

F. CONLIN
BRUSH FOR ELECTROPLATING AND ELECTROCLEANING
AND ANODE FOR USE THEREIN
Filed April 16, 1930

Fig. 5.

Fig. 5 is a cross-sectional view of a device. It features a central core (30) surrounded by a series of concentric rings or layers. The outermost layer is labeled 24. A specific region of the inner layers is labeled 32. A small, shaded area near the center is labeled 34. The bottom-most layer or base is labeled 36.

FREDERICK CONLIN, INVENTOR.

BY
Gustav B. Thompson, ATTORNEY.

UNITED STATES PATENT OFFICE

FREDERICK CONLIN, OF NEW YORK, N. Y.

BRUSH FOR ELECTROPLATING AND ELECTROCLEANING AND ANODE FOR USE THEREIN

Application filed April 16, 1930. Serial No. 444,854.

This invention relates to brushes for electroplating and for electrocleaning and to anodes for use therewith, and provides improvements therein.

5 The invention provides improvements upon the brush and anodes disclosed and claimed in my application for patent dated October 24, 1929, Serial No. 401,994.

10 The invention provides a brush and anode wherein the distribution of the current in and from the anode is improved; whereby the flow of current emanates from the anode and is distributed throughout the bristle-mass charged or loaded with the electrolytic solution; whereby dissolving of metal when soluble anodes are used may be virtually confined to the anode; whereby a more uniform dissolving of soluble anodes and hence greater life of the anodes obtained; whereby anodes of soft metals (such as lead) may be practically and satisfactorily used; whereby discoloration of the deposit from metal dissolving from the supports may be avoided; whereby metal in most suitable form for use as anodes (soluble or insoluble) may be combined with a support formed of a metal most suitable for mechanical strength; and whereby various other advantages may be obtained.

25 An embodiment of the invention is illustrated in the accompanying drawing, wherein:—

Fig. 1 is a vertical sectional view of said embodiment;

35 Fig. 2 is a view in elevation of a supporting rod of the anode;

Figs. 3, 4, and 5 are views in side elevation, bottom plan and top plan, respectively, of the embodiment of anode illustrated in Fig. 1; and

40 Fig. 6 is a view illustrating the position in use of the parts shown in Fig. 1.

Referring to said drawing, numeral 10 designates a brush, here shown as a round brush, comprising a handle 12, a ring or annulus 14 of bristles forming a bristle-mass, bound or held by suitable means, as by means of a ferrule 16 pressing the upper ends of the bristle against an extension 18 of handle 12. A block 20 may be arranged above the upper ends of the bristles between the ferrule and

part 18. The bristles may be of any suitable material best suited to resist the action of the particular electrolytic solution used. Hog-bristles are usually used. The upper ends of the bristles may be "set" or bound together by a cement, as rubber. The mass of bristles, except for the "set" or bound ends, is flexible and adapted to carry electrolytic solution. Numeral 22 designates the space at the inside of the bristle-ring 14 at the upper part.

60 Numeral 24 designates an anode, and 26 a suitable anode-support. The anode-support 26 is conveniently in the form of a rod projecting into the bristle-mass. The rod preferably extends through the handle 12 to the exterior, and is provided at its exterior end with suitable means 30 for binding or attaching a lead or conducting wire 32 thereto, the supporting-rod 26 thereby serving to conduct the current through the brush (handle 12) to the anode, as hereinafter more fully explained.

75 A binding screw 28 extending through the handle 12 or any other suitable means serves for holding the anode-support 26 in position, and also permits of adjustment of the support 26 in the handle and consequently of the position of the anode 24 in the bristle-mass.

80 The anode 24 is provided with a hub portion or the like 30 of considerably greater thickness or diameter than the rod or support 26. The bristles of the mass 14 make contact with the hub 30 and are held or spaced from the rod 26 by the said hub. The flow of current is thereby mainly or exclusively from the anode 24, the hub 30 acting to inhibit flow of current from the rod 26, and thereby avoiding dissolving of the rod by electrolytic action.

85 By this arrangement, the support or rod 26 may be made of stiff or strong structural material such as steel, and the anode 24 made of pure metal to be deposited (usually comparatively soft or ductile) such as gold, tin, nickel, cadmium, silver, etc. Moreover, by the above described construction, the anode may be made of a very ductile metal such as lead, where an insoluble anode is desired, and rigidity and strength maintained in the supporting structure. The hub 30, by spac-

ing the bristles from the rod 26 as hereinbefore explained, prevents dissolving of metal from the support which otherwise might discolor or contaminate the deposit.

The body of the anode may have any suitable form, a number of which are shown in my aforesaid application. As set forth in said application, the anode is preferably formed in such manner that the bristles cling thereto when the bristles are flexed in the act of using the brush. To this end, the anode 24 may be formed with an annular portion or ring 32 which is joined to the hub 30 by arms 34. The inside diameter of the ring 32 is preferably somewhat larger than the outside diameter of hub 30. Part of the bristle-mass is passed through the ring 32 (see Fig. 1) and the bristles therein cling to the inner side of the ring and insure at all times a mass of bristles (loaded with electrolytic solution during use) in direct and ample contact with the anode. The clinging of the bristles bearing against the outside of the ring 32, to said ring, is also bettered by reason of the intermingling of the bristles on the two sides of the ring.

The hub 30, ring 32, and arms 34 are preferably cast in a single piece, as I have found that the practical operation is much improved by such construction. There is greater uniformity of dissolving of the electrode and more uniform distribution of the current through the electrode and to the solution in the bristles, and local couples such as found in welded and soldered parts are avoided.

The anode 24 is preferably made detachable from its support, to provide for the convenient renewal and substitution of anodes. To this end the hub may be provided with a threaded socket 36 and the end of rod 26 threaded as indicated at 38 to fit the socket.

While I have referred generally to the part 24 as an anode, it may equally serve as a cathode.

The invention may receive other embodiments than that herein specifically illustrated and described.

What is claimed is:

1. A brush for electrolytic use, comprising a bristle-mass having a flexible portion adapted to take up electrolytic solution, an anode support extending within the flexible portion of the bristle mass and an anode on said anode support also within said flexible portion of the bristle-mass, said anode having means thereon for spacing the bristles from said support.

2. A brush for electrolytic use, comprising a bristle-mass having a flexible portion adapted to take up electrolytic solution, an anode supporting rod extending within the flexible portion of the bristle-mass and an anode on said anode support also within said flexible portion of the bristle-mass, said

anode having a hub surrounding an end of said rod and spacing bristles from the rod.

3. A brush for electrolytic use, comprising a bristle-mass having a flexible portion adapted to take up electrolytic solution, an anode supporting rod extending within the flexible portion of the bristle-mass and an anode on said anode support also within said flexible portion of the bristle-mass, said anode having a hub surrounding an end of said rod and spacing bristles from the rod, said anode supporting rod being of metal and being rigid and said anode being of soft metal.

4. A brush for electrolytic use, comprising a bristle-mass having a flexible portion adapted to take up electrolytic solution, an anode supporting rod extending within the flexible portion of the bristle mass and an anode on said anode support also within said flexible portion of the bristle-mass, said anode comprising a ring adapted to surround a part of the bristles, a hub surrounding an end of said rod and spacing bristles from the rod, and arms connecting said ring and hub, said ring, hub and arms being an integral structure.

5. An anode comprising a ring, a hub, and arms connecting said ring and hub, said ring, hub, and arms being an integral structure.

In witness whereof, I have hereunto signed my name.

FREDERICK CONLIN.

100

105

110

115

120

125

130