No. 651,978. Patented June 19, 1900.

W. C. SEDWICK.

ELECTRIC BELT.

(Application filed Apr. 5, 1899.)

(No Model.)

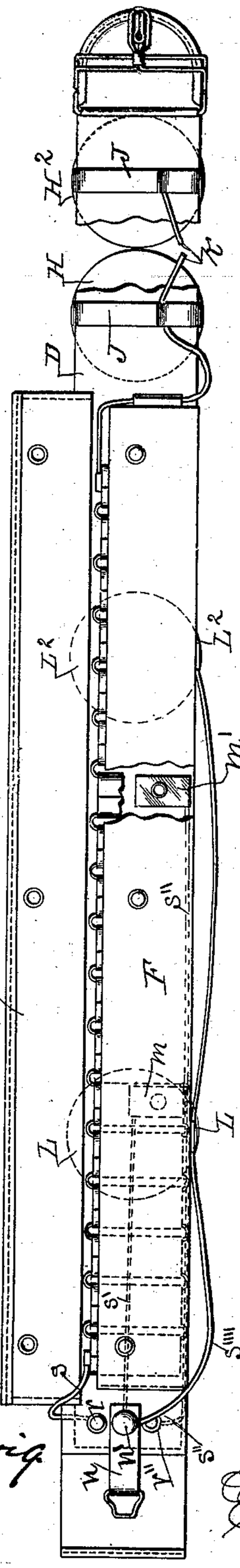

Fig. 1

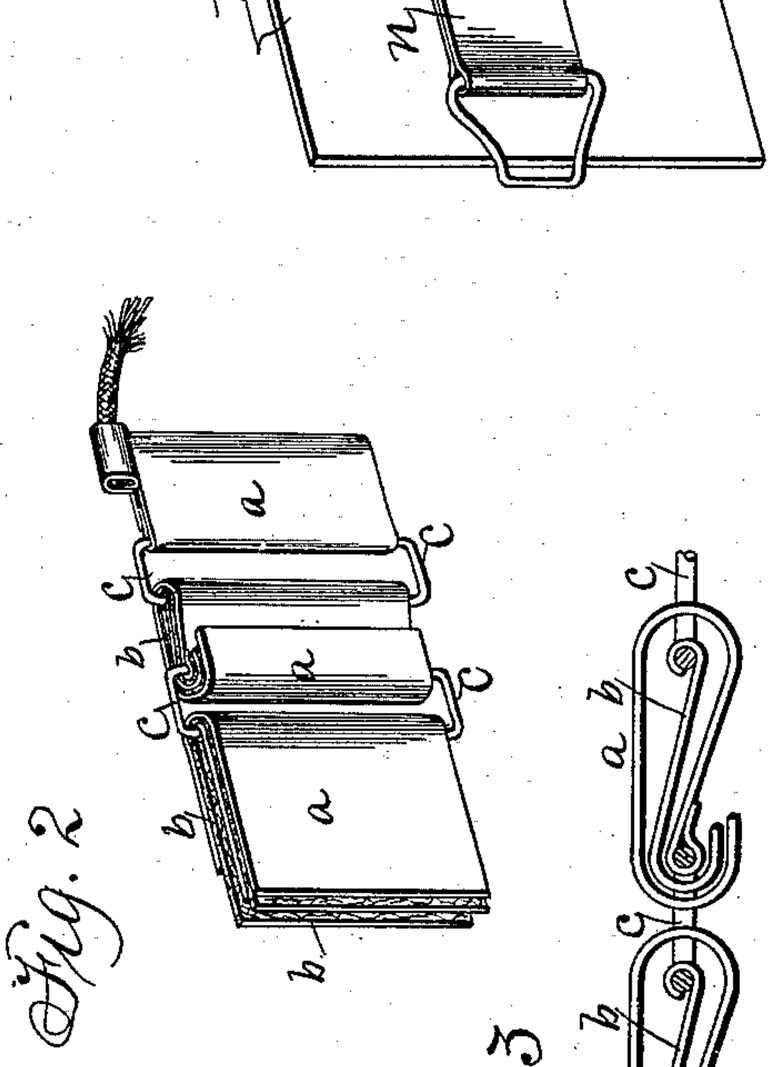

Fig. 4

Fig. 2

Fig. 3

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UNITED STATES PATENT OFFICE.

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ELECTRIC BELT.

SPECIFICATION forming part of Letters Patent No. 651,978, dated June 19, 1900.

Application filed April 5, 1899. Serial No. 711,883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. SEDWICK, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Electric Belt and Current-Regulator, of which the following is a specification.

My object is to provide an efficient and durable electric battery adapted to be worn on a person's body in the form of a belt and the current regulated to adapt it to the patient without removing it from the body.

My invention consists in the constructing of voltaic cells, a chain of cells, and arranging and combining therewith a plurality of anodes, a plurality of conductors, a plurality of electrodes, means for connecting and disconnecting electrodes and conductors, and a flexible belt and cover, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is an outside view of the belt in an open position, showing the edge of the chain of voltaic cells and parts of the belt broken away to disclose the anodes, electrodes, and conducting-wires, and their relative positions to the chain of cells. Fig. 2 is a perspective view of one end portion of the chain of cells and a piece of a conductor connected therewith. Fig. 3 is an edge view of the metal plates of two cells, illustrating the manner of connecting them. The bibulous acid-absorbing material is removed therefrom, and the overlying plates are separated more widely than when the links or cells are complete, as shown in Fig. 2. Fig. 4 is an enlarged perspective view of the end of the belt, showing the means for regulating the current by making different numbers of cells in the chain of cells inoperative at pleasure, or, in other words, cutting out portions of the chain of cells by adjusting the conductors relative to the electrodes at the end of the chain of cells.

The letter *a* designates a quadrangular copper plate, and *b* a zinc plate corresponding therewith in width but not in length. These plates are doubled together in overlying positions and a flexible bibulous material corresponding therewith in size and shape folded in between the two metal plates to absorb acid, as required to produce a voltaic cell and a link in a chain of cells. To connect two cells in a chain, a copper-wire loop *c* of quadrangular shape is secured to the inner end of the zinc plate *b* and the inner end of the outer copper plate *a* by doubling the ends of the plate over the wire, as shown in Fig. 3. An electric belt or chain of any width or length desired is thus readily produced by forming cells and connecting them in the manner set forth, and a large area of metal surface is secured, as required to produce a strong current when desired. By thus combining the two plates *a* and *b*, that are uniform in shape and width but not in length, the short zinc plate *b* is covered on both sides from end to end by the overlying copper plate *a*, and the bearings in the ends of the two plates for the copper loops *c* are reinforced and protected by the reciprocal overlying end portions of the two plates, and neat strong links are produced, as required for making a durable chain with a plurality of cells in the form of links.

D is a belt, preferably made of woven material and provided with a suitable clasp, buckle, or fastening devices at its ends adapted for fitting and connecting it with the body of a person.

F is a cover for the chain of cells, made of oil-cloth or other suitable flexible material that is impervious to moisture and a piece of woven fabric of corresponding length overlying it and the parts stitched together at their inner edges and jointly stitched to the belt D at their outer edges and ends to produce an elongated pocket for the chain of voltaic cells.

F^2 is a second cover constructed of like material and in like manner and stitched at its outer edge to the upper edge of the belt D; but its ends are left free, so it can be turned outward, as shown in Fig. 1, to open the pocket, as required in placing the chain of cells in the extended pocket and taking it out to charge the cells with acid whenever desired.

H and H^2 are anodes in the form of disks slidingly connected with the end of the belt D by means of metal loops J, fixed to the anodes and connected with the end of the chain of cells by means of a covered-wire conductor *k*.

L and L^2 are anodes (corresponding with

the anodes H and H[2]) fixed to the belt D at some distance from its ends, as shown in Fig. 1.

m and *m'* are flat copper plates fixed to the edge of the belt D to extend inward in the elongated pocket, so as to come in contact with cells in the chain of cells in the pocket.

n is a flexible strap fixed to the inside face of the end portion of the belt D. Metal posts *r*, *r'*, and *r''*, adapted to serve as electrodes, are fixed to the belt in such a manner that a metal cap *n'*, fixed to the free end of the strap *n*, can be readily placed in engagement with either one of the said posts, as required to regulate the force of the battery by utilizing all the cells or only a portion of the cells in the chain of cells that constitutes the battery. These fixed posts and the movable cap are similar in construction to glove-fasteners.

s is a wire conductor connected with the post *r* and the end cell of the chain of cells, and also connected with the anodes H and H[2] by means of the wire *k* to utilize all the cells in the chain and battery, as required to produce a strong current when the cap *n'* is placed on the post *r*.

s' is a wire conductor connected with the post *r'* and the metal plate *m*, and all the cells between the post and plate will be inoperative (cut out of the circuit) when the cap *n'* is placed on the post *r'*, as required to reduce the force of the current generated by the battery.

s'' is a wire conductor connected with the post *r''* and the plates *m'*, as indicated by dotted lines in Fig. 1, in such a manner that when the cap *n'* is placed on the post *n''* the plate *m'* will be inoperative, (cut out,) as required to still further reduce the force of the circuit.

s'''' is a wire conductor connected with the metal cap *n'* and the anodes L and L[2], as required at all times to produce a complete circuit between the anodes and the chain of cells, or portions of said chain when portions of the cells are cut out of the circuit to regulate the force of the current. The wires *s* and *s''''* are covered, as shown in Fig. 4.

Having thus described the construction of each element and subcombination and the arrangement and combination of all the parts, the practical operation and utility of my invention will be readily understood by persons familiar with the art to which it pertains.

I claim as my invention—

1. In an electric belt, a voltaic cell and portion of chain composed of a zinc plate of rectangular form doubled backward at one end to produce a bearing for a copper-wire loop and its other end doubled backward in a reverse way to inclose the bearing for a copper-wire loop on the end of a copper plate, a copper plate corresponding in form with the zinc plate, but longer, doubled backward to produce a bearing for a copper-wire loop and inclosed in the end of the zinc loop and body portion of the copper plate then extended and doubled over the zinc plate to overlay both sides of the zinc plate, as shown and described for the purposes stated.

2. In an electric belt, a battery consisting of a chain of voltaic cells, a flexible belt, an elongated pocket for the chain of cells, a copper plate fixed in the pocket to contact with one of the cells at some distance from the end of the chain, a post or electrodes fixed to the flexible belt at the end of the chain of cells, anodes connected with the flexible belt to contact with the person of the wearer, a wire conductor connected with said post and the cell at the end of the chain, a wire conductor connected with the cell at the other end of the chain or battery and with anodes fixed to the flexible belt at some distance from the end of the chain or battery, anodes fixed to the flexible belt at points between the ends of the chain or battery and a wire connected with said intermediate anodes and detachably connected with the said fixed post or electrode on the flexible belt, a second post or electrode fixed to the end of the flexible belt and a wire conductor extended therefrom to the copper plate in the pocket of the belt and in contact with one of the cells in the chain or battery, all arranged and combined to operate in the manner set forth for the purposes stated.

3. An electric belt and changeable battery comprising a chain of voltaic cells, a flexible belt, an elongated pocket for the chain of cells, a plurality of copper plates fixed in the pocket to contact with cells at different distances from the ends of the chain, a plurality of posts or electrodes fixed to the flexible belt at the end of the chain or cells, anodes connected with the flexible belt to contact with the person of the wearer, a wire conductor connected with said post and the cell at the end of the chain, a wire conductor connected with the cell at the end of the chain, a wire conductor connected with the cell at the other end of the chain or battery and with anodes fixed to the flexible belt at some distance from the end of the chain or battery, a plurality of anodes fixed to the flexible belt at points between the ends of the chain or battery, wires connected with said intermediate anodes and adapted to be detachably connected with the said fixed posts or electrodes on the flexible belt copper plates in the pocket of the belt and fixed posts on the end of the belt, all arranged and combined to operate in the manner set forth for the purposes stated.

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