

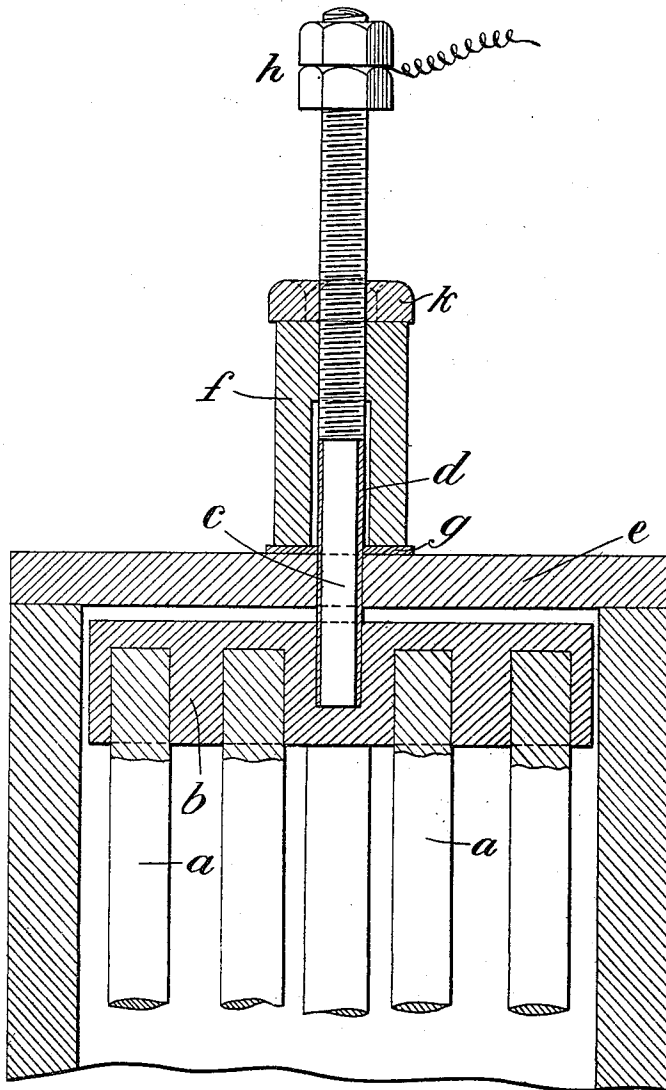
No. 667,498.

W. T. CHAPMAN.
ELECTROLYZER.

Patented Feb. 5, 1901.

(Application filed Sept. 12, 1900.)

(No Model.)



WITNESSES

H. M. Corwin
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INVENTOR

W. T. Chapman
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UNITED STATES PATENT OFFICE.

WILLIAM THOMAS CHAPMAN, OF MANCHESTER, ENGLAND, ASSIGNOR TO THE
AMERICAN ALKALI COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

ELECTROLYZER.

SPECIFICATION forming part of Letters Patent No. 667,498, dated February 5, 1901.

Application filed September 12, 1900. Serial No. 29,746. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMAS CHAPMAN, a citizen of England, residing at 40 Queen street, Irlams Oth'Height, Manchester, in the county of Lancaster, England, have invented certain new and useful Improvements in Electrolyzers, (for which application has been made for a patent in Great Britain, dated February 14, 1900, No. 2,929,) of which the following is a specification.

My said invention relates to improvements in electrolyzers used chiefly in the decomposition of salts. Such electrolyzers are provided with carbon anodes and mercury or iron cathodes.

My invention consists in the provision of means whereby the carbon anodes may be adjusted to compensate for wear, as I shall describe, referring to the accompanying drawing, which is a vertical section of the upper part of a cell with carbon anodes adjustably supported according to my invention.

The carbon rods or blocks *a* are molded or secured in a suitable manner in a carrier *b*, of antimonial lead. The carrier is also provided with a copper rod *c* of sufficient sectional area to convey the electric current. The upper portion of the rod *c* is screw-threaded, and the lower portion is covered with a material, such as sheet-lead *d*, which will not be acted on by chlorine gas. The sheathed end of the rod *c* and the carbon blocks *a* may all be placed in position in a suitable mold, into which is run antimonial lead *b*, so that the whole are readily combined or secured together, the antimonial lead providing a good electrical contact between the copper rod and the carbons. When placed in position with the electrolyzer, the copper rod projects upward through a hole in the slate or other roof *e* of the cell and a long nut or collar *f* is screwed upon the copper rod until it beds upon the roof *e* of the cell. The nut *f*, which is provided with a lock-nut *h*, thus forms a stop to prevent the downward traverse of the carbons. Only the upper part of the hole in the nut *f* is screw-threaded, the lower part of it being bored out larger. When adjusted

in position, a gas-tight joint between the rod *c* and the roof *e* is effected with cement *g* or other convenient means, and connection with the positive pole of the source of electricity is made in any suitable way with the upper projecting part of the copper rod—as, for instance, by a wire clamped between nuts *h*.

When the carbons have worn away and need lowering, it suffices to break the cement seal *g* and rotate the nut *f*, which permits the carbon-holder *b* to drop, and so lowers the carbons *a*. When this has been effected, the joint between the copper rod and the roof of the cell is again sealed. Instead of one rod *c* there may obviously be several of these. By this means the carbons may be readily adjusted from time to time until practically consumed, so that the life of the carbons is greatly prolonged and the working of the apparatus is uninterrupted. The proper distance between the anode and cathode is easily maintained, so preventing an increase of resistance, which is caused when the anode wears away and when no means are provided for altering or adjusting the position of the carbons.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

An electrolytic cell having an anode comprising a block with a series of carbon rods secured thereto, a metallic rod secured to the block and extending vertically through the top of the cell, said rod having an outer screw-threaded portion and an inner sheathed portion to shield it from gas or fumes, a hollow collar internally threaded for part of its length and engaging the outer screw-threaded portion of the supporting-rod, and a locking-nut above the hollow nut; substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM THOMAS CHAPMAN.

Witnesses:

ERNEST MINAY,

WALTER ELLIOTT BASS.