

J. BRYAN
ELECTRO VOLTAIC BELT.

No. 190,279.

Patented May 1, 1877.

Fig. 1.

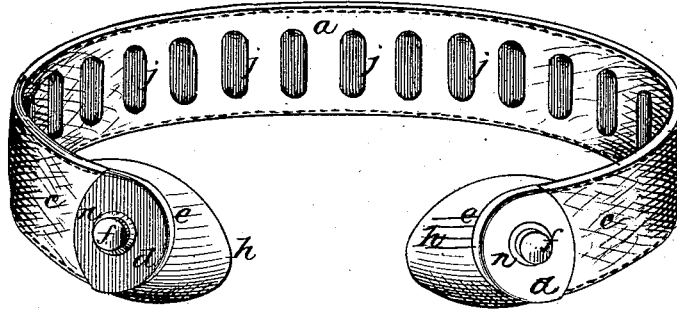


Fig. 2.

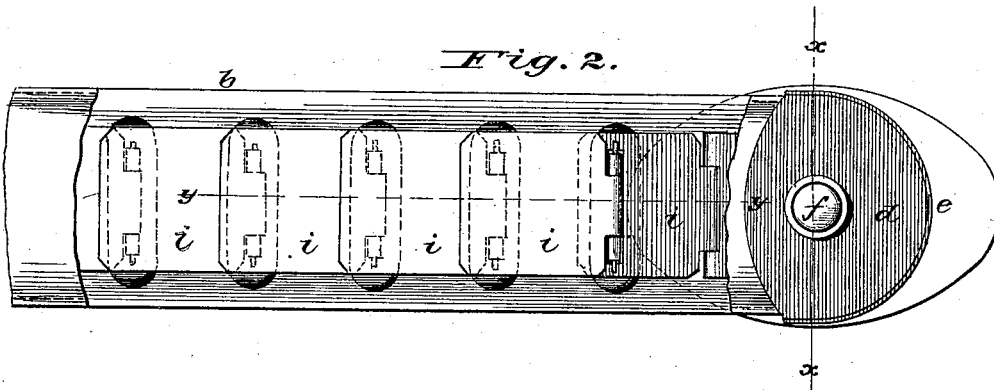


Fig. 3.

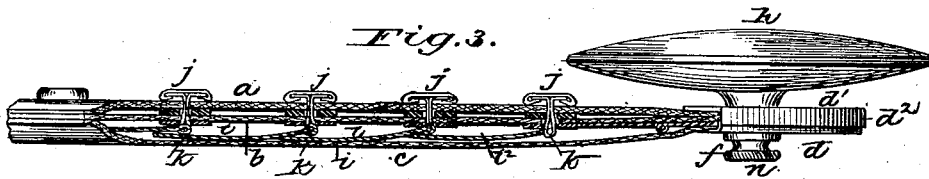
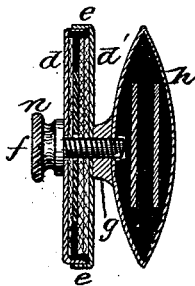


Fig. 4.



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Fig. 5.

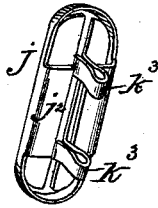


Fig. 6.

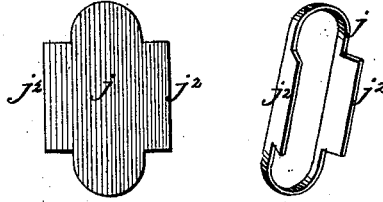


Fig. 7.

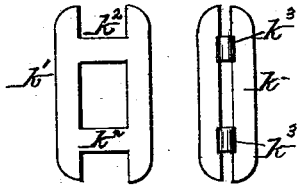
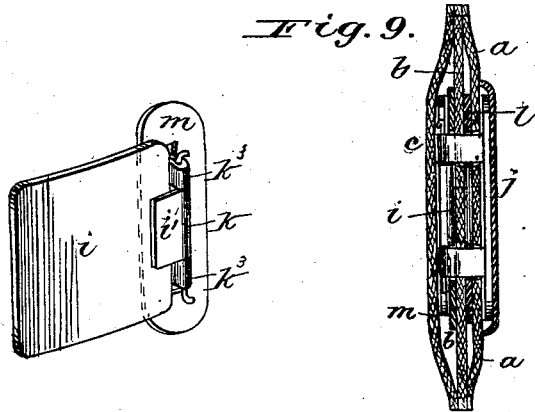


Fig. 8.



Fig. 9.



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UNITED STATES PATENT OFFICE.

JAMES BRYAN, OF NEW YORK, N. Y.

IMPROVEMENT IN ELECTRO-VOLTAIC BELTS.

Specification forming part of Letters Patent No. 190,279, dated May 1, 1877; application filed August 26, 1876.

To all whom it may concern:

Be it known that I, JAMES BRYAN, M. D., of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electro-Voltaic Appliances, of which the following is a specification:

This invention relates to certain improvements in electro-voltaic appliances to be worn around the human body for the treatment of various diseases; and it consists, first, in an improved construction and arrangement of the leaves or plates which compose the battery of the appliance, said leaves being each hinged at one end to the conductors, and having the other end disconnected and overlying the contiguous leaves throughout the battery; second, in the combination, with said overlying battery leaves or plates, of a series of oblong narrow conductors, to which the battery-leaves are hinged, as more fully hereinafter set forth.

In the accompanying drawings, Figure 1 represents an electro-voltaic chain-belt constructed according to my invention, Fig. 2, a part of the belt with a portion of the inside covering removed; Fig. 3, an edge view, partly in section; Fig. 4, a section on the line $x x$ of Fig. 2; Figs. 5, 6, 7, 8, and 9, detached views in detail, which will be hereinafter specifically described by letter.

In the various forms in which I make the appliance, the battery is secured to, and within, a suitable covering, having a belt or other form suited to the particular purpose for which it is to be applied. For this covering I employ three separate and distinct layers, to the outer and intermediate ones, a and b , of which the battery and its conductors are secured, while the inner one, c , serves to cover the battery. The ends of this covering are provided with terminal plates formed of two separate caps, each of which, $d d'$, has an upset lip, e , partly round its edges, so as to allow them to fit within each other over the ends of the covering, and to which they are clamped by a screw, f , which, passing through them and the end of the battery, screws into a socket, g , in the pad h , and thus a single screw serves to unite and secure the pad, the terminal plates, the ends of the battery, and the

ends of the covering together. These terminal plates at one end are of zinc, and form the positive pole, and at the other end they are of copper, and form the negative pole of the inclosed battery.

This method of attaching the several parts together is convenient and durable, and greatly lessens the expense of construction.

The battery I prefer to make of leaves of zinc i and copper i^2 , each hinged at one edge only to the intermediate covering b , with their free ends overlying and resting upon the contiguous leaf, as I obtain by this construction a greater flexibility of the appliance, and lessen the expense of connected hinges, while preserving the continuous connection of the battery with the poles.

The conductors, of copper, zinc, or other suitable metal, are narrow oblong caps, j , and are secured upon the outer surface of the covering a , in line with the hinged edges of the battery-leaves, and to these conductors the leaves are connected by hinges k . These conductors serve to distribute the electricity at various points along the circuit of the battery to the person of the wearer, with which they must have contact, and their form is adapted to give out the current more like a sheet, and to have a greater contacting-surface, while allowing the greatest possible flexibility to the appliance, and co-operate in this particular with the single-hinged battery-leaves, with which they are connected. As shown, this connection is made by providing the blanks j for the conductors with side lips j^2 , and upsetting these with the edges of the blank, so as to form a shallow tray. The hinge proper is formed of a skeleton blank, k^1 , with cross-bars k^2 , which, when the blank is crimped, form loop-eyes k^3 , as in Fig. 5. This looped plate fits in the tray between the lips j^2 , which, when stamped down, clamp the looped plate firmly thereto, with the loop-eyes k^3 standing out sufficiently to pass through the outer and intermediate coverings a and b , so that a wire can be passed through the loop-eyes on the inner side of the covering b , and the hinge formed therewith, by bending a tongue, i^1 , of the leaves i over the wire between the loop-eyes. The pads are hollow, and filled with magnetic plates or filings.

The screw-sockets for attaching the poles to the terminal plates are formed in brass nuts on the back plates. The terminals themselves, however, may have one of their sides form the pads, in which case the inner surfaces of the inner terminal plates are made convex, and its inner side flat, to clamp the cover ends, as described; or the pads may be connected, by metallic plates, to the terminal plates, so as to allow the pads to hang down, or to be adjusted as desired. The battery-conductors may be arranged to cover the chest, spine, or be applied to the lungs or limbs, the intention being to make appliances suitable for any part of the body, and they are provided with suitable straps and tapes to hold them in place. The clamp-screws for the terminal plates are provided with buttons *n* at their outer edges to receive a connecting-strap for the poles of the appliance.

What I claim, and desire to secure by Letters Patent, is—

1. In an electro-voltaic and magnetic appliance, the battery-leaves hinged at one end, and having the other end disconnected and overlying the contiguous leaves throughout the battery, substantially as and for the purpose herein set forth.

2. In an electro-voltaic and magnetic appliance, the combination of the narrow oblong conductors with the overlying battery-leaves, hinged at one end to said conductors, substantially as and for the purpose herein set forth.

3. The conductor-lipped caps, in combination with the loop-eyed fastenings and the battery, as and for the purpose herein set forth.

4. The terminal plates *d* *d*¹, provided with the edge lips *d*², adapted to fit one within the other, in combination with the battery, the covers, and the clamp-screws, substantially as and for the purpose herein set forth.

5. The combination, with the terminal plates, constructed as described, of the pads and clamp-screws, whereby all the parts are united by the same screw.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

JAMES BRYAN, M. D.

Witnesses:

CHAS. E. OVENS, M. D.

W. J. BELL.