

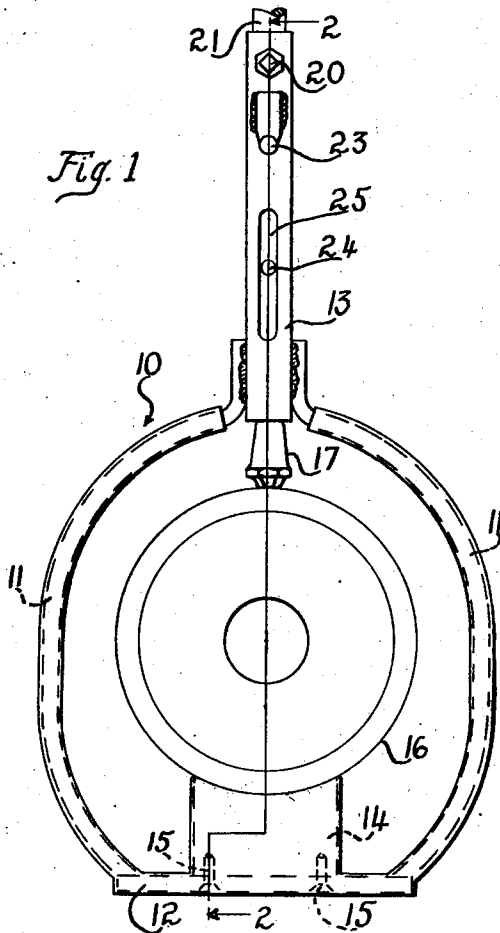
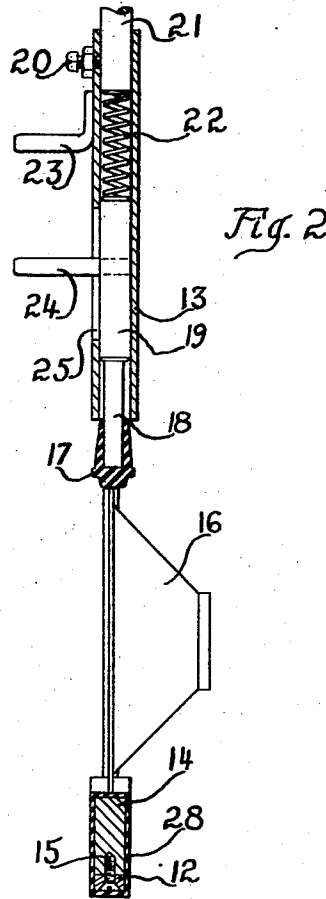
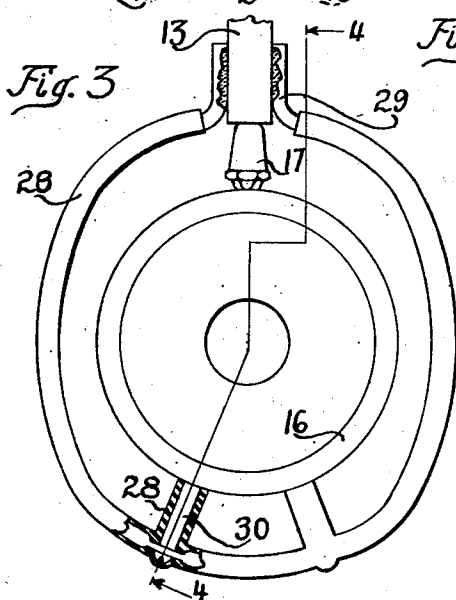
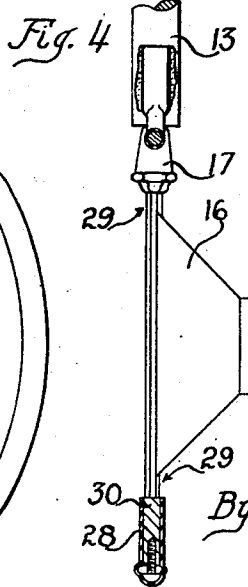
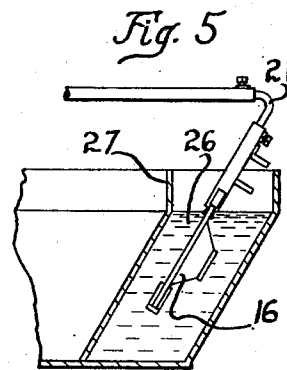
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HOLDER FOR DEPLATING ARTICLES

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HOLDER FOR DEPLATING ARTICLES

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2 Claims. (Cl. 204—297)

This invention relates to a holder. More specifically it relates to a device for holding articles to be treated in an electrolytic solution.

A holder for use with metal articles to be treated in electrolytic solutions is subjected to the same electrolytic action as the articles themselves. If the articles are to have material removed therefrom as part of the treatment, the holder must, if metallic, be suitable for use under these conditions.

An object of the present invention is to provide an improved holder for use in an electrolytic bath.

A further object is to provide a holder for cream-separator disks to be polished in an electrolytic solution.

Another object is to provide a holder which is capable of easy repair upon deterioration due to the action of the electrolytic bath.

According to the present invention, cream-separator disks polished by a deplating action in an electrolytic solution form the anode in the solution and receive electric current from a metallic holder. This holder is shaped to give proper support to the disk and to continue its support in spite of deplating due to continued usage in the electrolyte.

In the drawing:

Figure 1 is a view showing the holder of the present invention with a cream-separator disk retained thereby;

Figure 2 is a sectional view taken along the line 2—2 of Figure 1;

Figure 3 is a view similar to Figure 1 showing a modified form of holder;

Figure 4 is a sectional view taken along the line 4—4 of Figure 3; and,

Figure 5 is a view showing the holder and separator disk in electrolytic solution.

The holder of Figure 1 comprises a framework 10 formed of arcuate members 11 secured at one end to a base member 12 and at the other end to a tubular element 13. A support 14 is secured by screws 15 to the base member 12 and is formed of lead and has an arcuate upper end shaped to receive one side of a separator disk 16. The other side of the separator disk is engaged by a rubber cup 17 upon a reduced end 18 of a plunger member 19 slidably mounted in the tubular element 13. A set screw 20 secures an element 21 in the upper end of the tubular element 13. The element 21 may form part of a support for the disk and holder in an electrolytic solution as shown in Figure 5. A spring 22 between the elements 21 and the plunger 19, urges the plunger downward-

ly so that the rubber cup 17 is held in engagement with the upper side of the disk 16. A part 23 is secured to the tubular element 13 and extends at right angles thereto. A part 24 extends from the plunger 19 through a slot 25 in the tubular element 19 directly below the part 23. For removal of the disk 16 from the holder the parts 23 and 24 are engaged with the fingers, and the part 24 is moved toward the part 23, the rubber cup 17 moving away from the disks 16.

Figure 5 shows the holder and disk in an electrolyte 26 which comprises a solution of phosphoric acid in a container 27 of annular shape. Current is passed through the solution from the disk 16 as an anode, to the container 27, as a cathode. A special use of the holder in the solution of phosphoric acid is the polishing of stainless steel cream-separator disks. The action of the electric current in passing from the disk 16 through the electrolyte 26 to the container 27 is to remove a portion of the surface of the disk and thereby to effect a polishing of the disk. The disk receives current through the holder and the supporting element 21. Consequently, the holder must be formed of metal and must resist deplating which is intentionally performed upon the disk. For this purpose so much of the holder as is submerged in the electrolyte 26 is coated with a non-metallic substance such as rubber, as indicated at 28. The upper surface of the support member 14 formed of lead must be free of rubber so that the metal-to-metal contact may be obtained between the support and the disk. Since the support is formed of lead there is very little deplating in a phosphoric-acid solution, but whatever reduction in height of the support 14 results because of the deplating is compensated for by the action of the spring 22 which presses the plunger 19 and rubber 17 against the disk.

In the modified form of Figure 3, a single member 29 is bent into the form of a loop with its ends secured to the tubular element 13. In place of the lead support 14 a pair of supporting pins 30 are secured to the loop 29 and provide two spaced points of support for the lower side of the disk 16. These pins are coated with rubber as indicated at 28 as is also the rest of the holder which is to be submerged below the level of the electrolyte. These pins may be of copper, and, as they become shorter because of deplating at their exposed ends, disks may continue to be held in the holder, because the spring 22 forces the plunger down sufficiently for the rubber cup 17 to contact the disks.

As previously stated, the container is of an-

nular shape and so provides a circular path through which the disk and holder may rotate by driving means, not shown, acting through the supporting element 21. Actually, there may be a series of parts extending radially outwardly from a common center support and terminating in elements 21 and a series of holders. The holders may be moved through the electrolyte at such a speed that one complete revolution completes the necessary deplating for polishing, and disks are placed in and removed from the holders as they pass a certain point.

The surfaces of the container 27 are frusto-conical so as to have the slope necessary to parallel the ends of the disks when tilted sufficiently to permit the escape of gas generated by electrolytic action and tending to accumulate on the inner surface of the disks. The walls of the containers must parallel the ends of the disks for the sake of a uniform deplating, and the distance from the container disks must bear the proper relation to the height of the disk for effective and yet uniform plating. However, these features form no part of the present invention and are, therefore, mentioned only briefly.

It will be apparent from the foregoing description that a new and novel holder has been provided for use in the polishing of cream-separator disks by deplating in an electrolytic bath. This holder is designed to give the disk satisfactory support at its edges without interference with the plating process and to provide automatic compensation for deplating of the holder in the electrolytic solution.

The intention is to limit the invention only within the spirit and scope of the appended claims.

What is claimed is:

1. A holder for a circular metallic article adapted to have material removed therefrom upon immersion in an electrolytic bath, said holder comprising a metal support element hav-

ing a tubular metal end portion, a spring-pressed plunger enclosed within the end portion, a metallic ring attached to the end portion and extending in a closed loop beyond the end of the end portion and in substantially the same plane therewith, a non-metallic article-holding tip carried on the plunger and projecting into the ring, the tip extending along a diametric line into the ring along the projected axis of the plunger, a metallic work-holding means carried by the ring at a location substantially diametrically opposed to the aforementioned tip, said ring being coated with a non-metallic coating, the latter article-holding means likewise being similarly coated but leaving a radially inward contact area uncovered to be engaged by the article, said spring plunger acting through its tip to clamp the article against the latter contact area and to automatically compensate for wear on the exposed area of said latter contact area.

2. A holder for a circular metallic article adapted to have material removed therefrom upon immersion in an electrolytic bath, said holder comprising a metal support element having a tubular metal end portion, a spring-pressed plunger enclosed within the end portion, a metallic ring attached to the end portion and extending in a closed loop beyond the end of the end portion and in substantially the same plane therewith, article-holding means respectively carried by the plunger and ring at diametrically opposed portions of the ring and substantially on a line with the projected axis of the plunger, one of said means engaging the article with a larger area of contact than the other, one of said means being non-conductive and the other having a conductive contact area to engage the article but otherwise covered with a non-conductive coating, and a non-metallic coating on said ring.

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