No. 635,380. Patented Oct. 24, 1899.

R. E. GOODRICH.

ELECTROPLATING APPARATUS.

(Application filed May 17, 1899.)

(No Model.)

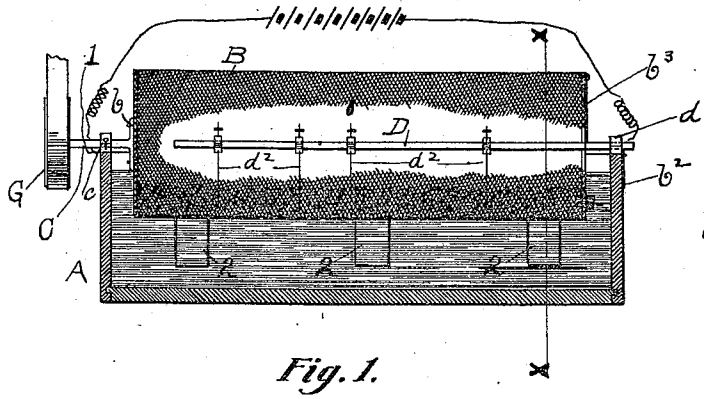


Fig. 1.

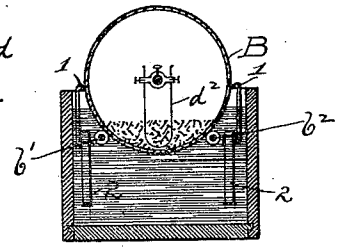


Fig. 2.

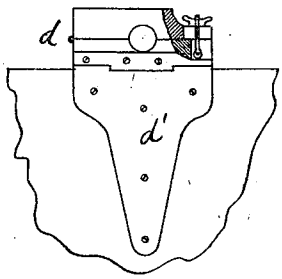


Fig. 3.

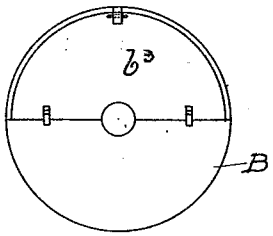


Fig. 4.

Witnesses.

A. M. Upson.

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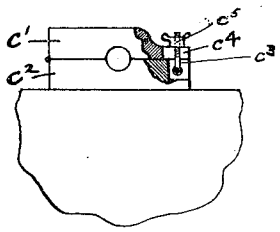


Fig. 5

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ELECTROPLATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 635,380, dated October 24, 1899.

Application filed May 17, 1899. Serial No. 717,132. (No model.)

To all whom it may concern:

Be it known that I, RANSOM ELMER GOODRICH, a citizen of the United States, and a resident of the city of New Britain, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Electroplating Apparatus, of which the following is a specification.

This invention relates to an apparatus by which articles may be plated in a thorough and economical manner, being especially applicable for the plating of small articles in bulk.

The apparatus consists of the usual solution-tank and anodes, a receptacle for holding work, which is mounted in the tank, and a rod, hereinafter called the "cathode-rod," attached to the negative pole of a source of electricity and mounted in the tank independently of the receptacle.

The apparatus is fully illustrated in the drawings, in which—

Figure 1 is a side view of one form of the device with one side of the tank removed. Fig. 2 is a sectional view on the plane $x\ x$ of Fig. 1 looking to the right. Fig. 3 is a view showing one method of supporting the cathode-rod. Fig. 4 is an end view of the receptacle. Fig. 5 is a view of the bearing-box.

Referring to the drawings, A denotes a solution-tank, 1 the rod supporting the anodes, and 2 the anodes, connected to the positive pole of a source of electricity B, the nonconductive receptacle for holding the work being of cylindrical shape in the form shown and made of open-work, so that the solution may flow through it readily, but the articles held by it may not fall out.

C denotes a short shaft fastened to one end of the receptacle, as at b, and journaled in the box c, having at its free end a pulley G, by means of which the receptacle is driven by a belt from a power-shaft. In one end of the receptacle is the door b''', through which the articles to be plated may be inserted and removed and the cathode-rod placed in position.

As shown in the drawings, the receptacle is supported at one end by the shaft C, which is journaled in the bearing-box c, and at the opposite end it is supported by the rolls $b'\ b''$. It is obvious that the receptacle may be supported at both ends on rolls or in any similar manner without departing from the spirit of my invention.

The bearing-box c (shown in the drawings) is made in two parts $c'\ c''$, the lower part being fastened to the tank and the upper part being hinged thereto at one side and slotted on the opposite side, as shown at c''''. A bolt c''', having a thumb-nut, is pivoted on the lower part of the box and is adapted to be swung into the slot c'''' in the upper half, the two parts of the box being held together by the thumb-nut c'''''.

D denotes a rod, which will be referred to hereinafter as the "cathode-rod," held in position by the clamp d. This clamp d is of the same construction as the bearing-box c, with the exception that it is fastened yieldingly to the tank, as by means of the hinge d', to allow the rod a limited movement. This rod D extends into the receptacle, as shown, and has depending from it at frequent intervals the conducting-wires d'', which are of such length that they come in contact with some of the articles in the receptacle, which are thereby charged and in turn charge the whole mass. In this way the circuit is completed, the current passing from the anodes through the solution to the articles in the receptacle, through the wires d'' to the cathode-rod, and out to the source of electricity.

In the operation of my apparatus, instead of handling each piece preparatory to the plating operation, I place the articles into the receptacle in bulk and put the receptacle in position in the tank with one end resting on the rolls $b'\ b''$. The cathode-rod is then placed in position in the receptacle and held in place in the clamp d, the conducting-wires d'' being in contact with the articles in the receptacle. By the pulley G, connected to a suitable source of power, the receptacle is rotated, causing the articles to rub against one another and polish themselves, so that they are ready for the market without further finishing.

The emptying and filling of the receptacle is accomplished in a most convenient manner, as shown, it being entirely removable from the tank.

I claim as my invention—

1. In an electroplating apparatus, a tank and anodes, a receptacle, means within the

tank for supporting and revolving the receptacle, a cathode-conductor arranged in the receptacle, and means, independent of the receptacle or its support, for holding the cathode-conductor in operative relation to the receptacle.

2. In an electroplating apparatus, a tank and anodes, a work-holding receptacle, a cathode-conductor arranged in the receptacle, means, independent of the receptacle or its support, for holding said cathode-conductor in operative relation to the receptacle, and means for moving the receptacle or the cathode-conductor with relation to the other.

3. In an apparatus of the kind described, a tank and anodes, a rotatable work-holding receptacle, a cathode-conductor arranged in the receptacle, and means, independent of the receptacle or its support, for holding the cathode-conductor in operative relation to the receptacle.

4. In an apparatus of the kind described, the combination with the tank and anodes, of a receptacle, and means for supporting it, a cathode-conductor, means, independent of the receptacle or its support, for holding said conductor in operative relation to the receptacle, and means for moving the receptacle relatively thereto.

5. In an electroplating apparatus, the combination with the tank and anodes, of the receptacle located in the tank, supported at one end in a bearing and at the opposite end on rollers, a cathode-conductor arranged in the receptacle and held in operative relation thereto by means independent of the receptacle or its support, and means for moving the receptacle relatively to the conductor.

6. In an electroplating apparatus, a tank and anodes, a receptacle supported on rollers in the tank, a cathode-conductor arranged therein, and means, independent of the receptacle or its support, for holding the conductor in operative relation to the receptacle.

7. In an electroplating apparatus, the combination with a tank, anodes, and a receptacle located in the tank, of a cathode-conductor arranged in the receptacle, means independent of the receptacle or its support, for yieldingly holding the conductor in operative relation to the receptacle, and means for moving the receptacle relatively to the conductor.

8. In an electroplating apparatus, a tank, a receptacle located therein, means for revolving the receptacle, and a cathode-bar, having conducting-wires depending therefrom, held independent to the receptacle or its support and in operative relation therewith.

9. In an electroplating apparatus, a tank and anodes, a cathode-conductor having loops of conducting-wire depending therefrom and means for securing the cathode-conductor yieldingly on the tank, substantially as described.

10. In an electroplating apparatus a tank, anodes, a work-holding receptacle, a cathode-conductor and means for supporting it yieldingly in operative relation to the receptacle, said means comprising a clamp, made up of two parts hinged together at one edge and having a fastening means at the opposite edge, and secured to the tank, as by means of a hinge, to allow of a limited movement.

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Witnesses:
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