No. 828,814. PATENTED AUG. 14, 1906.

F. R. CUNNINGHAM.

APPARATUS FOR ELECTROPLATING.

APPLICATION FILED SEPT. 11, 1905.

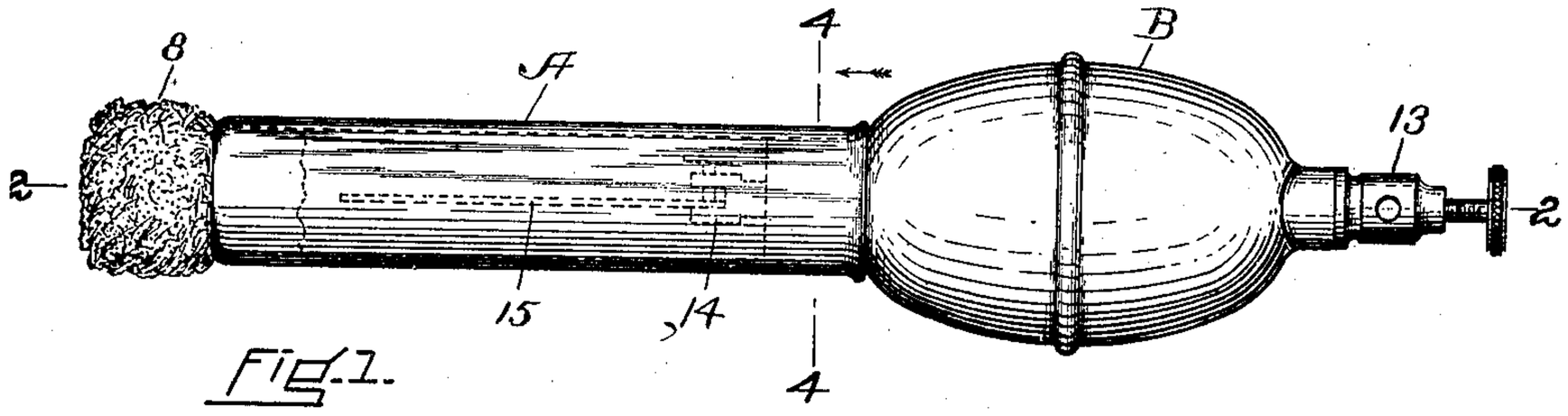

Fig. 1.

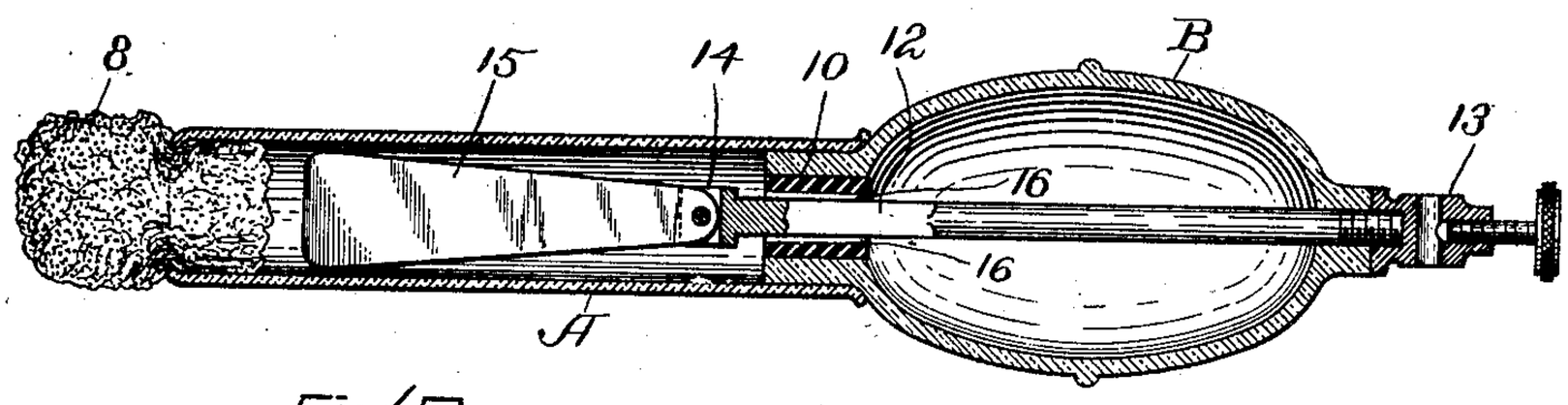

Fig. 2.

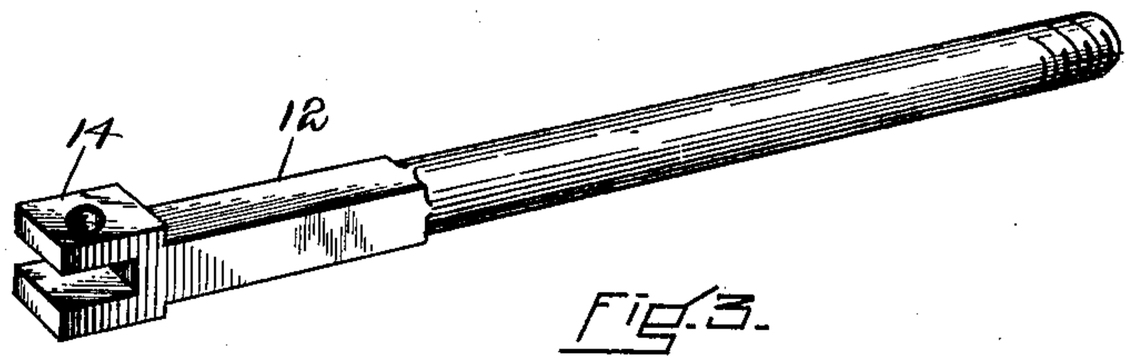

Fig. 3.

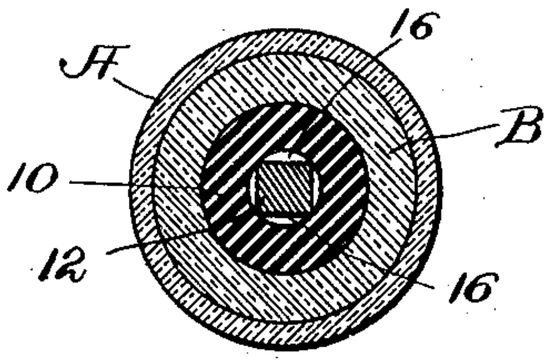

Fig. 4.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR ELECTROPLATING.

No. 828,814. Specification of Letters Patent. Patented Aug. 14, 1906.

Application filed September 11, 1905. Serial No. 277,804.

To all whom it may concern:

Be it known that I, FRANK R. CUNNINGHAM, a citizen of the United States, residing at Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Electroplating, of which the following is a specification.

My invention has for its object to provide a simple and convenient apparatus for electroplating articles without suspending them in the vat or receptacle containing the solution. This method, which is termed "sponge-plating," is employed when a portion only of an article is to be plated, or when it is not feasible to immerse it in the solution. In plating by this method as heretofore practiced the operator, standing over the vat or receptacle containing the plating solution, takes in one hand the anode, composed of the metal to be deposited covered with cloth or other suitable absorbent material moistened by dipping it into the solution, and applies it to the cathode or article to be plated held in the other hand, brushing the anode over the article or portion thereof to be plated as often as required and keeping the anode moist by frequently dipping it into the solution. This method is open to the objection that in holding the anode in the hand the solution with which it is moistened comes in contact with and injures the skin, and as the operator in order to frequently moisten the absorbent covering of the anode must necessarily stand over or close to the vat containing the solution (sometimes heated) he is obliged to inhale the fumes arising therefrom to the manifest injury of his health. Moreover, owing to the limited quantity of the solution held by the absorbent covering of the anode and the frequent dipping of the same into the solution the operation is rendered tedious and disagreeable, and the resulting deposit is not always satisfactory.

To overcome these objections is the purpose of my invention, which consists in an electroplating apparatus comprising a receptacle of tubular or other suitable shape for containing the plating solution and provided with a brush, composed of sponge or other suitable material, through which the solution passes and by means of which it is applied to the surface to be plated and an anode contained within said receptacle.

In the accompanying drawings, Figure 1 is a side elevation of my electroplating apparatus. Fig. 2 is a longitudinal section of the same. Fig. 3 is an enlarged view of the anode-holder. Fig. 4 is an enlarged transverse section on the line 4 4 of Fig. 1

In the said drawings, A represents a receptacle, preferably of tubular shape and composed of glass or other suitable non-conducting material, said receptacle, which is adapted to contain a quantity of the plating solution, being provided at one end with a brush 8, composed of sponge or other suitable material which may be held in place by contracting the diameter of the end of the tube to form an inwardly-projecting lip or flange or in any other convenient manner, as shown in Fig. 2. Within the opposite end of the tube A is fitted a compressible rubber bulb B, within the end of which is placed a short hard-rubber tube or bushing 10, which serves to stiffen the neck of the bulb, so that it will remain securely in place. Through the bushing 10 passes a flattened rod 12, which is preferably plated with platinum to avoid corrosion or contamination of the solution and extends through the bulb, terminating in a binding-post 13 for the reception of the positive wire of the electric generator. The opposite end of the rod 12 is provided with a suitable clamp 14 for holding the anode 15, which is composed of the metal to be electrodeposited and is contained within the tube A, reaching to or nearly to the brush 8.

Between the flattened sides of the rod 12 and the cylindrical walls of the bushing 10 are formed apertures 16 16, Fig. 4, which establish communication between the interior of the tube A and the bulb B, so that by compressing the bulb and immersing the brush 8 in the solution a sufficient quantity of the latter may be drawn up into the tube A to partially or wholly cover the anode 15, and on applying the brush to the surface to be plated connected with the negative pole of the electric generator the solution is discharged as required by the compression of the bulb, the quantity of solution applied being under complete control of the operator through the medium of said bulb.

By the employment of my apparatus the operator is protected from contact with the solution, and the solution being applied to the object in sufficient quantity the resulting deposit is more rapid and satisfactory and the work is performed much more neatly and conveniently than heretofore, while the waste of the solution is reduced to a minimum.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An electroplating apparatus comprising a receptacle provided with a brush and adapted to contain the plating solution, an anode contained within said receptacle and adapted to contact with the plating solution therein, and means for drawing the solution into the receptacle and discharging it therefrom.

2. An electroplating apparatus comprising a tubular receptacle provided at one end with a brush and adapted to contain the plating solution, an anode contained within said receptacle and adapted to contact with the plating solution therein, means for connecting the anode with the electric generator, and means for drawing the solution into the receptacle and discharging it therefrom.

3. An electroplating apparatus comprising a tubular receptacle provided at one end with a brush and adapted to contain the plating solution, an anode contained within said receptacle and adapted to contact with the plating solution therein, and a compressible bulb applied to said receptacle for controlling the supply and discharge of the solution.

4. An electroplating apparatus comprising a tubular receptacle provided at one end with a brush and adapted to contain the plating solution, an anode placed within said receptacle and adapted to contact with the plating solution therein, a holder for said anode, a compressible bulb applied to said tubular receptacle for controlling the supply and discharge of the solution, a binding-post, and a suitable electric connection between the binding-post and the anode-holder.

5. An electroplating apparatus comprising a receptacle adapted to contain a plating solution, a brush connected to one end of said receptacle, a compressible bulb connected to the opposite end of said receptacle, an anode contained within said receptacle and adapted to contact with said plating solution, a holder fast at its inner end to said anode and projecting therefrom through said compressible bulb, and a binding-post fast to the other end of said holder, whereby a deposit of said solution upon the receptacle to be plated is obtained independent of the pressure upon said brush.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK R. CUNNINGHAM.

Witnesses:

CHARLES S. GOODING,

ANNIE J. DAILEY.