

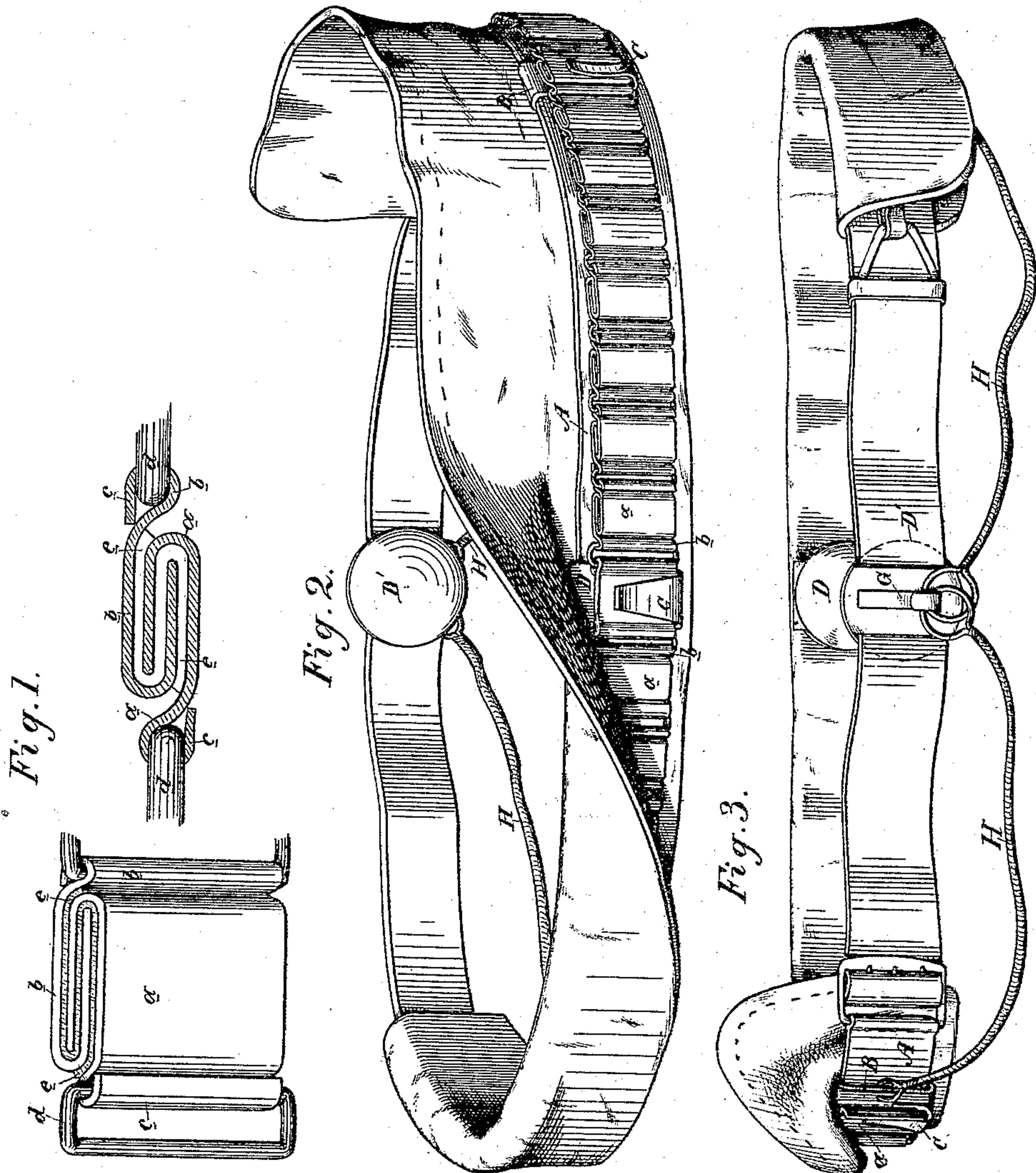
(No Model.)

A. T. SHERWOOD.

VOLTAIC BELT.

No. 335,637.

Patented Feb. 9, 1886.



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UNITED STATES PATENT OFFICE.

ANDREW T. SHERWOOD, OF SAN FRANCISCO, CALIFORNIA.

VOLTAIC BELT.

SPECIFICATION forming part of Letters Patent No. 335,637, dated February 9, 1886.

Application filed February 9, 1885. Serial No. 155,430. (No model.)

To all whom it may concern:

Be known that I, ANDREW T. SHERWOOD, of the city and county of San Francisco, State of California, have invented an Improvement in Voltaic Belts; and I hereby declare the following to be a full, clear, and exact description of the same.

My improvement in electric belts relates, first, to an improved manner of constructing and combining the plates of different metals—such as zinc and copper—and the interlying fibrous substance which compose the separate elements of a voltaic battery, and the manner of connecting these elements together, so as to form a battery which is capable of generating an electric current for therapeutical purposes; and, second, by the covering belt, which supports and envelops the batteries, to protect the clothing of the wearer from being soiled by the exciting liquid which is used for saturating the fibrous material.

It also consists in a means for connecting the ends of the belt and in certain details of construction, all of which will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is an enlarged view of one of the links of my belt, showing its construction. Fig. 2 is a view of the belt with the folding envelope or cover, showing a part of it turned up to expose the metallic portion of the belt and showing its connections. Fig. 3 shows the manner of connecting it.

In the construction of my belt I employ plates of zinc *a* and copper *b*, which may be struck up by machinery or otherwise formed, so that each plate is curved and returns upon itself, its outer end being bent backward, so as to form a hook, *c*, into which the link *d* is secured. The opposite end of the copper plates lie between the two sides of the zinc plates, and the corresponding ends of the zinc plates in the same manner lie between the two sides of the copper plates. A strip of any suitable porous material, *e*—such, for instance, as blotting-paper—is folded between the adjacent parts of the metallic plates *a* and *b*, and the whole is then pressed together, so that the interposed porous material lies between the adjacent portions of the plates and keeps them out of contact. As many of these plates may be looped together as may be necessary

to form a current of the desired intensity, a plate of zinc being united to an adjacent one of copper, while the zinc plate of that section is again united to the copper plate, and so on to the end.

In the construction of my belt I prefer to arrange one half of it so that the current will pass toward the center and the other half in the same manner, only reversing the position of the plates so that the current in both portions passes toward the center.

A is a strip of webbing or any suitable material, having plates B fixed to it at intervals, these plates having hooks, as shown at C, so that the metallic portion of the belt heretofore described may be supported by these hooks. The belt A is fixed upon a strip of rubber-cloth or other suitable non-porous material, which is something more than double the width of the belt A. The upper portion of this strip folds over the outside of the belt A and the metallic belt which is supported by it, and this covers it entirely and keeps it out of contact with the person or clothing when it is thus applied. This non-porous folding cover may have an exterior surface lined with cloth or other suitable material.

A plate, D, which is fixed to the center and connects with a hook, C, upon the central part of the belt, is supported so that the two currents passing from the outer ends of the metallic voltaic belt will meet at this plate, and will pass from it through any conductor with which it may be placed in contact. The belt being placed around the person or article through which the current is to be passed, the ends of the web of the belt A may be united by an elastic strip, which may have a hook or clasp to make the connection, as shown. Upon the center of this connecting-piece, and at a point just opposite the plate D, is another similar plate, D', which is connected with the hooks G upon its exterior surface.

The opposite or outer ends of the metallic belt *a b* have the insulated flexible wires H attached to them, and these wires have loops at their opposite ends which may either be attached to the hooks G, or, when a truss is to be worn in connection with the belt, these wires are connected with the truss. The plates D D', through which the connection is made, may be formed in various ways. In the

present case I have shown the portion which lies upon the inside of the belt and next to the body as being a circular convex plate, and the rear portion, which is flat, is cut in the same shape, so that its upper and lower edges may be fastened to the upper and lower edges of the outer plate. The sides of the rear portion are cut off, as shown in Fig. 3, so as to allow the belt to pass through the opening thus formed between the two plates. This allows the device to be adjusted and moved to any point upon the belt where it may be desired to use it.

Upon the flat portion of the plate is fixed a spring-clip, hook, or other device, to which the voltaic belt or connecting-wires H thereof may be attached in the manner hereinbefore described.

It will be seen that the united elements *a b* of which the voltaic portion of the belt is composed may be removed at any time from their supporting-hooks and rolled or coiled up, after which the roll may be set with one edge in a shallow dish containing dilute acid, which will soon be absorbed by the porous substance, so that the latter becomes entirely wet with it. The outer surface being wiped dry the roll is replaced within the clasps or upon the hooks, and the flap-cover may be folded over it so as to entirely cover and protect it. This form of cover is especially useful, as it is easy to apply and remove the voltaic portion of the belt, and when the belt is not in use the cover can be thrown back so that it readily dries out, and all parts are open to inspection.

When the belt is applied to the body, the folding cover and the circular position about the body keeps its place without any fastening, the manner of folding being sufficient to retain it.

The elastic strip or connection by which the ends of the main belt are united is arranged so that it may be taken up at each end for the purpose of keeping it in its place in the center at the front.

By constructing the voltaic portion of the belt of plates *a b* folded, as I have shown them, the joints or links between each pair of elements are kept out of contact with the porous

material containing the acid, which is thus only absorbed and held between the plates, while the links are kept comparatively clear of the acid, and after the plates have been removed from the acid the exterior can be wiped dry and the links be entirely clean, which prevents their being destroyed by corrosion.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a voltaic belt or series, the plates *a b*, bent and interlocked, as described, so that the sides of the plate overlap each other and the ends of each are inclosed between the two sides of the adjacent plate, both plates having their opposite ends bent in the form of a hook, to receive the links by which the sections are united, together with a strip of porous material folded so as to lie between the adjacent portions of the plates, to prevent metallic contact, substantially as herein described.

2. The combination of a circular convex plate having a flat plate united to its upper and lower rear edges, the sides of this plate being cut away so as to form openings through which the belt may pass, and a hook or clasp fixed to the flat plate, whereby connection therewith may be made or broken with the belting which supports the plate in the flexible connections H H, and the voltaic series, substantially as herein described.

3. A voltaic belt composed of two sections so arranged that the currents pass from the outer ends to the center, and a plate through which they are transmitted, a secondary belt having a series of hooks or clasps by which the metallic belt may be supported, a flexible non-porous cover attached to said belt so that it may be folded over it, and an elastic connecting-piece by which the ends of the belt may be united, having adjusting-clasps at each end and a central plate with clasps to which the ends of the voltaic belt may be connected, substantially as herein described.

In witness whereof I have hereunto set my hand.

ANDREW T. SHERWOOD.

Witnesses:

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