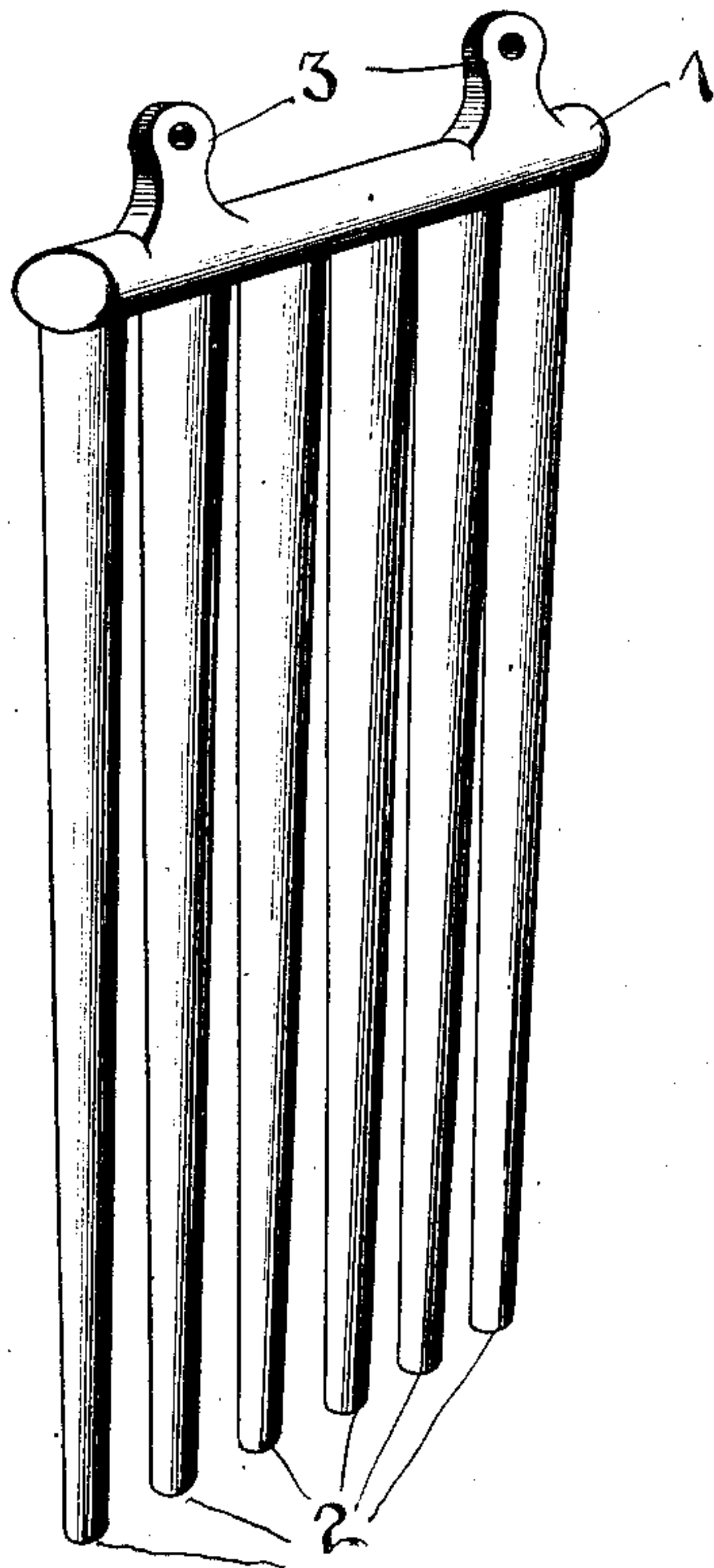


No. 850,823.

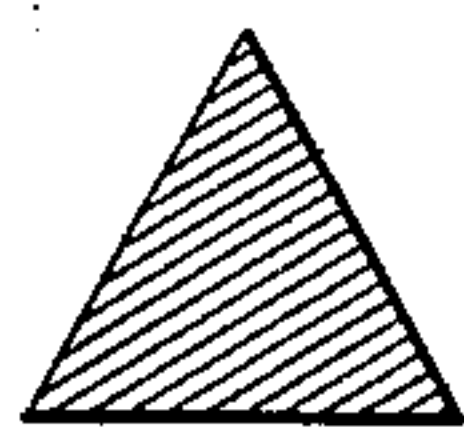
PATENTED APR. 16, 1907.

G. M. ELLIOTT.  
ANODE FOR ELECTROPLATING CELLS.  
APPLICATION FILED MAY 7, 1906.

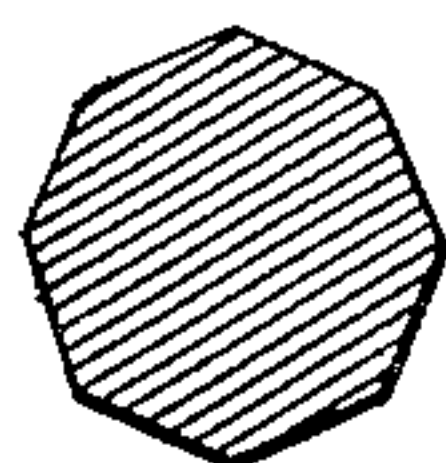
*Fig. 1.*



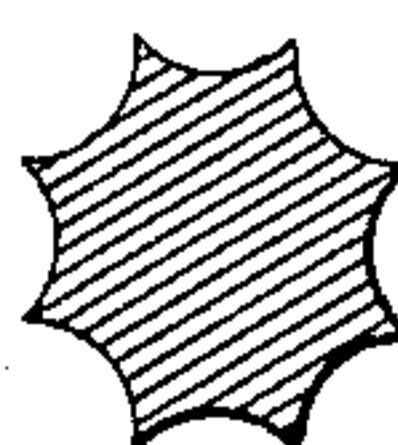
*Fig. 2.*



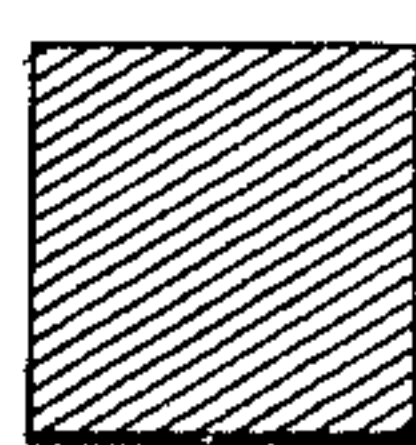
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



Attest:  
*Edw. W. Vaill Jr.*  
Edw. W. Vaill Jr.

Inventor:  
George M. Elliott.  
by *Attys* *his* Attys



# UNITED STATES PATENT OFFICE.

GEORGE M. ELLIOTT, OF BELVIDERE, ILLINOIS, ASSIGNOR TO ZUCKER & LEVETT & LOEB COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## ANODE FOR ELECTROPLATING-CELLS.

No. 850,823.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed May 7, 1906. Serial No. 315,467.

*To all whom it may concern:*

Be it known that I, GEORGE M. ELLIOTT, a citizen of the United States, residing at Belvidere, Boone county, Illinois, have invented certain new and useful Improvements in Anodes for Electroplating-Cells, of which the following is a full, clear, and complete disclosure.

The object of my invention is to provide an anode for cells used in electroplating processes, such anode being light in construction, inexpensive, readily adaptable to different-sized cells, and of the best wearing qualities. Other advantages of my improved anode will be more definitely pointed out hereafter in this specification.

Heretofore in the construction of anodes for electroplating purposes it has usually been necessary to use a large quantity of metal, such as nickel, in order to obtain the necessary surface that is in contact with the electrolyte or electroplating solution. It has also been necessary in adapting previous forms of anodes to cells of different sizes to provide separate patterns for casting the anode, so that the size of the anode might correspond to the size of the cell. It has also been found that if the portion of the anode in contact with the electrolyte be made too small the action of the electrolyte upon the anode causing the same to be eaten away has reduced the size of the anode, so that parts thereof have dropped off, thereby becoming disconnected from the electric circuit and also tending to short-circuit the flow of current from the anode to the cathode or to the articles being electroplated. These difficulties I have overcome in a successful, simple, and efficient manner.

For a full, clear, and exact description of my invention reference may be had to the following specification and to the accompanying drawings, forming a part thereof, in which—

Figure 1 is a perspective view of my improved anode. Figs. 2 to 5, inclusive, are cross-sectional views of different forms of the columns or teeth of the anode.

Referring to Fig. 1, the numeral 1 indicates a transverse bar or head, depending from which are the series of teeth or columns 2 of the anode proper. Attached to the upper side of the head or bar 1 are a plurality

of ears or lugs by which the anode may be suspended within the electroplating-cell. It should be noted that the teeth or columns 2 of the anode are slightly tapering toward their lower ends, as indicated in Fig. 1, the taper being shown in said figure slightly exaggerated to more clearly indicate the same. The cross-sectional outline of these teeth is shown in Fig. 1 to be circular; but I do not desire to be limited to this form, as the cross-sectional outline may be varied in accordance with the different conditions of use and the choice of the person employing the anode for electroplating purposes. Of course it is understood that the circular form of teeth gives the smallest area for each individual tooth, although this is much greater than in the case where the whole anode is made rectangular or in the shape of a plate either with flat surfaces or corrugated surfaces.

In Figs. 2 to 5 I have shown in section different forms of teeth or columns which may be used in place of the circular form, these forms being triangular, octagonal, star-shaped, and rectangular, respectively. These different forms of teeth give different amounts of surface in relation to the weight of the anode itself, although any of them when used in an anode having a plurality of columns give much more surface than a plate or single prism having plain or corrugated surfaces. All of the different forms of these teeth, as illustrated in the different views just referred to, are made slightly tapering, as indicated in Fig. 1. This tapering feature allows the teeth of the anode to be reduced in diameter by the action of the electrolyte without danger of having the teeth break or become detached at points intermediate their lengths, which would permit the parts so detached to drop into the bottom of the cell, and thereby possibly short-circuit the current between the anode and the articles being plated, or at least make such detached parts inactive by being disconnected from the circuit. By connecting the teeth by the head or bar as indicated the width of the anode may be decreased by simply cutting or breaking off the required length of the bar carrying a corresponding number of teeth, and any number of teeth may be added by simply lengthening the pattern for



casting the anode by adding a piece carrying the requisite number of additional teeth. This obviates the necessity of providing a separate pattern for the different sizes of anodes in different cells. The construction just described not only cheapens the cost of manufacturing the anode, but also provides an anode which has many advantages over those already in use, as hereinbefore pointed out.

It is obvious that I should not be restricted to the use of a single transverse connecting-bar, as a plurality of such bars may be used if it is desired to increase the strength of the portions connecting the teeth. It is also obvious that the columns or teeth may be cast hollow to permit of a still lighter construction, and they may be grooved within as well as on the exterior surfaces. They also could be perforated with a series of transverse holes. All of these features could be arranged in the pattern and cast in the anode. These different forms would not vary the

principle of the teeth or slotted feature of the anode.

Other changes may be made by one familiar with this art without departing from the spirit and scope of my invention.

Having thus described these embodiments of my invention, what I claim, and desire to protect by Letters Patent of the United States, is—

An anode for electroplating-cells, comprising a series of slightly-tapering teeth or columns, a severable transverse bar connecting said teeth at one end, all of said parts being integral and composed of a pure metal to be deposited on the cathode or article to be plated.

In witness whereof I have signed my name to this specification, in the presence of two witnesses, this 2d day of May, 1906.

GEORGE M. ELLIOTT.

Witnesses:

JAMES V. BROWN,  
MAYME ASKIN.