

I. L. PULVERMACHER.
VOLTA ELECTRIC APPARATUS.

No. 177,275.

Patented May 9, 1876.

Fig.1.

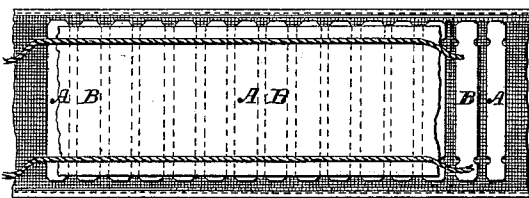


Fig.2.

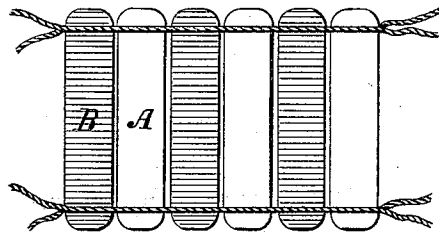


Fig.3.

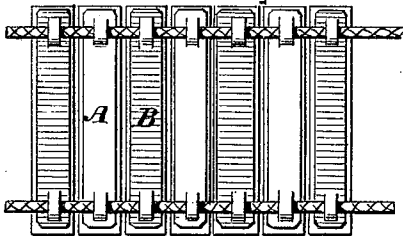
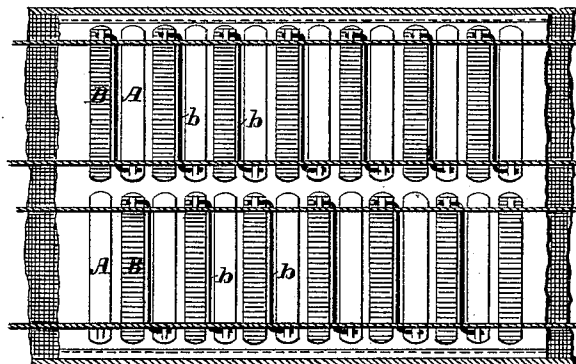


Fig.4.



✓ ATTEST=

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UNITED STATES PATENT OFFICE.

ISAAC L. PULVERMACHER, OF LONDON, ENGLAND, ASSIGNOR TO JOHN EDWARD HETHERINGTON, OF CINCINNATI, OHIO.

IMPROVEMENT IN VOLTA-ELECTRIC APPARATUS.

Specification forming part of Letters Patent No. **177,275**, dated May 9, 1876; application filed March 14, 1876.

To all whom it may concern:

Be it known that I, ISAAC LOUIS PULVERMACHER, of London, England, have invented certain Improvements in Volta-Electric Appliances, of which the following is a specification:

This invention has for its object the construction of volta-galvanic elements in the general form of bands or belts; and it consists, essentially, in the peculiar construction and arrangement of alternate plates or strips of copper and zinc in connection with a film of porous absorbent material, as will be hereinafter specified.

In the drawings, Figure 1 shows a series of copper and zinc plates, lettered, respectively, A and B, notched at *a a* on the edges, near the top and bottom, for the reception of a binding-thread, a twist, say, of two threads at the junctions maintaining the plates at the proper distance apart. The plates are arranged in alternate order between a strip of absorbent material and a backing-strip of non-absorbent material, the whole being secured together to form a belt.

Fig. 2 shows the strips as looped or strung together before being attached to the backing, and Fig. 3 shows a method of looping or stringing them upon cords.

Fig. 4 represents a series of copper and zinc plates in alternate order on the upper backing, the ends of the plates being put into voltaic connection or contact by means of flexible wires *b b*, in alternate couples, as shown. Below them is another series, similarly arranged on the same backing. By folding the backing on the line between the ends of the series they are brought toward each other as a book is closed, and a layer of moistened fabric is placed between, thus forming a battery for producing an electric current.

The backing upon which the plates are mounted may be of canvas, or some material of a similar nature.

By substituting hardened steel (nickel) for the copper plates, and magnetizing them, a magnetic and voltaic battery is thereby produced, which allows a simultaneous application of magnetism and electricity to the human body.

I have already obtained a patent for the within-described invention in Great Britain, which Patent bears date November 16, 1874, No. 3,937.

Having thus described my invention, I do not claim, broadly, forming belts of alternately-arranged plates of dissimilar metals attached to cords, as that is shown in my patent of November 7, 1871; but

What I do claim is—

1. The combination of the plates or strips A B of dissimilar metals, notched or looped, and arranged in alternate order upon cords, with a backing-strip of non-absorbent material and a facing-strip of absorbent material, between which the said strips or plates are secured, as herein set forth.

2. The arrangement of the plates in two rows or series, as in Fig. 3, upon a continuous backing of non-absorbent material, so as to be folded, as set forth, upon a strip of absorbent material containing an exciting-fluid, all as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two witnesses.

ISAAC LOUIS PULVERMACHER.

Witnesses:

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