

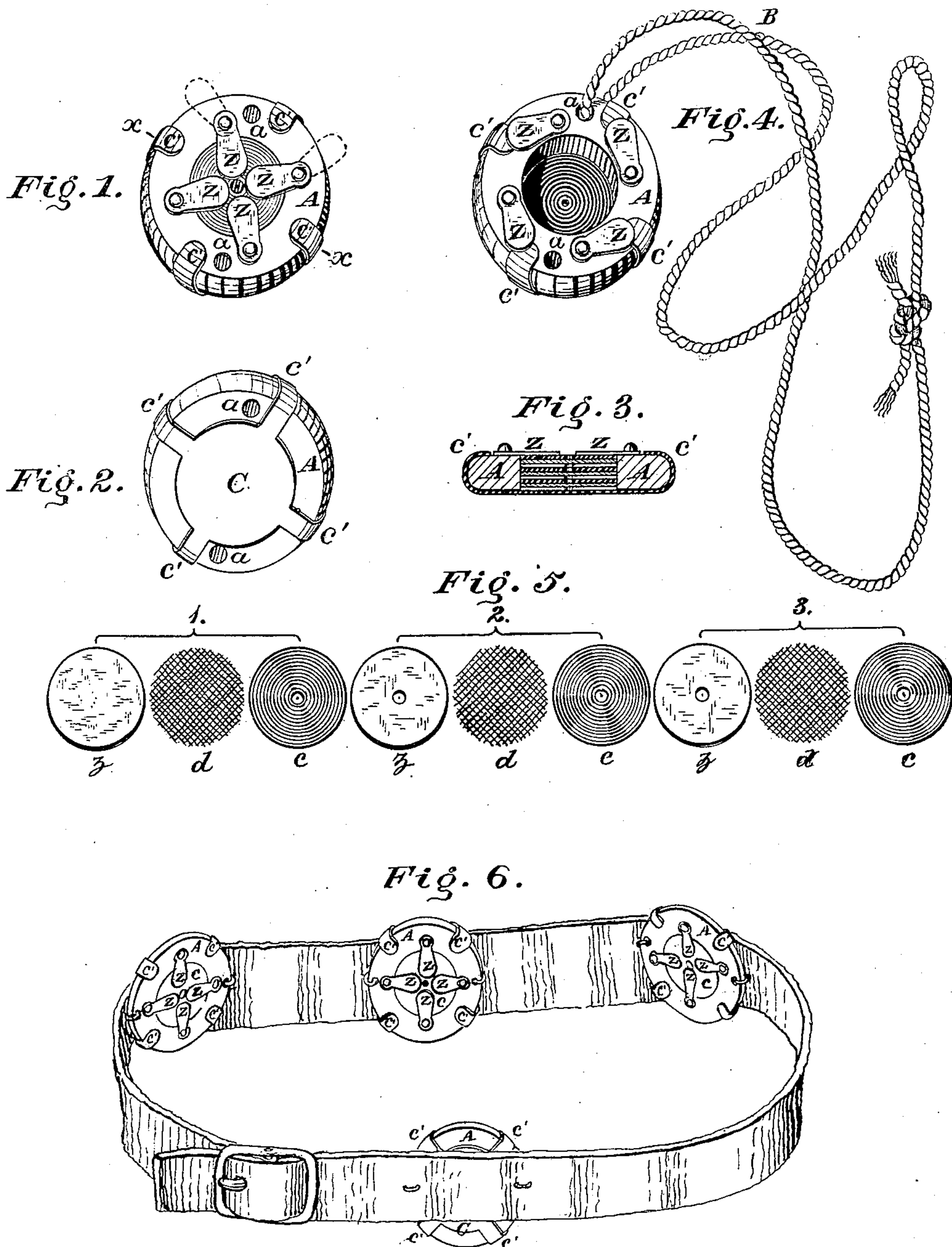
(No Model.)

J. C. CHAMBERS.

VOLTAIC BATTERY.

No. 246,942.

Patented Sept. 13, 1881.



Attest-
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UNITED STATES PATENT OFFICE.

JOSEPHUS C. CHAMBERS, OF CINCINNATI, OHIO, ASSIGNOR OF TWO-THIRDS
TO JAMES M. DODGE, OF SAME PLACE.

VOLTAIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 246,942, dated September 13, 1881.

Application filed February 18, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOSEPHUS C. CHAMBERS, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Curative Voltaic Batteries, of which the following is a specification.

My invention relates to an improved construction of those voltaic piles or batteries which are adapted to be worn or suspended upon the person for remedial purposes.

My improved curative battery comprises one or more systems or couples, of which each system is composed of two metallic disks of strongly-contrasted polarity—as, for example, of zinc and copper, respectively—with customary interposed diaphragm of bibulous paper, felt, or cloth for reception and retention of the acid or other excitant. These couples are contained in a shallow cup, whose walls are formed of vulcanite or other electrical non-conductor, and whose bottom is composed of a disk of copper, having peripheral claws which inclose the walls of the cup and extend slightly over its top. Pivoted to the top of the cup are buttons of zinc.

When applied to the person with the top surface of the battery next to the wearer, his skin, with its normal saline secretions, completes the circuit and becomes the theater of the well-known galvanic action.

In the accompanying drawings, Figure 1 represents my battery, viewed on its face or top side. Fig. 2 represents the same viewed on its bottom or rear side. Fig. 3 is an axial section on the line *xx*. Fig. 4 represents my cup divested of its disks. Fig. 5 shows a series of disks of three voltaic couples. Fig. 6 represents a series of my batteries attached to a belt.

A represents an annular disk of vulcanite, gutta-percha, glass, or other firm and electrically non-conducting material. *a* are orifices in the same, to enable the insertion of a cord, B, or a ring or other means of suspension upon the person.

C is a copper plate, which closes the central orifice of annulus A on its rear side, and whose radially-projecting claws *c'* embrace the said annulus around its periphery and face, in the manner shown in Figs. 1, 2, 3, and 4. The said annulus A and said disk or shell C thus united

constitute the inclosing-cup of my battery. Pivoted to face of annulus A are buttons Z, of zinc.

1 2 3 are three voltaic couples or systems, of which each system comprises three disks, *z d c*, of zinc, cloth, and copper, respectively, of size adapted to loosely occupy the central orifice of my cup A C. Of these disks all the metal ones except the bottom one are preferably perforated at their centers, as shown in Fig. 5, for the free passage of the acidulated water or other excitant.

In the form of my invention here selected for illustration the imperforate zinc disk shown at the extreme left of Fig. 5 is first inserted, then a diaphragm of moistened cloth, followed by a copper disk, these three pieces composing one system or couple, after which the other couples are inserted in like order, and are secured by the closure over them of the buttons Z. The apparatus is now ready for use.

Should the galvanic action become impaired by the drying up or the neutralization of the acid, it can be restored at any moment by pouring in additional acid through the central orifices or by taking the disks out and remoistening the diaphragms. Whichever of these modes be adopted, care must be taken that while applying sufficient acid for saturation of the diaphragms such excess is avoided as would moisten the contiguous metallic surfaces of the consecutive couples, and thus generate counter-currents.

Whenever the metallic surfaces have become too much impaired by oxidation, the battery is taken apart and the surfaces cleaned. At the same time the diaphragms may be renewed, if necessary.

If the galvanic action is found to be too strong, it may be moderated by turning one or more of the buttons Z out of contact with the last copper disk, *c*, as indicated by dotted lines in Fig. 1.

The above-described embodiment of my invention is manifestly susceptible of various modifications. For example, the plate C may be made a member of the first couple by the interposition of a diaphragm between it and the first zinc disk, which, in that case, may be perforated like the others. Such arrangement

would be represented by substituting the plate C for the right-hand copper disk, *c*, in Fig. 5, and counting the systems from right to left, so as to finish with the left-hand zinc disk. In
5 such arrangement the buttons may be of copper or any other electrical conductor. Carbon, silver, or platinum may be used instead of the copper.

I claim as new and of my invention—

10 A voltaic battery adapted to be worn on the person, consisting of non-conducting annulus

A and metallic shell C *c'*, constituting a cup or receptacle, within which one or more voltaic "couples" are inclosed by means of buttons Z,
substantially as set forth. c5

In testimony of which invention I hereunto set my hand.

JOSEPHUS C. CHAMBERS.

Attest:

GEO. H. KNIGHT,

SAML. S. CARPENTER.