

C. E. LEFFEL.
 ANODE SUPPORT.
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1,036,654.

Patented Aug. 27, 1912.

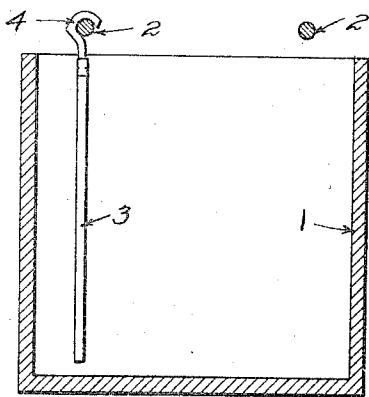


Fig. 1.

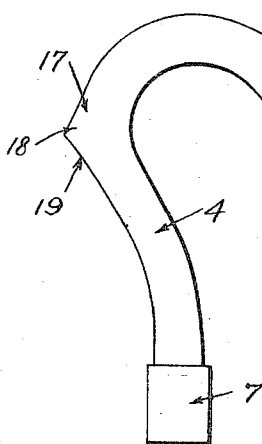


Fig. 2.

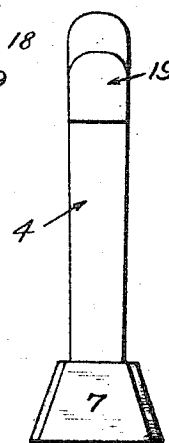


Fig. 3.

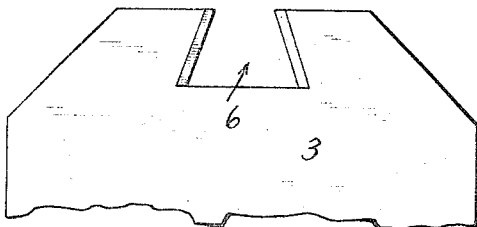


Fig. 4.

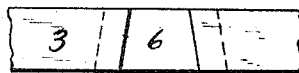


Fig. 5.

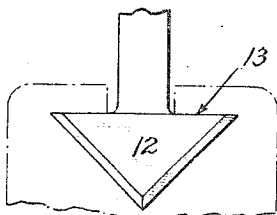


Fig. 6.

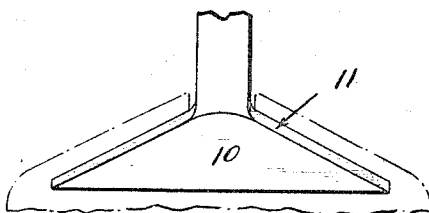


Fig. 7.

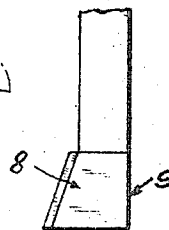


Fig. 8.

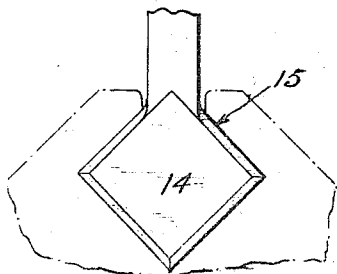


Fig. 9.

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UNITED STATES PATENT OFFICE.

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ANODE-SUPPORT.

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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 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 drawing, 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; Fig. 5 is a view looking downward on the anode shown in Fig. 4; and Figs. 6, 7, 8 and 9 are detail views showing modifications.

In the drawings 1 represents the electro-plating tank which may be of the usual or any desired construction, shape, or size. Extending over the tank are a pair of rods or tubes 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 of the conducting rods or tubes 2 by means of a hook 4 of special design and detachably attached to the plate. The usual way of supporting the anodes is by means of a hook cast into the plate. 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. 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 hooks need not be scrapped, but can be used repeatedly, thereby resulting in a large saving in the cost of operation of these electro-plating plants.

In carrying out the invention the anode is provided at its upper end with a pair of upstanding projections or wings in the same plane as that of the anode plate, as shown particularly in Figs. 4 and 5. These projections or wings are provided with inclined or slanting inner edges to form a dove-tailed socket 6 which tapers in both directions, that is, not only tapers downwardly from the top to the bottom of the socket, but also from one side to the other of the socket. The hook 4 is provided in its lower end with an enlargement or head 7 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 at 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, about equally as good as if the hook were cast integral with the plate. The connection, however, is such that when the plate is exhausted the hook can be driven out of the same and used on a new plate. While the hook, therefore is removable from the plate the manner of connection is such that a practically perfect electrical contact is secured which is of great importance in electroplating, as the current used is of very low voltage. The socket 6 can be formed in the anode by coring when casting, but preferably both the socket and the enlargement 7 on the hook will be filed or otherwise finished, to produce smooth contacting surfaces.

The enlargement 7 and the socket 6 may take various shapes. Fig. 6 shows practically a half wedge, that is, the enlargement 8 which is perfectly flat on one side as at 9 and tapered on the other. The socket in the anode will be of corresponding shape. Fig. 7 illustrates the enlargement 10 of general triangular shape with a horizontal lower face, but tapering lengthwise, the same as the other forms, while the socket

11 in the top of the anode is of corresponding shape. Fig. 8 shows an enlargement 12 of general triangular shape in end view but tapering in the other direction, while the socket 13 of the anode is of corresponding shape. Fig. 9 shows still another form in which the enlargement 14 is of square or diamond shape in end view, but tapered in the other direction, and the socket 15 in the anode is of corresponding shape. Various other forms of enlargements and sockets will readily suggest themselves, 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.

The hook itself has its inner face on a radius substantially equal to that of the rod or tube 2 and practically a semicircle, and has a wide flat inner face so as to provide a large bearing contact on the conductor 2. The hook is preferably provided on its end 16 and on a point diametrically opposite the same, as at 17, with slight projections 18 which provide overhung surfaces 19 which can be grasped by the thumb and a finger and give a good hold in lifting the anode out of the bath when desired.

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 a worn-out anode and attached to another anode 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 a hook adapted to engage and be supported by a conducting rod or bar and provided at its lower end with an enlargement increasing in size downwardly and tapering in one direction transversely to the vertical axis of the hook and adapted to enter a corresponding socket in an anode.

2. A construction of the character described comprising an anode provided in its upper end with a socket opening through one side face thereof and tapering transversely of the plate, and a support comprising a hook adapted to engage and be supported by a conducting rod or bar and provided on its lower end with an enlargement increasing in size downwardly and tapering in one direction transversely to the vertical axis of the hook and adapted to enter said socket.

3. In a construction of the character described, the combination of an anode comprising a plate provided in its upper end with an undercut socket extending transversely therethrough and tapering from one side to the other, and a hook adapted to engage and be supported by a conducting rod or bar and provided on its lower end with an enlargement increasing in size downwardly and tapering transversely to the vertical axis of the hook and of substantially the length of the thickness of said anode plate and adapted to be driven in the socket in said plate.

4. In a construction of the character described, the combination of a flat faced anode plate provided in its upper end with a transverse socket tapering from one side to the other, and a hook formed to engage and be supported by a conducting rod or bar and provided on its lower end with an enlargement tapering transversely of the axis of the hook and of substantially the length of the thickness of said anode plate, and adapted to be driven into the socket in said plate.

5. An anode support comprising a hook provided at its lower end with an enlargement tapering transversely of the axis of the hook and adapted to enter a corresponding socket in an anode and having its upper free end and its shank at a point diametrically opposite its free end formed to provide concave grasping surfaces, each of which curves downwardly and inwardly toward the axis of said hook.

In testimony whereof, I have hereunto set my hand.

CLARENCE E. LEFFEL.

Witnesses:

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