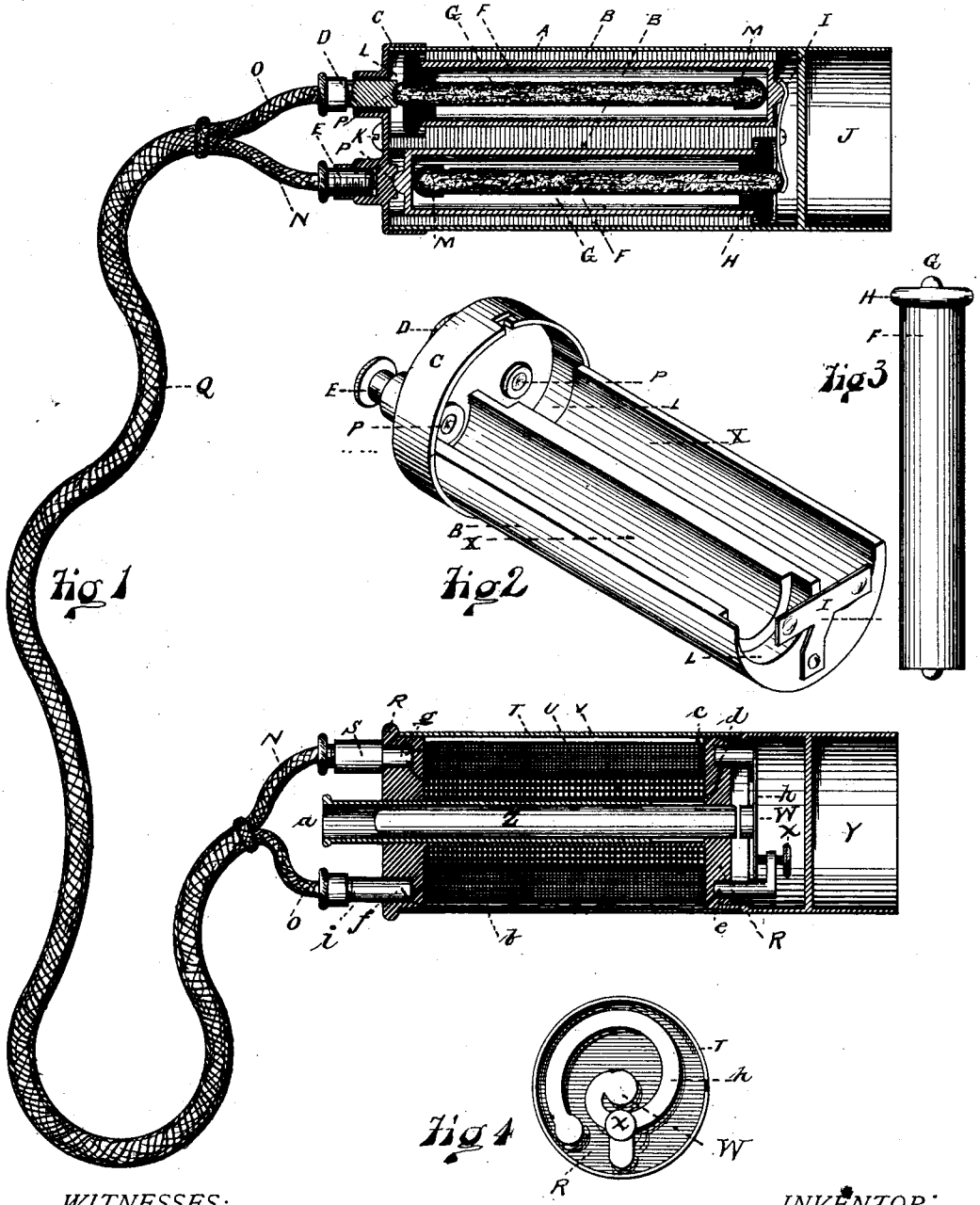
(No Model.) 2 Sheets—Sheet 1.

J. W. SEE.

ELECTRO THERAPEUTIC APPARATUS.

No. 267,025. Patented Nov. 7, 1882.



WITNESSES:

John Lorenz

C. Barnes

INVENTOR:

James W. See

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

J. W. SEE.

ELECTRO THERAPEUTIC APPARATUS.

No. 267,025. Patented Nov. 7, 1882.

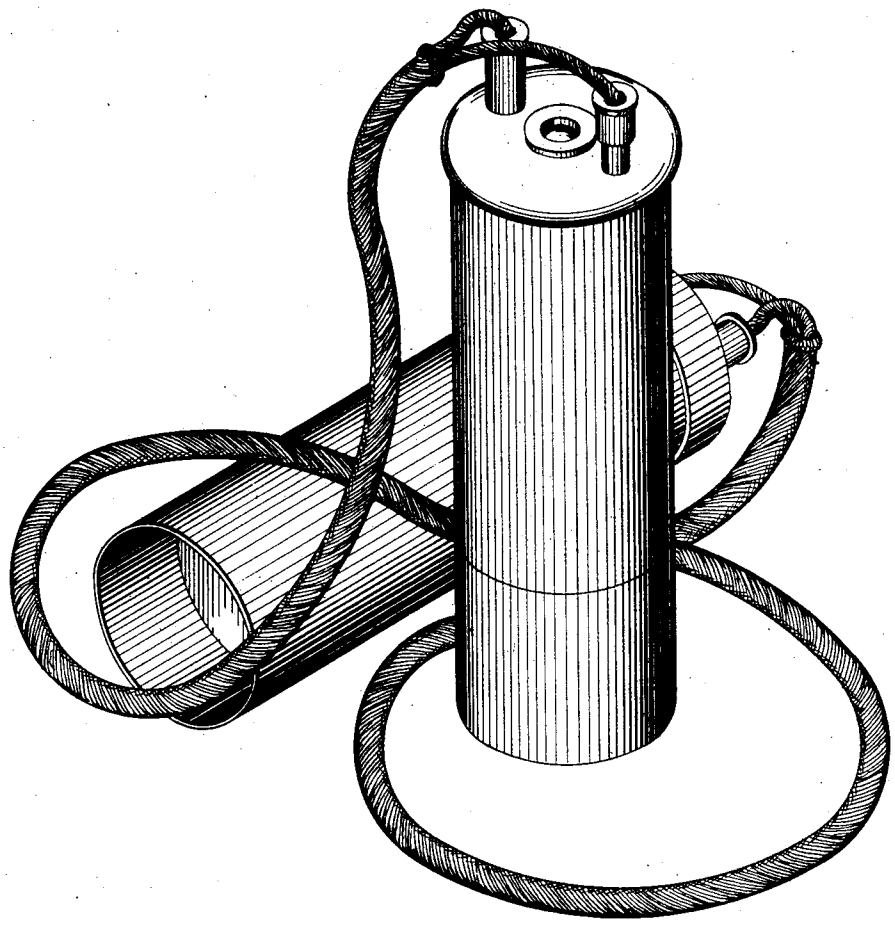


Fig 5

WITNESSES:

John Dorsz

A. Conrad

INVENTOR:

James W. See

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JAMES W. SEE, OF HAMILTON, OHIO.

ELECTRO-THERAPEUTIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 267,025, dated November 7, 1882.

Application filed May 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. SEE, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Electro-Therapeutic Apparatus, of which the following is a specification.

This invention pertains to a portable electro apparatus for physicians' use; and it relates to the construction of the battery itself, to the relative location of the battery, the inductorium and the electrodes, and to details of structure, as hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a section of the complete apparatus; Fig. 2, a perspective view of the battery-holder; Fig. 3, an elevation of a battery-cell; Fig. 4, an end view of the rheotome, and Fig. 5 a perspective view of the complete apparatus.

As shown in Fig. 5, the apparatus consists of two metallic handles, forming electrodes, which are provided with sponge-holders and united to each other by flexible conductors. One of these handles contains a battery and the other contains an induction-coil and rheotome. The two metallic handles form the terminals of the secondary circuit.

In Fig. 1, F F are the battery-cells. They consist of a zinc bottle, F, a soft-rubber cork, H, a stick of carbon, G, contained within the bottle and having its end protruding through the rubber cork, and a rubber cap, M, on the inner end of the carbon to prevent accidental contacts between the carbon and inner surface of the bottle. The battery-fluid surrounds the carbon. The bottle itself forms the negative pole of the battery.

In Figs. 1 and 2, B is a semi-cylindrical block of wood, having bed-grooves X in its flat surface, each groove having an enlargement, L. The enlargement of one groove is on the end opposite the enlargement of the other groove, as shown. A metallic cap, C, is firmly fastened to the block by screw K. This cap is provided with binding-screws E and D, the latter of which is insulated from the metal of the cap. The inner surface of the cap C presents concavities P, corresponding with the binding-posts D and E. A metallic spring, I, is attached to the other end of the block C, and provided with slight concavities opposite those in the cap C. The two batteries F, being placed in the grooves X, become connected up for intensity, as clearly shown, and the projecting rim of the corks H, in connection with the enlargements L oppositely disposed, prevents the batteries being wrongly inserted. A is a metallic sleeve, fitting over and inclosing the block and battery and contacting with the cap C. J is a sponge-holder in the end of this sleeve.

In the lower handle of Fig. 1 we have an induction-coil and rheotome, formed of wooden spool R, primary coil V, secondary coil U, core Z, metallic regulating shield-tube *a*, spring-armature *h* W, and adjustable contact-maker *x*. The armature-spring is of novel form, but is not of my invention.

T is a removable metallic sleeve, fitting over and inclosing the coil and rheotome, and having the sponge-holder Y. This sleeve is connected at *c* with the secondary coil, and forms one terminal of the secondary circuit. The binding-post *i*, through the wire *b*, connects at *e* with the contact-maker *x*. The binding-post S connects at *g* with both the primary and secondary coils. The armature *h* W connects at *d* with the primary coil. The flexible conductor Q is formed of parts N and O. The conductor N connects the binding-post E of the upper handle with the binding-post S of the lower handle, and the conductor O connects the two remaining posts, D and *i*.

It will be noticed that the conductor O has each terminal provided with female connectors to screw on a male post in the handle, while the conductor N has terminals of an opposite character. By thus making these binding-connections of a dissimilar character the danger of improper connection is avoided.

The circuits will now be traced. The primary circuit, starting at contact-maker *x*, goes through wire *e b f* to binding-post *i*, thence through the flexible conductor O to binding-post D, thence to carbon of upper cell, thence through the liquid of upper cell to zinc bottle of upper cell, thence through spring I to carbon of lower cell, thence through battery-liquid of lower cell to zinc bottle of lower cell, thence to the cap C and binding-post E, thence through conductor N to binding-post S of lower handle, thence through the primary coil V and connection *d* to armature *h* W, and finally connecting

by contact with starting-point *x*. The secondary circuit starts at the lower-handle sleeve T, thence through connection *c*, through secondary coil U to binding-post S, through conductor N to binding-post E, thence through the metal of the cap C to metallic sleeve A of the upper handle, and thence through the person of the user to the starting-point of the sleeve of the lower handle. That portion of the primary circuit formed by the conductor N is thus also utilized as a part of the secondary circuit—a plan now commonly followed in connecting up induction-coils.

While I show and describe an apparatus having two cells of battery, a secondary circuit, and a rheotome, I contemplate the occasional construction of the device with a single cell of battery, with secondary circuit omitted, and even with the direct current uninterrupted.

In operation, the upper sleeve, A, and battery-cells are removed, the cells charged with exciting-fluid, and the cells and sleeve replaced. The patient is then treated to contacts with the handle-sleeves or with damp sponges held in them, the strength of the current being adjusted by means of the regulator *a*.

Other forms of battery may be easily adapted to be contained in the upper handle, and the form set forth may be adhered to while the material of their electrodes may be altered.

I claim as my invention—

1. Two metallic handles, a battery contained in one of the handles, and a flexible electrical conductor, all combined substantially as and for the purpose set forth.

2. Two metallic handles, a battery contained in one of the handles, a rheotome contained in the other, and a flexible electrical conductor, all combined substantially as and for the purpose set forth.

3. Two metallic handles, a battery contained in one of the handles, a rheotome and an induction coil contained in the other handle, and a flexible electrical conductor, all combined substantially as and for the purpose set forth.

4. The combination, substantially as set forth, of an electro-therapeutic battery holder having contact-surfaces, a metallic bottle adapted to make electric contact with its bottom outside surface, a flexible cork in said bottle, and a carbon stick within said bottle protruding through said cork, to form a contact-point.

5. The two metallic handles with their internal accessories, the two dissimilar binding-posts on each handle, and the two flexible electrical conductors having dissimilar connectors adapted to properly engage with the two binding-posts, all combined substantially as and for the purpose set forth.

JAMES W. SEE

Witnesses:
GEORGE H. HELVEY,
JOHN LORENZ.