H. HATFIELD.

ELECTROLYTIC APPARATUS WITH ANNULAR ANODE.

APPLICATION FILED MAR. 7, 1910.

961,124. Patented June 14, 1910.

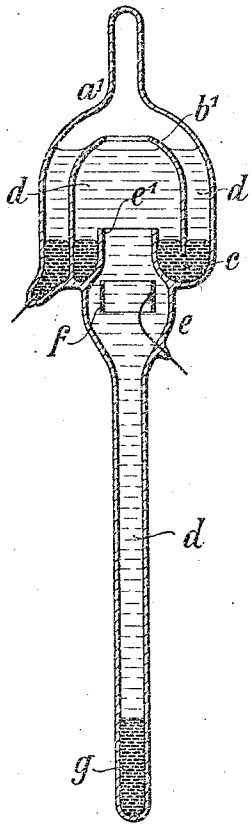

Fig. 1

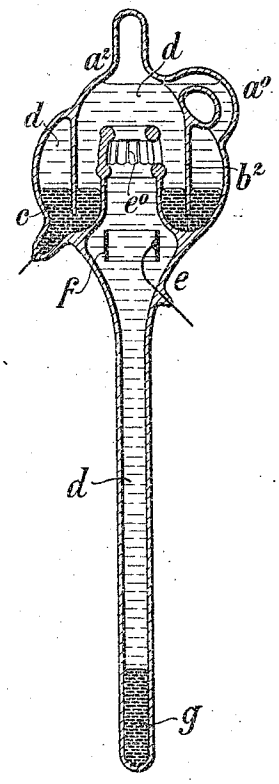

Fig. 2

Witnesses:

Jane Krüger

Richard Kalm

Inventor:

Henry Hatfield

UNITED STATES PATENT OFFICE.

HENRY HATFIELD, OF JENA, GERMANY, ASSIGNOR TO THE FIRM OF SCHOTT & GEN., OF JENA, GERMANY.

ELECTROLYTIC APPARATUS WITH ANNULAR ANODE.

961,124. Specification of Letters Patent. Patented June 14, 1910.

Application filed March 7, 1910. Serial No. 547,816.

To all whom it may concern:

Be it known that I, HENRY HATFIELD, a citizen of Great Britain, residing at Lichtenhainerstrasse, Jena, in the Grand Duchy of Saxe-Weimar, Germany, have invented a new and useful Electrolytic Apparatus with Annular Anode, of which the following is a specification.

The invention relates to electrolytic apparatus having an annular liquid anode, which surrounds the upper mouth of the cathode vessel, and an annular solid body arranged in the vertical direction above the bottom of the anode vessel so as to restrain the agitation of the anode caused by shocks, in order to prevent particles of the anode being jerked over into the cathode vessel. In apparatus of this description, it may occur, as experience has proved, that when the shocks are very strong particles of the anode outside the restraining body are jerked upward and thrown back from the wall of the anode vessel in an inward direction, so that they pass into the central outlet of the anode vessel being the upper mouth of the cathode vessel. According to the present invention, this danger can be obviated by having the restraining body constructed so as to project as a protective wall highly above the surface of the anode. In this case the particles of the anode, thrown back from the wall of the anode vessel, dash against the restraining body and can not pass into the central part of the anode vessel.

In the annexed drawing: Figure 1 is a vertical section through an electrolytic electricity meter constructed according to the invention. Fig. 2 is a similar section through a modified form of the same meter.

In Fig. 1, there is melted on the bottom of the anode vessel a^1 the lower margin of the annular restraining body b^1. This margin is toothed so as to be in some places—in the drawing, for example, on the right hand—only slightly immersed into the liquid anode c. In the example shown, the upper margin of the restraining body b^1 is supposed to be so elevated that the outside and the inside portions of the electrolyte d do not communicate with each other across this margin, at least not as long as the apparatus is at rest. In the cathode vessel e the solid cathode f is arranged. The mouth e^1 of the vessel e forms the central outlet of the anode vessel a^1. The lower part of the vessel e serves as the measuring tube, in which the anode liquid g, precipitated from the electrolyte d on the cathode f, is gathered. The wall of the annular restraining body b^1 prevents particles of the anode c outside the restraining body passing when jerked upward through the central outlet e^1 into the cathode vessel, where it would falsify the quantity of the anode liquid g.

In the example Fig. 2, the restraining body b^2 is suspended from the vault of the anode vessel a^2 and all around equally immersed into the anode c. It is supposed, that the inside and the outside portions of the electrolyte d communicate, even when the apparatus is at rest, with each other, instead of through openings in the upper margin of the restraining body b^2, through a pipe a^0 arranged outside the anode vessel a^2 proper. The cathode vessel e carries in this case at its top end a crown e^0 which increases the protection against particles of the anode c being jerked out of the anode vessel a^2, its openings being too narrow to allow the passage of such particles of the anode inside the restraining body b^2 which may arrive at this height and too wide to essentially hinder the circulation of the electrolyte.

I claim:

1. In an electrolytic apparatus an upper anode vessel, a lower cathode vessel, these two communicating with each other by the mouth of the cathode vessel projecting through the bottom of the anode vessel into the central part of the latter, a liquid anode surrounding the mouth, a solid cathode, an electrolyte contained in both vessels, and an annular wall surrounding the mouth and extending from within the anode up to the top of the anode vessel.

2. In an electrolytic electricity meter an anode vessel, a cathode vessel projecting with its upper mouth centrally through the bottom of the anode vessel and forming with its lower part a measuring tube, a liquid anode around the mouth, a solid cathode above the measuring tube, an electrolyte contained in both vessels, and an annular wall extending around the mouth from the anode into the top part of the anode vessel.

HENRY HATFIELD.

Witnesses:

PAUL KRÜGER,

ALFRED MACKEDANZ.