(No Model.)

W. LAUGHTON.

GALVANIC BELT.

No. 414,668. Patented Nov. 5, 1889.

Fig: 1.

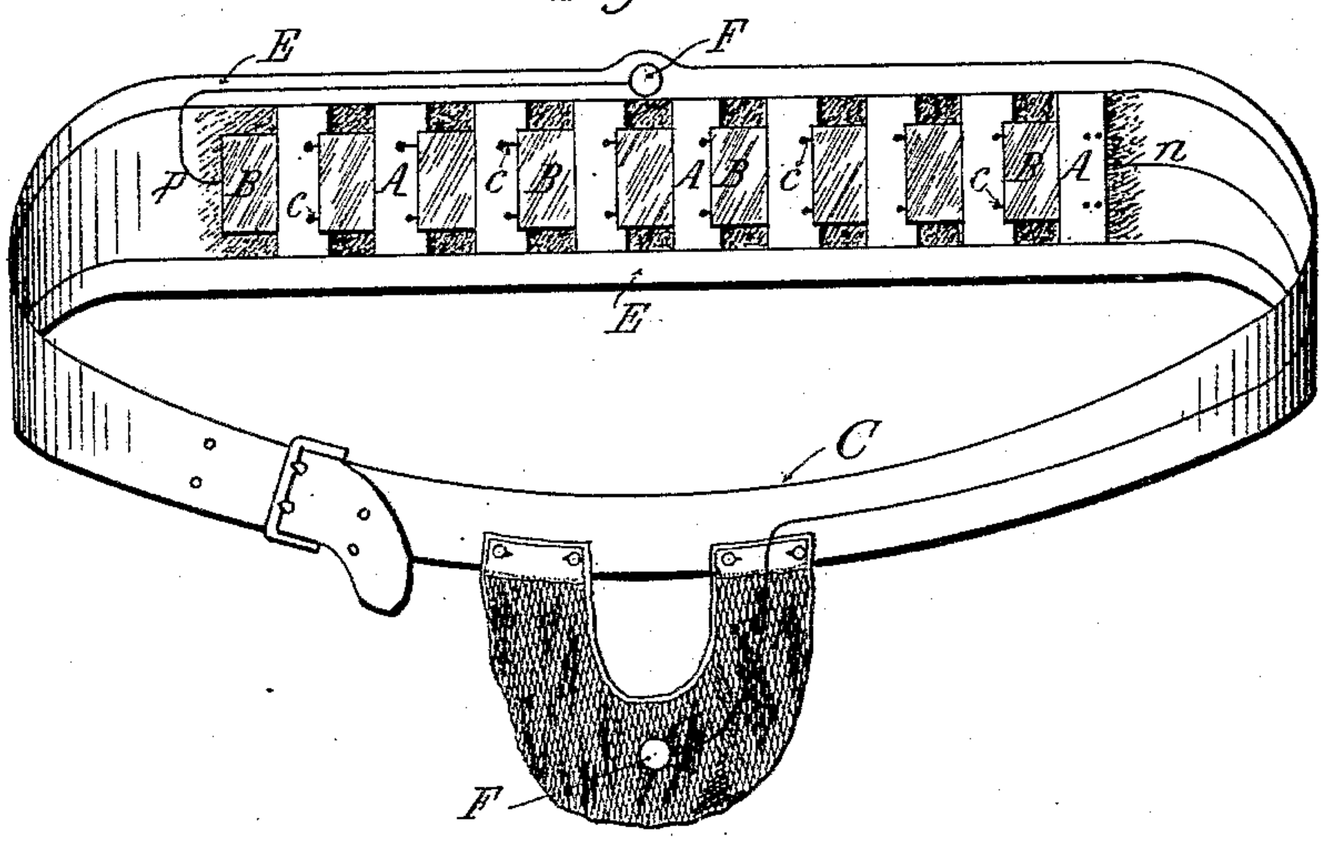


Fig: 2.

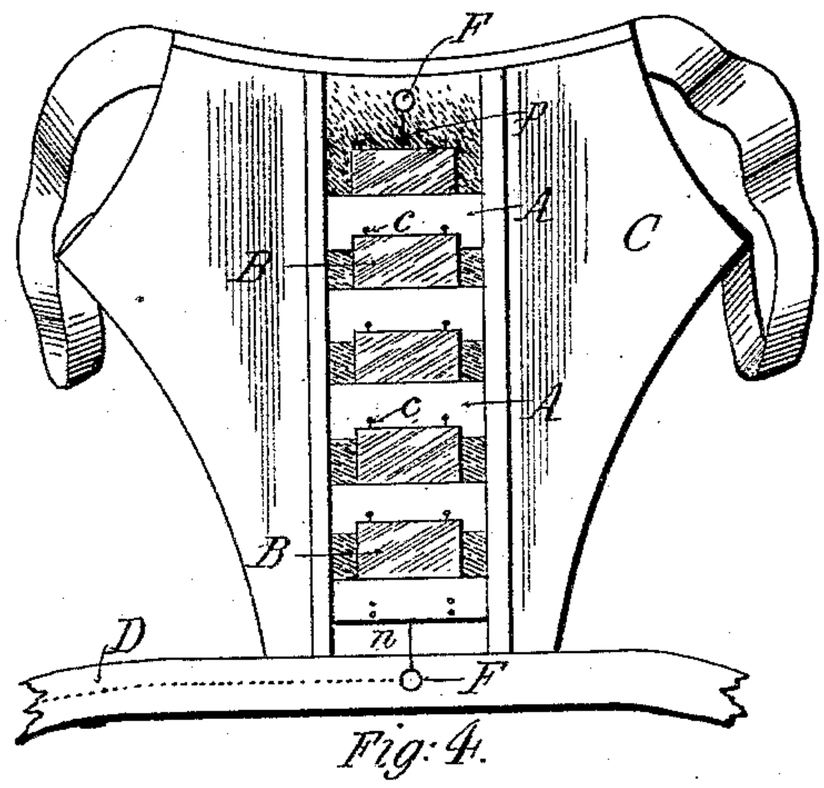


Fig: 3.

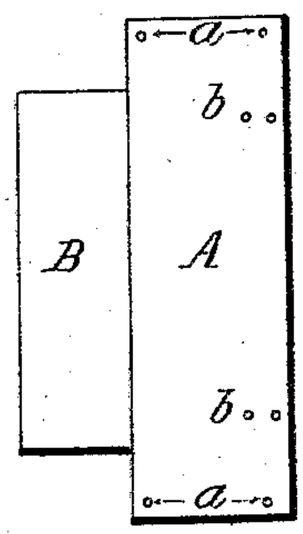


Fig: 4.

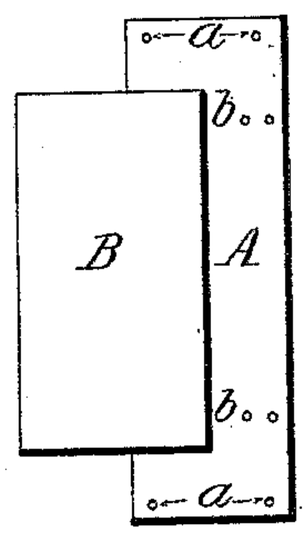
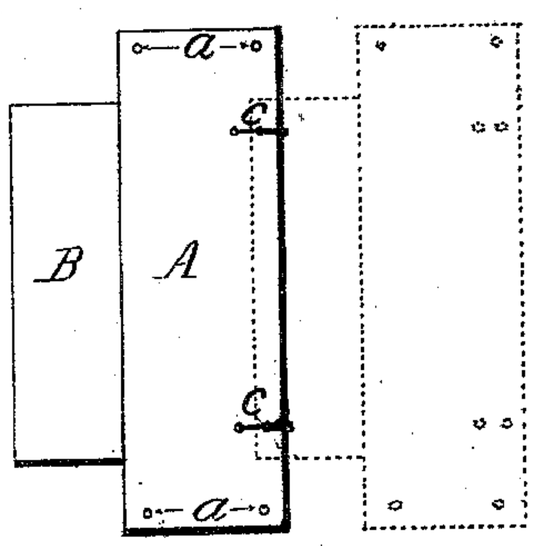


Fig: 5.



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UNITED STATES PATENT OFFICE.

WILLIAM LAUGHTON, OF NO. 41 RYLSTON ROAD, FULHAM, COUNTY OF MIDDLESEX, ASSIGNOR TO FRANCIS MORETON, OF LONDON, ENGLAND.

GALVANIC BELT.

SPECIFICATION forming part of Letters Patent No. 414,668, dated November 5, 1889.

Application filed October 26, 1888. Serial No. 289,251. (No model.) Patented in England June 12, 1888, No. 8,611.

To all whom it may concern:

Be it known that I, WILLIAM LAUGHTON, a subject of the Queen of Great Britain, residing at No. 41 Rylston Road, Fulham, in the county of Middlesex, England, have invented a certain new and useful Improved Form of Galvanic Belt for Medical Purposes, (for which Letters Patent have been granted to me in Great Britain, dated June 12, 1888, No. 8,611,) of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figures 1 and 2 are views of a band or belt formed according to my invention; and Figs. 3, 4, and 5 are details of the plates forming said galvanic belt.

In carrying out my invention I take a plate A, of copper, to which, at a point about midway across, I solder a plate of zinc or other suitable metal or substance B, which shall be electro-positive to the copper. I prefer to make the zinc plates B shorter than the copper plate A, in order that when the two dissimilar plates are joined together the extreme ends of the copper plate shall extend a short distance beyond the ends of the zinc plate.

Through each of the extended ends of the copper plate A one or more holes or perforations *a* is or are formed therein to allow of each pair of elements being attached to a band or belt C in the final process of connecting up the series. In addition to the holes or perforations *a* in the copper plate A, (shown more particularly in Figs. 3, 4, and 5,) and through that portion thereof not covered by the zinc plate B, I form two or more rows of holes or perforations *b*, each row consisting preferably of two holes or perforations. I may, however, under some circumstances employ more than two holes in each row.

Through the holes or perforations *b* aforesaid is or are threaded a stout thread or threads *c*, of any suitable material, in such a manner that when a series of the joined plates A B are attached to the band or belt C the zinc plate B will rest upon the thread or threads *c* interwoven or interlaced in the copper plate A of the adjacent pair, as shown in dotted lines in Fig. 5, and so on in like manner throughout the series, which may consist of any number of pairs of elements according to the size of the band or belt to be employed. The aforesaid threads *c c* are of flax, cotton, or other fibrous material, and do not form when new and dry an electrical connection between the plates they separate. Soon after the application of the belt to the person the humid and saline exhalations from the flesh moisten these threads *c c* and establish an electrical connection between all the pairs of elements in the series.

The battery having been formed as above described and attached to the band or belt C, which may be of any suitable material, a raised surface or cushion, consisting of a strip of felt or equivalent non-conducting material E, is secured to the band or belt C, and is of sufficient width to overlap and cover the extreme upper and lower ends of the copper plates A, in order that the exposed elements may not come into contact with the surface of the body while the belt is being worn and at the same time the zinc element B shall be fully exposed to the action of moisture of the body, which serves as the excitant. The raised strip of felt or equivalent non-conductor E must be of sufficient height so that neither the zinc nor the copper plates shall touch the body. The galvanic excitation is solely from the saline, warm, and humid exhalation from the flesh of the wearer, and not from any direct contact with the skin. The button ends F F of the wires D D are the only metal in contact with the body.

The current generated by the battery above described may be conveyed by flexible insulated wires D to any desired part of the body and connected to metal disks F, buttons, or equivalents, the other extremities of said wires D being metallically connected, one with the zinc element *p* of the series and the other wire to the copper element *n*, as shown at Figs. 1 and 2.

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

1. A galvanic belt for medical purposes, composed of a non-conducting flexible band or base having secured thereto a series of dissimilar metal plates in pairs separated from each other by absorbent threads acting as conductors of galvanism when damp with ex-

haled perspiration, said series being held from any contact with the body of the wearer by a raised strip or cushion of non-conductor and provided with terminal wires for conducting galvanic action to the body of the wearer, substantially as set forth and shown.

2. In a galvanic belt or band, the combination, with a series of elements of dissimilar metals forming a battery, of a raised surface or cushion of non-conducting material secured to the belt or band and overlapping the copper elements, substantially as and for the purpose set forth.

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

London, October 4, 1888.

WILLIAM LAUGHTON.

Witnesses:

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