J. A. ROBBINS.

Improvement in Galvanic Batteries.

No. 128,660. Patented July 2, 1872.

Fig. 1.

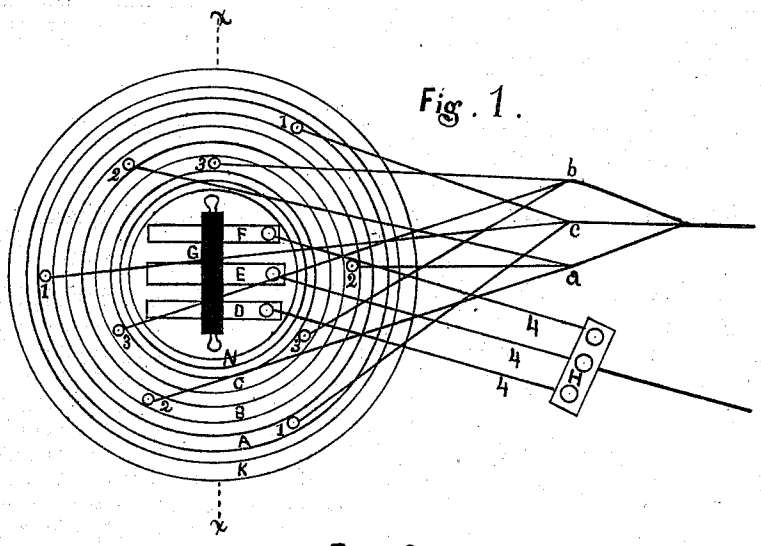
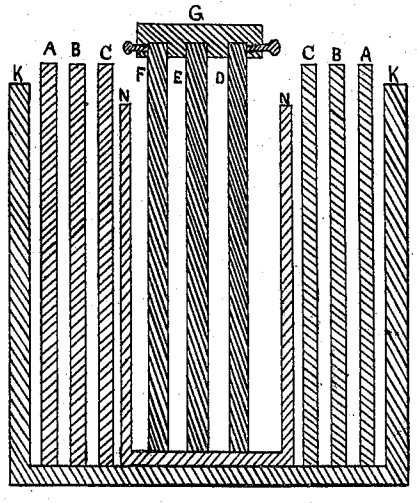


Fig. 2.



WITNESSES.

Sylvenus Walker

George E Carter

INVENTOR.

Joseph A. Robbins

UNITED STATES PATENT OFFICE.

JOSEPH A. ROBBINS, OF MEDFORD, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO WILLIAM B. WORTMAN, AND ONE-QUARTER TO MRS. H. N. HARRIS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN GALVANIC BATTERIES.

Specification forming part of Letters Patent No. 128,660, dated July 2, 1872.

Specification describing certain Improvements in Galvanic Batteries, invented by JOSEPH A. ROBBINS, of Medford, in the county of Middlesex and State of Massachusetts.

My invention has for its object the utilization of as much of the current as possible, and the arrangement of the elements of a battery so as to economize material and space; and it consists in making the connections from an element of the battery to the main conductor by several conductors joined to the element at different places, and all joined to the main conductor; and further, in arranging within the same battery-cup two or more metallic elements nested within each other, a proportionate number of carbon or equivalent elements being placed in the porous cup.

Figure 1 represents a plan view of my battery; Fig. 2, a section thereof, as indicated by dotted lines *x x*, Fig. 1.

K represents an exterior case for a battery of any suitable construction. Within it I place the metallic elements arranged to nest within each other. In the drawing, three A, B, and C, are shown, each independent of each other, and each virtually forming the element of a separate battery. N is the regular porous cup, in which are placed the carbons D E F, by preference equal in number to the metallic elements. These carbons are held in place by the clamp G, an insulating block of wood or other suitable substance being interposed between the different plates, suitable conducting-wires 4 4 4 leading from each carbon.

By this arrangement I am enabled to economize room and construct in one vessel a compound battery. The compound battery thus arranged occupies only about the space that a single element would, and needing little if any more exciting solutions.

I have found by experiment that a large percentage of the current generated in a battery is lost—that it has been impossible to utilize it all. This is undoubtedly, in part at least, owing to the resistance the metallic element itself offers to the passage of the current, especially from its more remote parts to the conductor. This I have remedied by joining several conductors to the elements at several places, all such branch conductors uniting to form the main conductor at a suitable distance from the battery. These wires are shown at 1 1 1 on A, 2 2 2 on B, and 3 3 3 on C, all from any element uniting to form a main conductor, as shown at *a*, *b*, and *c*. By this means I am enabled to utilize a larger amount of current generated than when only one conductor is used, as is usually done, the percentage of increase for the first two or three additional wires being quite large. Although in this case I have shown three, I do not limit myself to that number, as the number will vary according to the size of the basicles or elements used, and can best be determined by experiment with any size used. The form of basicle used may be modified from the one shown so as to furnish a large surface with economy of room. It may be wound or cast in helical form, and furnished with several conducting-wires leading therefrom.

Having thus described my invention, what I claim is—

1. The arrangement, within one battery-jar, of two or more basicles or elements, constructed so as to nest within each other, all surrounding the porous cup, in which is placed a suitable number of carbon or equivalent elements, all substantially as set forth.

2. In combination with an element of a battery, two or more conducting-wires, joining to form the main conductor, substantially as and for the purposes set forth.

JOSEPH A. ROBBINS.

Witnesses:

SYLVENUS WALKER,

GEORGE E. CARTER.