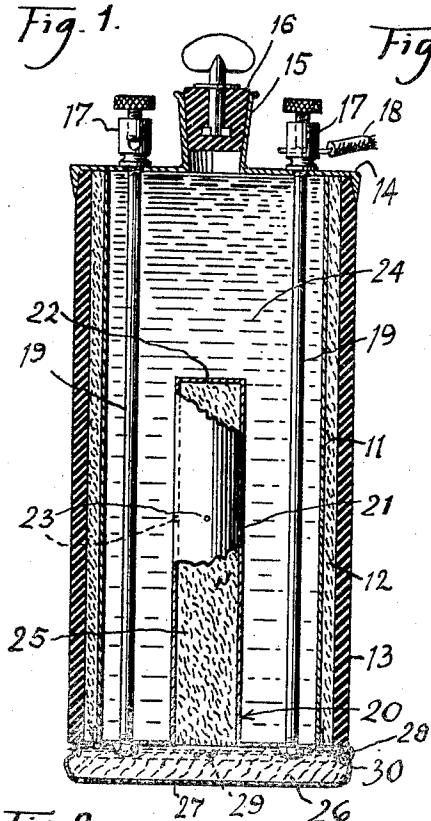


Fig. 4.

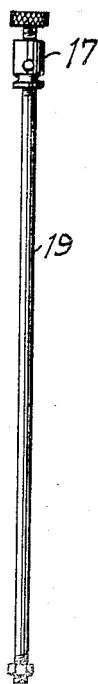


Fig. 5.

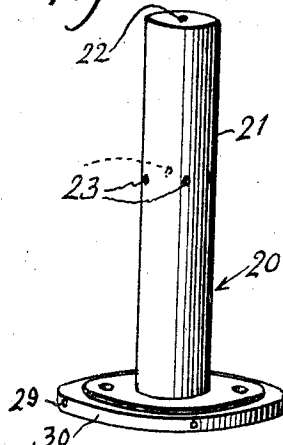


Fig. 2.



Fig. 3.

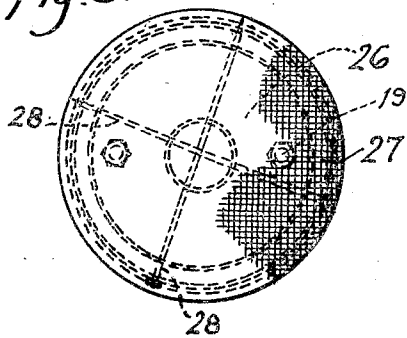
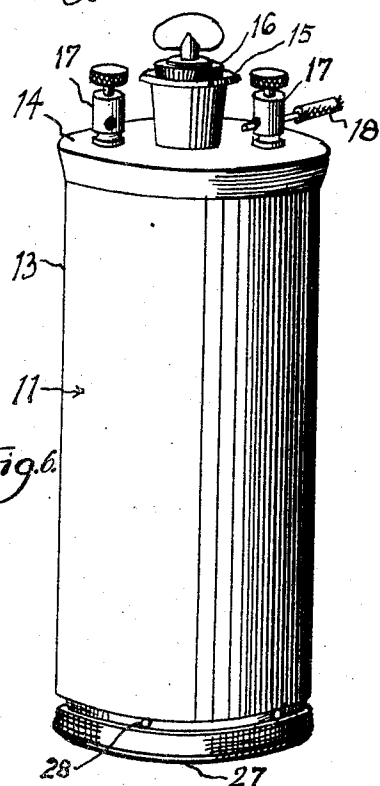


Fig. 6.



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THERMATOLOGIC ELECTRODE.

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To all whom it may concern:

Be it known that I, TSURUKICHI KOBAYASHI, a subject of the Emperor of Japan, residing in the city and county of Los Angeles and State of California, have invented a new and useful Thermatologic Electrode, of which the following is a specification.

The present invention relates to a device adapted for the application of electric current for therapeutic effects, and embodies means for applying heat and moisture for stimulating the circulation, and other healing effects, conjointly with the application of an electric current.

Another object is to provide means for the application of medicative fluids conjointly with electrical treatments.

Another object is to provide an electrode having a detachable contact element whereby the same may be readily renewed or replaced for sanitary purposes.

Another object is to provide an electrode embodying a combination of elements adapted for a uniform and continuous application of electric current in therapeutic treatments.

With the ordinary electrodes, the electrical effects are intermittent and irregular, for, if the electrodes are dipped in a fluid, the current is supernormal when the electrodes are moist, and subnormal when the electrodes become dry.

To avoid these objections, I have provided an improved form of electrode, capable of holding a quantity of fluid, and, if such fluid be heated, capable of retaining a uniform temperature for some time and capable of maintaining the contact element in a moist condition for a considerable time.

Various modifications may be made without departing from the nature of the invention, which consists essentially of associating with faradic and galvanic electrode elements, other elements adapted to contain a heated liquid, elements for maintaining the liquid in its heated condition, and a contact element adapted for distributing minute quantities of the liquid conjointly with the application of the electric current.

In the drawings: Figure 1 is a sectional view of an electrode constructed in accordance with my invention. Fig. 2 is a detail view of the contact pad. Fig. 3 is a plan view of the contact end of the electrode, showing in dotted lines, the pins for retain-

ing the pad in position. Fig. 4 is a detail view of a binding post for attachment to an electric terminal wire. Fig. 5 is a perspective detail view of an inner container element. Fig. 6 is a perspective view of the electrode.

Referring to the drawings, the tubular casing 11, forms the body of the electrode, and is covered with a heat insulating jacket 12, preferably of asbestos, and an exterior protecting jacket 13, preferably of rubber fabric. A cap 14, forming one end of the electrode, is provided with a nozzle 15, for refilling purposes. A rubber plug 16, serves as a closure for the nozzle. The cap 14 is provided with two binding posts 17, to either of which an electric conductor 18, may be connected. Rods 19 extend longitudinally through the body and are connected to the inner retainer element 20, which forms the opposite head of the body. The element 20 is provided with a central portion 21, projecting axially and longitudinally within the body, and provided with minute apertures 22 and 23. These apertures permit the liquid content 24 to percolate therethrough and to permeate the fabric filler 25, which is preferably of asbestos. The contact element 26, consists of a pad of absorbent fiber, provided with a coarse fabric cover 27. Silver pins 28, extend through the edges of the fabric retainer 27, and through apertures 29, in the flange 30 which is integral with the inner retainer element 20. The cap 14, tubular body 11, and inner retainer element 20, are all silver, or preferably silver-plated. Corrosion by the liquid content 24, is therefore avoided. The edges of fabric element 27 are protected by jackets 12 and 13.

While but one electrode is shown, it is to be understood that in use, two electrodes similar to Fig. 1 will be employed by the operator, each connected to an electrical conductor of opposite polarity as required for electric treatments.

In use, the electrodes are first filled with warm or hot water of the desired temperature, or with a medicated liquid, and then the electrodes are applied for massaging the person treated in the ordinary manner. The liquid permeates the filler and the contact pad, and maintains the contact pad in a moist condition. The application of the electric current, conjointly with application of heat,

is favorable for ozonizing minute quantities of the moisture, and thereby increases the therapeutic effects.

While the elements shown and described are well adapted to serve the purpose for which they are intended, it is obvious that the device may be altered and modified in minor details without departing from the invention or sacrificing any of its advantages.

I claim:

1. In a thermatologic electrode, the combination with a body and a liquid content therein, of a cap forming the upper extremity of the body, an inner container member forming the opposite end of the body and extending axially therein, an absorbent filler for the inner container member, said container member having a series of minute apertures, metal rods extending through the body and connecting the cap and inner container member, terminal binding posts on said rods and on the exterior of the cap, and a contact pad of absorbent material detachably secured to the lower extremity of the body, and arranged in contact with the absorbent filler.

2. In a thermatologic electrode, the combination with metal elements arranged for application of an electric current, of container elements associated therewith, a liquid content therein, an absorbent pad mounted on the container elements, an inner con-

tainer extending within the liquid container, an absorbent filler in the inner container and abutting against the absorbent pad, said inner container having a series of minute apertures to pass the liquid content to the filler, and concentrically arranged heat insulating jackets encasing the container elements.

3. In a thermatologic electrode, the combination with a liquid container including a tubular body, a cap forming one end, and an inner concentric container forming the opposite end and having its inner wall pierced with a series of minute apertures, of an apertured flange integral with the inner container, rods connecting the inner container and cap, binding posts on the exterior of the cap and connected to said rods, a refilling nozzle on the cap, a plug serving to close said nozzle, a liquid content within the body, an absorbent filler for the inner container, an absorbent contact pad mounted on the end of the body, a fabric cover for the contact pad, and retaining pins extending through the fabric cover and the apertured flange to detachably secure the contact pad in connection with the absorbent filler and an operative position on the body.

In testimony whereof, I hereunto affix my signature.

TSURUKICHI KOBAYASHI.