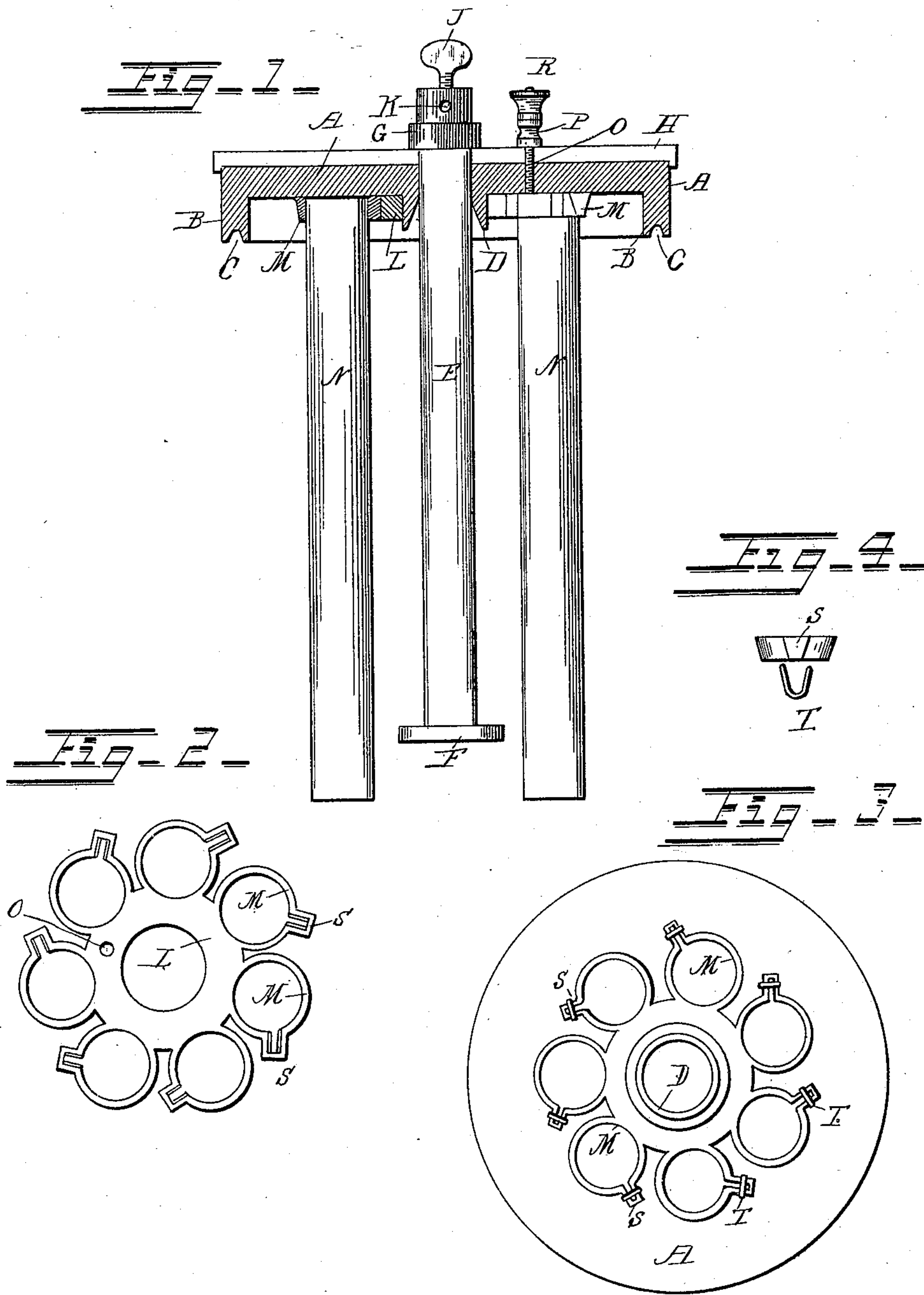


(No Model.)

J. H. PHALAN.  
GALVANIC BATTERY.

No. 401,059.

Patented Apr. 9, 1889.



WITNESSES,

*Wm. T. Robertson*  
*Thos. E. Robertson*

INVENTOR,

*James H. Phalan*

*By Francis W. Parker*  
Attorney.

# UNITED STATES PATENT OFFICE.

JAMES H. PHALAN, OF NEW HAVEN, ASSIGNOR TO THE ELECTRICAL  
SUPPLY COMPANY, OF ANSONIA, CONNECTICUT.

## GALVANIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 401,059, dated April 9, 1889.

Application filed December 7, 1888. Serial No. 292,953. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. PHALAN, a citizen of the United States, and a resident of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Battery, of which the following is a specification.

My invention relates to carbon batteries, and has for its object to provide a cheap, simple, and effective battery.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a cross-section with the rear carbons removed. Fig. 2 is a plan view of the carbon-holding ring. Fig. 3 is a reverse view of such ring secured to the top. Fig. 4 is a detail of one detached carbon-clamp and securing-staple.

Like parts are indicated by the same letters in all the figures.

A is a top or cover, preferably composed of wood, having the annular pendent rim B, with the annular groove C therein to receive the upper edge of the jar.

D is an interior downwardly-projecting guide in the cover for the zinc E, which has about its lower end the insulating-disk F, to protect it from the carbons, and about its upper end the insulating-disk G, whereby it is supported on the insulating-plate H.

J is a thumb-piece, which is used to clamp upon the wire after the same has been inserted in the hole K.

L is a ring about the guide D and having secured thereto a series of contractible clamps, M. Each of these clamps is adapted to receive a carbon or element, N. On the ring L is an upwardly-projecting screw-rod, O, which passes through an aperture in the cover A and plate H, and has at its upper end the nut P, against which bears the nut R, so as to form the binding-post.

S S are lateral elongations in the peripheries of the clamps M M, and T T are staples which are adapted to straddle such elongations and when driven into the body of the cover A to force the sides of such elongation together, thus contracting the clamps M and securing the carbons or elements rigidly in position, and also attaching the ring L and clamps M M securely to the under side of the cover.

The use and operation of my invention are as follows: The cover, shaped substantially as shown, is provided with suitable apertures and the groove placed in proper position within the cover on the lower side thereof, and then so as to lie between the zinc guide and the pendent rim are placed the ring and connected carbon or element clamps. The screw-rod on such ring is passed up through its proper aperture. The end of one carbon is now placed within one of such clamps. A two-pointed tack or staple is then made to straddle the peripheral elongation of such clamp, and is driven securely home into the body of the cover proper. By this act the carbon-clamp is contracted and made to grasp, clamp, and secure the carbon in position. This process is proceeded with until all the clamps have been in like manner secured. By this process the ring, with its carbon-clamps and carbons, is also securely fastened to the cover by such staples or tacks. The nuts which form the binding-post are now screwed on the upper end of the screw-rod, the insulating-plate having first been placed over the top of the cover. The zinc rod, provided with a thumb-screw, suitable wire-aperture, and supporting insulating-piece, is inserted through its aperture so as to pass down in the midst of the carbons until it rests by the engagement of its upper surrounding insulation upon the insulating-plate. The disk of insulation is then applied to its lower end. The cover is now turned with the carbons upward, and the space between the guide and the pendent rim is filled with paraffine or other insulating substance. When the same hardens, it forms a complete insulation of the carbons from each other within the jar. The guide is internally funnel-shaped, so as to be free from the sides of the zinc. Into a jar of properly-prepared liquid the carbons are now plunged, the rim of the jar containing such liquid being received in the groove in the rim of the cover. The insulating-plate is now brought securely down upon the cover, and the nuts to form the binding-post are secured upon the screw-rod, and the thumb-screw is attached to the zinc. In this manner a very simple, compact, and cheap battery is made. It is quite obvious that some of these parts could be changed



in form from the form shown in the drawings without greatly departing from the spirit of my invention.

I have shown my device as applied to carbon batteries; but of course it could be applied to other kinds of batteries.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is as follows:

10 1. In a battery, the combination of a jar-cover with contractible element-securing devices and means whereby such devices are both contracted to secure the elements and secured to the cover.

15 2. In a battery, the combination of a jar-cover with contractible element-securing clamps and devices whereby such clamps are simultaneously contracted to secure the elements and themselves secured to the cover.

20 3. In a battery, the combination of a series of element-clamps, each provided with a lateral elongation, and a series of staples to straddle such elongations, and whereby such clamps are both contracted and secured to  
25 the cover.

4. In a battery, the combination of a jar-cover with a series of element-clamps arranged in a circle upon such cover, each clamp having a lateral elongation, and a series of staples which straddle such elongations, and are  
30 then driven into the cover so as to simultaneously contract such clamps and secure the whole system to the cover.

5. In a battery, the combination of a series of connected element-clamps, each provided  
35 with a lateral projection and with a body of substantially the same diameter as the element, and a series of staples which straddle the projections, and when driven contract the clamps, and thus secure the element. 40

6. In a battery, the combination of a jar-cover with a series of element-securing devices, each having a continuous outline consisting of a body substantially the diameter of the element and a contractible lateral pro-  
45 jection.

JAMES H. PHALAN.

Witnesses:

THOS. WALLACE, Jr.,  
D. F. ANSCHUTZ.