(No Model.)

# A. P. VAN TUYL, Jr.

## MEDICAL ELECTRODE.

No. 542,508. Patented July 9, 1895.

Fig. 1.

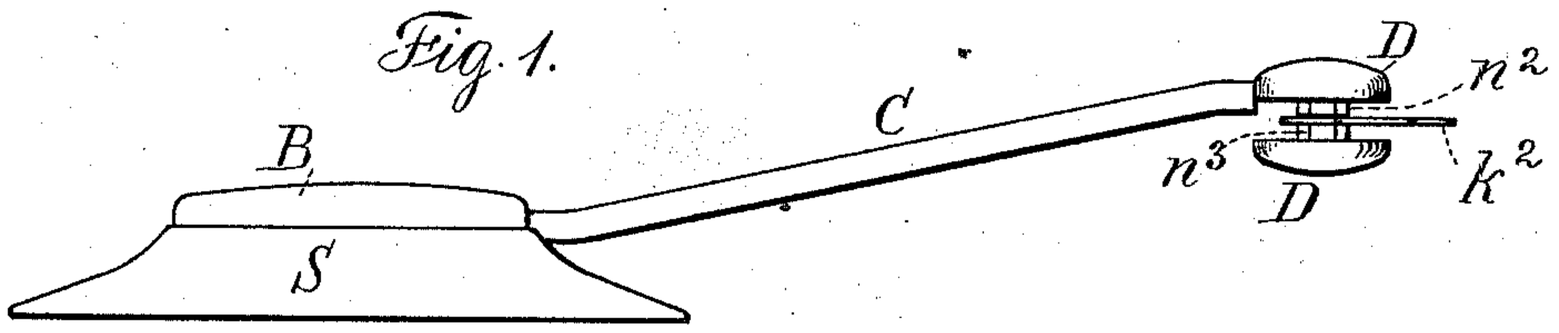



Fig. 2.

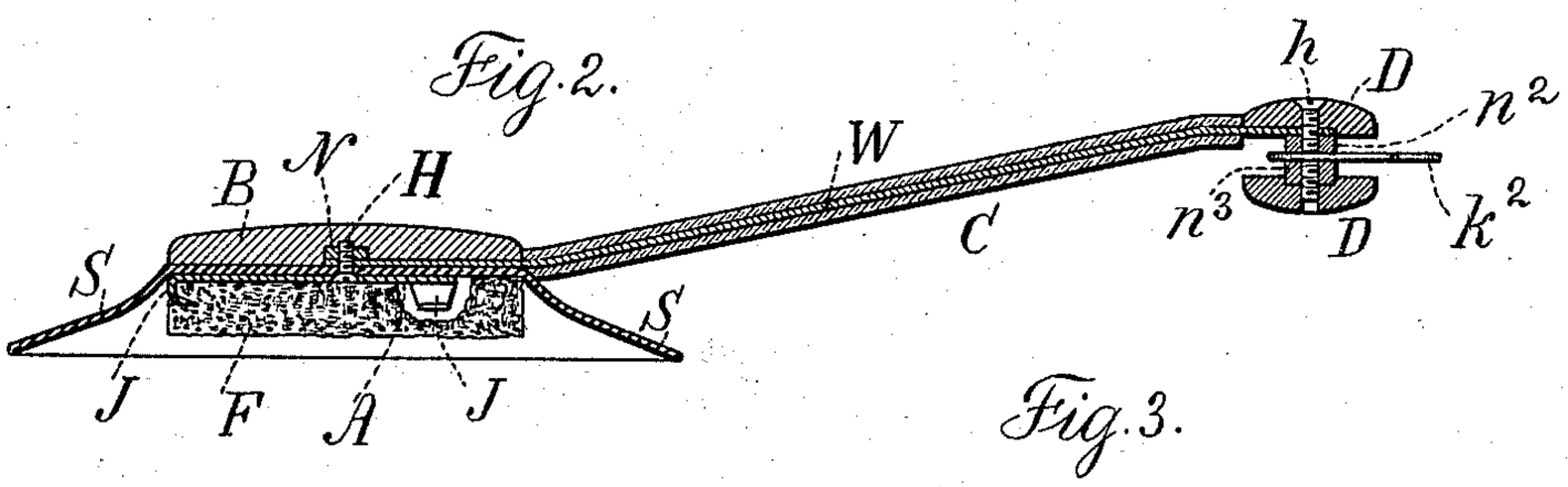



Fig. 3.


Fig. 4.

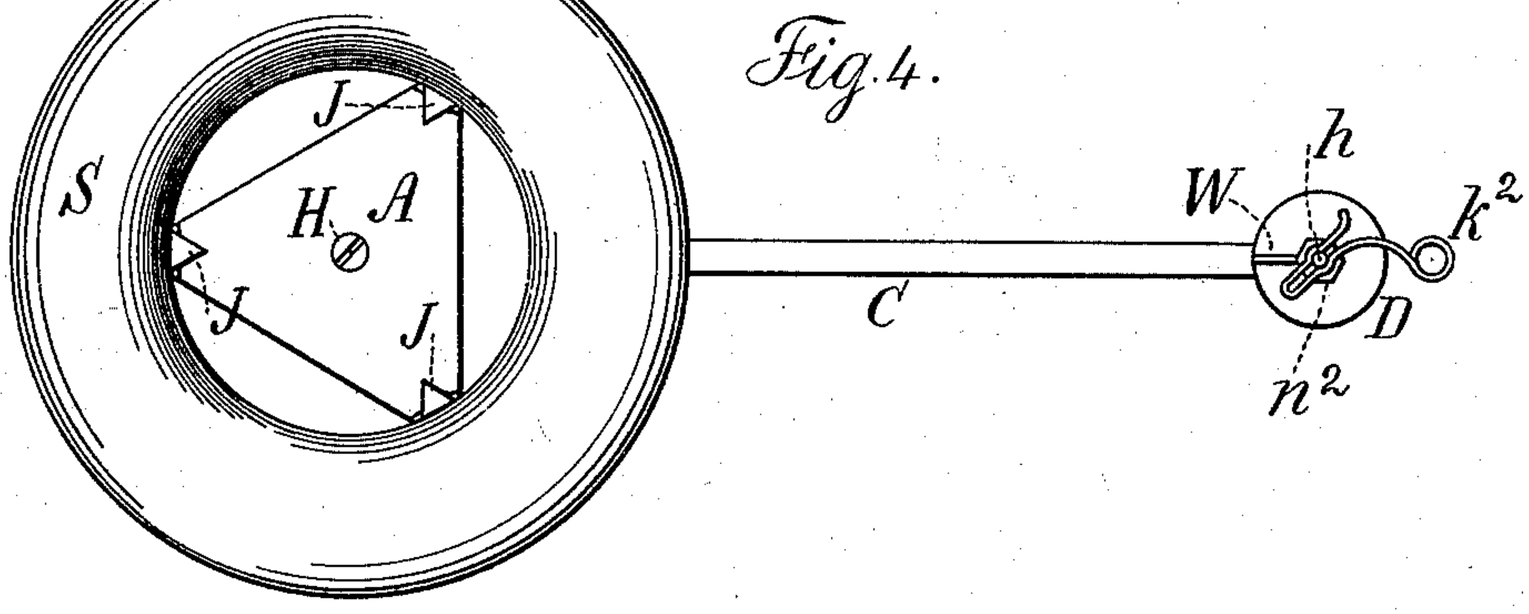
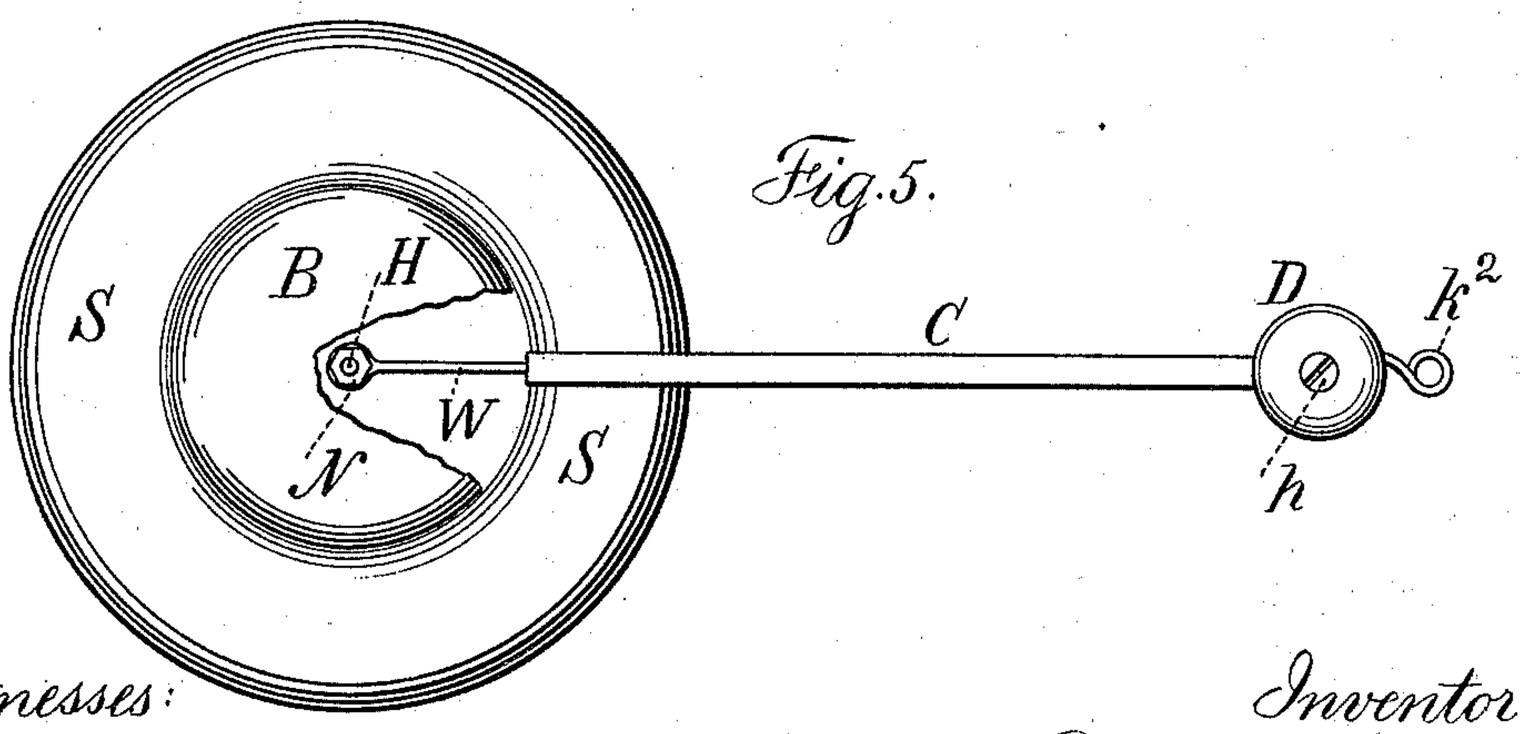



Fig. 5.

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# UNITED STATES PATENT OFFICE.

ANDREW P. VAN TUYL, JR., OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF AND EDWARD C. PARK, OF SAME PLACE.

## MEDICAL ELECTRODE.

SPECIFICATION forming part of Letters Patent No. 542,508, dated July 9, 1895.

Application filed May 15, 1895. Serial No. 549,400. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW P. VAN TUYL, Jr., a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Medical Electrodes, of which the following is a specification.

The object of the present invention is to provide a medical electrode for electrotherapeutic use, where the medical or other solutions or liquids are required to be held against the skin of the body during the passage of an electric current through the same for remedial purposes, and this medical electrode is very convenient, because the absorbent material can be readily attached or detached, and the liquid that is applied to the same is retained and not liable to drop or run away during its application to the body.

The electrode is very compact and of a convenient shape for applying upon almost any portion of the body, and the electrical connection is brought in laterally, so as to be out of the way when the electrode is in use, and the wire to the battery is easily connected or disconnected.

In the drawings, Figure 1 is a side view of the instrument. Fig. 2 is a section longitudinally. Fig. 3 is a detached sectional view of the disk of felt or similar material. Fig. 4 shows the face of the instrument with the disk of felt and one of the buttons removed, and Fig. 5 is an elevation of the back of the instrument with a portion of the back plate removed.

The sponge-plate A is of metal and preferably square or triangular, with the corners J bent over to form hooks to receive between them the sponge or felt F, which is preferably circular in form and of suitable thickness for holding the required amount of liquid or semi-liquid medicinal material to be applied to the surface of the body as an electric current is passed through the same.

The back plate B is advantageously of non-conducting material, such as hard rubber, and between the same and the sponge-plate A is introduced the inner edges of the rubber skirt S, so that such edges will be clamped by screwing the sponge-plate and back plate together by one or more screws, represented at H, and this skirt S extends out around the sponge or felt F, and such skirt is conical in shape, so that its edges will set closely against the skin for confining any liquid with which the sponge or felt F is saturated.

The conductor W is provided with an insulating-covering and is advantageously sufficiently rigid to form a handle C to the instrument, and the conductor W is permanently connected to the sponge-plate A by solder or otherwise. I have represented such conductor W as permanently connected with the nut N for the screw H, so that the parts are held reliably together, but can be detached for cleaning when desired, and it will be observed that the edges of the skirt S, being clamped, will prevent moisture passing in between the sponge-plate A and the back plate B.

Any desired device may be provided for receiving the battery-wire. I have, however, represented the buttons D connected together by the screw *h*, that passes through the buttons and through a nut $n^2$, and the spring-link $k^2$ is adapted to pass around the screw *h*, between the nuts $n^2$ $n^3$, and it is provided with an eye into which may be received one of the conductors, through which the current is supplied from a suitable battery or other source of electric energy.

It will now be understood that when the sponge or felt F has been properly saturated with the desired medicated liquid the same is introduced between the hooks J on the sponge-plate A, a battery-wire is connected to the link $k^2$, and the apparatus is applied to the desired part of the body with the sponge or felt F, resting against the skin, and the moisture is retained by the rubber skirt S, and the electric current passes through the sponge-plate and through the medicated liquid to the body, the patient holding the other electrode from the battery, or the same being applied in any other desired manner to the body, and the electric current passing into the body carries with it the medicinal materials or acts upon the same, so as to render them efficient as a remedial agent.

The apparatus is easily taken apart and cleaned when not desired for use, and the apparatus being small and free from projec-

tions or binding posts the same can be applied to any desired part of the body without any risk of injury or inconvenience to the patient.

I claim as my invention—

1. An electrode for medical electro-therapeutic use having a sponge plate to which the conductor is connected and the corners of which plate are turned over to form hooks, and the removable felt or sponge secured by the hooks, substantially as set forth.

2. The combination in an electrode for medical electro-therapeutic use, of a sponge plate having its corners turned over to form hooks, a sponge or absorbent material held by such hooks, a conductor extending out from such sponge plate and having an insulating covering, a back plate connected with the sponge plate and an elastic skirt surrounding the sponge plate and having its edges held between such sponge plate and the back plate, substantially as set forth.

3. The combination in an electrode for medical purposes, of a sponge plate and a conductor therewith connected, sponge or other absorbent material upon such sponge plate, and a water-proof skirt connected with the sponge plate and surrounding the felt or sponge, substantially as set forth.

4. The combination in a medical electrode having a plate with its corners bent over to form hooks, of a removable sponge or felt for receiving the medicated liquid, a conductor connected with the sponge plate, and a back plate of insulating material, and a skirt having its inner edge clamped between the sponge plate and the back plate and surrounding the sponge or porous material, substantially as set forth.

5. The combination in a medical electrode, of a sponge plate, an insulated conductor extending out from the same, and buttons at the outer end of the conductor, a screw for connecting the buttons and the conductor and a spring link between the buttons and to which one of the battery conductors is connected, substantially as set forth.

Signed by me this 4th day of May, 1895.

ANDREW P. VAN TUYL, JR.

Witnesses:

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S. T. HAVILAND.