

No. 672,191.

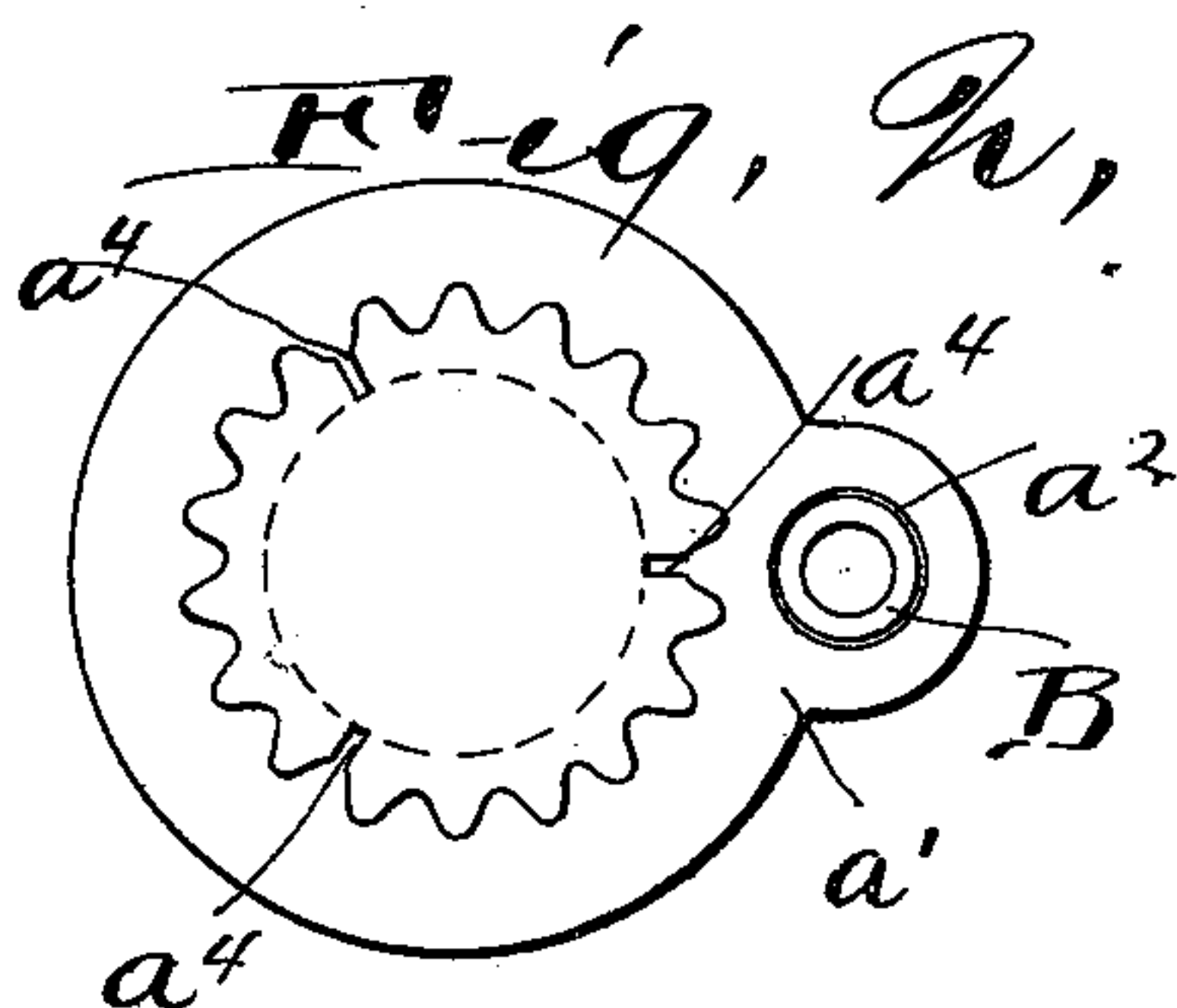
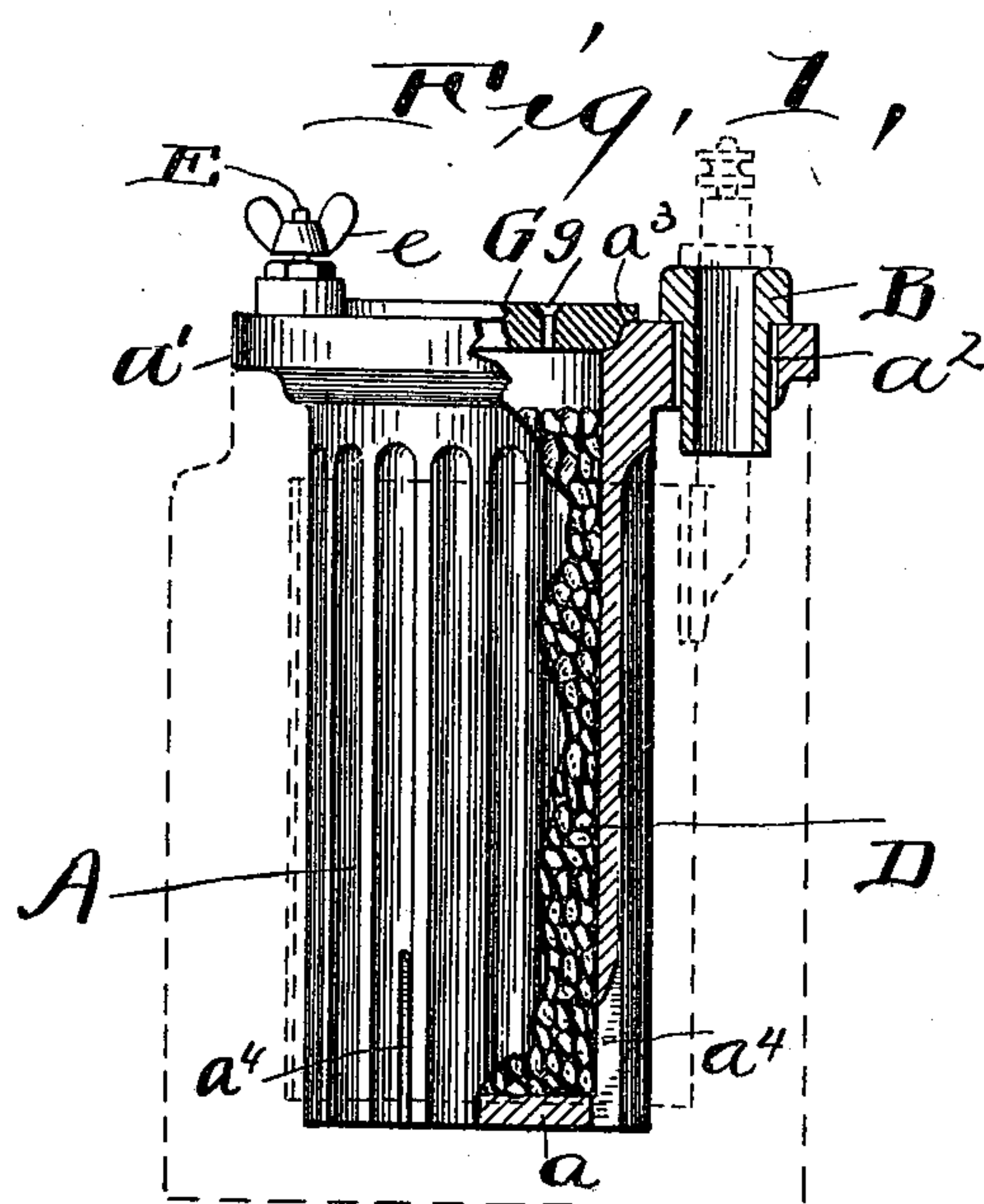
Patented Apr. 16, 1901.

W. H. LAWRENCE.

VOLTAIC CELL.

(Application filed Oct. 9, 1897.)

(No Model.)



Witnesses,
E. B. Gilchrist
H. M. Hutchison.

Inventor,
Washington H. Lawrence,
By his Attorneys,
Thurston & Bates

UNITED STATES PATENT OFFICE.

WASHINGTON H. LAWRENCE, OF CLEVELAND, OHIO, ASSIGNOR TO THE
NATIONAL CARBON COMPANY, OF SAME PLACE.

VOLTAIC CELL.

SPECIFICATION forming part of Letters Patent No. 672,191, dated April 16, 1901.

Application filed October 9, 1897. Serial No. 654,716. (No model.)

To all whom it may concern:

Be it known that I, WASHINGTON H. LAWRENCE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Voltaic Cells; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the class of voltaic cells which employ as one element a porous carbon cup adapted to contain a depolarizing agent, such as manganese dioxid and powdered charcoal.

One object of the invention is to provide a cheap form of carbon porous cup which will permit the cell to be easily and quickly charged, cleaned out, and recharged without injury to any of the parts of the cell, which will prevent the corrosive action of the solution or salts upon the metal binding-post, and with which the cell may be effectually sealed.

Another object is to provide a porous carbon cup of such construction that the cell will become active immediately this cup is immersed in the solution.

The invention consists in the peculiar construction of the porous cup, as hereinafter described, and definitely pointed out in the claim.

In the drawings, Figure 1 is an elevation of my improved cell, the porous cup being shown partly in section by full lines and the other parts of the cell—namely, the zinc element and the containing-jar by dotted lines. Fig. 2 is a bottom plan view.

Referring to the parts by letters, A represents the porous cup, the outer surface of which is longitudinally fluted or corrugated for the purpose of increasing the surface capable of being acted upon by the exciting solution. This cup has an integral bottom a , and it has also at its upper end an integral external horizontal flange a' . When the cup is in the jar, this flange, resting upon the top of the jar, supports the cup, and it serves likewise as a cover for the jar. The contacting surface may be sealed together with paraffin or like material to prevent the evaporation of the exciting liquid and the exudation of

the so-called "creeping-salts." A hole a^2 is formed through the flange a' , and an insulating sleeve or thimble B is inserted in this hole. The stem of the zinc element passes through this sleeve. The binding-post of the carbon element is connected with the flange on its top and may consist of a threaded rod E, embedded in the material of which the flange is formed, and a thumb-nut e , which screws upon this rod. The upper end of the cup is closed by an easily-removable cover G, which may rest upon an internal shoulder a^3 in the cup. This cover should be made of carbon, and it, together with the upper end of the cup, including the flange, should be impregnated with paraffin, so as to render them practically non-porous, and thereby to prevent them from being permeated by the liquid. In the cover one or more vent-holes g should be formed to permit the escape of gases generated in the cup.

Through the cup, near its lower end, three or more longitudinal slits a^4 are formed. When the cup is first immersed in the exciting liquid, these slits permit the liquid to pass to the interior of the cup much more quickly than they could through the porous walls thereof, and thus the cell comes more quickly into operation.

From the foregoing description it will be understood that the described cup may be made very cheaply. The depolarizing agent (indicated by D in the drawings) may be placed in the cup or emptied therefrom for the purpose of introducing a fresh charge by merely removing the cover.

Having described my invention, I claim—

In a voltaic cell, a porous carbon cup having at its upper end an integral annular flange and an externally-fluted cylindrical body extending therefrom, said body having an integral bottom and having a plurality of longitudinal slits extending from near the bottom to the extreme lower edge, through the cylinder, between the flutings and parallel therewith, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WASHINGTON H. LAWRENCE.

Witnesses:

FRANK D. LAWRENCE,
H. E. HACKENBEY.