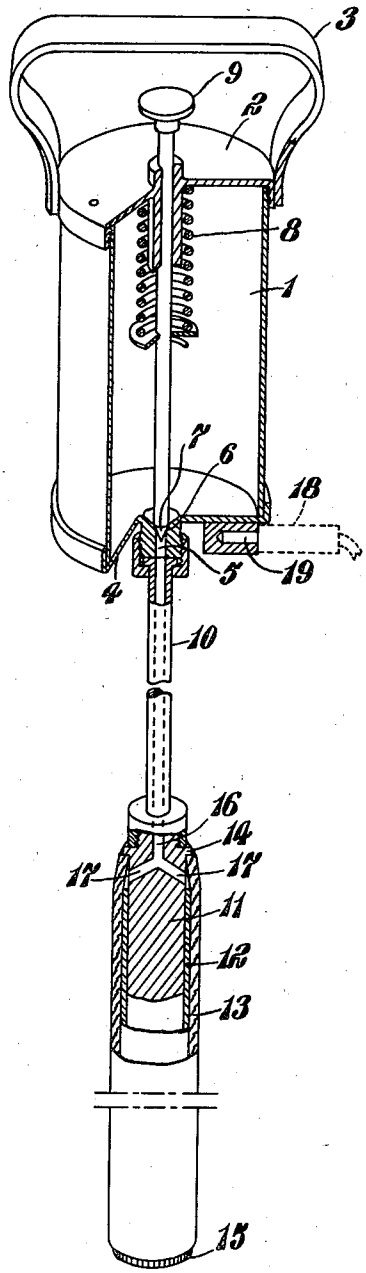
Feb. 14, 1939. R. H. ADEY 2,146,924

APPARATUS FOR THE ELECTRODEPOSITION OF METALS

Filed March 26, 1936



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Patented Feb. 14, 1939 2,146,924

UNITED STATES PATENT OFFICE

2,146,924

APPARATUS FOR THE ELECTRODEPOSITION OF METALS

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Application March 26, 1936, Serial No. 71,034

1 Claim. (Cl. 204—5)

This invention relates to devices for use in effecting the electro-deposition of metals upon the bores of hollow bodies, for example upon the walls of tubular members, and has for its object to provide such devices which enable this operation to be effected in a most expeditious manner.

Thus, according to the invention a device for use in effecting the electro-deposition of metal upon the bore of a hollow body comprises an electrode formed from the metal to be deposited and having a cross sectional shape corresponding to the cross sectional shape of the bore adapted to receive the deposit, an absorbent pad arranged around said electrode and of such thickness as to slidably fit the bore of the hollow body, a reservoir for an appropriate electrolyte and means for feeding such electrolyte to the said absorbent pad.

When the device is in use, the absorbent pad is adapted to be saturated by the appropriate electrolyte from the reservoir and an electric current supply is provided between the said electrode and the surface adapted to receive the deposit, the electrolytic deposition of the metal forming the electrode being consequently effected.

The feeding of the electrolyte from the reservoir to the absorbent pad can be effected by gravity, in combination with valve means for controlling the flow, or alternatively it can be effected by a manually operable pump incorporated with the device.

In some cases it is desirable so to design the devices that the electrodes and their associated absorbent pads can be disconnected from the reservoir in order to permit the ready interchange of electrodes and pads of various sizes or formations to be effected.

In order that the invention can be fully appreciated, two examples thereof will now be more particularly described in conjunction with the accompanying sheet of drawing wherein:

The figure is a perspective view partly in section of a device according to the invention which is especially useful for use in effecting the electro-deposition of metals upon the interior of tubular bodies of small bore.

This particular device comprises a reservoir chamber 1 with a cover 2, a handle 3 carried by the cover 2, a bottom wall 4, an outlet nozzle 5, a valve seating 6, and a valve member 7 which is normally maintained upon the seating 6 by means of a spring 8. The upper part of the valve member 7 extends through the cover 2 and is provided with a head 9 adapted to be manipulated by a finger or fingers of the hand of the user grasping the handle 3. Thus, by lifting the valve member 7 an appropriate electrolyte contained in the reservoir chamber 1 is fed by gravity to the outlet nozzle 5.

To the said nozzle 5 there is detachably connected a conduit member 10 which may if desired be of flexible construction. The lower end of this conduit 10 is provided with a screw-threaded socket to receive a correspondingly screw-threaded plug portion of an electrode carrier 11.

An electrode 12 formed from the metal to be deposited is arranged around the carrier 11 and an absorbent pad 13 is arranged around the electrode 12, the two parts being maintained upon the carrier between a shoulder 14 and a removable flange 15. The upper end of the carrier 11 is formed with a passageway 16 adapted to register with a conduit 10 and branch passages 17 which serve to convey electrolyte to the upper end of the absorbent pad 13 from whence it will percolate to the lower portions of the pad.

The electrode 12 is adapted to be connected to one pole of an electric current supply by means of a plug (indicated in dotted lines at 18) engaging with a socket 19 provided on the bottom 4 of the reservoir, the electrical circuit being completed through the conduit 10 and the carrier 11.

In using the device the electrode 12 and its associated absorbent pad are adapted to be inserted into the bore of the hollow body upon which a metallic coating is to be deposited, the cross sectional shape of the electrode 12 being chosen to correspond with the cross sectional shape of the bore, whilst the thickness of the pad is such as to enable the device to slidably fit within the said bore. The electrode 12 and the surface adapted to receive the deposit are connected to the appropriate poles of an electric current supply and the absorbent pad maintained saturated with electrolyte by manipulation of the valve member 7, whilst the electrode and said pad are reciprocated within the bore by means of the handle 3. If desired a rotary movement can also be imparted to the electrode and its associated pad during the electro-depositing operation.

It will of course be understood that electrodes having various cross sectional shapes can be readily connected to the reservoir so that bores of various cross sectional shapes can be electro-deposited.

When it is desired to apply a metallic deposit to the interior of a hollow body having a tapered

bore, it is preferable to employ an electrode having a corresponding taper form, the electrode and its associated absorbent pad being rotated in the tapered bore during the electro-depositing operation.

It will be appreciated that the invention is not limited to the particular examples herein more particularly described and that various embodiments of the invention are possible to meet particular requirements without departing from the spirit thereof.

What I claim and desire to secure by Letters Patent of the United States of America is:

A device for use in effecting the electro-deposition of metal comprising a reservoir for an appropriate electrolyte, a handle at one end of said reservoir whereby said reservoir can be supported, a rigid conduit detachably secured to the other end of said reservoir, a manually operable valve carried by said reservoir for controlling the gravitational flow of electrolyte therefrom to the said conduit and having an actuating member adjacent said handle to be operated by the fingers of the hand which grasps the handle, an electrode carried by said conduit, an absorbent pad arranged around said electrode and passageways for conducting electrolyte from said conduit to said absorbent pad, the said reservoir, conduit, electrode and absorbent pad constituting a single unit which may be manually moved by means of said handle.

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