R. W. HATHAWAY.

ELECTRO MEDICAL APPARATUS.

No. 171,934. Patented Jan. 11, 1876.

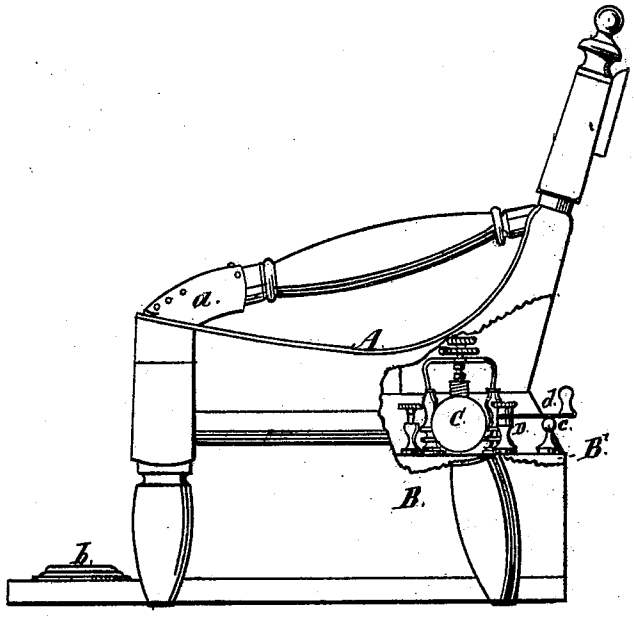


Fig. 1.

Fig. 2.

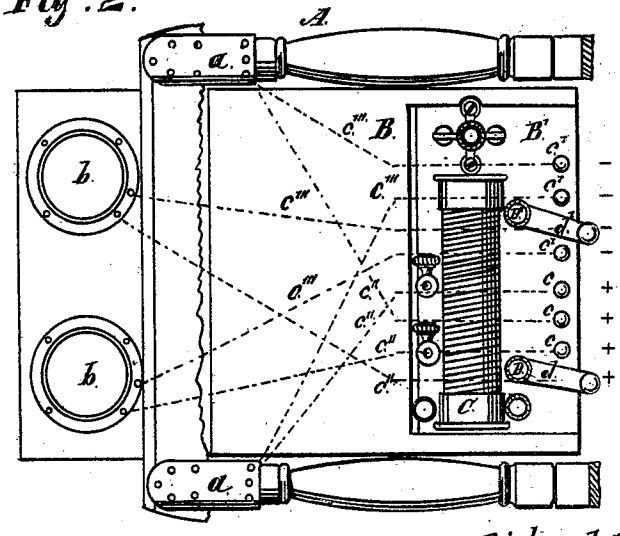
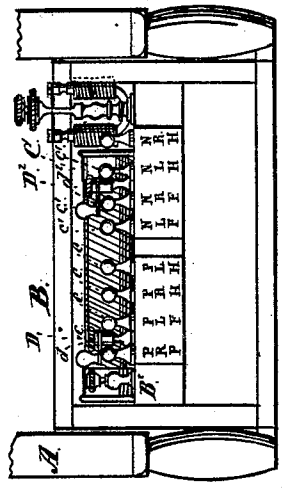


Fig. 3.



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UNITED STATES PATENT OFFICE.

RICHARD W. HATHAWAY, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN ELECTRO-MEDICAL APPARATUS.

Specification forming part of Letters Patent No. **171,934**, dated January 11, 1876; application filed November 20, 1875.

To all whom it may concern:

Be it known that I, RICHARD W. HATHAWAY, of Chicago, in the county of Cook and State of Illinois, have invented an Improvement in Electro-Medical Apparatus, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a side view of a chair with my apparatus attached, one side being partially broken away to show the arrangement of the battery and switches; Fig. 2, a plan view of the chair, the seat and back being broken away to show the battery and arrangement of wires; and Fig. 3, a rear view of the lower part of the chair, showing the battery and devices for changing the electrical currents.

The object of my invention is to provide a simple and convenient apparatus for the transmission of electrical currents through all parts of the human body, and in different directions.

The invention consists in a chair or other article of furniture provided with suitable battery, wires, and switches for the transmission of currents of electricity through different parts of the body of the patient sitting therein, the currents being under the control of the attendant, so as to be sent first in one direction and then the other, as hereinafter described.

The passage of electrical currents from a battery through the entire body of a person is accomplished without any serious difficulty; but the special application of electricity to particular portions of the person has been attended heretofore with great inconvenience. So far as known to me it has never been done without removing the clothing of the patient and applying by means of a sponge or other like substance moved about so as to be placed upon different parts of the body. In the use of my apparatus it is only necessary that the hands and feet should be bared, the patient sits comfortably in a chair, and I am enabled to pass the currents of electricity through parts of the body not attainable heretofore.

In the drawings, A represents a chair of ordinary construction, beneath the seat of which is placed a case, B, the base-board of which extends forward, so as to form a foot-rest in front of the chair, as clearly seen in Figs. 1 and 2. To the front part of the arms of the chair metallic plates *a a* are attached, and upon the foot-board are fixed metallic disks *b b*. In the rear of the case B is placed a helix, C, and the ordinary attachments of an electro-magnetic machine, and in convenient proximity thereto are placed two switch-posts, D and D′, the former of which is connected by a suitable wire with the positive pole of the electrical apparatus, and the latter in the same way with the negative pole. To these posts are pivoted metallic plates or switches *d d′*. The cross-piece B′ in the rear portion of the case B supports both the helix and switch-posts, and at the rear edge of this board are placed eight small metallic posts, *c c c c* and *c′ c′ c′ c′*, the former of which being so situated that the switch-arm *d* may be brought into contact with either one or two of them, as may be desired, and the latter located in the same relation to the switch-arm *d′*. The four posts *c* are connected, respectively, with the disks *b b* on the foot-board, and the plates *a a* upon the arms of the chair by means of ordinary insulated wires *c″*, and the posts *c′* are also connected, by similar wires *c‴*, with the same disks and plates, respectively. Now, if a current of electricity is passed from a battery through the helix, it will be seen that by means of the switches, posts *c c′*, and wires *c″* and *c‴* a current of either positive or negative electricity may be sent to any one of the plates *a a* and disks *b b*.

Any suitable battery may be used for this purpose; but I prefer Kidder's tilting cup, as it is more readily thrown in and out of action by a mechanical contrivance which I have devised, but have not shown in this application.

The letters P and N in the upper line indicate the nature of the current passing through the posts above the plates when the switch is upon any one or more of them as positive or negative. The letters R and L indicate right and left, respectively, and the letters F and H indicate a foot or hand, respectively.

If it is desired to send a current of positive electricity to the right foot the switch *d*, which is in connection with the positive pole of the electrical machine, is turned until brought into contact with the post upon the extreme left, or immediately over the column of letters P

R F, as seen in Fig. 3, and so on for the other foot and each hand, and with either positive or negative currents, according as the switches *d* or *d'* are used. If, now, the switch *d* is brought into contact with the post on the extreme left, and the switch *d'* is placed in contact with the first post on the left of those marked *c'*, it will be seen that a complete electrical circuit will be established, and as currents of electricity always take the shortest route, when the switches are thus placed the current entering the body at the right foot will pass up the right limb, cross through the pelvis to the left, and, passing down this limb, leave the body at the left foot. If, now, the switches be changed by setting them one post to the right, the direction of the current will be instantaneously changed, the positive pole being now brought into connection with the disk upon which the left foot rests, so that the current will enter the body at the left foot and pass through, as before, but in the opposite direction. In a similar way, the proper connection being made, the current of electricity may be caused to enter the body of either hand, pass up one arm, cross the thorax to the other arm, and leave the body by the opposite hand.

If the switches are placed so that one will rest upon both foot-posts on one side, and the other rest upon both hand-posts of the other, the current will enter either by both hands, pass through the entire body, and out by the feet, or, the switches being changed, it will enter at the feet and pass out at the hands. In this way I am enabled to pass currents readily through different parts of the body and reverse them at pleasure, and at the same time I am enabled to pass a current through the pelvic portion of the body, which, heretofore, it has been almost impossible to reach.

Although I have shown my apparatus applied to a chair, it will be seen that it can also be readily attached to other articles of furniture, such, for instance, as a lounge, a bed, or even a bathing-tub.

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

1. An apparatus, substantially as described, for applying electricity for medical purposes, whereby currents may be transmitted through the body either by short circuits through the upper or lower extremities alone, or through the whole body, and reversed at will by suitable mechanism, without disturbing the battery and wires.

2. The combination, substantially as described, of the hand-plates *a*, foot-disks *b*, wires *c'' c'''*, and posts *c c'*, as and for the purposes set forth.

3. The combination, substantially as described, of the posts *c c'*, vibrating arms or plates *d d'*, and posts D D', connected by wires with the poles of the battery, as and for the purposes set forth.

4. The combination, substantially as described, of the hand-plates *a a*, foot-disks *b b*, conducting-wires *c'' c'''*, and a switch attachment, as and for the purposes set forth.

5. The chair A, provided with the electrical attachment herein described, for use as an electro-medical apparatus, substantially as described.

RICHARD W. HATHAWAY.

In presence of—
J. M. THACHER,
HEINR. F. BRUNS.