(No Model.)

A. DOW.

ELECTRO GALVANIC BELT.

No. 407,473. Patented July 23, 1889.

Fig. 1.

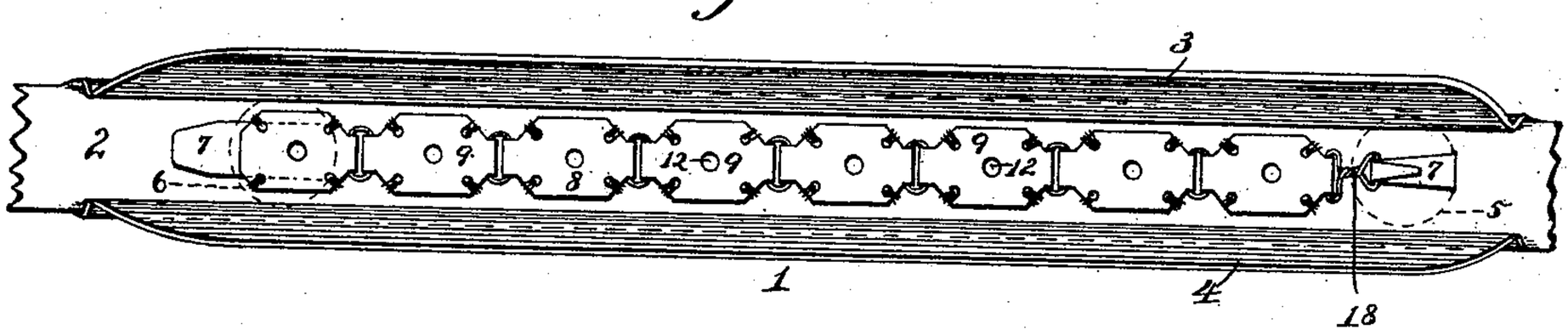


Fig. 2.

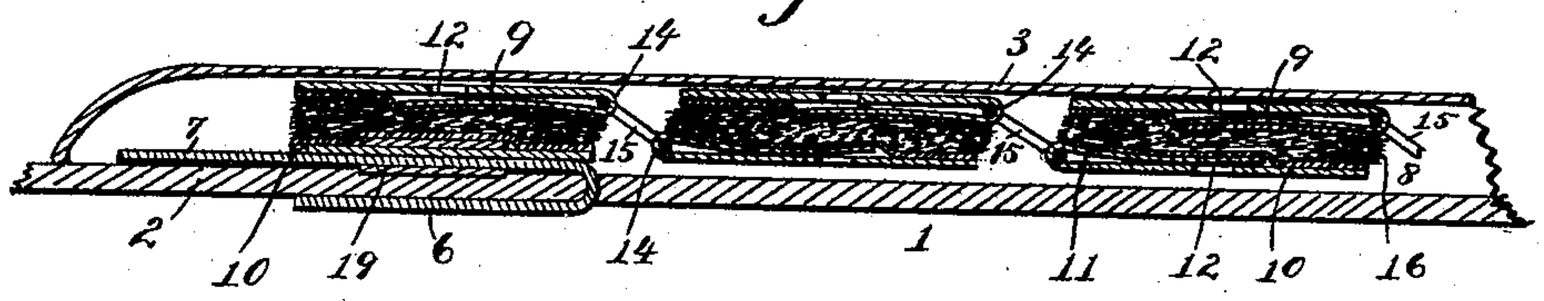


Fig. 3.

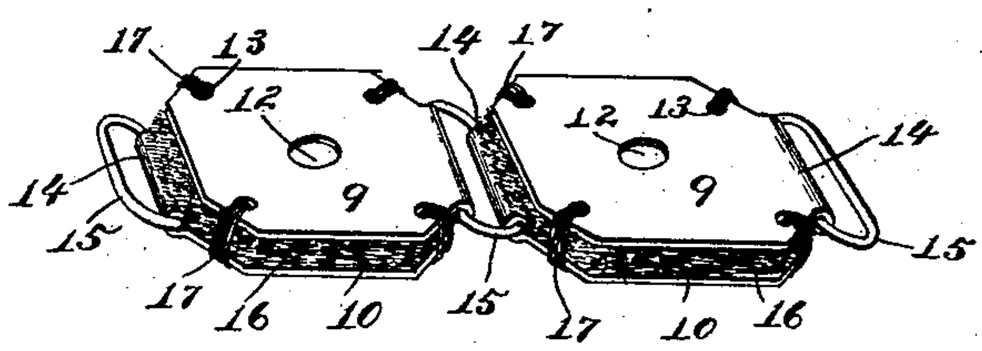
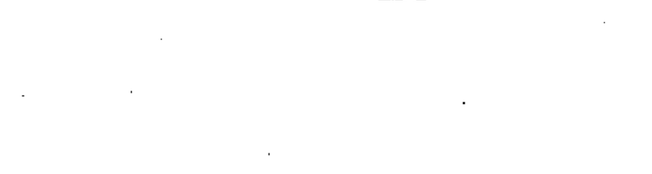


Fig. 4.



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ELECTRO-GALVANIC BELT.

SPECIFICATION forming part of Letters Patent No. 407,473, dated July 23, 1889.

Application filed April 11, 1889. Serial No. 306,871. (No model.)

To all whom it may concern:

Be it known that I, ALONZO DOW, a citizen of the United States, residing at Wooster, in the county of Wayne and State of Ohio, have invented certain new and useful Improvements in Electro-Galvanic Belts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in electro-galvanic belts; and it consists of the peculiar construction and arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

As an understanding of my invention can be had to better advantage in connection with the accompanying drawings, I will now proceed to a detailed description thereof in connection with said drawings, in which—

Figure 1 is a perspective view, with the concealing-flaps open to show the interior arrangement of the cells. Fig. 2 is a longitudinal sectional view through one end of the belt. Fig. 3 is an enlarged perspective view of two of the cells hinged together. Fig. 4 is a detail view of one of the plates or elements of one of the cells before it is bent to form one of the hinge-loops.

Like numerals of reference denote corresponding parts in all the figures of the drawings, referring to which, 1 designates the sheath that receives the cells of the battery. On one side the body 2 of this sheath is provided with foldable flaps 3 4, which are each secured longitudinally at one edge to the body, and are adapted to be folded over and lap each other, the inner opposing faces of these flaps and the body being preferably lined with a liquid-proof fabric to prevent the exciting-fluid with which the absorbent pads of the cells are saturated from escaping from the sheath. Near each end the sheath is provided with an electrode 5 6, made of metal, that are to be applied directly to the person of the wearer, and each of these electrodes has a hook or prong 7, that extends through the back of the sheath to the inner side thereof, and to which are connected the series of hinged cells 8. Each cell consists of two elements or plates 9 10 and an interposed absorbent pad 16, which are peculiarly constructed and connected together in the manner which I will now describe. In practice each plate or element is stamped or "struck up" from a single piece of metal, and has an integral tongue 11, that is arranged at one end in line with the longitudinal center of said plate; and it is further provided with a central opening 12 and an aperture 13 at each corner thereof.

The extended central tongue is folded or doubled upon the plate or element, so as to lap or lie over the central aperture 12 thereof, but at a short distance from said plate, so as to leave an intervening space and thus avoid entirely closing the central aperture, for a purpose hereinafter explained. By folding the tongue upon the plate or element a loop or eye 14 is provided at one end of said plate, through which a connecting hinge-loop 15 is passed to connect two adjoining cells together in such a manner as to permit the cells to move or give laterally, but prevent any substantial edgewise play.

It will be understood that each cell is composed of elements of opposite polarity, and in practice I make the elements of copper and zinc, while the intermediate absorbent pad 16 is preferably made of sponge or like material, which is placed between two layers of fabric that protect the absorbent pad from direct contact with the metallic plates; but I do not wish to be confined strictly to the use of the particular materials herein specified.

The two metallic plates or elements of the cell are arranged parallel with each other with the intermediate absorbent pad flush with the edges thereof and the elements, and pad are securely and firmly bound and united together by fastenings 17, which are passed through the apertures at the corners or angles of the plates and the absorbent pad, whereby the plates are united to each other and to the pad and the whole bound together in a substantial manner. The doubled or folded tongues of the plates are arranged within the cell adjoining the absorbent pad, so as to be concealed from view, protected from injury, and expose a large metallic surface to the action of the exciting-fluid, and the eye or loop 14 of one plate or element is extended beyond the cell at one end, while

the corresponding eye or loop of the other element or plate is extended beyond the opposite end of said cell, whereby means is provided for hinging the cell to adjoining cells on both sides thereof.

The hinge-loop 15 between two adjoining cells is connected to the positive element of one cell and the negative element of the adjoining cell to insure the generation and transmission of the current from cell to cell throughout the series, and the current is applied to the person through the medium of the electrodes at the ends of the belt.

Any desired number of cells can be employed, and the pads of the cells can be saturated with any of the well-known kinds of exciting-fluid.

By providing the plates or elements with the folded or bent tongues and arranging the latter on the opposing faces of the elements adjoining the absorbent pad, which contains the exciting-fluid, I am able to provide the eyes or loops for the attachment of the hinge-loops and also to secure a larger area or surface of metal for the exciting-fluid to act on and thus secure an increased current. By constructing the cells in the manner described they can be manufactured very economically and rapidly, and they are readily coupled together. By means of the central apertures 13 in the plates or elements, and by arranging the pads so as to leave their edges exposed the exciting-fluid can readily enter the pads and be quickly absorbed thereby, this construction also securing a very thorough saturation of the pads and the absorption of quite a large amount of exciting-fluid. At one end of the series of cells a loop 18 is provided to connect and attach the cells to the electrode 5 and the belt, while at the opposite end a broad metallic band or loop 19 is provided for the attachment of the other end of the series of cells to the electrode 6.

The series of cells can be readily removed from the belt by merely disengaging the hook and band 18 and 19 from the hooks of the electrodes and immersed in the exciting-fluid, after which the exposed faces of the metallic plates of the series of cells are wiped and the cells again connected to the electrodes in the manner described, and the flaps folded over the cells to conceal the latter when the belt is in condition for use.

The belt can be confined around the waist of the wearer by any of the ordinary fastening devices.

The operation and advantages of my invention will be readily understood and appreciated by those skilled in the art to which it relates from the foregoing description, taken in connection with the drawings.

Slight changes in the form and proportion of parts can be made without departing from the spirit or sacrificing the advantages of my invention.

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

1. In an electro-galvanic belt, a cell consisting of two metallic plates and an interposed absorbent pad, which are united together by transverse fastenings, each plate having an integral tongue that is folded or doubled upon the plate and arranged on the inside of the cell adjacent to the absorbent pad, the tongue of one element of the cell forming an eye at one end of said cell, and the tongue of the other element forming an eye at the opposite end of said cell, substantially as and for the purpose described.

2. In an electro-galvanic belt, a cell consisting of two metallic plates, each having a bent or folded tongue and a central and corner perforations, an absorbent pad interposed between said plates, and transverse fastenings passing through the corner apertures of the plates and the absorbent pads, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

ALONZO DOW.

Witnesses:
GEORGE STEINMETZ,
MAHLON ROUCH.