

(No Model.)

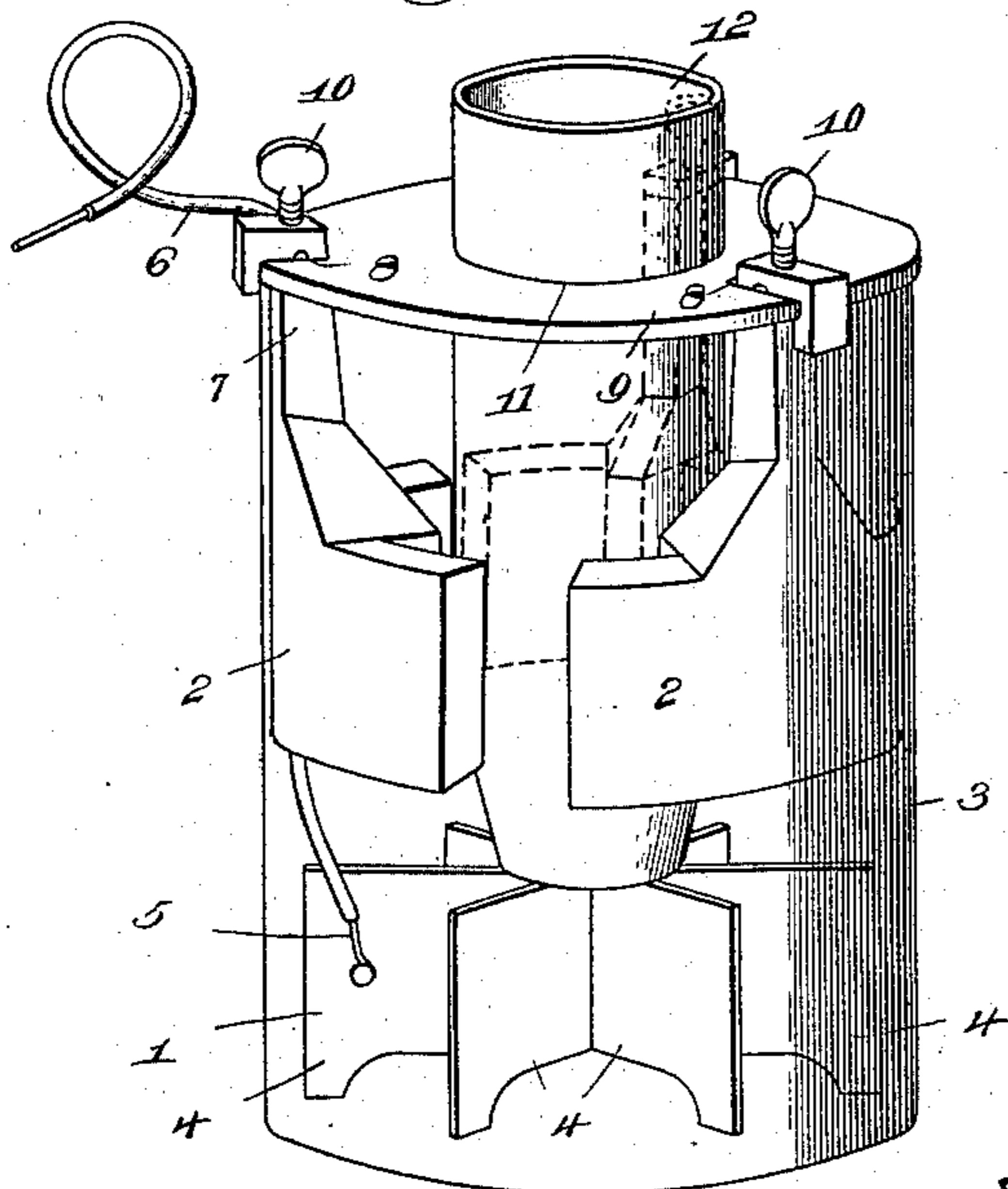
2 Sheets—Sheet 1.

H. N. FARLEY.  
ELECTRIC BATTERY.

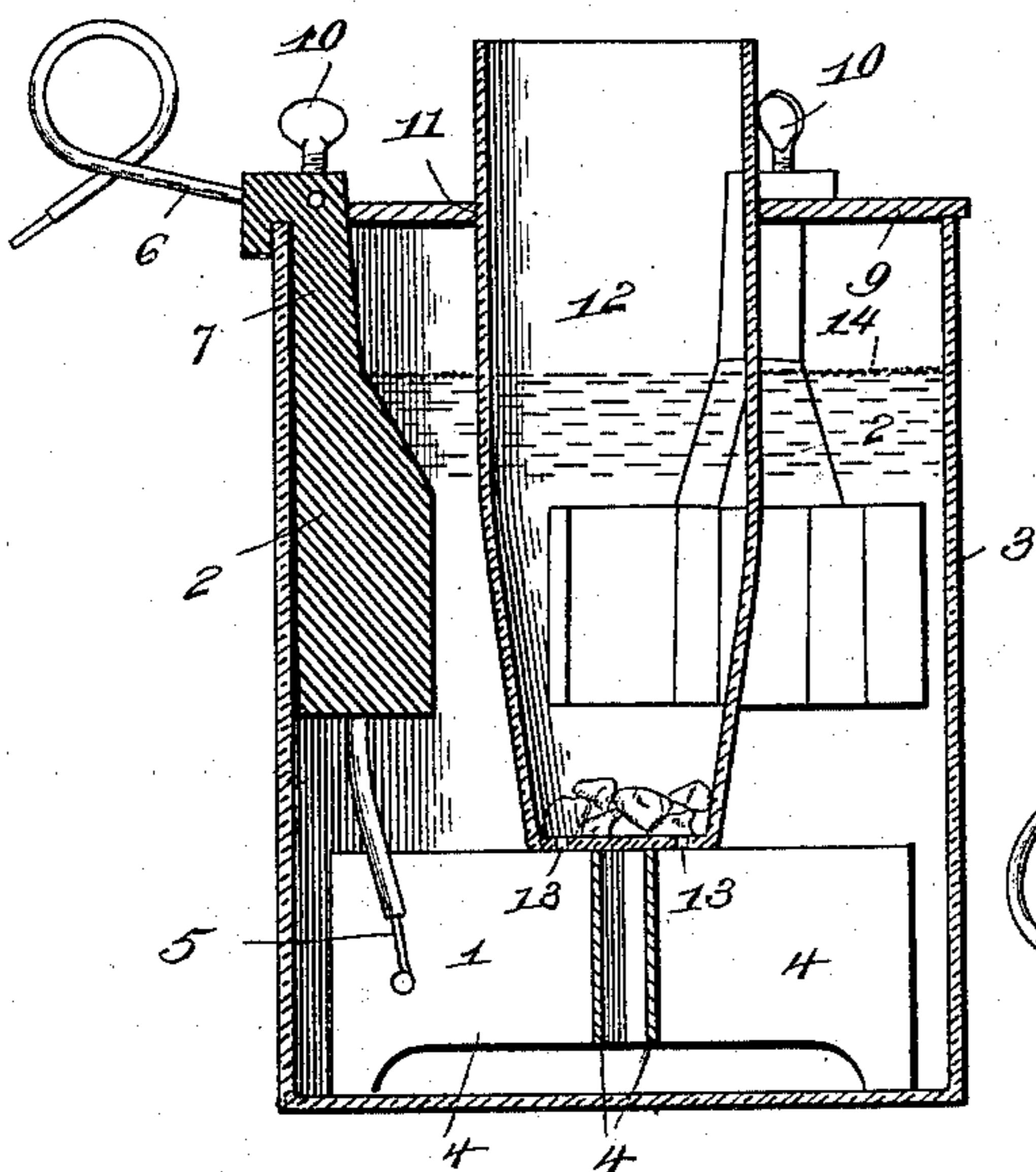
No. 578,867.

Patented Mar. 16, 1897.

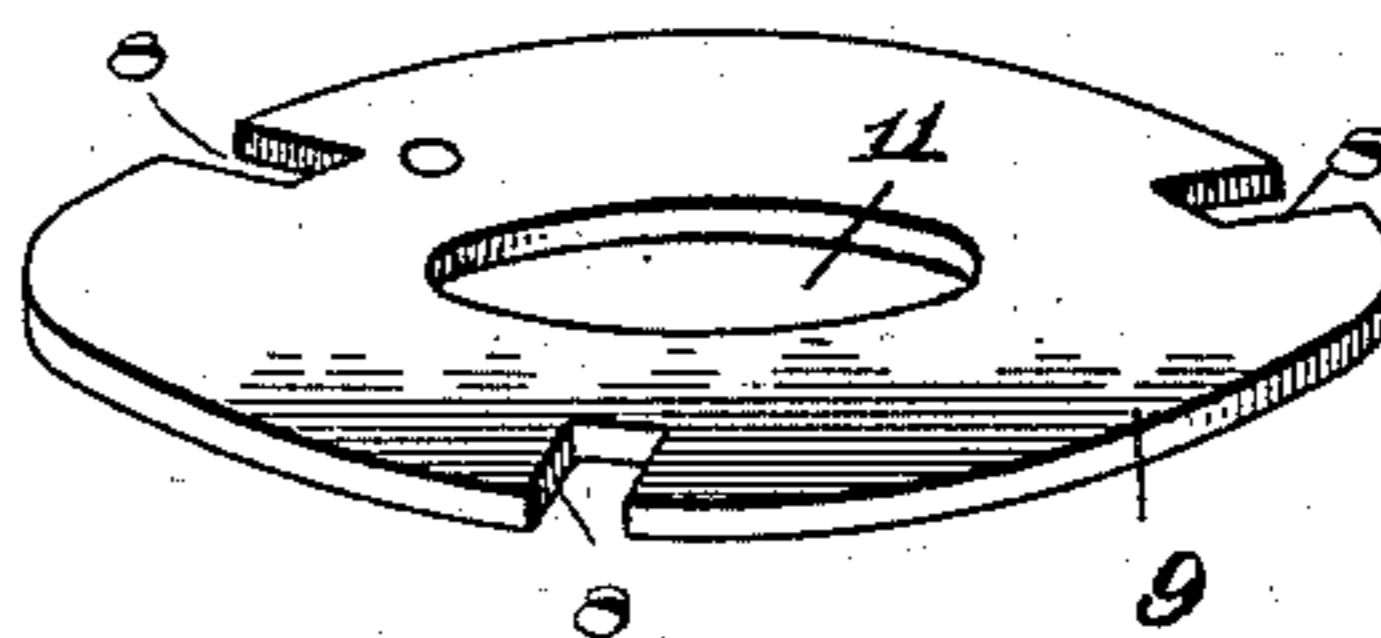
*Fig. 1.*



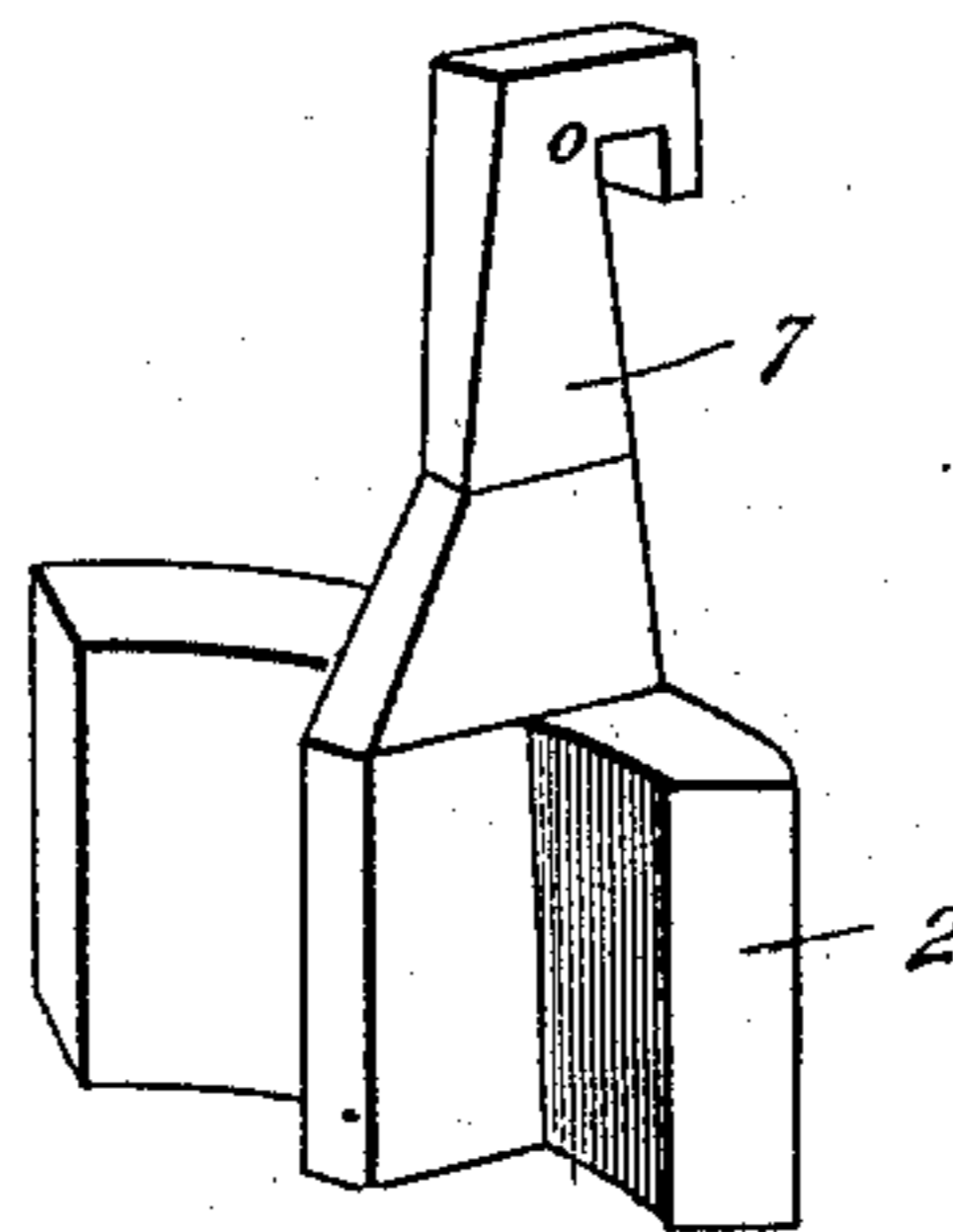
*Fig. 2.*



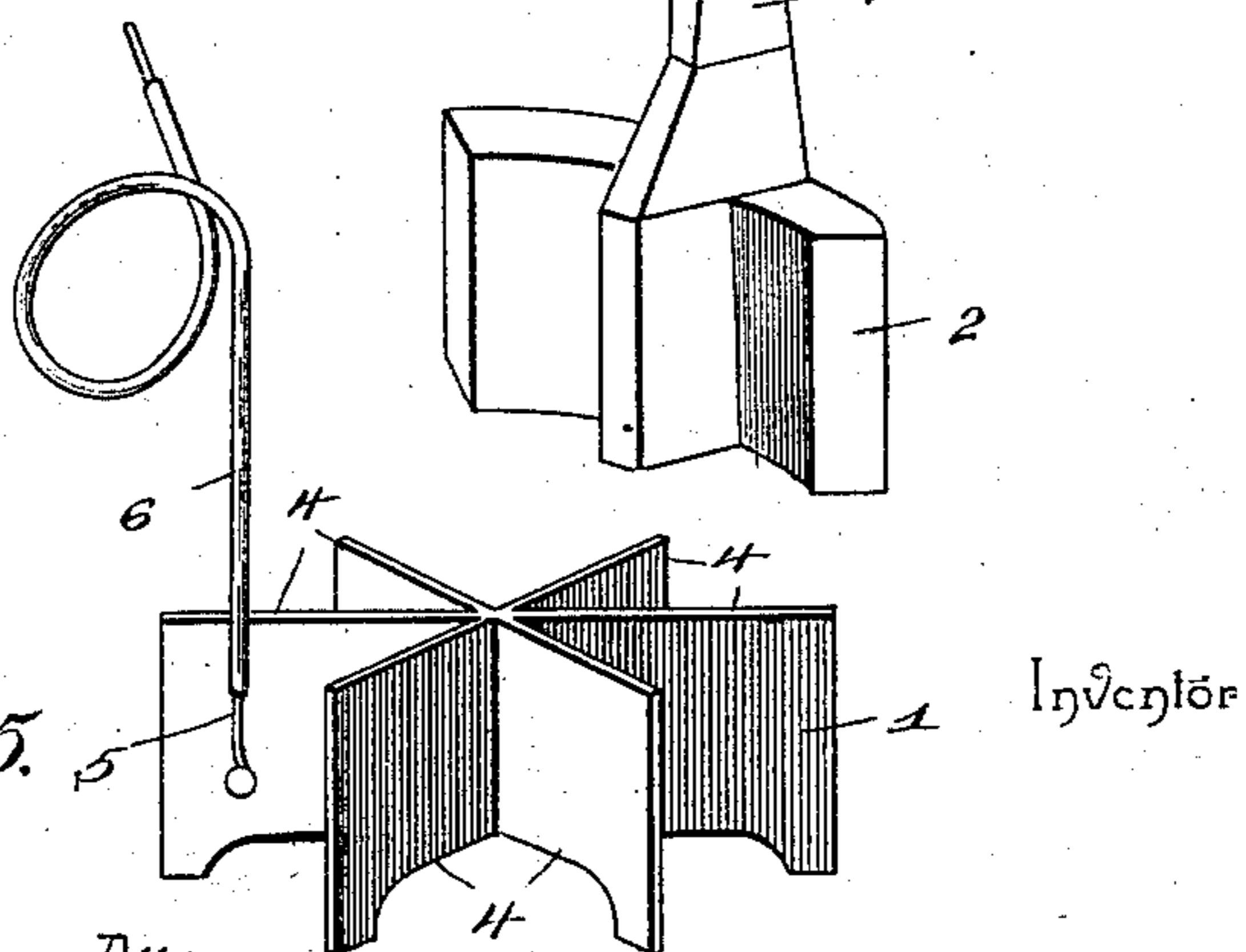
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



Witnesses

*John C. Shaw*  
*E. S. Hays*

By *W. S. Attorneys.*

*Howard N. Farley,*

*C. S. Hays & Co.*

(No Model.)

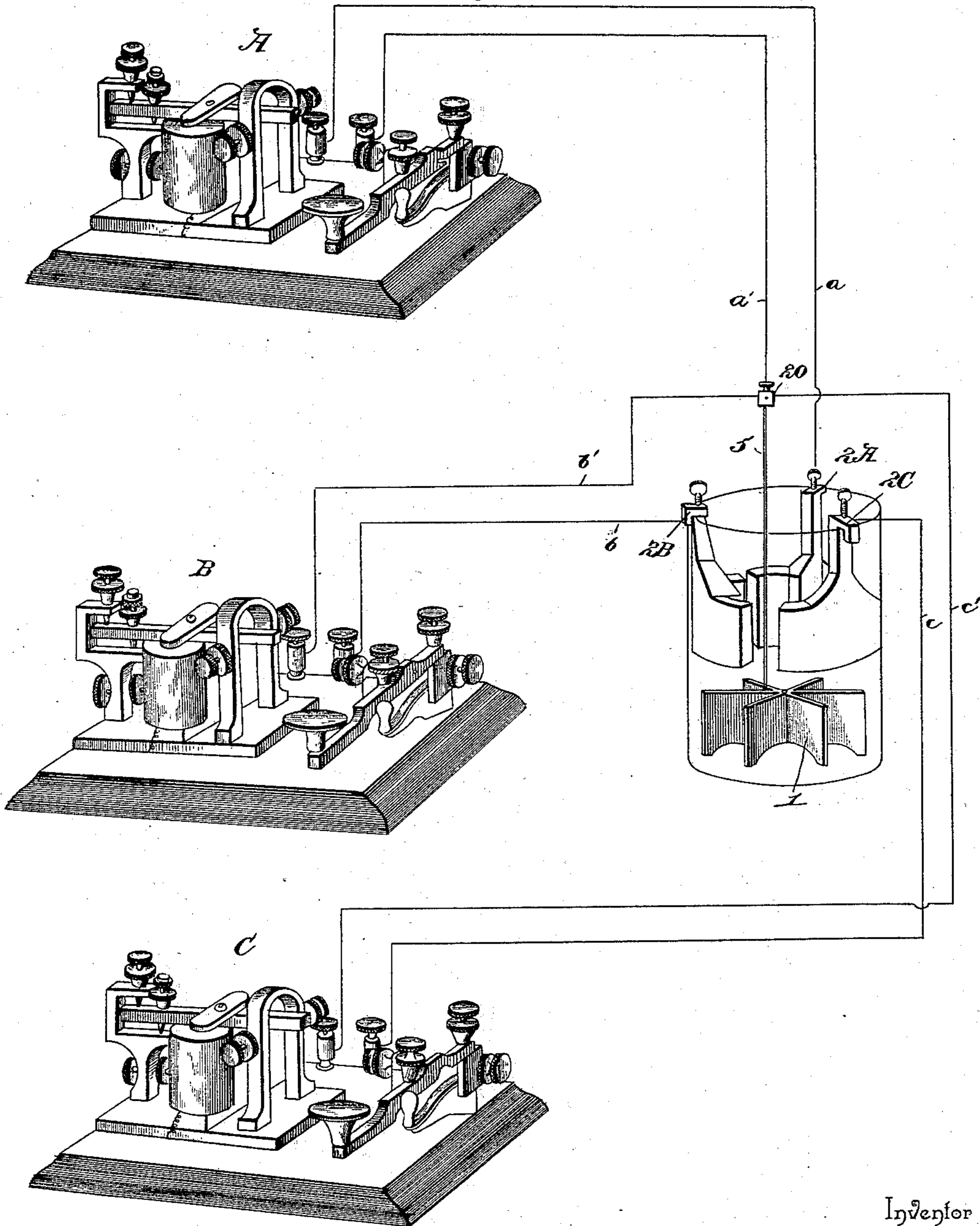
2 Sheets—Sheet 2.

H. N. FARLEY.  
ELECTRIC BATTERY.

No. 578,867.

Patented Mar. 16, 1897.

*Fig. 6.*



Inventor  
*Howard N. Farley.*

Witnesses  
*F. Wieser.*  
*D. P. Mohaupt.*

By *his* Attorneys,

*C. A. Snow & Co.*

# UNITED STATES PATENT OFFICE.

HOWARD N. FARLEY, OF WARWICK, NEW YORK.

## ELECTRIC BATTERY.

SPECIFICATION forming part of Letters Patent No. 578,867, dated March 16, 1897.

Application filed April 11, 1895. Serial No. 545,328. (No model.)

*To all whom it may concern:*

Be it known that I, HOWARD N. FARLEY, a citizen of the United States, residing at Warwick, in the county of Orange and State of New York, have invented a new and useful Electric Battery, of which the following is a specification.

My invention relates to chemical batteries of the class designated as "gravity;" and the object in view is to provide a battery of a single cell having the elements so disposed as to produce a plurality of currents in order that a plurality of telegraph-sounders or similar devices may be used in circuit with a single cell. It is well known that two or more sounders may not be arranged in the same circuit, for the reason that the interruption of the current leading through one of the sounders causes the entire current to be distributed through the remaining sounders, and this increase of energy interferes with the adjustment of the sounders, and hence with their proper operation.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a perspective view of a battery-cell constructed in accordance with my invention. Fig. 2 is a vertical central section of the same. Fig. 3 is a detail view of the receptacle-cover. Fig. 4 is a similar view of one of the electropositive elements. Fig. 5 is a similar view of the electronegative element. Fig. 6 is a general diagrammatic view showing circuit-wire connections between the battery and a plurality of telegraphic sounders.

Similar numerals and letters of reference indicate corresponding parts in all the figures of the drawings.

In carrying out my invention I employ a single electronegative element 1, as copper, and a plurality of electropositive elements 2, as zinc, and in the drawings I have shown three of the latter, whereby the cell is adapted for producing three independent electric currents designed to energize three sounders or similar devices. The electronegative element is shown resting upon the bottom of the receptacle 3 and is constructed with a series of

radially-disposed wings 4, to one of which is attached the conductor 5. This conductor is preferably provided with an insulating-sheath 6. The electropositive elements are suspended within the receptacle out of contact with its side walls by means of hangers 7 to engage the upper edge of the receptacle, said hangers extending through peripheral notches or openings 8 in the receptacle-cover 9 and being provided with binding-posts 10 to facilitate the attachment of conductors.

The receptacle-cover is provided with a central opening 11 to receive the upper end of a glass tube 12, said tube extending axially into the receptacle and provided with a closed lower end having one or more outlet perforations 13. The object of this centrally-located tube is to contain a chemical agent, as sulfate of copper, for exciting chemical action in the same, the solution being allowed to gravitate through the outlet perforation or perforations 13 in the bottom of the tube and mingle with the liquid in the body of the receptacle, and by this arrangement the solid crystals of sulfate of copper are prevented from accumulating in the bottom of the cell and becoming mixed with the scales, forming with the copper a solid mass which is difficult to remove and which interferes with the action of the battery. Furthermore, by the use of this tube oil, as shown at 14, can be placed on top of the solution in the body of the receptacle to prevent evaporation and the formation of crystals at the edges of the cell, while no oil enters the tube. In other words, the arrangement just described provides for the introduction of chemicals without coming in contact with oil placed upon the surface of the solution in the cell.

From the above description it will be seen that from a single cell a plurality of distinct currents of electricity may be produced whereby a plurality of sounders or other devices may be energized, and the interruption of the current through one of the sounders does not affect the other sounders by causing an increase of the current flowing there-through, and hence does not interfere with the operation of the sounders by disturbing the adjustment thereof.

To illustrate the use of the battery when employed in connection with a plurality of

telegraphic sounders, it will be observed, by reference to diagrammatic Fig. 6 of the drawings, that each electropositive or zinc element is entirely separate and independent in its operation from the other electropositive or zinc elements, and in this figure of the drawings the electropositive or zinc elements are designated, respectively, as  $2^a$ ,  $2^b$ , and  $2^c$  and are suspended within the cell above the single electronegative or copper element 1 at regularly-spaced distances apart, so as to have no metallic connection with each other.

The same number of instruments may be operated by the battery as there are electropositive or zinc elements, and in Fig. 6 of the drawings is illustrated a plurality of telegraphic sounders, (designated by the letters A, B, and C, respectively.) The telegraphic sounder A is illustrated as having a circuit-wire  $a$  connected at one terminal to one of its binding-posts and at its other terminal to the electropositive or zinc element  $2^a$ , while the other binding-post of the sounder has connected thereto one terminal of the return circuit-wire  $a'$ , the other terminal of which return circuit-wire  $a'$  is connected to a common connector 20, carried by the conductor 5 of the electronegative or copper element 1. The electropositive or zinc element  $2^b$  has a wire connection  $b$  with one of the binding-posts of the sounder B, while the other binding-post of said sounder B has a wire connection  $b'$  with the connector 20. Corresponding wire connections  $c$  and  $c'$  connect the electropositive or zinc element  $2^c$  and the connector 20 with the telegraphic sounder C.

From the foregoing description it will be

obvious that the battery has three separate and independent circuit connections therewith, so that each and all of the sounders may be operated independently, since the zincs are separated from each other and have no metallic contact either within or exterior to the cell.

It is obvious that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

A system of operating a plurality of independent electrical instruments consisting of a single battery-cell having a single electronegative element and a plurality of electropositive elements, said electropositive elements being grouped at spaced distances apart and having no metallic contact within or exterior to the cell, a single conductor leading from the negative element and carrying a common connector, and a series of separate pairs of circuit-wires, one of the wires of each pair connecting with an electropositive element of the cell and the other wire of the same pair connecting with said common connector, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HOWARD N. FARLEY.

Witnesses:

J. A. LEMLIN,  
C. H. SAYER.