No. 830,918. PATENTED SEPT. 11, 1906.

J. NELSON.

ANODE.

APPLICATION FILED JUNE 28, 1906.

Fig. 1.

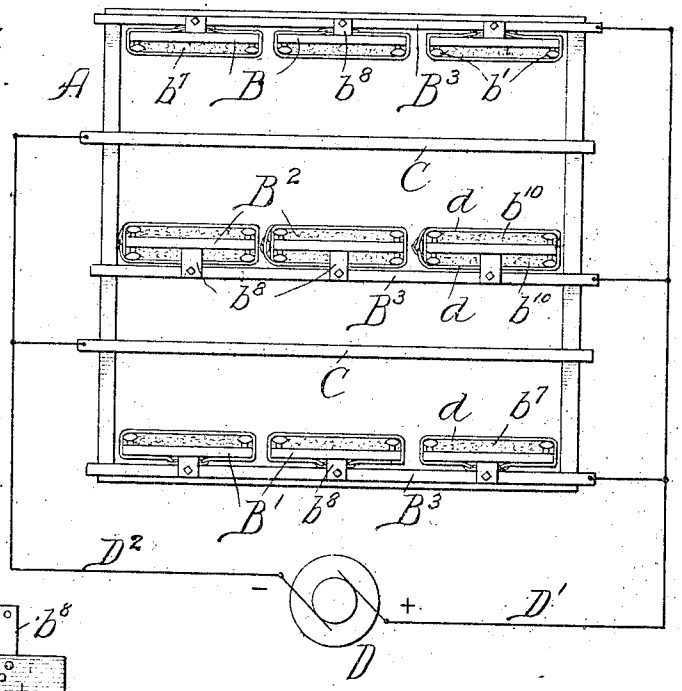


Fig. 2.

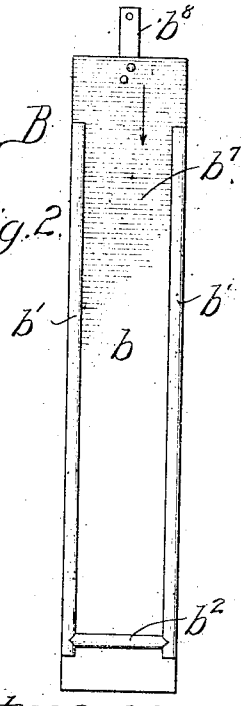


Fig. 3.

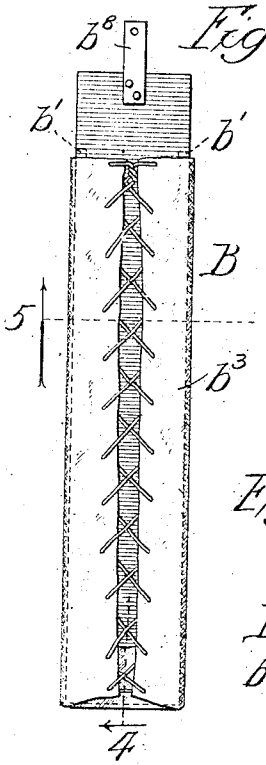


Fig. 4.

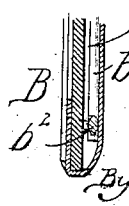


Fig. 5.

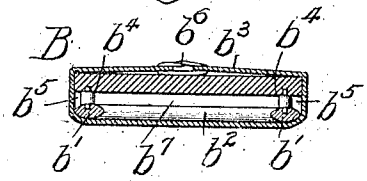
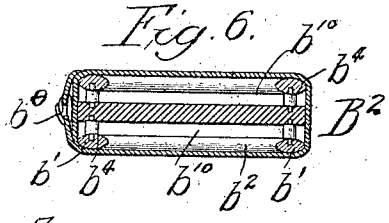


Fig. 6.



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UNITED STATES PATENT OFFICE.

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ANODE.

No. 830,918. Specification of Letters Patent. Patented Sept. 11, 1906.

Application filed June 28, 1906. Serial No. 323,735.

To all whom it may concern:

Be it known that I, JOHN NELSON, a citizen of the United States, residing at Peru, in the county of Lasalle and State of Illinois, have invented a new and useful Improvement in Anodes, of which the following is a specification.

My invention relates particularly to anodes for use in electroplating apparatus; and my primary object is to provide an improved anode of that class adapted to support the material to be used for plating purposes in granular, lump, or scrap form so disposed as to expose to action the maximum surface possible of the metal which is to enter into the electrolyte.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 represents a plan view of electroplating apparatus constructed in accordance with my invention; Fig. 2, a view of a one-faced anode with its envelop removed; Fig. 3, a view of the same with the envelop or porous sheath applied; Fig. 4, a broken vertical section taken as indicated at line 4 of Fig. 3; Fig. 5, a section taken as indicated at line 5 of Fig. 3, and Fig. 6 a section of a two-faced anode.

In the construction illustrated, A represents a tank; B B′, two series of one-faced border or wall anodes; B^2, an intermediate series of two-faced anodes; B^3, rods or bars of conducting material extending across the tank and supporting the anodes; C, cathode rods or bars adapted to support the articles to be plated, and D a generator having conductors D′ D^2, the former of which is connected with the anode-bars and the latter of which is connected with the cathode-bars.

The anodes B B′ are of like construction. Each comprises a conducting-bar b, preferably of graphite, vertical marginal cleats or strips b', carried by one face thereof, a bottom cleat or strip b^2, connecting the lower ends of the cleats b', and a porous envelop b^3, preferably of fibrous material, permitting free circulation of the electrolyte. The cleats, which may be of wood, are preferably supported on shouldered dowels b^4, leaving spaces b^5 between them and the graphite bar for the circulation of the electrolyte. The envelop may be formed of a coarse canvas sheet stretched across the cleated face of the bar and having its bottom portion folded up over the lower edge of the bar and its lateral portions folded over the lateral edges of the bar, the free edges of the sheet being joined by a lacing b^6. Thus is formed a pocket b^7 of substantially the length of the graphite bar, said pocket being open at its top to enable grain or lump nickel to be filled in at the point indicated by the arrow, as required. The material may be supplied by means of a small shovel. The upper end of the bar is equipped with a metallic member b^8 for connection with the anode-bar.

The anodes B^2 are similar to those already described except that they are equipped with cleats on both sides and have envelops lacing at the lateral edges of the bars, as indicated at b^9. Thus the intermediate anodes have pockets on both sides of their graphite bars.

It will at once be evident to those skilled in the art that the improved construction provides for free circulation of the electrolyte and contact with the metal (designated d) at an unlimited number of surfaces of the particles, an even distribution of the material with reference to the plate, and the ready maintaining of that condition. Moreover, while the maximum contact of electrolyte and anode material is provided for and also the equally-important feature of distribution looked after, the device is exceedingly simple and cheap of construction.

The device has been described in detail for clearness of understanding, and no undue limitation is to be understood therefrom.

What I regard as new, and desire to secure by Letters Patent, is—

1. An anode, comprising a plate equipped with vertical marginal cleats, and a porous envelop forming therewith a pocket open at its upper end, for the purpose set forth.

2. An anode, comprising a plate equipped with vertical marginal cleats, and a porous envelop comprising a sheet stretched across the cleated face of said plate and having its lower margin folded under the lower edge of the plate and its lateral margins folded and laced together, for the purpose set forth.

3. An anode, comprising a plate having cleats supported on one side thereof and spaced apart from the plate, and an envelop forming therewith a pocket open at the upper end.

4. An anode comprising a plate equipped on two opposite surfaces with marginal vertical cleats, and an envelop forming therewith two vertical pockets open at their upper ends, for the purpose set forth.

JOHN NELSON.

In presence of—
RUDOLPH F. STRUEVER,
L. DENNY.