

(No Model.)

P. C. BURNS.
GALVANIC BATTERY.

No. 393,814.

Patented Dec. 4, 1888.

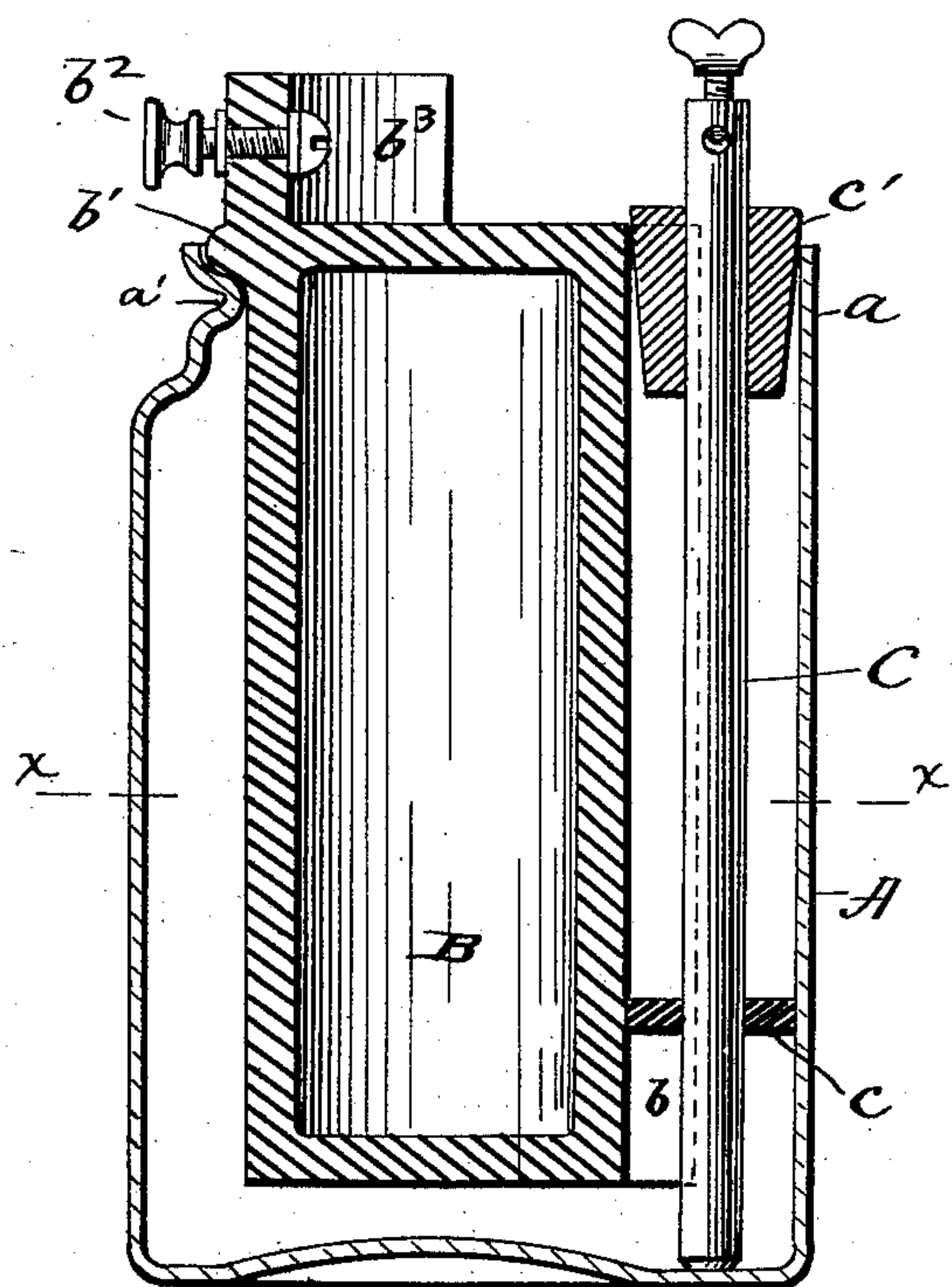


Fig. 1.

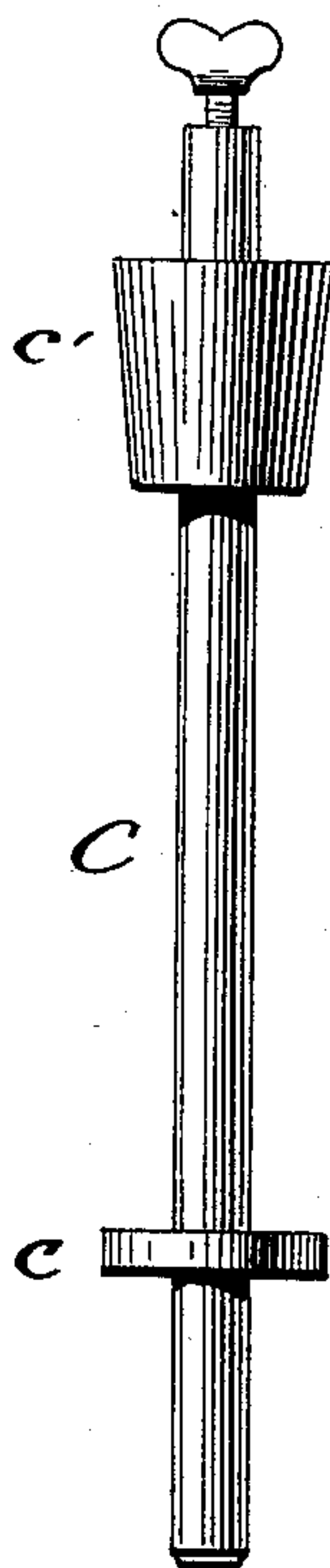


Fig. 3.

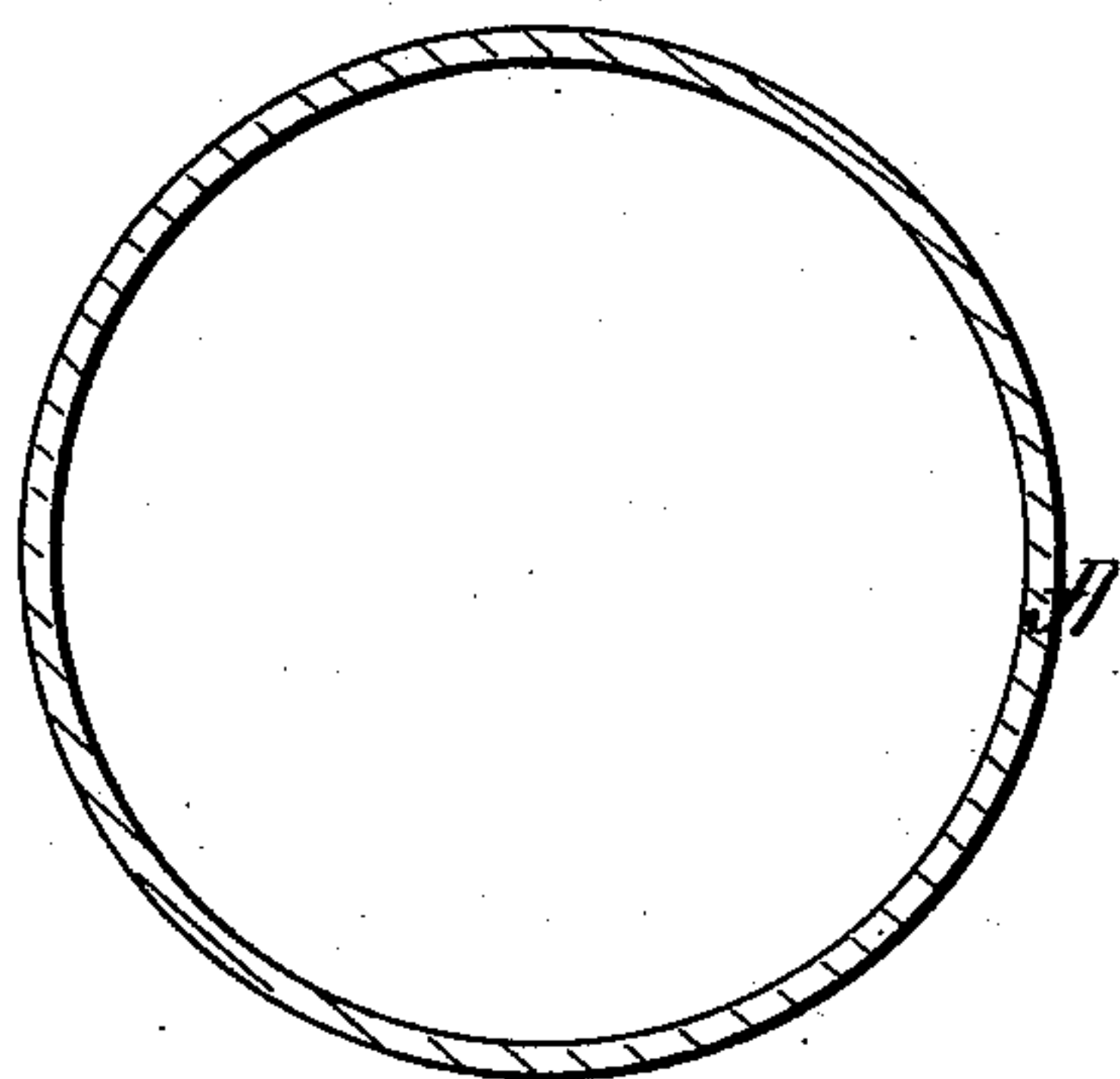


Fig. 4.

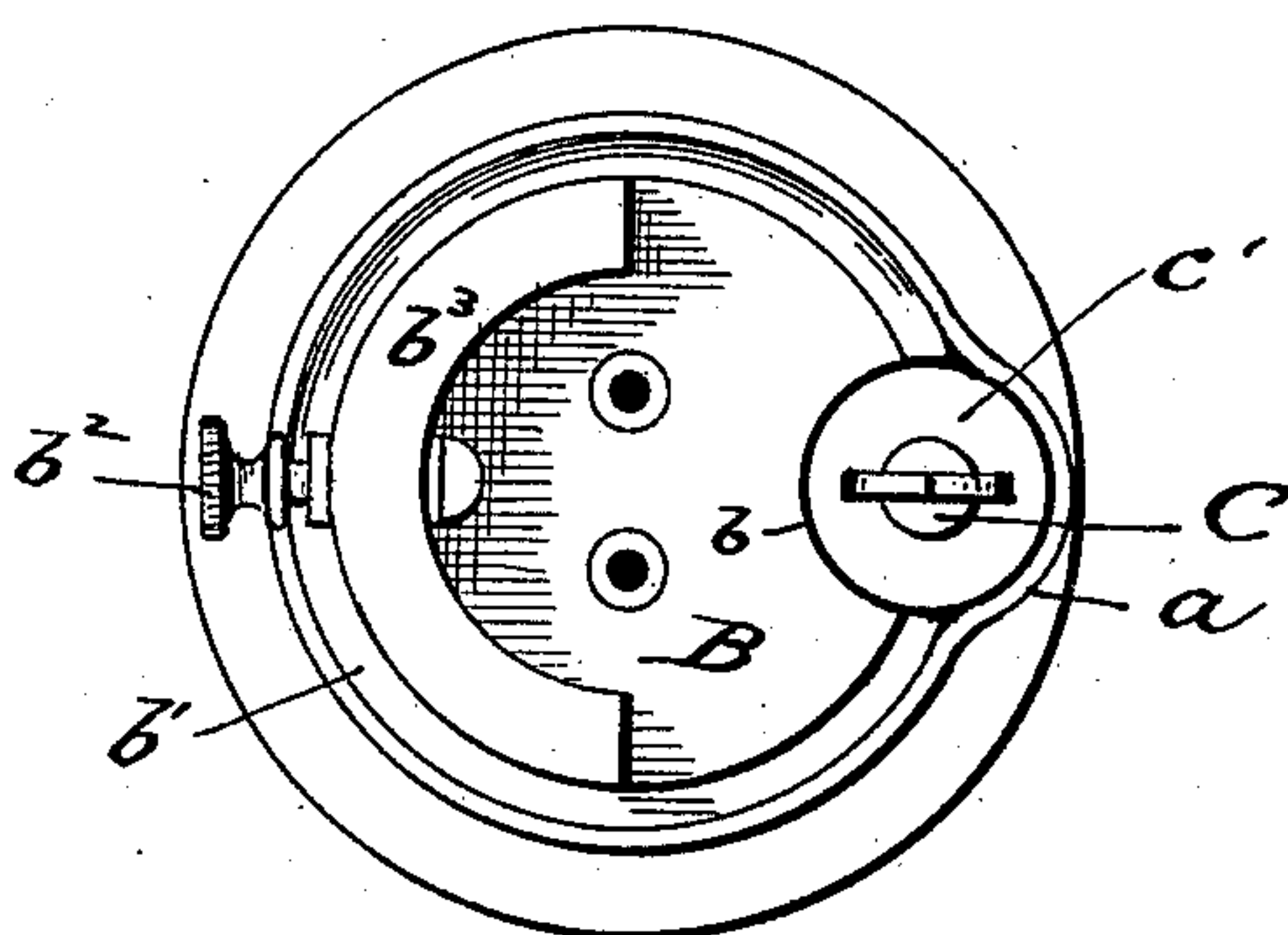


Fig. 2.

WITNESSES:

Wm. A. Rosenbaum
Wm. J. Blake

INVENTOR,

Peter C. Burns.

BY

W. D. Johnston.

ATTORNEY.

UNITED STATES PATENT OFFICE.

PETER C. BURNS, OF ST. LOUIS, MISSOURI.

GALVANIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 393,814, dated December 4, 1888.

Application filed December 21, 1887. Serial No. 258,619. (No model.)

To all whom it may concern:

Be it known that I, PETER C. BURNS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Galvanic Batteries, of which the following is a specification.

The invention relates to galvanic batteries, the primary objects being to provide a battery of low internal resistance, and one in which the greatest efficiency of the depolarizing agent is secured.

To this end the invention consists of a porous cup composed of carbon and filled with a depolarizing agent. The cup is formed with a flange extending a part way around its upper edge to support the cup and to close the mouth of the jar. The zinc is supported in the jar in such a manner as to prevent contact between it and the carbon cup.

The manner of supporting the zinc and other details will be fully described in the following specification and set forth in the claims.

In the drawings, Figure 1 represents a central vertical section of my improved cell; Fig. 2, a plan; Fig. 3, a side elevation of the zinc and its attachments; Fig. 4, a horizontal section of the inclosing-jar of the cell, taken on line *x x*.

Referring to the drawings by letter, A represents the outer inclosing-jar of the cell. On one side, and extending from top to bottom, is a bulge, *a*, for a purpose hereinafter set forth. The neck or upper edge of the jar is formed into a shoulder, *a'*, which extends entirely around the jar, except at the bulge.

B is a porous cup, constructed of carbon, which forms the negative element of the battery. This cup takes the place of the ordinary porous cup, and to that extent does away with one part of the cell. The depolarizing agent, whatever it may be, is held freely in the cup. I have found that better results are obtained by placing this agent loosely in the cup than by combining or mixing it with the carbon. The cup is formed with a vertical groove, *b*, in its outer wall extending its full length, and when the cup is properly adjusted in the cell this groove is opposite the bulge in the outer jar, thus forming a cylindrical chamber. The size of the cup is such as to allow it to pass through the mouth of the jar, and its upper edge is surrounded by a flange,

b', except where the groove is, which rests upon the shoulder *a'* of the jar, and thus effectually closes the mouth of the same. The binding-post *b²* of this element is secured in an upwardly-projecting flange, *b³*, formed opposite the groove *b*. The depolarizing substance, which may be any of the well-known depolarizers, is contained within the cup.

C represents the zinc or positive element of the battery. It is the ordinary pencil-zinc, having a binding-screw at the top for electrical connection. The zinc occupies the cylindrical chamber formed by the bulge in the jar and the groove in the cup. Before the zinc is inserted the lower end is encircled by a rubber collar or gasket, *c*, and its upper end by a wooden or cork plug, *c'*. The collar and plug fit tightly in the chamber and serve to prevent contact between the zinc and carbon. They also act as a key to prevent the cup from rotating in the jar and short-circuiting the battery. The plug *c'* is slightly conical, and when pushed down tightly holds all the parts securely in place and seals the jar.

It will be seen that this construction forms a compact battery-cell, and experiment has demonstrated that it is a very effectual and economical cell as well.

What I claim as my invention is—

1. The combination, with a porous cup provided with a groove, as *b*, of an outer jar provided with a bulge, as *a*, substantially as described.

2. The outer jar provided with bulge *a* and shoulder *a'*, and the porous cup constructed of carbon and provided with groove *b* and flange *b'*, in combination with the zinc-carrying collar *c* and plug *c'*, as set forth.

3. The porous cup constructed of carbon, provided with an upward-projecting flange, *b³*, carrying binding-post, substantially as described.

4. The combination, with outer jar provided with bulge, of porous cup provided with groove and zinc-carrying insulating plug and collar, as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

PETER C. BURNS.

Witnesses:

JOHN RING,
P. L. ROSE.