March 31, 1953 G. B. HOGABOOM, JR., ET AL 2,633,452

STRAINER BAGS FOR ENCLOSING ELECTROPLATING ANODES

Filed May 3, 1950

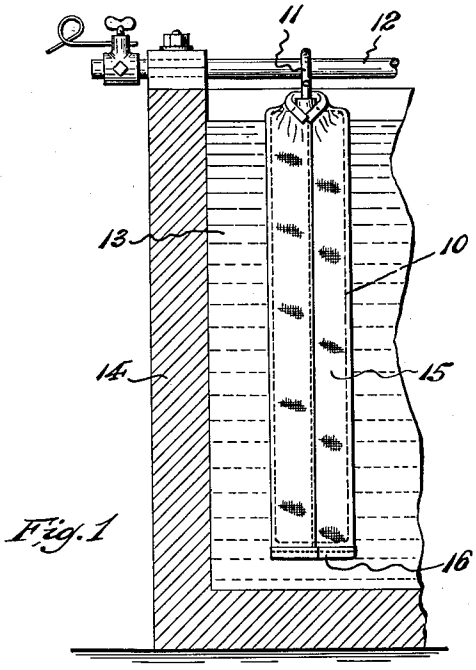


Fig. 1

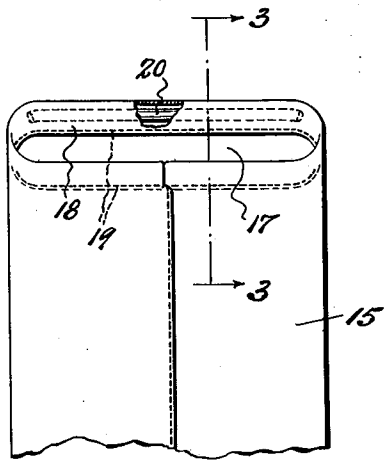


Fig. 2

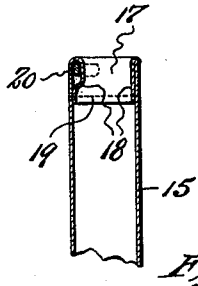


Fig. 3

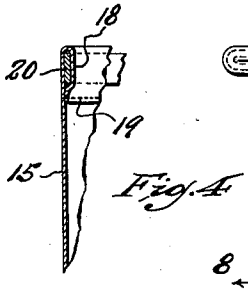


Fig. 4

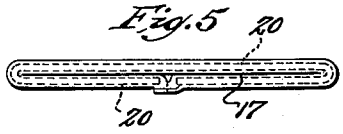


Fig. 5

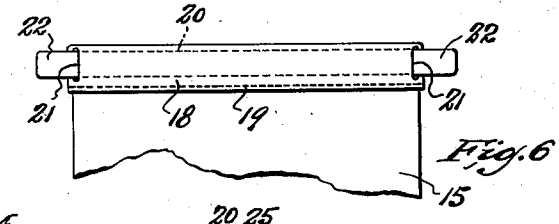


Fig. 6

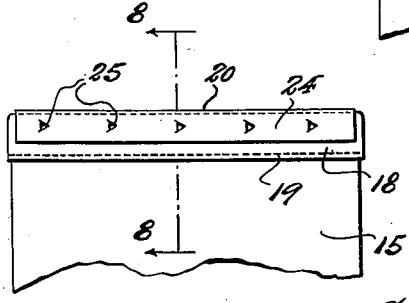


Fig. 7

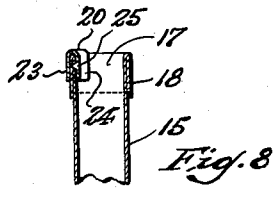


Fig. 8

INVENTORS:
George B. Hogaboom Jr. &
BY Nathaniel R. Hall,
George D. Richards,
Attorney

Patented Mar. 31, 1953

2,633,452

UNITED STATES PATENT OFFICE

2,633,452

STRAINER BAGS FOR ENCLOSING ELECTROPLATING ANODES

George B. Hogaboom, Jr., Kenilworth, N. J., and Nathaniel R. Hall, Brooklyn, N. Y.

Application May 3, 1950, Serial No. 159,728

2 Claims. (Cl. 204—295)

1

In the electro-plating art, it has been found of advantage to enclose the anodes which are suspended in the plating solution in an envelope or bag of suitable textile or other pervious fabric. When thus applied to an anode, such bag serves as a filter or strainer operative to separate from the soluble output of the anode any liberated insoluble solids and particles of dirt or other foreign matter, which solids and particles are retained within the bag and are thus prevented from coming in contact with the work which is undergoing plating with the risk, by such contact, of detriment to the plating finish. As heretofore used, such filter or strainer bags have been provided at their open top or mouth with a draw string, so that, after the bag is drawn over the anode, the mouth of the bag could be constricted about the neck or suspension hook shank of the anode by drawing tight and knotting the draw string, whereby to retain the bag in assembled covering relation to the anode. Due, however, to the fact that the top or mouth portion and the draw string of the bag, when so applied and secured to the anode, usually extends above the level of the plating solution, said top or mouth portion and draw string quickly becomes encrusted with dried salts, and by reason of this it frequently becomes impossible to loosen and untie the draw string, with the result that the draw string, and often the mouth portion of the bag itself, must be cut to effect opening of the bag for removal from the anode remains. As a consequence of the resulting mutilation of the draw string and bag, the bag is destroyed or rendered unfit for repeated use, even if cleaned and otherwise suitable for reuse.

Having the above circumstances in view, it is an object of this invention to provide a novel closure means in combination with the open end or mouth portion of an anode filter or strainer bag, said closure means being so characterized, constructed and related to the bag that manipulation thereof can be easily and quickly accomplished for both attachment to and detachment from an anode.

The invention has for a further object to provide a novel closure means for an anode filter or strainer bag manipulation of which is unhampered by the presence of dried salts should the mouth of the bag become encrusted therewith; with the result that detachment of the bag from an anode can be readily accomplished without necessity for mutilation of either the bag or the closure means, and consequently the bag is conserved subject to repeated use over and

2

over again after cleaning, so that its useful life is greatly prolonged.

Other objects and advantages of this invention will become apparent as the following specification is read in connection with the accompanying drawings, in which:

Fig. 1 is a fragmentary sectional view of an electro-plating tank with an anode suspended therein, said anode being enclosed in a filter or strainer bag equipped with closure means according to this invention.

Fig. 2 is a fragmentary perspective view of the mouth end portion of an anode filter or strainer bag equipped with closure means according to this invention, parts of the bag material being broken away to show the underlying closure element; Fig. 3 is a vertical longitudinal sectional view, taken on line 3—3 in Fig. 2; Fig. 4 is a fragmentary vertical longitudinal sectional view, similar to that of Fig. 3, but showing a modified form of closure element.

Fig. 5 is a plan view of the mouth end portion of an anode filter or strainer bag having a modified arrangement of closure means.

Fig. 6 is a face view of the mouth end portion of an anode filter or strainer bag equipped with another modified form and arrangement of closure means.

Fig. 7 is also a face view of the mouth end portion of an anode filter or strainer bag equipped with still another modified form and arrangement of closure means; and Fig. 8 is a vertical longitudinal sectional view thereof, taken on line 8—8 in Fig. 7.

Similar characters of reference are employed in the above described views, to indicate corresponding parts.

Referring to the drawings, the reference character 10 indicates an anode having a suspension hook 11 or like means for attaching the same to a current delivery anode rod 12 for suspension therefrom in the plating solution 13 contained in a plating tank 14 (see Fig. 1). The shank of suspension hook 11 of the conventional anode illustrated in Fig. 1 is so much smaller in horizontal cross-section than the anode body that broad shoulders project laterally from said shank and serve a useful purpose in relation to the present invention which will be described hereinafter.

The reference character 15 indicates the body of a filter or strainer bag by which the suspended anode 10 can be enveloped. Said bag is usually made from a textile or other suitable pervious fabric through which the plating solution can

pass for contact with the surfaces of the anode. The bag 15 is closed at its bottom end 16, but is outwardly open at its upper end, whereby to provide a bag mouth 17. A marginal part 18 of the mouth portion of the bag is doubled back upon the body portion of the latter and stitched, as by stitching 19, or otherwise secured, thus forming a tubular hem around the bag mouth 17. Disposed within the interior of the hem thus provided, so as to be enclosed and held within the same, is an element 20 which is manipulatable to contract or constrict the bag mouth to a desired closed condition. Said element, which may be suitably referred to as the closure element, in one form thereof, comprises an elongated body of suitable length and thickness or cross-sectional shape, which is formed from a pliant or readily deformable material, such e. g. as lead, soft aluminum, soft iron or other suitable soft metal, or other pliantly deformable material which is substantially non-resilient, whereby to be capable of being bent, and, when bent, to retain the form or shape to which it is wrought. The length of closure element 20 should be sufficient to permit embracement of the shank of anode suspension hook 11 under conditions which are about to be described.

In the use of the filter or strainer bag, having the closure element 20 incorporated with the mouth portion thereof, the bag is drawn up over the anode 10 until its mouth portion projects above the upper end of the anode and surrounds the shank of the suspension hook 11. After the bag is thus disposed, the mouth portion thereof is folded about the shank of the anode suspension hook 11. By such folding the closure element 20 is also bent and folded around the shank of the suspension hook 11 so as to gather and close the mouth portion of the bag over the shoulders presented by the upper end of the anode (see Fig. 1). Since the closure element 20 retains the folded condition or form to which it is thus wrought, it thereupon functions to hold the bag mouth portion closed and the bag body thereby supported against downward displacement relative to the anode enveloped thereby. It will be obvious that to open the bag mouth so as to permit withdrawal and removal of the bag from the anode, it is only necessary to open out or straighten the bent closure element 20, and manipulation of the closure element to this end will not be prevented or hampered by the presence of any dried salts by which the bag mouth portions may be encrusted. Since the bag is thus readily opened for removal thereof from the anode without risk of injury or mutilation, when removed the bag can be cleaned and thus made ready for reuse, so that repeated use thereof is possible, and useful life of the same is therefore greatly prolonged.

It will be understood that the specific form and cross-sectional shape of the closure element 20 and its relative arrangement in connection with the bag mouth portion is subject to variation. As shown in Figs. 2 and 3, the closure element is of a length approximating one-half of the circumferential extent of the bag mouth portion, and comprises a body of pliantly deformable material of substantially round cross-sectional shape, such e. g. as a length of round lead wire or the like. On the other hand, as shown in Fig. 4, the pliantly deformable closure element may comprise a flat strip of suitable length, width and thickness. Again, as in Fig. 5, the length of the closure element 20 may substantially correspond to the entire circumferential extent of the bag mouth portion. In all of these examples the closure element is confined within the interior of the hem by which the bag mouth portion is defined.

Referring now to Fig. 6, a modified arrangement of the closure element 20 relative to the bag mouth portion is shown. In this case, the hem which defines the bag mouth portion is provided with suitably spaced apart vertical slot-like openings 21 in a wall thereof, and enclosed within the hem interior is a closure element 20 of flat strip form having opposite end portions 22 projecting through the respective openings 21 for exterior extension therefrom.

In Figs. 7 and 8 is shown another modified form and arrangement of the closure element 20, which comprises a strip or body of pliantly deformable sheet material or other material having the above described requisite characteristics, said body being folded along its longitudinal axis into U-shaped cross-section providing opposed wall sections 23 and 24. The closure element thus formed is disposed to straddle marginal parts of the mouth portion of the bag, being secured to the latter by suitable fastening means, such e. g. as prongs 25 struck out of one wall and in-turned to pierce the enclosed marginal parts of the bag mouth portion.

It will be obvious that all of the above described and various specific forms of the closure element 20, will, as combined with the bag, be manipulatable to close and reopen the bag mouth portion, and when manipulated to close the latter will constrict the same about an anode and its suspension hook in substantially the same manner and for the purpose as hereinabove described. It will be observed that all embodiments of closure element 11 have one feature in common insofar as their manner of attachment to bag 15 is concerned. Instead of being attached to the bag at one point, each closure element 20 extends along the margin of the bag mouth and is secured thereto continuously throughout a substantial distance exceeding the circumference of the shank of suspension hook 11. This provision insures embracement of said hook shank, not only by the closure element, but also by a substantial portion of the bag mouth, and this embracing action does not require any tedious adjustment of the bag mouth inside the closure element, because the bag mouth is permanently secured coextensively to a shank-embracing length of said closure element. As a result, the bag will become draped over the adjoining shoulders of the anode in effectively supported position.

It will be further understood that still other variations in the form of the closure element 20, and in the assembled relation thereof to a bag mouth portion may be made within the scope of the claims which are appended to this specification.

It may be here further pointed out that in cases where the material of which the closure element 20 is made is such as not to be assuredly resistant to attack or corrosion by contact with given plating solutions, said closure element may be coated with a suitable plastic coating which is not subject to attack by the plating solutions. For example, a protective coating of a plastisol or of rubber or the like may be applied to the closure element for such purpose.

Having now described our invention, we claim:

1. In combination, a fabric strainer bag for

enveloping an electroplating anode having a suspension hook projecting from its end, said bag having an open mouth defined by a hem, the outer wall of the bag mouth hem having openings longitudinally spaced apart a distance approximating at least half the circumference of the bag, and a non-resilient, pliantly deformable metallic member extending through the hem interior between said openings, with opposite end portions of said member respectively projecting through said respective openings exteriorly of the hem, said member being adapted to be releasably bent around the shank of the anode suspension hook so as to gather the mouth of the bag about said shank above the top end of the anode, whereby to detachably secure said bag about the anode in suspended enclosing relation thereto.

2. In combination, a fabric strainer bag for enveloping an electroplating anode having a suspension hook projecting from its end, said bag having an open mouth defined by a hem, the outer wall of the bag mouth hem having openings longitudinally spaced apart a distance approximating at least half the circumference of

the bag, and a non-resilient, pliantly deformable metallic member extending through the hem interior between said openings, with opposite end portions of said member respectively projecting through said respective openings exteriorly of the hem, said member being adapted to be releasably bent around the shank of the anode suspension hook so as to gather the mouth of the bag about said shank above the top end of the anode, whereby to detachably secure said bag about the anode in suspended enclosing relation thereto, the metallic member being in the form of a flat strip.

GEORGE B. HOGABOOM, JR.
NATHANIEL R. HALL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
678,176	Herring	July 9, 1901
1,856,218	Knowles	May 3, 1932
1,965,040	Kelly	July 3, 1934
2,112,691	Crowder	Mar. 29, 1938