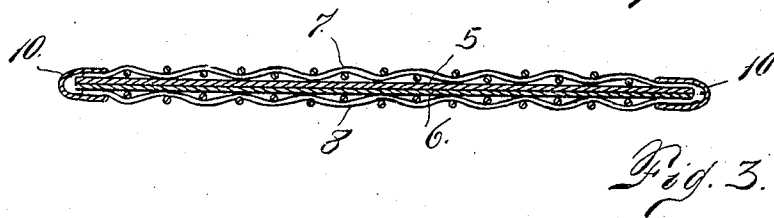
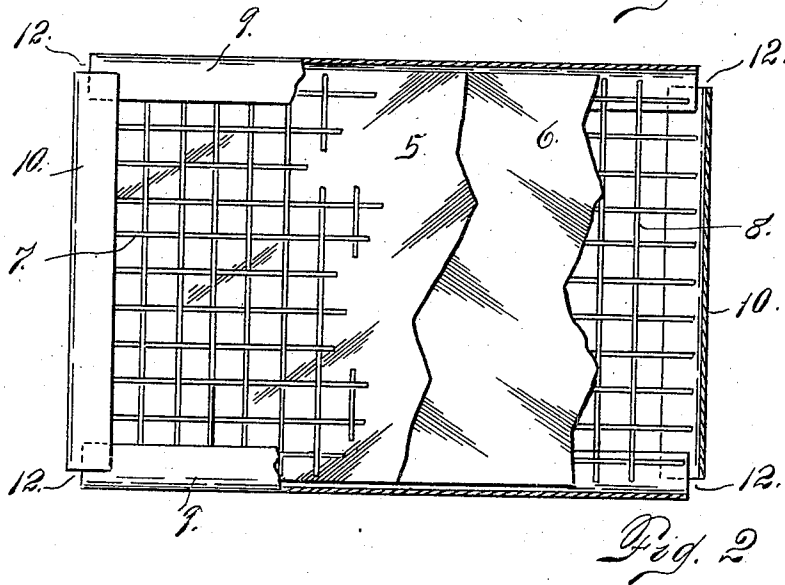
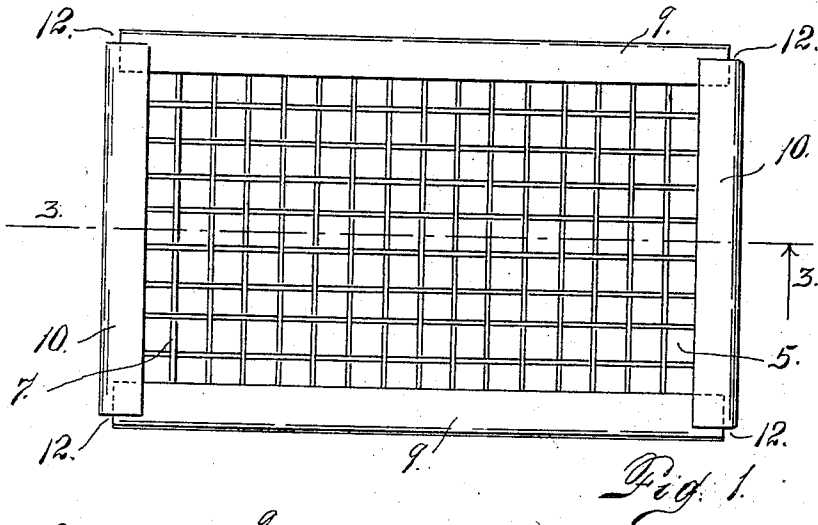


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 BATTERY FOR CLEANING TARNISHED METALS.  
 APPLICATION FILED MAY 29, 1911.

1,018,355.

Patented Feb. 20, 1912.



Witnesses

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# UNITED STATES PATENT OFFICE.

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BATTERY FOR CLEANING TARNISHED METALS.

1,018,355.

Specification of Letters Patent.

Patented Feb. 20, 1912.

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To all whom it may concern:

Be it known that I, ROBERT H. GALBREATH, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Batteries for Cleaning Tarnished Metals; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in batteries for cleaning tarnished metals, my improved device consisting of connecting two plates which have the relation to each other of cathode and anode, or one of which is electro-positive, while the other is electro-negative, in such a manner that, when this battery is placed in a solution of common salt and baking soda, an electrolyte is formed adapted to quickly remove the tarnish from silver-ware or other articles of a similar nature.

Heretofore, so far as I am aware, no self-contained battery, constituting an article of manufacture, has been produced for this purpose. In my improved construction, I prefer to employ a plate of zinc and a plate of tin, the two being connected together by a metal framework, the device being equipped on opposite sides with a screen, upon which the articles to be cleaned may rest. This screen allows the solution to come in advantageous contact with the articles to be cleaned, and thus facilitates the performance of the cleaning function.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is a top plan view of my improved device. Fig. 2 is a similar view, showing the device partly in section and partly broken away. Fig. 3 is a section taken on the line 3—3 of Fig. 1.

The same reference characters refer to the same parts in all the views.

Let the numeral 5 designate a zinc plate and 6 tin plate bearing the relation to each other, as aforesaid, of anode and cathode, and, for the purposes of this specification, I

will assume that the cathode plate is tin and the anode zinc. To the opposite sides of the plate structure is applied coverings 7 and 8 of relatively coarse metal mesh fabric, thus making four metal layers comprising the two plates 5 and 6 and the two layers of metal mesh material. To the surrounded edges of these four members is applied a metal framework, consisting of two parallel side members 9 and end members 10. These parts 9 and 10 are bent over the edges of the device, and pressed tightly down on both sides thereof, the four parts 9—9 and 10—10 being connected together at the corners of the device by means of solder or in any other suitable manner. This metal framework is preferably composed of tin. In any event, the framework, as well as the metal mesh covering for the opposite sides of the plate structure, must be electro-negative to the zinc plate, or bear the relation of cathode to the zinc plate. It may, however, be either electro-positive or electro-negative to the metal to be cleaned according to the nature of the metal to be cleaned.

In using my improved battery, it should be placed in a receptacle containing enough warm water to cover the silver-ware or other article to be cleaned. A tablespoonful of common salt and an equal quantity of baking soda are placed in the water for each quart thereof. The water is then stirred for the purpose of dissolving the salt and soda.

The article to be cleaned is placed in this solution, resting on the battery, which is preferably placed with the zinc or anode plate uppermost. The article to be cleaned is left in the solution until it looks bright, and is then wiped with a dry cloth. Ordinarily, it only takes about a minute to perform the cleaning function, though the article to be cleaned may be left in the solution any length of time desired since it will not be harmed thereby in any way. After the cleaning operation is over, the battery should be washed by pouring warm water thereon until the solution has been entirely removed therefrom. In order to facilitate the operation of cleaning the battery, the framework composed of two parts 9—9 and 10—10 is provided with openings 12 at the corners to allow the cleaning water to escape.

By virtue of this construction, it becomes practicable to completely remove all traces of the solution and prevent the corrosion of the device when not in use.

Instead of the mesh members forming the covering for the opposite sides of the plate structure, other suitable plates, adapted to perform the same function, may be employed, it being important that the article to be cleaned shall have as small a part of its surface as possible in actual contact with the battery, since, by this arrangement, the surface to be cleaned is better exposed to the electrolytic solution.

Having thus described my invention, what I claim is:

1. A battery for cleaning tarnished metals, composed of two adjacent plates having the relation of anode and cathode to each other, a frame surrounding the two plates, for securing the same in contact with each other, for the purpose set forth.

2. A device of the class described, consisting of two plates having the relation to each other of anode and cathode, suitable means comprising a frame for connecting the two plates to form a battery, and means applied to one side of the plate structure for supporting the article to be cleaned out of direct contact with the plate structure, the said means being of such character that the article to be cleaned has only a small portion of its surface in direct contact with the battery, for the purpose set forth.

3. A battery of the class described, con-

sisting of two adjacent plates having the relation to each other of anode and cathode, the two plates being connected by a metal framework applied to their edges, substantially as described.

4. A battery of the class described, consisting of two plates of practically the same size which are respectively electro-negative and electro-positive to each other, a metal binding applied to the surrounding edges of the two plates, whereby they are held together in operative relation.

5. A battery of the class described, consisting of two adjacent plates which are respectively electro-negative and electro-positive to each other, a layer of metal mesh material applied to the opposite sides of the plate structure, and a metal binding applied to the surrounding edges of the aforesaid metal members, whereby they are all secured together in cooperative relation, the metal binding, as well as the metal mesh material, being electro-negative to the cleaning or electro-positive plate, substantially as described.

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

ROBERT H. GALBREATH.

Witnesses:

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JNO. G. POWELL.