

(No Model.)

C. W. FIELDING & L. B. WALKER.
ELECTROLYTIC APPARATUS.

No. 566,673.

Patented Aug. 25, 1896.

Fig. 1.

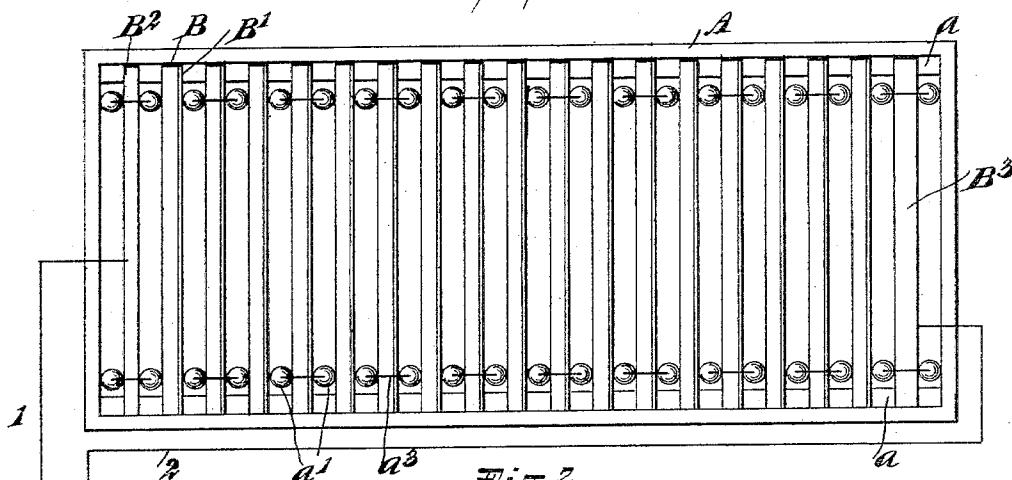


Fig. 2.

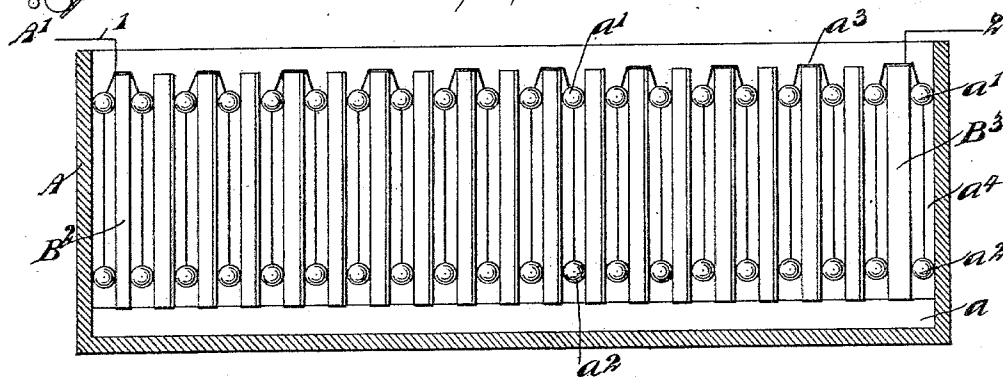
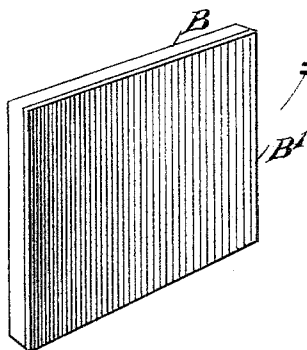


Fig. 3.



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ELECTROLYTIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 566,673, dated August 25, 1896.

Application filed May 11, 1896. Serial No. 591,054. (No model.)

To all whom it may concern:

Be it known that we, CHARLES W. FIELDING, of London, England, and LOUIS B. WALKER, of Elizabeth, in the county of Union and State of New Jersey, have invented a new and Improved Electrolytic Apparatus, of which the following is a full, clear, and exact description.

This invention relates to improvements in electrolytic apparatus, and the object is to facilitate the separation of precious metals from base metals or materials, and also to separate from metals generally such foreign metals or materials as may be incorporated with them.

We will describe an apparatus embodying our invention, and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of an apparatus embodying our invention. Fig. 2 is a sectional elevation of the same, and Fig. 3 is a perspective view of an anode and cathode employed.

Referring to the drawings, A designates an electrolytic tank of any suitable material, such, for instance, as wood. B indicates the anodes, and B' the cathodes. These anodes and cathodes are supported vertically in the tank A with their lower ends resting on strips of glass or other non-conducting material a , secured within the tank at the lower portion of the opposite side walls. These strips serve to support the anodes and cathodes sufficiently above the bottom of the tank to prevent bridging or short-circuiting through by-products that may fall to the bottom of the tank.

The anodes B may be made of either cast or rolled metal and of any desired thickness, but preferably they will be made of cast metal, for the sake of economy, and as thin as possible.

The cathodes B' may be made of any desired metal or material which is a good conductor of electricity, either similar to or different from the anodes, but preferably of a different mate-

rial. Each cathode is placed in close contact with an anode, so that no electrolyte in the tank can pass between them. The plates may be secured together by any suitable means, such, for instance, as by clamps. We find, however, that it is better to first make the cathode in the form of a paste and spread it over the face of the anode, where it is allowed to dry and harden before being used.

Without regard to the means for securing an anode and cathode together, it is to be understood that there is to be no insulation between them.

As a means for separating and supporting the plates vertically in the tank, we employ spherical blocks a' a^2 , of non-conducting substance, such, for instance, as fictile material. These blocks are arranged to bear at one side against an anode and at the other side against an adjacent cathode, the blocks a' being at the upper portion and near the ends of the plates and the blocks a^2 at the lower portion and near the ends of the plates.

The upper blocks a' at each end of the plates are connected in pairs by a cord or similar flexible connection a^3 and are suspended over alternate plates, and the lower blocks a^2 are suspended by cords or other flexible connections from the upper blocks.

It is to be understood that the parts a^3 a^4 may consist of a single cord with the four blocks strung upon it.

The object in employing spherical blocks instead of square or angular blocks is because they oppose less bearing-surface to the plates and thus cause less unfinished product that would have to be again treated. It is to be understood, however, that we do not confine our invention to spherical ball or blocks, as it is obvious that they may be of any other shape, such, for instance, as rectangular, without departing from the spirit of our invention.

The initial anode B³ is a single plate of the material to be refined, and the terminal cathode B² is a single plate of the finished product.

In refining copper or other material one pole of an electric source, here indicated as a dynamo A', has a connection 2 with the initial anode B³, and the other pole of the electric source has a connection 1 with the terminal

cathode B², so that the current will pass through the whole series of anodes and cathodes and the electrolyte within the tank.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In an electrolytic apparatus, the combination with anodes and cathodes, of separating and supporting blocks of insulating material suspended between plates at points between their ends, substantially as specified.

2. In an electrolytic apparatus, the combination with anode and cathode plates, of separating and supporting blocks of non-conducting material suspended from the plates, substantially as specified.

3. In an electrolytic apparatus, the combination with anode and cathode plates, of separating and supporting blocks of insulating material having cords or flexible connections as a support, substantially as specified.

4. In an electrolytic apparatus, the combination with anode and cathode plates, of separating and supporting blocks of insulating material, and a flexible connection between

pairs of blocks extended over the top of the plate, whereby one block of a pair will be supported on one side of a plate and the other on the other side of the plate, substantially as specified.

5. In an electrolytic apparatus, the combination with anode and cathode plates, of spherical blocks of non-conducting substances and comprising upper and lower blocks, the upper blocks of a pair having a flexible connection engaging over the top of the plate, and the lower blocks being suspended from the upper blocks, substantially as specified.

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