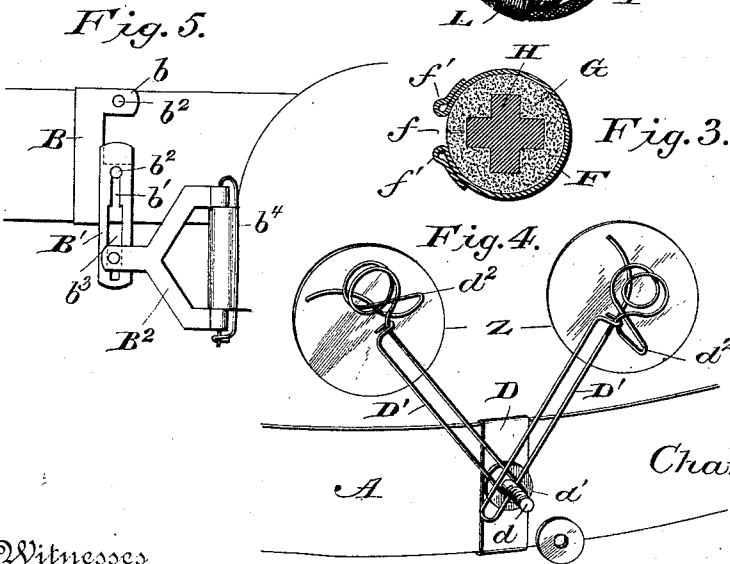
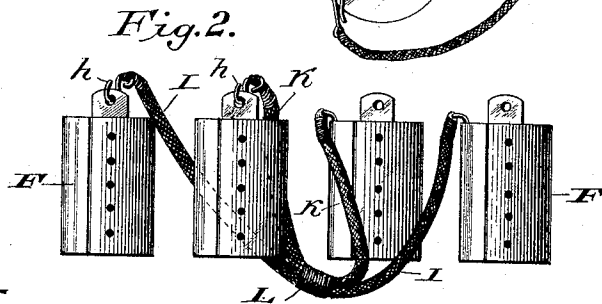
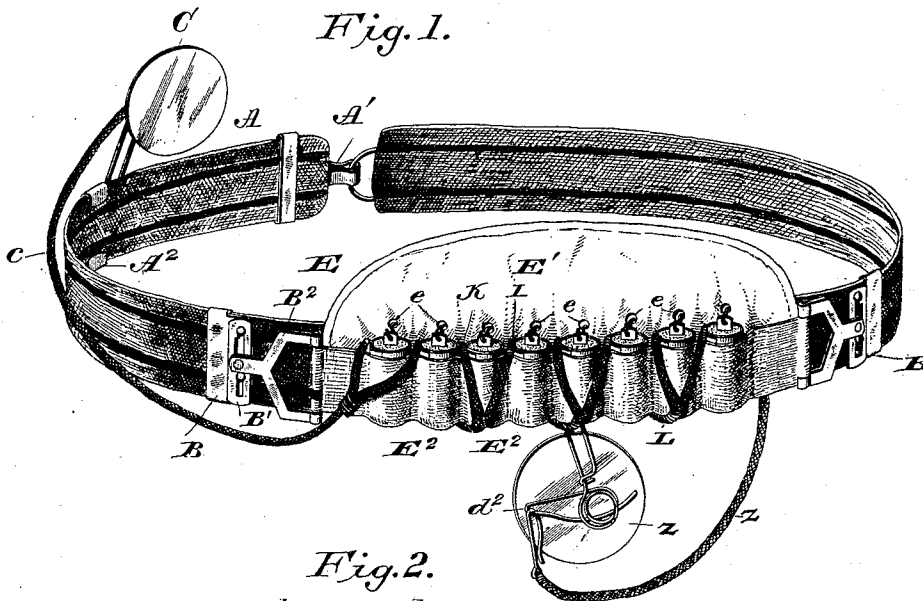


(No Model.)

C. D. WILLIAMS.
ELECTRIC BELT.

No. 452,250.

Patented May 12, 1891.



Charles D. Williams.

Inventor

Witnesses
L. S. Effieff
W. Johnson



by

Attorney

UNITED STATES PATENT OFFICE.

CHARLES D. WILLIAMS, OF SILVER LAKE, KANSAS.

ELECTRIC BELT.

SPECIFICATION forming part of Letters Patent No. 452,250, dated May 12, 1891.

Application filed January 17, 1891. Serial No. 378,134. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. WILLIAMS, a citizen of the United States of America, residing at Silver Lake, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Electric 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in electric or voltaic belts, such as are employed to generate a voltaic current; and it consists in the construction and combination of the parts, as will be hereinafter fully set forth and particularly claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a voltaic or electric belt constructed in accordance with my invention. Fig. 2 is a side view showing the several cells constituting the battery detached. Fig. 3 is a transverse sectional view of one of the cells. Fig. 4 is a detail perspective view showing the electrodes used at the back of the belt or adjacent to the battery. Fig. 5 is a front view of the connection used for attaching the batteries or cells to the supporting-belt.

A refers to the belt, which is made up of webbing and is provided at one end with a buckle A', which engages with a ring secured to the opposite end, the buckle used being adjustable upon the belt. The belt carries in front a slide A², to which is attached one of the electrodes C, said electrode being connected by a conducting-wire c to the copper element of the battery.

B refers to the slides upon the back of the belt, each of which has projections b and b' with headed pins b², serving to retain in place a vertically-adjustable plate B', having a slot b³, reduced at its upper and lower ends, as shown, the upper reduced end being of greater length than the lower one. Connected to this adjustable plate by a pin and washer is a loop B², extending from and attached to the case carrying the cells. The loop is connected removably to the cell-case by means of

a catch-pin b⁴, one portion of which passes through the eye of the loop while the other portion is without the same and is provided at its end with a hook which catches the point below the lower eye. By thus connecting the cell-case to the belt it can be readily detached for the purpose of charging the cells, or adjusted upon the slides B, so as to occupy a position adjoining the belt, as shown in Fig. 1, or below the same, as shown in Fig. 5. An electrode Z projects from a slide D upon the rear portion of the belt, being connected to said slide by a looped wire D', which is passed over the threaded pin d and is permitted to slide thereon or swing in a circle to adjust it to the desired position. The zinc element of the battery is connected to this electrode by the wire z being hooked to the loop d².

E refers to the cell-case, which is composed of the flap E' and body portion or pockets E², said pockets being formed by doubling the material upon itself and stitching, as shown. The flap E' immediately above the cell-pockets is provided with perforations e, through which pass the conducting-wires attached to the zinc elements of the cells. This cell-case is made up of water-proof material.

The cells are made up of outer plates F of copper, bent to form a cylinder, the ends being upset to present eyes f' and brought together sufficient to leave an opening f. Within this copper cylinder is retained the zinc element H by an interposed packing of felt G, the zinc element being cruciform in cross-section and its upper end extended and perforated for the reception of clasps or hooks h. By constructing the zinc plates as shown, a larger surface is obtained.

The copper element F, in addition to the vertical opening f, has a series of perforations for the purpose of admitting the exciting-fluid to the absorbent-pad, and said cylinder is further left open at the top and bottom. The water-proof pockets prevent rapid evaporation of the liquid.

In making up a belt I prefer to use eight independent cells or batteries, which can be connected or disconnected, so that in practice I can use any number of cells desired, according to the intensity of the current required.

In the drawings, I refers to a conductor,

which extends from the zinc element of one of the cells to the copper element of another cell, and K to a conductor which extends from the zinc element to the copper element of the cell adjacent. These conductors are insulated except at the point L, where they are bared and brought in contact with each other and wrapped, thus practically connecting two cells with two cells.

- 10 The construction of the electrodes and conducting-wires attached thereto will enable the current to be applied to different portions of the body, and as said electrodes are flexibly connected to the cells the movement of
15 the body or belt will not disturb the position of the electrodes. When it is desired to use only a few of the cells, the zinc elements can be drawn out of the pads, so they will not be consumed by the acid or become inactive
20 by the accumulation of scale or dead zinc thereon.

I am aware that prior to my invention electric belts have been used made up of a series of cells, as shown in Patents No. 249,070, No. 328,829, and No. 368,546, and I do not claim
25 what is shown therein; but

What I claim as new, and desire to secure by Letters Patent, is—

1. A cell for galvanic or electric belts made
30 up of an outer casing of copper, the ends of which are bent to form eyes, a zinc element cruciform in cross-section maintained centrally within the casing by an interposed absorbent pad, the zinc element being extended
35 above the pad and copper element and perforated for the engagement with the hooks *h* of the conductors, substantially as set forth.

2. The combination, in an electric or galvanic belt, of a series of cells constructed substantially as shown and connected to each other by conductors I and K, said conductors being electrically connected to each other, substantially as set forth.

3. The combination, in an electric belt having a case inclosing a series of cells, a slide B, attached to the belt and having adjustably connected thereto a plate B', carrying a loop B², to which the cell-case is secured, whereby the cell-case can be adjusted on a line with the belt or below the same, substantially as
45 set forth.

4. In combination with an electric belt, a slide B, having headed pins *b*², a slotted plate B', retained by said pins and carrying a loop B², having a pin *b*⁴, for removably connecting
55 the cell-case thereto, substantially as set forth.

5. In combination with a series of cells having an outer casing of copper, the ends being bent to form eyes *f*', an absorbent pad, as G, and a central zinc element II, having
60 an extended end, conductors I and K, each provided at one end with hooks *h* for engagement with the perforations in the zinc elements and at the other end with loops F', the ends of which enter the eyes *f*' in the copper
65 element, together with connections *c* and *z*, connected to the electrodes C and Z, substantially as set forth.

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

CHARLES D. WILLIAMS.

Witnesses

R. D. HOLLISTER,
J. F. JOHNSTON.