No. 652,217. Patented June 19, 1900.

M. A. McLAUGHLIN.

ELECTRIC BELT.

(Application filed Dec. 27, 1898.)

(No Model.)

Fig. 1.

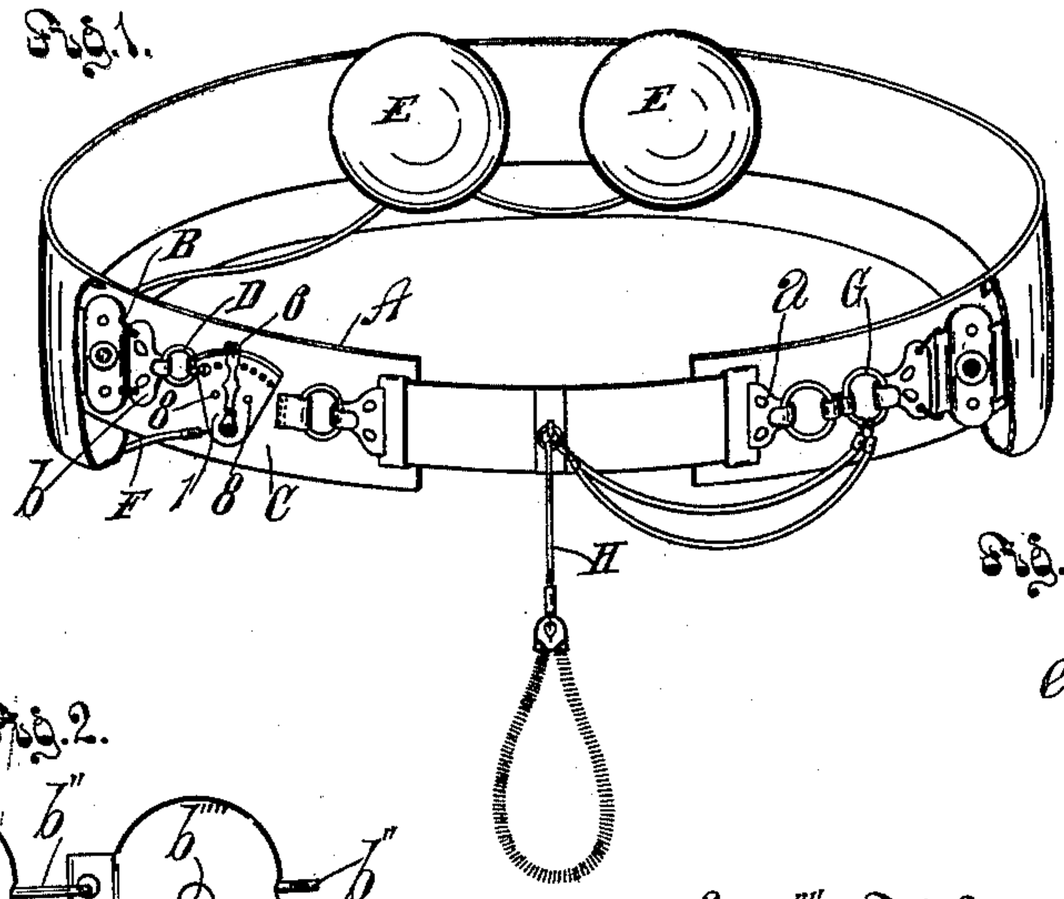


Fig. 2.

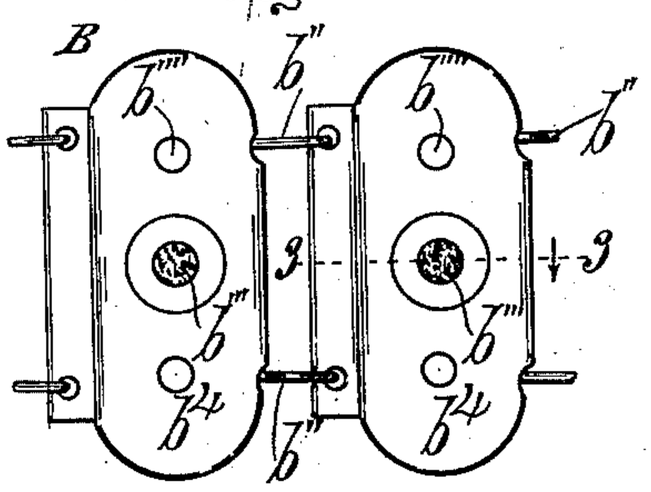


Fig. 3.

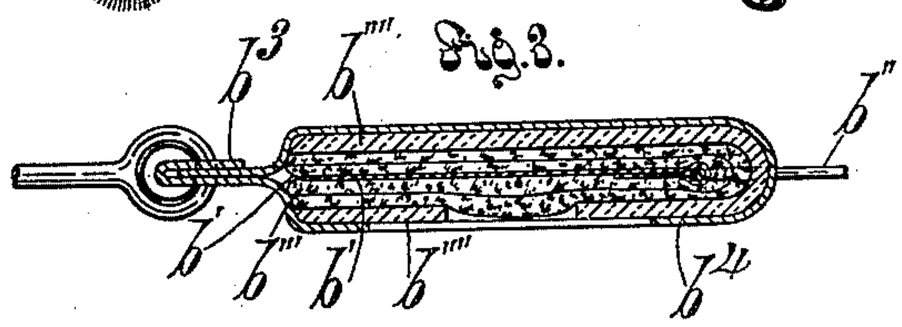


Fig. 4.

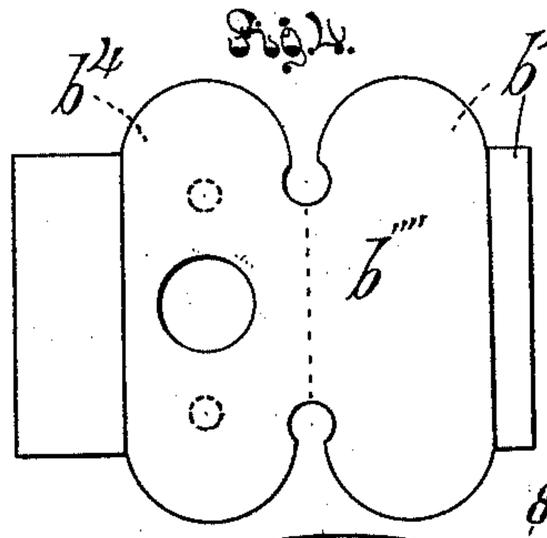


Fig. 5.

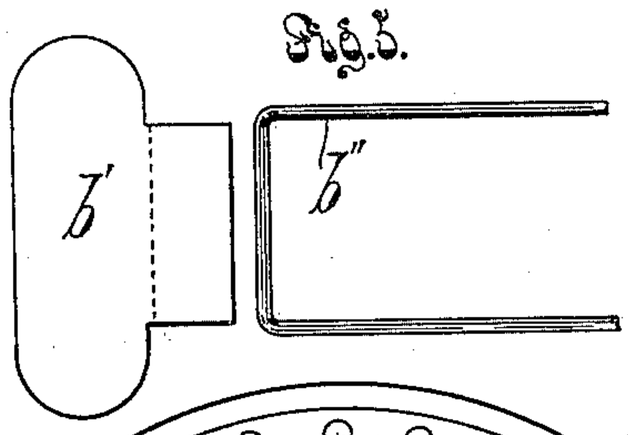


Fig. 6.

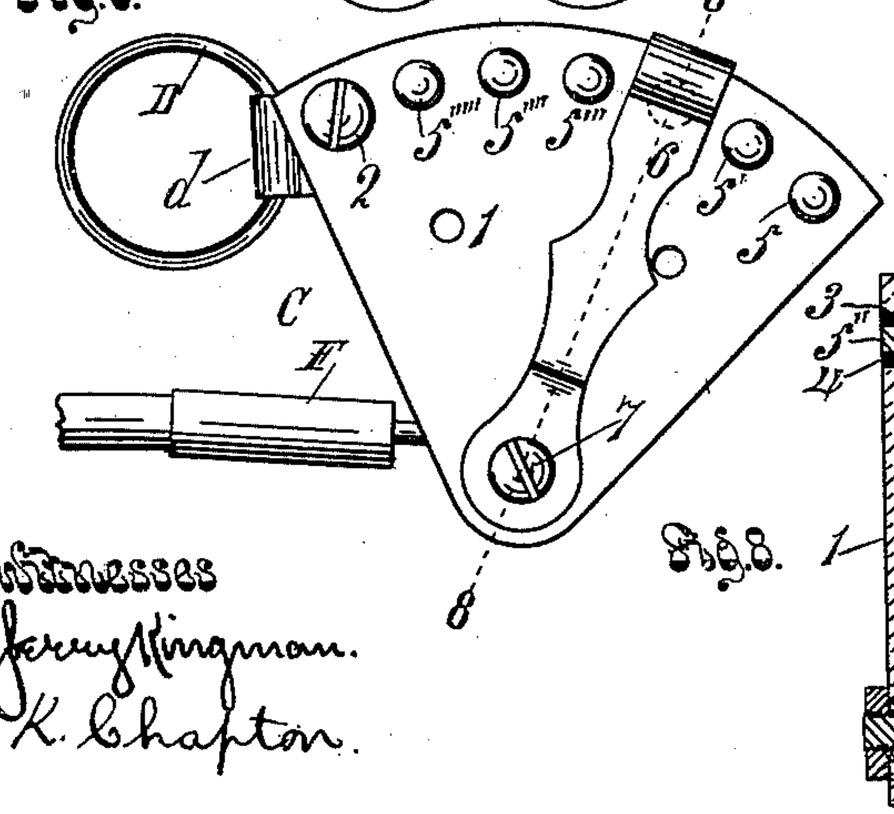


Fig. 7.

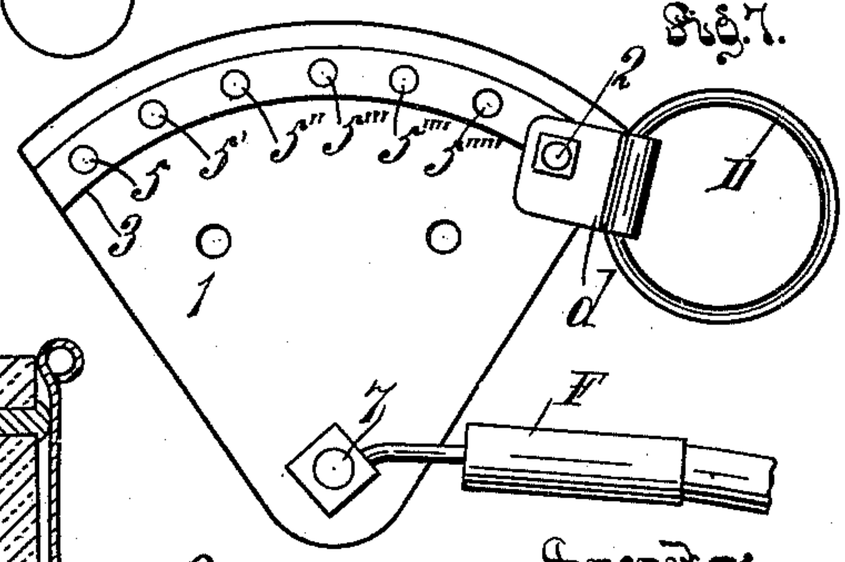
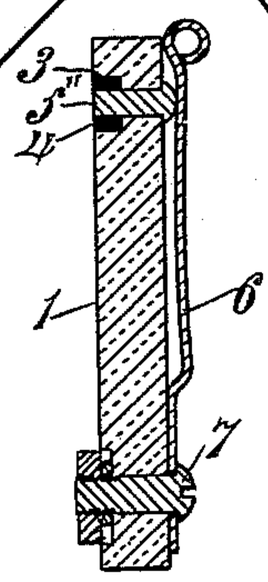


Fig. 8.



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UNITED STATES PATENT OFFICE.

MICHAEL A. McLAUGHLIN, OF LOS ANGELES, CALIFORNIA.

ELECTRIC BELT.

SPECIFICATION forming part of Letters Patent No. 652,217, dated June 19, 1900.

Application filed December 27, 1898. Serial No. 700,300. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL A. McLAUGHLIN, of Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Electric Belts, of which the following is a specification.

An object of my invention is to provide an electrotherapeutic device which will afford to the patient at all times a constant current of any required intensity. I propose to avoid all inconvenience and all irregularity of the application of the electric current as fully and entirely as possible.

It is an object of my invention to reduce electrotherapeutics to an exact science by enabling the practitioner to give to the patient exactly the treatment required in the individual case. My invention is based upon the principle that the patient should be subjected to the proper electrical action at all times or for continued periods of many hours, and for this reason the appliance employed by me is of that class of device known as "electric belts;" but it has heretofore been impossible by means of any electric belt to provide for every patient the exact intensity of current required, and I have found in practice that the current in any case should be under perfect control, for the reason that different patients require different treatments, and different conditions of the patient require different intensities of current, and the best results can be obtained only by a proper adjustment of the current to the condition of the patient from time to time. By my invention I afford to the practitioner and patient a means for scientifically applying the electrical treatment. I also afford to the patient greater comfort and ease under treatment and also secure an economy and convenience in treatment which has heretofore been impossible.

It is an object of my invention to make the use of an electric belt a pleasure instead of submitting the wearer to the burning and blistering incident to old styles of belts.

Another object of my invention is to provide an electric belt having a greater life than former electric belts of like weight.

My invention comprises the belt and the several parts and combinations hereinafter set forth and claimed.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective view of a belt embodying my invention. Fig. 2 shows two of the belt-cells detached. Fig. 3 is a section on line 3 3, Fig. 2. Fig. 4 is a plan of one of the copper, brass, or other suitable metal blanks to which the zinc is soldered. Fig. 5 is a view of the copper plate and connecting-link which is fastened to the same. Fig. 6 is a front elevation of the rheostat detached. Fig. 7 is a rear view of the rheostat detached. Fig. 8 is a section on line 8 8, Fig. 6. Fig. 9 is a section of one of the electrodes.

A indicates the body of the belt.

B indicates the battery carried by the belt.

C indicates the rheostat fastened to the belt and connected with the battery by a conductor-ring D.

E E′ indicate electrodes, and F indicates a conductor connecting the rheostat with the electrodes. The rheostat is constructed of a plate 1, formed of a piece of fiber or hard rubber or other non-conducting material.

2 indicates a conducting-pin to which the ring D is fastened.

3 indicates a groove in the rear side of the plate 1, and 4 indicates a high-resistance material, such as graphite, with which the groove is filled.

5 5′, &c., indicate pins or metal points inserted through the plate 1 into the high-resistance material 4 and projecting from the front side of the plate. Each of the pins preferably terminates in a rounded head to be engaged by the key.

6 indicates a key which is pivoted to the plate 1 by a pivot 7, and thereby connected with the conductor.

b indicates a hook connected with the battery and onto which the ring D of the rheostat hooks. The rheostat is fastened to the belt A by any suitable means, such as the rivets 8. When the hand of the key is thrown to the pin 5 which is farthest from the ring D, the current has to pass through such a length of the high-resistance material 4 that the current transmitted from the battery to the electrodes will be practically or absolutely *nil;* but as the hand is moved toward the ring D the current will be increased until the hand is brought against the screw 2, by which the

fastening *d* of the ring D is secured to the plate 1.

The electrodes E are covered with one or more thicknesses of felt *e*, over which is drawn a cover *e'*, of cotton or other suitable fabric. This felt covering is to be moistened when the belt is put on, and by means of it the burning and painful sensation ordinarily produced by electrodes of electric belts is done away with.

The cells of the battery are formed, as shown, of an inner copper plate *b'*, to which the link *b''* is fastened. Sheets *b'''* of absorbent material are folded around the copper sheet *b'*. A thick zinc sheet *b''''* is soldered to a brass or copper cover b^4, and the sheet thus formed is folded around the absorbent material. The ends of the brass sheet b^4 are lapped upon each other, as at b^3, to receive the link of the cell next to it.

In practical use the brass protecting-cover b^4 gives the necessary protection and strength to the zinc plate *b''''*, which is soldered to it, and the cover b^4 supports the zinc plate until it is all eaten away by the corrosive action of the acids, thus giving a greater life to a cell of a given weight than has heretofore been possible in electric belts.

In practical use the battery is placed in the bath of acid before being inserted into the body of the belt and is then attached at one end to the ring G, which is held by the hook *a*, and at the other end is hooked to the ring D by the hook *b*. The felt covers of the electrodes E are then moistened and the belt put on. The conductor H being brought into contact with the body the patient will then move the hand 6 of the rheostat to regulate the intensity of the current to the degree desired.

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

1. In an electric-belt battery, a cell having a thin sheet of brass outside of and forming a protecting-covering for the zinc and copper plates, substantially as set forth.

2. An electric-battery cell comprising an internal copper plate; an absorbent layer on each side of said plate, and a brass plate with a zinc plate soldered to the inside thereof, and folded upon the absorbent material; said brass plate being of a size to completely cover and form a protection for said zinc plate substantially as set forth.

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