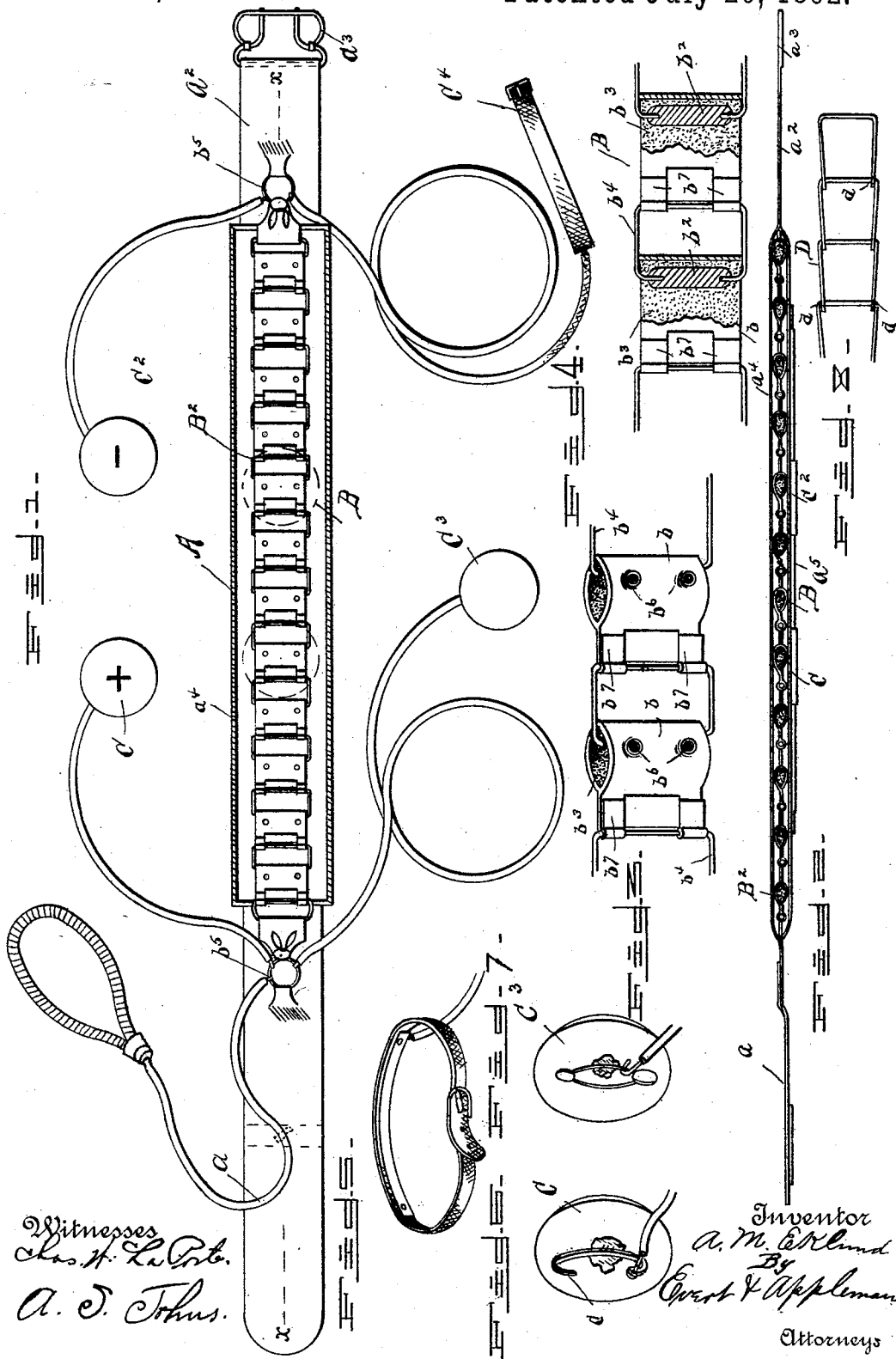


(No Model.)

A. M. EKLUND.
ELECTRIC BELT.

No. 479,410.

Patented July 26, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

ANDREW M. EKLUND, OF MINNEAPOLIS, MINNESOTA.

ELECTRIC BELT.

SPECIFICATION forming part of Letters Patent No. 479,410, dated July 26, 1892.

Application filed May 2, 1892. Serial No. 431,531. (No model.)

To all whom it may concern:

Be it known that I, ANDREW M. EKLUND, a citizen of the United States of America, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Electric Belts, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to improvements in medical batteries.

The object of the invention is to employ a series of suitably-constructed cells, detachably connected, whereby the strength of the current may be readily and conveniently varied, as desired; furthermore, to provide conductors and contact-plates leading from the battery to all parts of the body; furthermore, to employ such peculiar construction in the formation of the battery-cells whereby the body shall be effectually protected from the current, excepting the parts in connection with the contact-plates, and, finally, to produce a medical battery in the form of an electric belt which shall be at once strong, durable, and efficient in operation.

With these objects in view the invention consists, essentially, in an electric belt comprising a series of cells, each cell being complete within itself and so arranged and constructed as to allow any number to be readily detached, and blanks in the form of metallic links suitable for conducting the current substituted therefor; furthermore, the invention consists in providing certain portions of the ordinary wearing-apparel—such as garters, sleeve-bands, &c.—with contact-plates in the electrical connection with the battery by means of flexible conductors; and, finally, the invention consists in various details of construction whereby the several objects are attained, and combination of parts more fully hereinafter described, and specifically pointed out in the claim.

15 In the accompanying drawings, forming part of this specification, wherein like letters of reference indicate corresponding parts in the several views, Figure 1 is a view in front elevation of the belt, with the covering broken away to illustrate the arrangement of cells, also showing the electrodes proper detached from the belt, their normal position being in-

20 dicated by dotted lines. Fig. 2 is a sectional central longitudinal view of the device on the line *xx* of Fig. 1. Fig. 3 is a detail view in perspective of a number of cells. Fig. 4 is an enlarged sectional view of the same. Fig. 5 is a detail view of a garter attachment. Figs. 6 and 7 are similar views of different forms of contact-plates. Fig. 8 is a detail view in elevation of the links or blanks.

In the drawings, A indicates the belt proper having the elastic extensions $a a^2$, the latter being provided with a buckle a^3 , whereby the belt may be secured in position around the body of the patient. A battery B, inclosed by a suitably-formed covering a^4 of insulating material, comprises a number of cells B^2 , connected in series, as shown in Fig. 1. As the cells are of similar construction a description of one will serve to give a clear understanding of the same.

Referring to Fig. 4, it will be seen that each cell is composed of two elements $b b^2$, preferably copper and zinc, respectively. These elements are suitably insulated from each other by means of an absorbent material b^3 —such as felt or the like—and are connected by links b^4 , of annealed wire, suitable for conducting the current. The negative element b is in the form of sheet metal and is utilized in this instance as a cover or casing of the cell. To prevent the substance contained therein from working or falling out at each side, indentations are made from the exterior, as at b^5 , and the metal is driven into the felt a short distance, as shown at b^6 . Each cell is provided with two ears b^7 , which are bent around the wire links to allow for an independent movement of any separate cell. These cells, located at the ends of the series, are connected by means of a spring snap-hook with the rings b^8 , which are secured to the elastic extension $a a^2$, as shown. On the back of the covering a^4 a band a^5 is secured, and to this band the electrodes are attached by means of hooks c , the lower end of each hook being turned up to form an eye to which the conducting-wire is attached. To the back of the contact-plate C^3 a safety-pin is soldered, as shown in Fig. 4, whereby said plate may be secured to any portion of the underclothing, as will be readily understood.

In Fig. 8 the wire blanks D are shown and

are approximately U-shaped with the end bent up to form eyes *d*. Thus it will be seen that any number of cells may be detached by bending back the ears *b'* and a corresponding number of blanks or links substituted therefor.

To change the battery, it is necessary to disconnect the snap-hooks at each end thereof, so that the cells may be taken out and placed in a solution of about one part strong cider, vinegar to three parts water.

The cells become sufficiently charged in two or three minutes to generate a current lasting from four to eight hours, when they are again immersed in the solution, as before.

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

In a medical battery, a series of cells electrically connected and inclosed by a flexible covering of insulating material, said covering being provided with elastic extensions, and means for securing the battery in position, the contact-plates and conductors, whereby the current may be conducted to any portion of the body, and the substitute blanks in the form of links, as described, for decreasing the strength of the current, substantially as and for the purpose set forth.

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

ANDREW M. EKLUND.

Witnesses:

SWAN J. TURNBLOD,
NILS. M. LILJEGREN.