

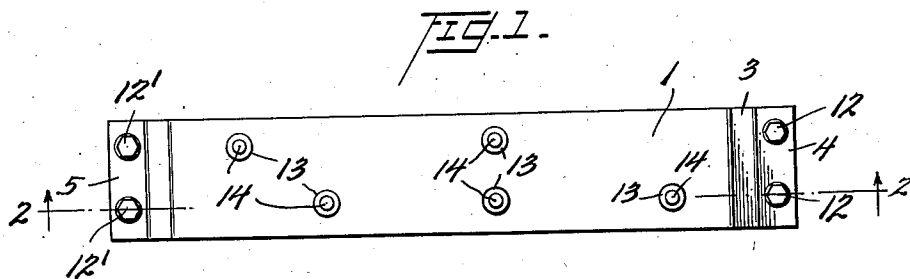
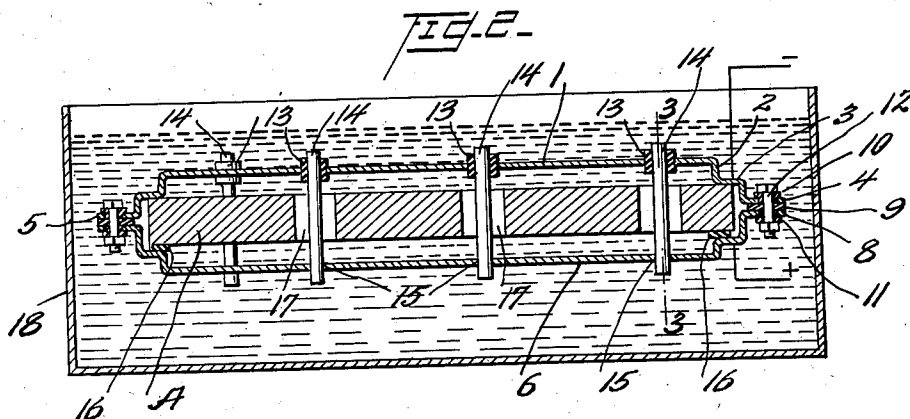
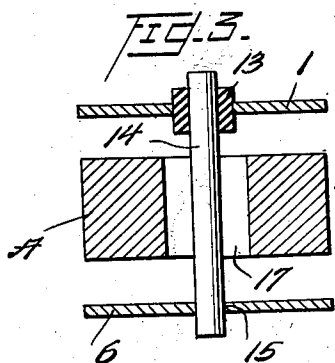
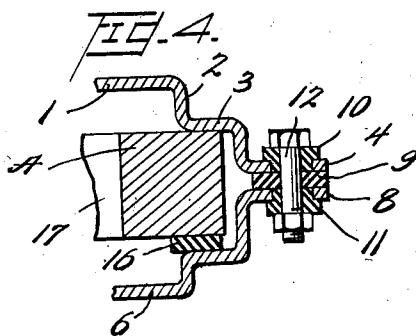
May 16, 1944.

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JIG OR FIXTURE FOR ELECTROPLATING

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JIG OR FIXTURE FOR ELECTROPLATING

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6 Claims. (Cl. 204—297)

My invention relates to new and useful improvements in electroplating, and more particularly to a jig or fixture that is to follow in outline the shape of the article which is to be internally plated and have anodes spaced to register with openings in the article whose walls are to be plated.

As is well known to those skilled in the art, it is sometimes found necessary or desirable to electroplate the walls about passageways or apertures or channels, and with the ordinary fixtures now in use, the step-up for the plating often takes a relatively long time.

An object of the present invention, therefore, is to provide a jig of two electrically conducting plates that will be cut substantially to the shape of the article which is to be plated and to provide holes or apertures in the plates in which there will be situated anodes, and which holes or apertures will register with the holes or openings in the article the walls of which are to be plated, so that these internal walls of the apertures (cathodes) will be in close proximity to the anodes.

Another object of the invention is to provide a jig or fixture comprising two electrically conducting plates which will follow in outline the article to be plated and will also have formed in the upper plate insulating nipples in which will be fitted the anodes while in the bottom plate there will be holes or apertures in which are mounted the anodes.

These anodes in turn will extend through the openings within the article the walls of which openings are to be plated, so that the anodes are in relatively close proximity to these walls.

Still another object of the invention is to form a jig made of two electrically conducting plates that will be clamped to each other and enclose the article to be plated, the plates following in outline the outline of the article to be plated, and the anodes spaced in the plates in registry with the openings in the plates wherever the latter happened to be.

With these and other objects in view, my invention consists in certain new and novel arrangements and combination of parts as will be hereinafter more fully described and pointed out in the claims.

Referring now to the drawing showing a preferred form,

Fig. 1 is a top plan view showing the upper plate of the jig and the anodes spaced in a predetermined position;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1 showing a tank and the jig, the jig enclosing

ing the article having the internal walls which are to be plated;

Fig. 3 is an enlarged sectional detail view showing the method of supporting the anodes; and

Fig. 4 is a fragmentary enlarged sectional view showing how the plates are clamped together.

At the outset it will be understood that although the plates of the jig are shown substantially rectangular in top plan, they will be of a shape which is substantially the shape of the article which is to be treated, it being only necessary that the ends of the plates have lips thereon so that the two plates may be fastened to each other and about the article which is to be plated.

It will also be understood that although the anodes are shown as situated in two parallel lines, they will in practice always be positioned in registry over the openings whose walls are to be plated.

Referring now to the several views, there is shown the upper electrically conducting plate 1 which is bent downwardly as at 2 (see Fig. 4) outwardly at 3 and then downwardly and outwardly again as at 4 to form a lip, and it will be understood that the other end is bent in a like manner to provide the outwardly extending lip 5.

There is also a complementary lower electrically conducting plate 6 that is bent similar to the plate 1 to provide the outwardly extending lips 8 at its opposite ends.

These lips 4 and 8 are clamped about a rubber separator 9 and in Fig. 4 there will be seen the rubber bushings 10 and 11 within the respective lips 4 and 8 of the plates 1 and 6, so that the bolts 12 may be fastened in place and held in locked position but not be in electrical contact with the plates 1 and 6.

In the same manner the remaining ends of the two plates 1 and 6 are held by bolts 12' that likewise pass through like rubber bushings and rubber separators.

In the upper plate 1 there are a plurality of apertures in which there are the rubber bushings 13 and fitted within each rubber bushing is an anode 14, these anodes extending down and tightly fitting into apertures 15 in the plate 6, and, of course, in electrical contact therewith.

The article to be plated, A, is provided with the apertures 17 and it is the walls about these apertures that are to be plated.

It will also be noticed that extending between the article A and the lower plate for insulation purposes are the rubber separators 16, whereas the upper plate is clamped directly on the article.

As heretofore mentioned, these anodes will be

spaced or positioned in the upper and lower plate so that they will be in registry with the apertures 17 in the plate that is to be treated.

It will also be understood that new plates will have to be formed for different articles to be treated, or new holes may have to be drilled in the same plates, so that the anodes will always pass centrally through the apertures in the article, wherever these apertures happen to be.

Thus, when there is an article with certain internal walls to be treated, the jig will be made up as above outlined, and the anodes, of course, will be so spaced that they pass centrally through the apertures, so that the electrolyte has but a short distance to flow from the anodes to the walls to be plated.

As may be seen in Fig. 2, the electric current entering the lower plate will pass through the anode and through the electrolytic bath to the walls of the cathode, as is well understood.

If it is not desired to plate the outer surfaces of the plate, they may be covered with any well-known substances that will resist the electroplating action.

From the foregoing it will be seen that I have provided a relatively simple fixture or jig wherein the anodes will be held in two separable plates, which in turn will be clamped about the article and the anodes always be so positioned that they will be passed centrally through the aperture whose walls are to be plated.

Many slight changes might be made without departing from the spirit and scope of the invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An electroplating fixture for an apertured article including two electrically conducting separable plates, means for clamping the same to each other and on opposite sides of said article, insulating separators between the plates where the same are clamped together, anodes secured in one plate in electric contact therewith and positioned to pass through the apertures in the said article and extend into electrical insulators in the other plate, and insulators between the article and the plate carrying the anodes.

2. An electroplating fixture for an article having apertures providing internal walls to be plated, including two electrically conducting separable plates, means for clamping the same together on opposite sides of said article, insulating separators between the clamping means, a plurality of anodes on one of said plates having free ends positioned to extend through the apertures, insulators interposed between said one plate and the article to be plated, the second plate acting as a cathode plate and in contact with the article to be plated and having insu-

lating members for receiving the free ends of said anodes.

3. A fixture for electroplating an article having at least one aperture therethrough forming internal walls to be plated, comprising two electrically conducting plate members engageable with opposite ends of said article, means for securing said members together in gripping relationship to said article, means for insulating said members from each other, means for insulating one, only, of said members from said article, at least one electrode secured to said one member and having a free end passing through an aperture in said article, and means for insulating said free end of said electrode from and supporting it by the other plate member.

4. An electroplating fixture comprising two separable electrically conducting plate members, a plurality of electrodes electrically connected to and having free ends projecting from one of said plate members, insulating bushings on the other plate member for receiving the free ends of said electrodes, means for securing said plate members together in spaced apart relationship and with the electrodes extending therebetween, means for insulating said plate members from each other, and means for insulating one of said plate members from an article to be electroplated and interposed between said members while the other plate member is in contact with said article.

5. A fixture for electroplating an article having apertures therethrough forming internal walls to be plated, comprising a pair of electrically conducting plates to be disposed on opposite sides of said article, means for securing said plates together in clamping relationship to said article, means for insulating the plates from each other, means for insulating one of said plates from said article, electrodes secured to said one plate having free ends projecting toward the other plate, and insulating means on said other plate for receiving the free ends of said electrodes.

6. A fixture for electroplating an article having apertures therethrough forming internal walls to be plated, comprising a pair of electrically conducting plate-elements to be disposed on opposite sides of said article and having opposed offset end portions for gripping edges of said article, means for securing said plate-elements together in gripping relationship to said article, means for insulating said elements from each other, means for insulating one of said elements from said article, electrodes carried by said one of said elements having free ends projecting through said apertures toward the other plate element, and insulated bushings on said other element for receiving said free ends of said electrodes.

AXEL E. LUNDBYE.

CERTIFICATE OF CORRECTION.

Patent No. 2,348,915.

AXEL E. LUNDEYE.

May 16, 1944.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, first column, line 12, for "step-up" read --set-up--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 4th day of July, A. D. 1944.

(Seal)

Leslie Frazer
Acting Commissioner of Patents.