(No Model.)

J. J. HANKEY.

ELECTRIC BELT.

No. 526,833. Patented Oct. 2, 1894.

Fig. 1.

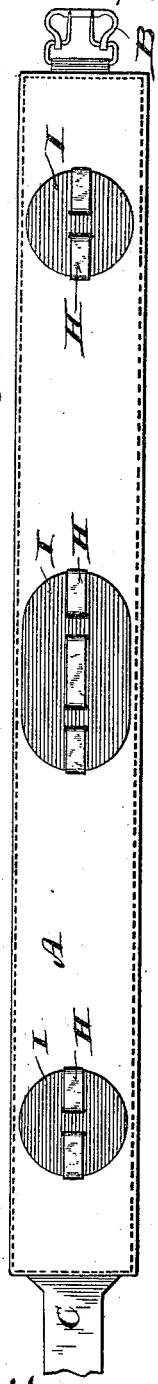

Fig. 2.

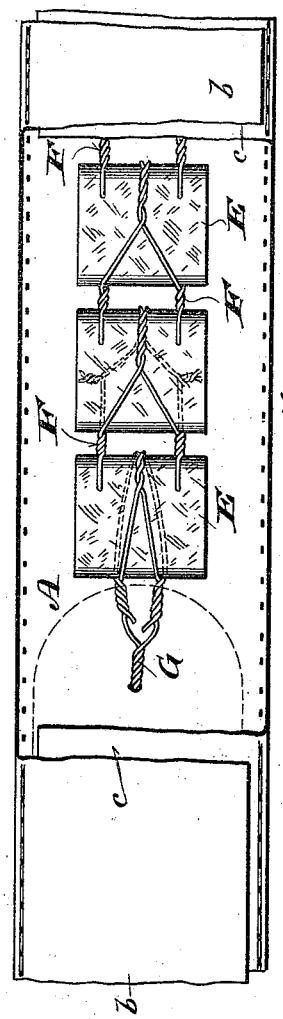

Fig. 3.

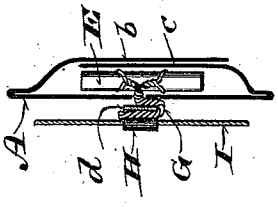

Fig. 5.

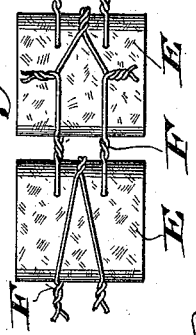

Fig. 6.

Fig. 7.

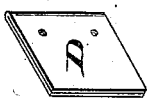

Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN J. HANKEY, OF BEAVER DAM, WISCONSIN.

ELECTRIC BELT.

SPECIFICATION forming part of Letters Patent No. 526,833, dated October 2, 1894.

Application filed July 18, 1894. Serial No. 517,866. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. HANKEY, a citizen of the United States, and a resident of Beaver Dam, in the county of Dodge, and in the State of Wisconsin, have invented certain new and useful Improvements in Electric Belts; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide a simple, economical and durable electric belt of variable power; and it consists in certain peculiarities of construction and combination of parts hereinafter specified with reference to the accompanying drawings and subsequently claimed.

In the drawings: Figure 1 represents the body side of an electric belt embodying my improvements; Fig. 2, an outside view of a portion of the belt partly broken away; Fig. 3, a vertical transverse section of said belt; Fig. 4, a horizontal section illustrating a central contact-plate and its connections involved in the aforesaid belt; Fig. 5, a detail elevation of a portion of a flexible battery constituting part of my device; Fig. 6, a detail sectional view of a section of the battery, and Fig. 7, a perspective view of an element in said battery.

Referring by letter to the drawings A represents a strip of oil-cloth or other flexible water-proof material folded and stitched on itself to form overlapping flaps *b*, *c*, and thereby constitute a casing for a flexible battery hereinafter set forth in detail. One end of the casing is shown as provided with a buckle B and the other end with a strap C, but other suitable means for connecting said ends of the casing may be as readily employed.

As elements of the battery, I employ a series of zinc plates D of either single or multiple thickness, each plate being wrapped with a strip E of flannel or other suitable absorbent material. As other elements of the battery I utilize strands F of copper wire, as a means for connecting the zinc plates. Each strand of the wire is passed through an opening in a zinc plate and the absorbent material thereon and, as herein shown, I prefer to employ a pair of strands in connection with each plate, each of these strands being twisted on itself between two of the absorbent covered plates, then diverted on opposite sides of one of these plates, twisted with the other strand, then recurved and again twisted with the other end of itself as is clearly illustrated by Figs. 2 and 5.

There are two flexible electric chains or batteries, and terminal wires G of each is joined to a looped portion *d* of a metallic strip H passed through slots in a metallic plate I and bent back over the edges of the same. The strips H and plates I constitute electrodes of which there are three, the center one being electrically connected to a terminal of each of the chains or batteries above specified, and it is to be observed that there is no liability of the battery connecting portions of said electrodes becoming lost or broken.

By my peculiar union of the zinc plates and copper wire-strands I obtain direct contact of the same and clamp the absorbent material in place on said plates, this material having its main function as a vehicle for exciting fluid and serving also to protect the unions of said plates and wire to thereby prevent the joints from clogging.

The contact plates or electrodes I are of sufficient area to prevent burning of the person wearing the belt, as well as to diffuse the current over considerable surface.

By employing the three electrodes in connection with two batteries it is possible to diffuse current by the end electrodes or by the central electrode, this being a matter of arrangement of said batteries. In other words if the positive poles of the batteries are joined to the end electrodes and the negative poles to the central electrode there will be two currents diffusing at the extremes of the belt, but if said batteries be reversed the two currents will diffuse from said central electrode.

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

1. An electric-belt comprising a flexible waterproof casing, a pair of flexible batteries within the casing, an electrode detachably connected to the inner terminals of both batteries, and two other electrodes, each of which is connected to an outer terminal of a battery.

2. An electric belt comprising a water-proof

casing, two series of zinc plates individually wrapped with absorbent material, copper wire uniting each series of plates, an electrode at the outer terminal of each battery involving a series of the wire connected plates, and another electrode detachably connected to the inner terminals of both batteries.

3. An electric belt provided with electrodes each consisting of a conductive plate provided with slots, and conductive strips run through the slots to form loops and bent back over the edges of the plates, said loops serving for the attachment of battery terminals.

4. An electric belt having a battery comprising a series of zinc plates individually wrapped with absorbent material, and copper wire strands uniting the plates, a pair of strands being passed through openings in a plate and the absorbent material thereon, each strand twisted on itself between two of the absorbent covered plates then diverted on opposite sides of one of these plates, twisted with the other strand, then recurved and again twisted with the other end of itself.

In testimony that I claim the foregoing I have hereunto set my hand, at Beaver Dam, in the county of Dodge and State of Wisconsin, in the presence of two witnesses.

JOHN J. HANKEY.

Witnesses:
CHAS. C. MILLER,
F. W. CLASON.