No. 784,034. PATENTED MAR. 7, 1905.

G. W. CLOUGH.

ELECTROPLATING DEVICE.

APPLICATION FILED JAN. 30, 1904.

Fig. 1.

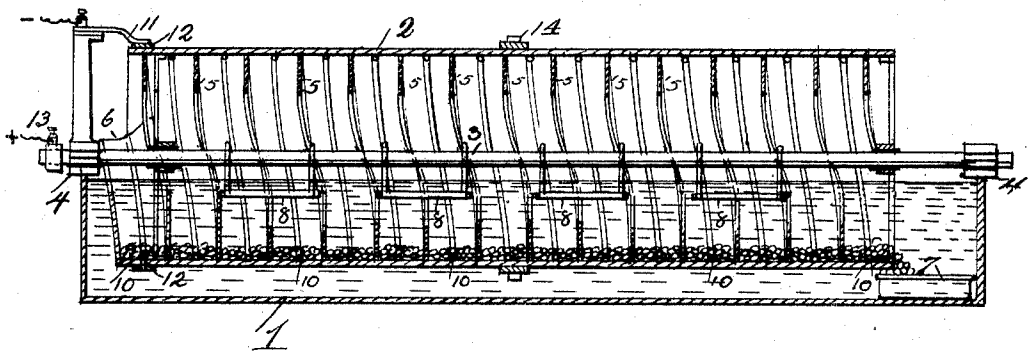


Fig. 2.

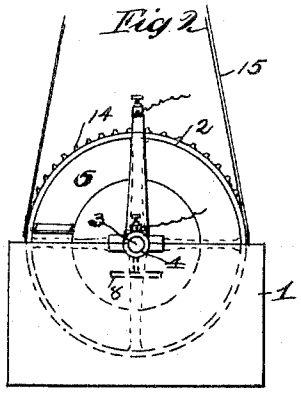


Fig. 3.

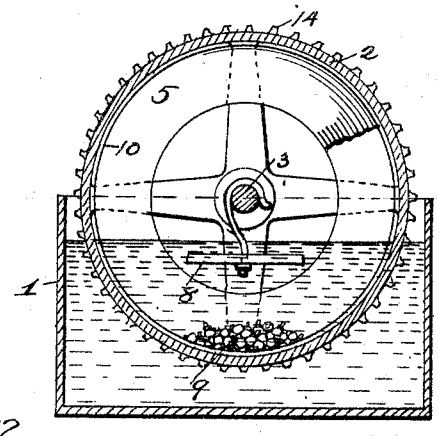
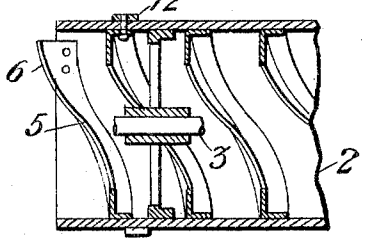


Fig. 4.



Witnesses
Geo. L. Cole
Nell Evers

Inventor
George W. Clough
by Wm. M. Morton
Attorney

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No. 784,034. Patented March 7, 1905.

UNITED STATES PATENT OFFICE.

GEORGE W. CLOUGH, OF CLEVELAND, OHIO.

ELECTROPLATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 784,034, dated March 7, 1905.

Application filed January 30, 1904. Serial No. 191,301.

To all whom it may concern:

Be it known that I, GEORGE W. CLOUGH, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Electroplating Devices, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

The objects of the invention are to provide means for electroplating a succession of articles which are continuously passed through the bath of plating solution, so that there will be no cessation in the act of plating objects supplied at one end of the device as fast as they are taken away from the other end. This enables the operator to supply constantly new material to the bath without the delay commonly experienced in electroplating while waiting for one set of objects to be plated before putting in another set.

The invention consists in a rotating drum or cylinder in which the objects are introduced at one end and carried automatically to the other end, the entire drum and contents being partially submerged in the electroplating solution.

The invention further consists in the combination and arrangement of parts and construction of the various details, as hereinafter described, shown in the accompanying drawings, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal central section of the plating device. Fig. 2 is an end view thereof. Fig. 3 is an enlarged central vertical section thereof. Fig. 4 is a central longitudinal section of the drum, showing manner of connecting the flange of the conveyer with the exterior band from which the current is taken.

In the views, 1 is a bath of plating solution. 2 is a cylinder mounted upon a central shaft 3, the extremities of which are mounted upon bearings 4 on the ends of the bath-casing. Within this cylinder is the spiral carrier 5, attached to and rotating with the drum, the turns of which form a continuous channel, by means of which the articles to be plated are conveyed from one projecting end or mouth, as 6, where they are introduced to the other end, where they drop into a suitable receptacle 7. Upon the shaft hang the metal anodes 8, which supply plating metal to the fluid in the usual manner, through which it passes to the masses of metal 9 lying between the spiral turns of the carrier, which serve as the cathodes to receive the deposit of metal.

To facilitate the ready passage of the electric current through and out of the masses of metal articles wherever they may lie, a spiral wire conductor 10 is wound within the cylinder between the spiral turns of the carrier, so that as the carrier rotates and the masses of metal move forward they will make continuous electrical contact therewith. The current is taken off from the cylinder through the brush 11, contact-band 12, about the outside of the cylinder, and coiled wire 10. The current is introduced through the central shaft at 13.

The cylinder may be rotated by means of the outer sprocket-gear 14 and sprocket-chain 15 or in any suitable manner.

In operation, the material being introduced continuously at one end, the cylinder is slowly rotated, the speed being graduated, so that when the articles have passed completely through the cylinder they will be plated to the required thickness. By this means the thickness of the plating can be regulated by regulating the speed of the cylinder. Any speed-gearing may be employed which is most conveniently applied.

The bath-casing is made of wood or other insulating material, and the cylinder is also preferably composed of insulating material, such as wood or rubber.

The radial arms 16, which support the cylinder upon the shaft, are insulated therefrom at 17, so that the electric current shall not be short-circuited by the materials to be plated falling against them.

It is not essential to the invention that the cylinder should be supported upon the bath-casing; but it must be rotatably supported in such a manner that it can be partially immersed in the bath.

The spiral wire conductor in the cylinder is

the simplest form of a conductor; but the entire flange could be composed of conducting material without departing from the spirit of the invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an electroplating device, in combination, a cylinder of insulating material, open at either end, a central shaft on which said cylinder rotates, a bath upon the walls of which the ends of the shaft are supported, anodes depending from said shaft and electrically connected therewith, a continuous flange spirally wound upon the inner surface of the cylinder, said flange projecting at one end to form a mouth for the introduction of the material to be plated, and opening freely at the opposite end, said flange also forming a metal cathode for the outward passage of the current, and a metal band on the exterior surface of the cylinder, electrically connected with the cathode, substantially as described.

2. The apparatus described for electroplating, comprising in combination, a bath provided with walls, a shaft mounted on said walls, a cylinder of insulated material mounted on said shaft, a flanged metal-carrier spirally and continuously wound about the inner surface of the cylinder, and forming the cathode for said plating device, a mouth for said flange, anodes suspended from said shaft, and electrically connected therewith, an electric circuit of which the anodes and cathode are terminals, and a plating fluid in said tank, in which said cylinder and anodes are immersed, substantially as described.

3. The apparatus described for electroplating, comprising in combination, a bath provided with walls, a plating fluid therein, a metal shaft mounted on bearings over said bath, a wooden cylinder mounted upon said shaft, a spirally-wound metal flange carrier on the inner surface of the cylinder, forming a cathode for the electroplating device substantially as described, an extended outer end or mouth for said flange arranged for the introduction of articles to be plated, anodes upon the shaft electrically connected therewith, a source of electricity connected with the shaft, a metal band about the cylinder having electric connection with the articles to be plated and cathode, means for conducting the electric current from said band, and means for rotating the cylinder, substantially as described.

In testimony whereof I hereunto set my hand this 26th day of January, 1904.

GEORGE W. CLOUGH.

Witnesses:
WM. M. MONROE,
GEO. S. COLE.