J. S. MOREL.
Glove-Electrode.

No. 206,474. Patented July 30, 1878.

Fig. 1.

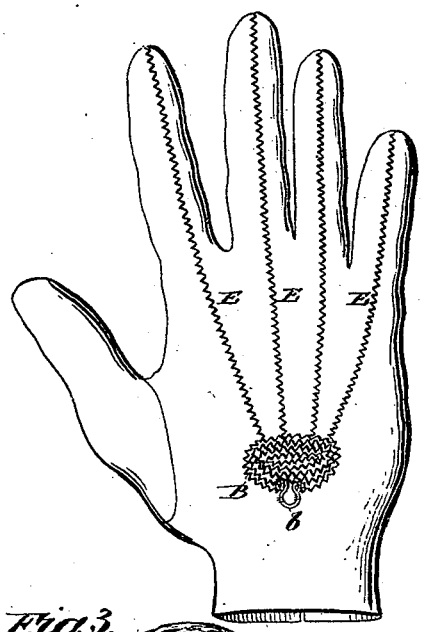


Fig. 2.

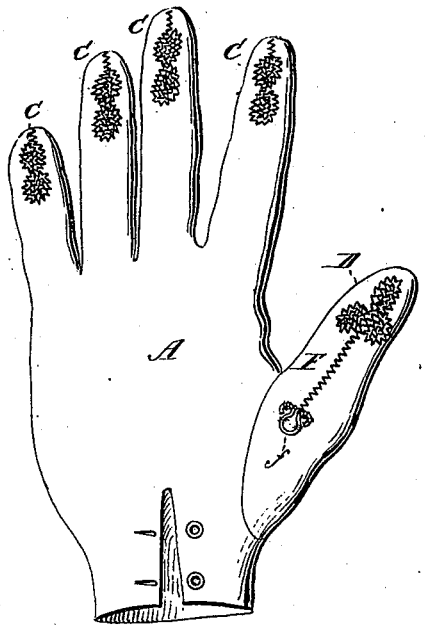


Fig. 3.

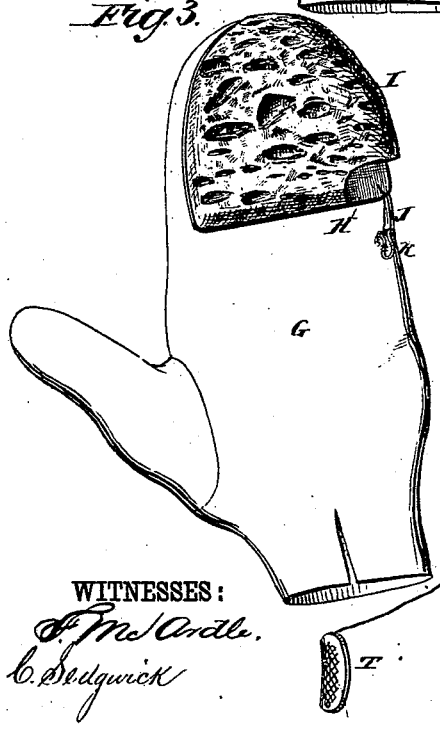


Fig. 4.

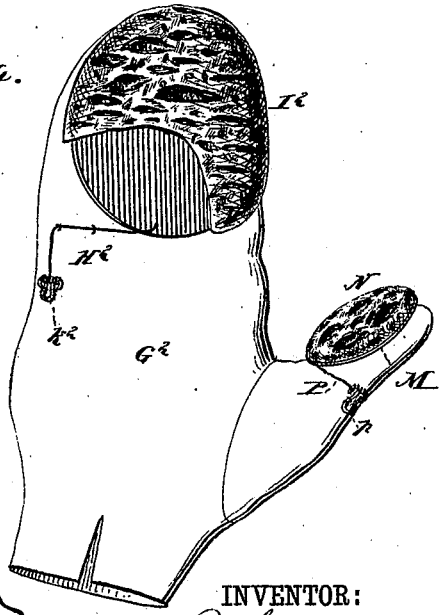
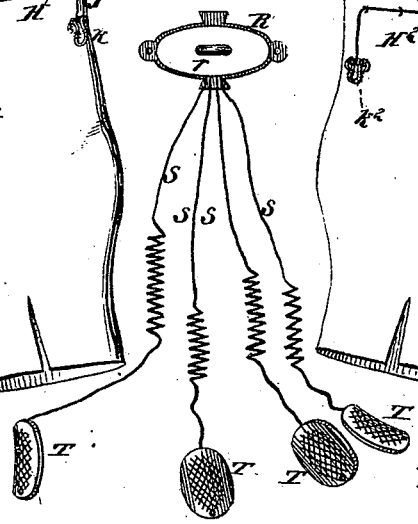


Fig. 5.



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JAMES S. MOREL, OF SAVANNAH, GEORGIA.

IMPROVEMENT IN GLOVE-ELECTRODES.

Specification forming part of Letters Patent No. **206,474**, dated July 30, 1878; application filed June 12, 1878.

To all whom it may concern:

Be it known that I, JAMES S. MOREL, of Savannah, in the county of Chatham and State of Georgia, have invented a new and useful Improvement in Electrodes, of which the following is a specification:

My invention is particularly intended for use in the healing art; and it consists, essentially, in a novel mode of connecting a magneto-electric current with a glove to be worn on the hand, and in certain details of construction and arrangement of devices employed in forming the connection, whereby provision is made for applying such current to any portion of the body of a patient which can be reached by the hand of either the patient individually or the medical or other attendant.

In carrying out my invention I employ a glove provided with metallic conductors, either wires or chains, extending from a metallic surface on the dorsal aspect of the glove, passing over the backs of the fingers, and terminating at another metallic surface on the palmar face of the last phalanx of each finger.

In some cases the glove may be of mitten form, and the metallic surface on the palmar face may be provided with a coating or covering of sponge, attached to said metallic surface. In all cases provision is made for connecting the metallic surface with the pole of a battery.

The accompanying drawing illustrates a mode of carrying out my invention, which I call a "glove-electrode."

Figure 1 represents a back view of a glove provided with metallic surfaces and conductors, as referred to; and Fig. 2, a face view of the same. Figs. 3 and 4 are face views of mittens provided with metallic surfaces covered with sponge. Fig. 5 is a detail view of a group of metallic surfaces and conductors.

Similar letters of reference indicate corresponding parts.

The gloves may be made of any suitable material, preferably of some substance impervious to water when sponges are to be employed.

The conductors may be made of either straight or coiled wire or metallic chains, and the metallic surfaces may be either plates of brass-foil or other metal; or they may consist of net-work or of coiled wire formed into flattened masses.

The material of which the gloves are made should be a non-conductor of electricity; or, if the gloves are not made of non-conducting material, the metallic surfaces and wires should be properly insulated.

The wires may be arranged between the lining and the outer surface of the glove; or they may be arranged on the outside and covered by strips of suitable material.

In Figs. 1 and 2 of the drawing, A represents a glove provided with metallic surfaces B, C, and D and conducting-wires E and F. The conductors shown in said figures are of coiled wire, and the metallic surfaces are each formed of coiled wire, arranged in a flattened mass. The metallic surface B is attached to the back of the glove, and is provided with an eye, *b*, for connection with one of the poles of the battery. From this surface B the conducting-wires E diverge, and, extending along the backs of the fingers and over the tips thereof, terminate in metallic surfaces C on the palmar faces of said fingers. The metallic surface D is placed on the palmar aspect of the thumb, and the conducting-wire F, extending from it, is provided with an eye, *f*, for connection with the other pole of the battery.

A pair of gloves, armed as above described, are placed upon the hands of the medical or other attendant, and connection is made with the poles of a magneto-electric battery. Then, on applying the hands to the person of a patient, the circuit is closed and the shock is communicated. When two such gloves are used, the connection with the battery is made by means of the eyes on the backs of the gloves. When only one glove is used, one pole is connected with the eye *b*, and the other pole is connected with the eye *f*, and the circuit is closed when the thumb and one or more of the fingers are applied to the person of the patient.

In Fig. 3 of the drawing, G represents a glove of mitten form, provided with a metallic surface, H, of foil or sheet form, from which extends a conducting-wire, J, provided with an eye, *k*, for connection with one pole of the battery. The metallic surface H is covered with sponge I, attached to it by means of shellac,

sealing-wax, or other suitable adhesive substance insoluble in water.

In Fig. 4, G^2 represents a similar glove provided with a similar metallic surface, H^2, covered with sponge I^2, and having a conducting-wire, J^2, provided with an eye, k^2, for connection with the other pole of the battery. A pair of gloves thus armed are placed on the hands, and connection made with the battery. The sponges being moistened, the hands are applied to the person of the patient, when the circuit is closed and the shock communicated. The glove G^2 is also shown as having its thumb provided with a metallic surface, M, covered with sponge N, and having a conducting-wire, P, provided with an eye, *p*, for connection with the other pole of the battery. By this means provision is made for the use of a single glove, in which case one of the poles is connected with the eye k^2, and the other pole with the eye *p*. The sponges being moistened and the hand applied to the person, or a limb or other part of the person being grasped between the sponges I^2 and N, the circuit is closed and the shock is communicated.

In Fig. 5 of the drawing, R represents a metallic plate for attachment to the back of the glove, being provided with an eye, *r*, for connection with the pole of the battery. From the plate R extend four conducting-wires, S, which terminate in plates T, for attachment to the fingers of the glove. This form may be used instead of the form shown in Figs. 1 and 2.

The gloves which are provided with sponge may have fine wires, arranged in such a manner that when the sponge is compressed the wires will form small loops, which may then be cut, so as to form additional points for increasing the power of the electrode.

The sponge-surfaces may be as large as desired, and where only one pole is used they may be made to cover the whole palm.

The glove-electrode constructed as above described may be used in connection with a magneto-electric battery of any ordinary description; or it may be used in connection with a small portable battery specially constructed for the purpose, and adapted to be strapped to the arm or attached to or carried on some suitable portion of the person of the operator.

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

1. A glove-electrode consisting of a glove provided with metallic surfaces and conducting-wires, and with means for connecting it with a magneto-electric apparatus, substantially as herein described.

2. A glove or mitten provided with metallic surfaces and conducting-wires, and having said metallic surfaces covered or coated with sponge, substantially as and for the purpose herein described.

3. A glove or mitten provided with metallic surfaces and conducting-wires, in combination with a magneto-electric battery, substantially as and for the purpose herein described.

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