

C. E. LEFFEL.
 ANODE SUPPORT.
 APPLICATION FILED SEPT. 27, 1911.

1,036,655.

Patented Aug. 27, 1912.

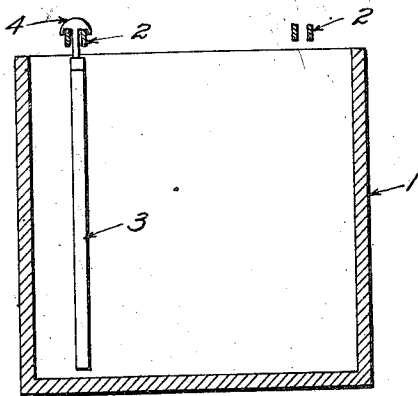


Fig. 1.

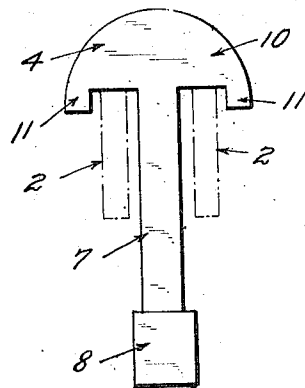


Fig. 2.

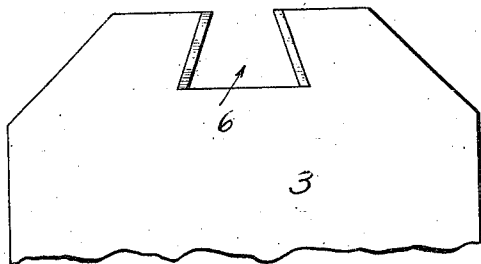


Fig. 4.

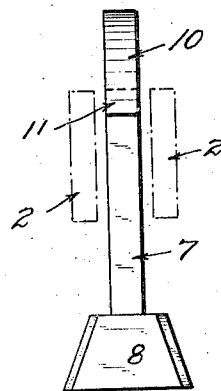


Fig. 3.

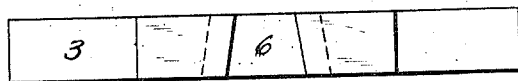


Fig. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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ANODE-SUPPORT.

1,036,655.

Specification of Letters Patent.

Patented Aug. 27, 1912.

Application filed September 27, 1911. Serial No. 651,522.

To all whom it may concern:

Be it known that I, CLARENCE E. LEFFEL, a resident of Meadville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Anode-Supports, of which the following is a specification.

This invention relates to anode supports intended for use in electro-plating.

The purpose of the invention is to provide a support for the anode plate of simple and cheap construction, which can be very readily applied to the anode and in a manner to produce a good electrical contact, and which can also be readily removed from the anode when the latter is worn out, and used upon other similar anodes, thereby effecting a great saving.

The invention comprises the construction and arrangement of parts hereinafter described and claimed.

In the accompanying drawings Figure 1 is a sectional view through an electro-plating tank showing the anode in position; Fig. 2 is a side view of the supporting hook for the anode; Fig. 3 is an edge view of the same; Fig. 4 is a side view of the upper portion of the anode showing the socket therein; and Fig. 5 is a view looking downward on the anode shown in Fig. 4.

In the drawings 1 represents the electro-plating tank which may be of the usual or any desired construction, shape, or size. Extending along over the tank are two pairs of conducting rods or bars 2 for supporting the anode and cathode, respectively.

3 represents an anode which may be of any suitable size, shape and material. That shown is a long flat plate about half an inch thick. This plate is supported from one pair of conducting bars 2 by means of a suspending member 4 of special design and detachably attached to the plate.

The usual way of suspending the anodes is by means of hooks cast into the anodes and suspended from round, generally tubular conducting supports. In order to secure good conductivity and minimize corrosion of contact surfaces these hooks are generally cast from nickel composition, which is quite expensive, costing as much as fifty cents per pound. When the anodes are exhausted the nickel cast in hooks must be scrapped with the remnants of the anodes, with a resulting very low recovery, as com-

pared with the original cost of the hooks. The consequence is that in a large electro-plating establishment where very considerable numbers of tanks are constantly in use the cost of these supporting hooks amounts to a very considerable sum in the course of a year.

My invention is intended to provide an anode support whereby the suspending members need not be scrapped, but can be used repeatedly, thereby producing a very large saving in the cost of operation of electro-plating plants. I substitute for the usual round tubes for supporting the anodes a pair of flat bars 2 set edgewise vertically and spaced slightly apart.

In carrying out the invention the anode is provided in its upper end with a dove-tailed socket 6 which tapers in both directions, that is, tapers downwardly from the top to the bottom of the socket, and also from one side to the other of the anode. The socket preferably extends entirely through the anode from one side to the other, but at least opens on one side face thereof. The suspending member 4 is provided on its lower end of its shank 7 with an enlargement 8 which is similarly tapered in two directions increasing in width downwardly, and being wider at one end than at the other, thereby producing a portion somewhat wedge-shaped. This tapered portion is inserted in the socket 6 from one side of the anode and is driven tightly thereinto, thereby producing not only a firm mechanical support for the anode, but providing an almost perfect electrical contact, equally as good as if the suspending member were cast integral with the anode. While the suspending member is removable from the anode the manner of connection is such that a practically perfect electrical contact is secured, which is of great importance in electro-plating, since the current used is of very low voltage.

The socket 6 can be formed in the anode by coring when casting, and preferably both the socket and the enlargement 8 on the suspending member are filed, or otherwise finished, to produce smooth contacting surfaces.

The enlargement 8 and socket 6 may take various shapes, as shown and described in my application filed concurrently herewith, Serial No. 651,521, the essential being that

these parts shall taper so that when the enlargement is driven into the socket a very tight electrical contact is secured.

On the upper end of the shank of the suspending member 4 is a cross-head 10 of sufficient length to extend over the two conducting bars 2 and be supported thereby. The shank and cross-head 10 are of such thickness that when turned through 90° they will pass between the bars 2 in order to remove the anode plate from the tank when desired. At the ends of the cross-head are downwardly projecting lips or flanges 11 which normally project downwardly along the outer faces of the bars 2 and prevent accidental turning of the suspending member. The construction, however, permits of the ready disconnection of the anode from and its connection to the supporting conductors. The cross-head 10 is of sufficient thickness to provide wide contact surfaces on the bars 2 to conduct the necessary volume of current.

The form of suspending member with cross-head permits of the use of flat rectangular conducting bars 2 set edgewise vertically, which are much cheaper than the usual round bars or tubes employed for conducting supports.

The anode support described is of simple construction and can be manufactured at a low labor cost. It provides a secure support for the anode and one having an almost perfect electrical contact, while at the same time being removable from the anode so that the hooks can be detached from one worn-out anode and attached to another at a very great saving. The anodes themselves require no special shaping or fabrication other than the provision of the sockets 6 in the upper ends thereof. These sockets need be only of the width of the thickness of the anode so that an enlargement or thickening at the top of the anode involving a considerable amount of metal at the point where it does no particular good is entirely avoided.

What I claim is:—

1. An anode support comprising bars spaced apart and a supporting member secured to the anode and comprising a shank provided with a cross-head adapted to pass between said bars and be rotated and rest thereupon.

2. An anode support comprising spaced bars and a member secured to an anode comprising a shank and cross-head adapted to pass between the bars and be turned to rest thereupon, said cross-head being provided at its ends with downwardly projecting portions arranged to lie outside of the supporting bars and prevent accidental turning of the support and anode.

3. An anode support comprising conducting bars spaced apart, and a member adapted to rest thereon, comprising, a shank having a cross-head at its upper end and provided at its lower end with an enlargement tapered in one direction transversely to the axis of the shank and adapted to enter a corresponding socket in an anode.

4. An anode support comprising conducting bars spaced apart and a member comprising a shank adapted to pass between said bars and provided at its upper end with a cross-head arranged to rest on said bars and at its lower end provided with an enlargement tapering transversely to the axis of the shank, and an anode provided in its upper end with a correspondingly shaped socket to receive said tapered enlargement.

5. An anode support comprising conducting bars spaced apart and a member comprising a shank adapted to pass between said bars and provided at its upper end with a cross-head arranged to rest on said bars and at its lower end provided with an enlargement tapering both transversely to and along the axis of the shank, and an anode provided in its upper end with a correspondingly shaped socket to receive said tapered enlargement.

6. An anode support comprising spaced bars and a member secured to an anode comprising a shank and cross-head adapted to pass between the bars and to be turned to rest thereupon, said member being provided with projections arranged to engage the supporting bars and prevent accidental turning of the support and anode.

In testimony whereof, I have hereunto set my hand.

CLARENCE E. LEFFEL.

Witnesses:

J. H. PARDEE,
T. F. CHARLTON.