

J. A. MINTURN.
THERAPEUTIC BATTERY.

(Application filed June 10, 1901.)

(No Model.)

Fig. 1.

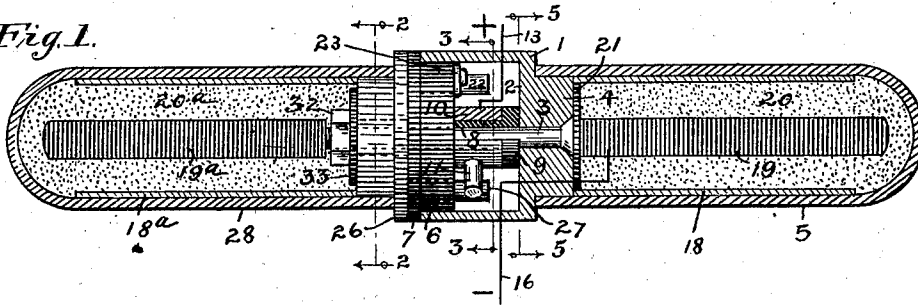


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

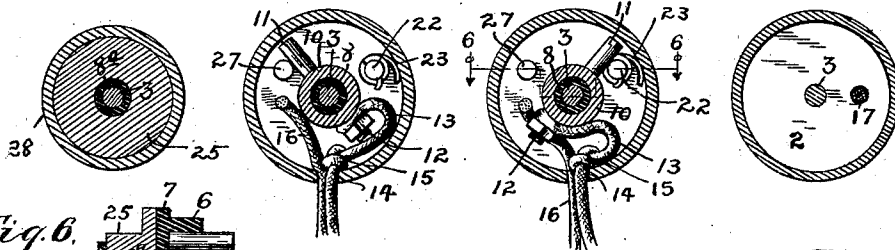


Fig. 6.

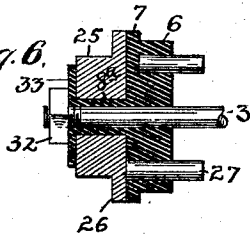


Fig. 8.

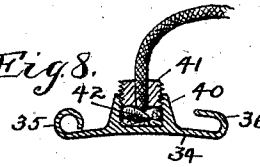


Fig. 7.

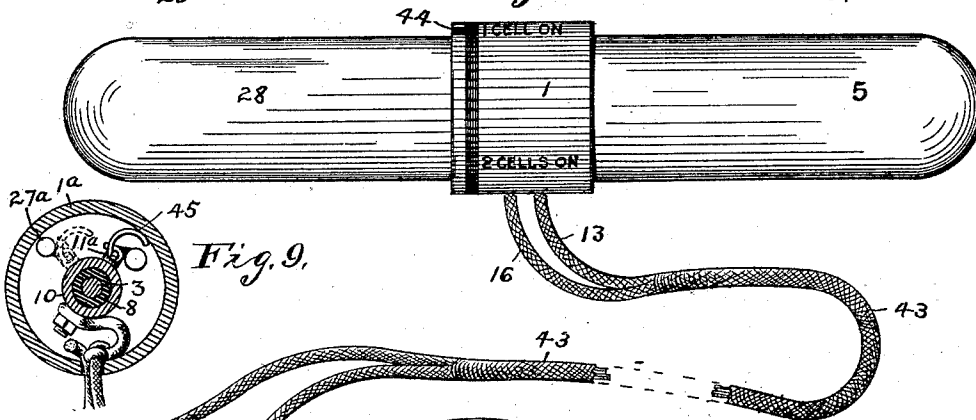
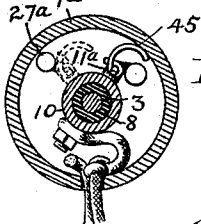


Fig. 9.



Witnesses,

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UNITED STATES PATENT OFFICE.

JOSEPH ALLEN MINTURN, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE
OXYPOLAR COMPANY, OF SAME PLACE.

THERAPEUTIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 683,216, dated September 24, 1901.

Application filed June 10, 1901. Serial No. 63,995. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH ALLEN MINTURN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Therapeutic Batteries, of which the following is a specification.

This invention relates to improvements in medical instruments such as are used for supplying health-giving currents to the human body; and the object of this invention is to supply an instrument having a battery of more than one cell and to provide means whereby a determinate number of the cells may be used as the condition of the patient under treatment may require.

The invention consists in the novel features and combination of parts hereinafter set out and then definitely pointed out in the claims following the description.

Referring to the accompanying drawings, in which like figures of reference indicate like parts throughout the several views, Figure 1 is a longitudinal central section of a two-cell battery embodying my invention; Fig. 2, a transverse section on the line 2 2 of Fig. 1; Fig. 3, a like section on the line 3 3 of Fig. 1, showing the switch thrown to connect both cells; Fig. 4, a section at same place, showing the switch changed to bring in only one cell of the battery; Fig. 5, a transverse section on the line 5 5 of Fig. 1; Fig. 6, a detail in section on the line 6 6 of Fig. 4 of the rubber plug forming the insulation between the two cells and of the metal plug adjacent thereto. Fig. 7 is a side elevation of the double cylinder containing the battery with its connections or adjuncts. Fig. 8 is a sectional view of a contacting plate or electrode, showing manner in which the cable is attached; and Fig. 9 is a modification, showing connection by which one cell is always in circuit.

Number 1 represents a short cylinder having one integral end closure 2, with a central axial bore to secure the pin 3. The outer portion of this closure is reduced in diameter to form the plug 4.

5 is a cylinder or shell closed at one end. Its open end fits upon the plug 4. To prevent the withdrawal of the pin 3 through the

cylinder 1, it is provided with a head, as shown, and the outer end of the bore is countersunk to let the head of the pin flush with the end of the plug. The open end of the cylinder 1 is closed with the plug 6, of hard rubber or other poor conductor of electricity. The plug has a flange 7, which covers the end of the cylinder-walls. The pin 3 extends through this plug, and mounted on the pin between the plug 6 and the end 2 is a sleeve 8, of insulating material, having a flange 9 adjacent to the metal end 2. Between the flange 9 and the plug 6 is the metal sleeve 10, having the radial metallic pin 11. The sleeve also has the binding-post 12, by which an insulated conducting-wire 13 is made fast. This wire passes through a hole 14 in the wall of the cylinder 1, and to prevent its being torn loose from its binding-post I form the knot 15 on the inside of the cylinder. Passing into the cylinder 1 through this opening 14 is a second insulated conducting-wire 16, which is carried through a suitable opening 17 in the cylinder end 2 into the shell 5. The shell 5 may contain a means for producing a current-flow, preferably a dry electric battery, with one electrode in contact with the wire 16 and the other in contact with the metal walls of the shell. The battery shown in the drawings comprises a zinc lining 18 against the main wall of the shell and a central carbon 19, with a packing charge 20 between the two, comprising a mixture of sal ammoniac, whiting, and an oxid of the metal cadmium, the latter being a new and important element in a battery for my purpose; but I do not desire to limit my invention to any particular means for producing a current flow. In the drawings the pin 3 is insulated from the carbon 19 by the disk 21. Mounted in the insulating-plug 6 is a metal post 22, and electrical contact is made between the post and the inner walls of the cylinder 1 by the metal contact-spring 23. As the plug is free to rotate in the cylinder, I insure constant contact by passing the end of the wire of which spring 23 is made through a transverse hole in the post, then give the wire one wind around the post, and liberate it inside of the cylinder. The tendency of the spring to unwind will cause its free end to press constantly

against the inside of the cylinder. Mounted in an insulating-bushing 8^a on pin 3, which bushing is preferably a part of plug 6, is a metal plug 25, having a flange 26. Seated in this plug 25, passing through the rubber plug 6 and projecting into the cylinder 1, is the metal post 27, the purpose of which will be presently explained. The outer end of the plug 25 takes into the open end of a shell 28, which is a duplicate of the shell 5, already described, and like shell 5 forms the receptacle of a battery or the means of producing a current-flow. In the device illustrated, 18^a is the zinc cylinder contacting with the metal shell 28. 19^a is the carbon, which is electrically connected with the pin 3, and 20^a is the chemical agent. It will thus be seen that the two cells of the generator are connected by the pin 3. The pin is screw-threaded to receive nut 32, which nut is screwed up sufficiently tight to hold the parts while still allowing rotary movement of the shell 1 and its attached shell 5 and cell on the plug 6. The rotation is limited by contact of pin 11 with post 22 on the one hand or post 27 on the other. Post 27 is electrically connected with the zinc in shell 28, and the carbon 19^a, pin 3, and nut 32 are insulated from the metal plug 25 by the bushing 8^a and a washer of insulating material 33. The insulated conducting-wires 13 and 16 are each preferably from three to six yards long and terminate at their outer ends with metal contact-plates or electrodes 34, having hooks 35 and 36 to engage the buckles 37 and 38, to which buckles the ends of the elastic band 39 are fastened in a manner to permit adjustment in the length of the band. By means of these bands one of the electrodes is secured to the wrist of a patient and the other to an ankle, thereby causing the current to pass quite through the patient in completing a circuit. The means of attaching the wires to the electrodes is illustrated in Fig. 8, which shows an internally-screw-threaded cup 40 on the outer side of the plate 34, into which screws a plug 41, having a central bore through which before the plug is inserted the end of the wire is passed and a knot 42 tied to prevent the withdrawal of the wire. The end of the wire is bared and pressed down against the bottom of the cup, making good electrical contact. For convenience the two wires will be bound together for a part of their lengths after they leave the generator, as shown at 43 in Fig. 7. Starting at the positive wire 13 and the pin 11 against post 22, as shown in Fig. 4, the circuit would be traced as follows: from wire 13 to sleeve 10, thence to pin 11, thence to cylinder 1 through spring 23, thence to shell 5, thence to carbon 19, thence to wire 16, and thence through the patient back again to wire 13. Only one cell of the battery is in circuit. With parts turned so that pin 11 is in contact with post 27, as shown in Figs. 1 and 3, the circuit would include the two cells of the battery and would be traced as follows: from

wire 13 to sleeve 10, thence through pin 11 to post 27, thence through plug 25 to shell 28, thence to carbon 19^a, thence through pin 3 to metal plug 4, thence through shell 5 to carbon 19, thence to wire 16, and thence through the patient back to wire 13. As an index to aid in setting the battery, the cylinder 1 will have its outer periphery marked with a suitable dial or scale, and the adjacent flange will have a notch 44, which will be brought opposite the reading on the cylinder which represents the required conditions.

In the modification shown in Fig. 9 the pin 11^a has the spring 45, which presses continually against the inner wall of the cylinder 1^a, making electrical contact therewith, except when depressed by being brought into contact with the post 27^a. The top of the pin 11^a is beveled, and the post 27^a is set so as to strike the bevel and stop the travel of the pin. When the contact is broken with the cylinder 1^a, it is immediately made with the post 27^a, and through the connection of the latter post with the battery in shell 28, as previously described, the battery in said shell 28, as well as the battery in shell 6, is brought into the circuit.

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

1. An apparatus of the type set forth, consisting of a plurality of metallic cylinders or cells, a pair of wire cables connected at one of their ends to said cells, contact-plates connected at the other ends of said wires and means for throwing one or more of said cells in circuit with said wires.

2. The combination with a plurality of metallic cylinders or shells containing current-generators, of a pair of wire cables connected at one of their ends to said shells, contact-plates connected to the other ends of said cables and provided with bands and means for placing one or more of said shells and current-generators in or out of circuit with said cables.

3. A current-inciter, a pair of conducting-wires connected at one end to the poles of said current-inciter, contact-plates having bands attached to the other ends of said wires, a second current-inciter having its poles connected with the poles of the first generator or inciter, a switch in the circuit between the two current-inciters, and a dial to indicate the number of inciting-cells in circuit.

4. An apparatus of the type set forth, consisting of a current-inciter of more than one cell, means for connecting the cells in series, a dial, a marker, a pair of conducting-wires to convey the current and contact-plates provided with suitable bands at the other ends of the wires from the inciter.

5. In an instrument of the kind specified, a plurality of shells containing current-generators, a movable circuit maker and breaker to make and break the current-conducting

circuit between the generators, a dial on the outside of the instrument with characters designating the number of generators in circuit, a marker on the movable circuit maker
5 and breaker working in conjunction with said dial, a pair of wire cables attached at one of their ends to the generators and forming part of the circuit therefrom and contact-plates having straps by which the plates are
10 secured to the body of the patient.

6. A pair of cylinders or shells each containing a current-generator, a pin aligned with the longitudinal axis of the cylinders upon which the cylinders are rotatably mounted,
15 a current-carrier between the two cylinders, a switch to make and break said connection, wire cables connected at one of their ends to the generators, a dial on the outside of the instrument and an indicator working in con-
20 junction therewith to indicate the circuit connection between the generators, contact-plates on the ends of the wires and straps on the contact-plates.

7. A metal cylinder having a metal closure at one end and a closure of insulating material at the other, a metal shell secured to said metal closure, a metal plug outside of said end insulation, a second shell secured to said plug, an axially-located pin rotatively connecting said parts, said pin being insulated from the metal plug, a metal sleeve mounted on the pin in the cylinder and insulated from the pin and metal cylinder end, said sleeve having a radial pin, means for rotat-
35 ing the sleeve, a wire cable connected at one

of its ends to said sleeve, a metal post projected into the cylinder in the path of the pin on the sleeve said post passing through the insulated end of the cylinder into the metal plug, a second post seated in the insu-
40 lated end of the cylinder and projected into the path of the pin on the sleeve, a metal spring connecting the metal sleeve with the cylinder, a second wire cable passing into the cylinder and thence through its metal end into
45 the shell, a current-generator in said shell having one of its poles connected with the shell and the other with the last-named wire cable, and a second current-generator located in the other cell having one of its poles con-
50 nected with the wall of the shell and the other to the axially-located pin.

8. A short cylinder having a shell containing a current-generator at one end, a second shell rotatably secured to the other end of
55 the short cylinder and also having a current-generator, a switch throwing one or both cells in circuit by the rotative movement of the last-named shell, an index-dial on the outside of the cylinder to note the relation of the
60 generators and a pair of wires having electrodes connected with the current-generators.

In witness whereof I have hereunto set my hand and seal at Indianapolis, Indiana, this
5th day of June, A. D. 1901.

JOSEPH ALLEN MINTURN. [L. S.]

Witnesses:

S. MAHLON UNGER,
JOHN B. SHERWOOD.