No. 776,490. PATENTED DEC. 6, 1904.

F. J. BRIGGS.

ELECTRODE.

APPLICATION FILED SEPT. 19, 1903.

NO MODEL.

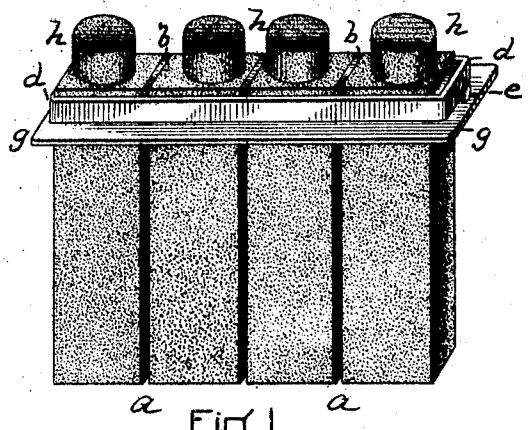


Fig. 1.

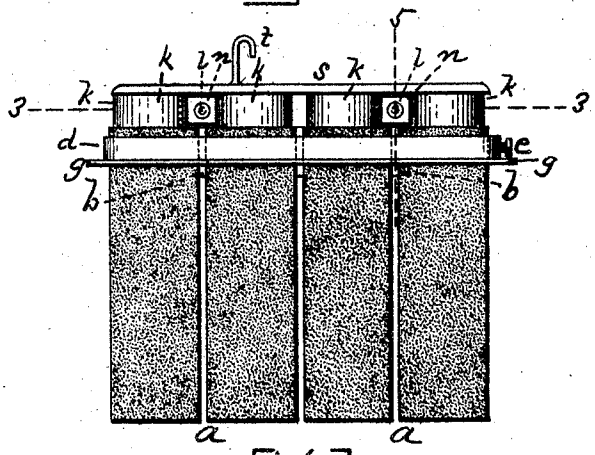


Fig. 2.

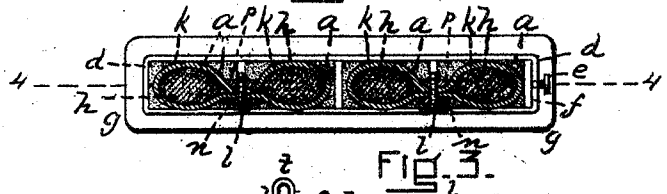


Fig. 3.

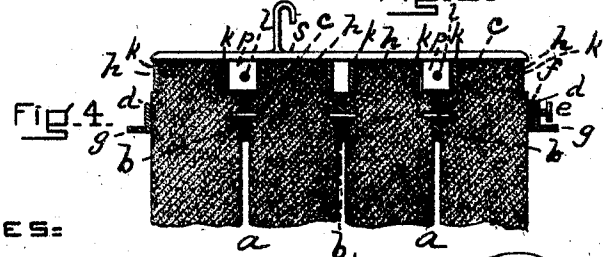


Fig. 4.

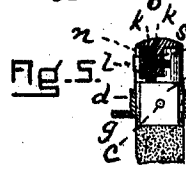


Fig. 5.

WITNESSES:

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No. 776,490. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

FRANK JOSEPH BRIGGS, OF EVERETT, MASSACHUSETTS.

ELECTRODE.

SPECIFICATION forming part of Letters Patent No. 776,490, dated December 6, 1904.

Application filed September 19, 1903. Serial No. 173,812. (No model.)

To all whom it may concern:

Be it known that I, FRANK JOSEPH BRIGGS, a citizen of the United States, residing in Everett, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Electrodes, of which the following is a specification.

This invention relates particularly to electrodes such as are employed in an electrolytic apparatus of the general character shown and described in Letters Patent of the United States numbered 729,889 and dated May 12, 1903.

In electrodes as ordinarily constructed there are leaden connections not only between the carbons, but between the electrode and the electrical connections. In order to renew the electrical connections, the lead (which is very heavy) must be removed and run again into molds and the carbons molded in. Moreover, the lead is injuriously affected by the decomposition of the electrolyte, with the result that the connections with the carbons are broken.

My invention has for its object to obviate these difficulties and to produce by mechanical means an electrode adapted for use in an electrolytic apparatus for the decompositions of the alkaline chlorids in which it is possible to claim electrical connection which will assure high efficiency and in which the carbons are combined effectively so that they are used as one electrode.

The nature of the invention is fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of an electrode embodying my invention with the top removed. Fig. 2 is an elevation of my improved electrode with the top in position. Fig. 3 is a horizontal section taken on line 3 3, Fig. 2. Fig. 4 is a vertical section taken on line 4 4, Fig. 3. Fig. 5 is a vertical section taken on line 5, Fig. 2.

Similar letters of reference indicate corresponding parts.

a represents a plurality of carbons or anodes separated from each other by leaden plates *b*, said plates being horizontal and near the upper ends of the carbons and being secured into position by pins *c*. (See Figs. 3 and 4.)

d represents an integral clamp made of angle-iron, said clamp surrounding the row of carbons and being held horizontally in position thereon near the upper ends of the main portions thereof by a screw *e*, which sets against a washer or plate *f*. By means of the horizontal flange portion *g* of the clamp it can rest on the top of an electrolytic cell and support the carbons therein. Each of the carbons is provided with an upwardly-extending head *h* integral with the carbon, each of said heads being at one side of the center of the main portion of the carbon and said heads being arranged in pairs, whereby those of each pair are set near the farther edges of their carbons in order that they may be separated from each other by a greater space than they would be if they were centrally located. The carbon heads *h* of each pair are connected by a ribbon of copper *k*, whose opposite portions between the tops are drawn together by means of bolts *l*, which extend through washers *n* into threaded copper lugs *p*. By this means the ribbons can be tightened between the two heads of a pair, and it is principally for the purpose of accommodating these bolts, washers, and lugs that the heads are arranged in pairs and the heads of each pair are provided with a comparatively large separating-space. The lugs *p* extend down from and are integral with a copper top *s*, which is provided with the electrical connection *t*, which leads to an ordinary mercury-cup on the positive pole.

To clean the device in order to keep the electrical connection in order, the screws or bolts *l* are loosened and the top *s* is removed. The carbons and the insides of the ribbons *k* are then cleaned and the top replaced. When, as is usual, there are four electrodes in a cell, the top of one may be removed and the electrode cleaned while the rest of the electrodes are running and the cell continues its work.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an electrode, carbons or anodes arranged in pairs, and provided with heads *h*; a copper ribbon *k* wound around and connecting the heads of the two carbons in each pair; a cop-

per top *s* adapted to be electrically connected; copper lugs *p* extending down from said top between the heads of the carbons in each pair on one side of said ribbon; washers *n* located on the opposite side of the ribbon, and screws or bolts *l* extending through said washers and lugs, whereby the two parts of the ribbon may be drawn together and against the copper lugs, for the purpose set forth.

2. In an electrode, carbons or anodes arranged in pairs and provided with upwardly-extending heads *h;* a copper top *s* provided with lugs *p* extending down between the heads of each pair of carbons; a copper ribbon around and connecting the heads of each pair of carbons; means for holding said ribbons in contact with the lugs; leaden plates *b* separating the carbons; and the flanged clamp *d g* extending around and holding the row of pairs of carbons, for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK JOSEPH BRIGGS.

Witnesses:
HENRY W. WILLIAMS,
A. K. HOOD.