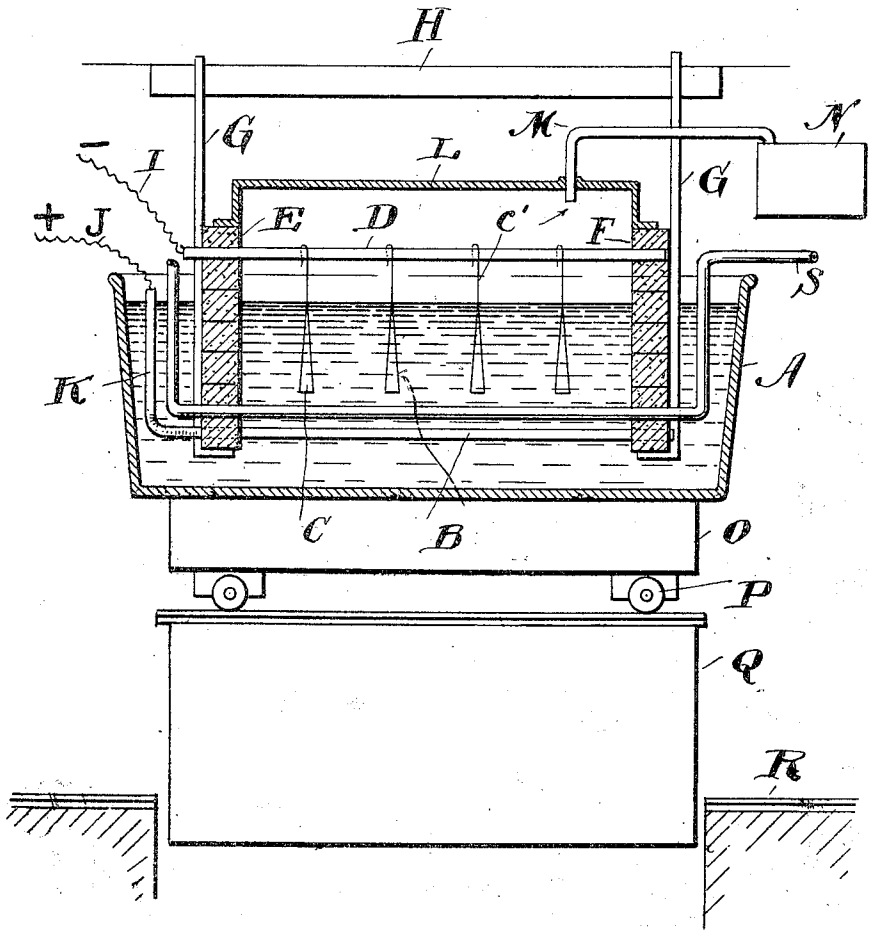
F. H. BRIGGS.

ELECTROLYTIC CELL.

APPLICATION FILED SEPT. 13, 1911.

1,036,554. Patented Aug. 27, 1912.



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ELECTROLYTIC CELL.

1,036,554. Specification of Letters Patent. Patented Aug. 27, 1912.

Application filed September 13, 1911. Serial No. 649,166.

To all whom it may concern:

Be it known that I, FRANK H. BRIGGS, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented a certain new and useful Improvement in Electrolytic Cells, of which the following is a full, clear, and exact description.

This invention relates to electrolytic cells, and provides a cell wherein the electrolyte container with its contents may be removed from the other parts of the cell, without moving or disturbing such other parts.

The invention may be said to include the elements and combinations thereof set forth in the accompanying claims.

Reference should be had to the accompanying drawings, wherein the figure shows an electrolytic cell, and the associated devices used in operating the same, in front elevation with parts in section.

In the commercial operation of processes involving the electrolytic treatment of substances, it is the usual practice to rest the containing receptacle of the cell upon a floor, and the cell equipment, including electrode, cover and so forth, are usually carried upon some support which holds the equipment in proper relation to the electrolytic container. When the treatment of a particular batch of material is completed, the cell equipment is removed from the container and the contents are removed to some other tank or receptacle to be further treated.

The electrodes and other cell equipment are usually of fragile material and easily damaged, especially by the repeated handling, being therefore not only a cause of great annoyance by the breakage, but a source of considerable expense, as well.

My cell provides a structure wherein the cell equipment is carried by a fixed supporting means, while the containing receptacle may be moved into or out of operative relation with the cell equipment without in any way disturbing or moving such equipment.

In the drawing, the containing receptacle is indicated at A, and the anode electrode is shown at B. The cathode electrode comprises a series of conical shaped electrodes C which are supported by conducting hangers C′ upon a conducting bar D.

The electrode B and the bar D are supported at their opposite ends in walls E and F. These walls may be made of cementitious or other non-conducting material which resists the action of the chemicals composing the electrolyte. The walls F are supported upon hangers G which are suspended from some supporting means, such as is indicated at H. This support H may be a portion of the ceiling in a room or a beam suitably supported at some distance above the floor of the building in which the process is being performed.

The bar or conducting rod D is suitably connected with a source of electric current by the conductor I, while the electrode B is likewise suitably connected with the same source of electricity by means of the conductor J. The conductor J is introduced to the electrode B through a pipe K, which may be of porcelain or silicious material, or of any material that will resist the action of the chemicals forming the electrolyte.

Supported upon the walls E and F is a cover L, and connected with the space included within the cover is a pipe M which connects with a receptacle N, whereby gases which may be formed during the process and collect beneath the cover, may be conducted to the container N. Heating coils S are also supported by the walls E and F and extend beyond each wall and above the container in order that proper connections may be made to supply a heating medium.

The receptacle A is supported upon a car O which is provided with wheels P, the same being adapted to run upon a track carried upon the platform Q. This platform may be raised and lowered as desired, and when in its raised position, as shown in the drawing, presents the receptacle A so as to surround and contain the electrodes.

Upon the completion of the treatment of a particular batch of material, the platform Q may be lowered until the top thereof is flush with the floor R, which likewise may be provided with tracks which match with the tracks upon the platform Q when the same is lowered.

The platform Q being lowered, the receptacle A is removed from its association with the electrodes, without in any way disturbing the electrodes or their mountings therefor. Consequently, no matter how fragile the electrodes may be, there is no danger of their becoming broken or otherwise damaged by the removal of the receptacle and the material therein.

When the platform Q is lowered, the carriage O and the receptacle A may be re

moved for further treatment, while a new receptacle is substituted in place of the one which has been taken away, and the treatment of a new batch of material proceeded with.

It may be desirable to mount one or both of the electrodes in some manner other than upon the supporting frame. However, there are always some equipment which must necessarily be mounted upon the frame, such as the cover, heating coils, etc.

It should be noted that in the present types of cell wherein the electrodes are removed from the container, and the material within the container removed, the entire cell is out of commission during the removing operation, whereas in the proposed type of cell, the cell is only out of commission during the time necessary to lower one receptacle and replace it by another. It will be appreciated that this saving of time is quite an important factor in the general output of a plant, and presents a material advantage in favor of this cell.

An electrolytic cell constructed as herein described may be made much larger in size than cells may at present be made where the electrodes and equipment are manually removed at the end of each operation of the cell. Larger cells insure economy of operation because with my large cell, the amount of labor and time required is no greater than is required in using small cells.

The electrodes C composing the cathode electrode as before said are conical in shape and are suspended in such a manner that the apices of the electrodes are substantially coincident with the surface of the electrolyte. The hydrogen which is formed at the cathode will tend to rise through the liquid, instead of adhering to the electrode. Hence, the forms of these electrodes assist in the depolarization of the cell. It will, however, be understood that the electrodes B and C may assume other forms than that shown without departing from the spirit of this invention.

Having thus described my invention, what I claim is:—

1. The combination with an electrolyte container and electrodes, of an electrolytic cell, of a fixed support normally extending within the container, a cover and heating elements carried by said support, and means for removing the container without disturbing the support or parts carried thereby.

2. The combination with a fixed member H, of a support mounted thereon, electrolytic cell equipment carried by said support, a container normally inclosing the support, and means for removably supporting the container whereby it may be removed without disturbing the support or parts carried thereby.

3. The combination with an electrolyte container of an electrolytic cell, a fixed support normally extending within the container, electrolytic cell equipment carried by said support, a container normally inclosing the support, a platform upon which said container is supported, the said platform being adapted to be raised and lowered to remove the container without disturbing the support and the parts carried thereby.

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

FRANK H. BRIGGS.

Witnesses:

A. J. Hudson,

H. R. Sullivan.