

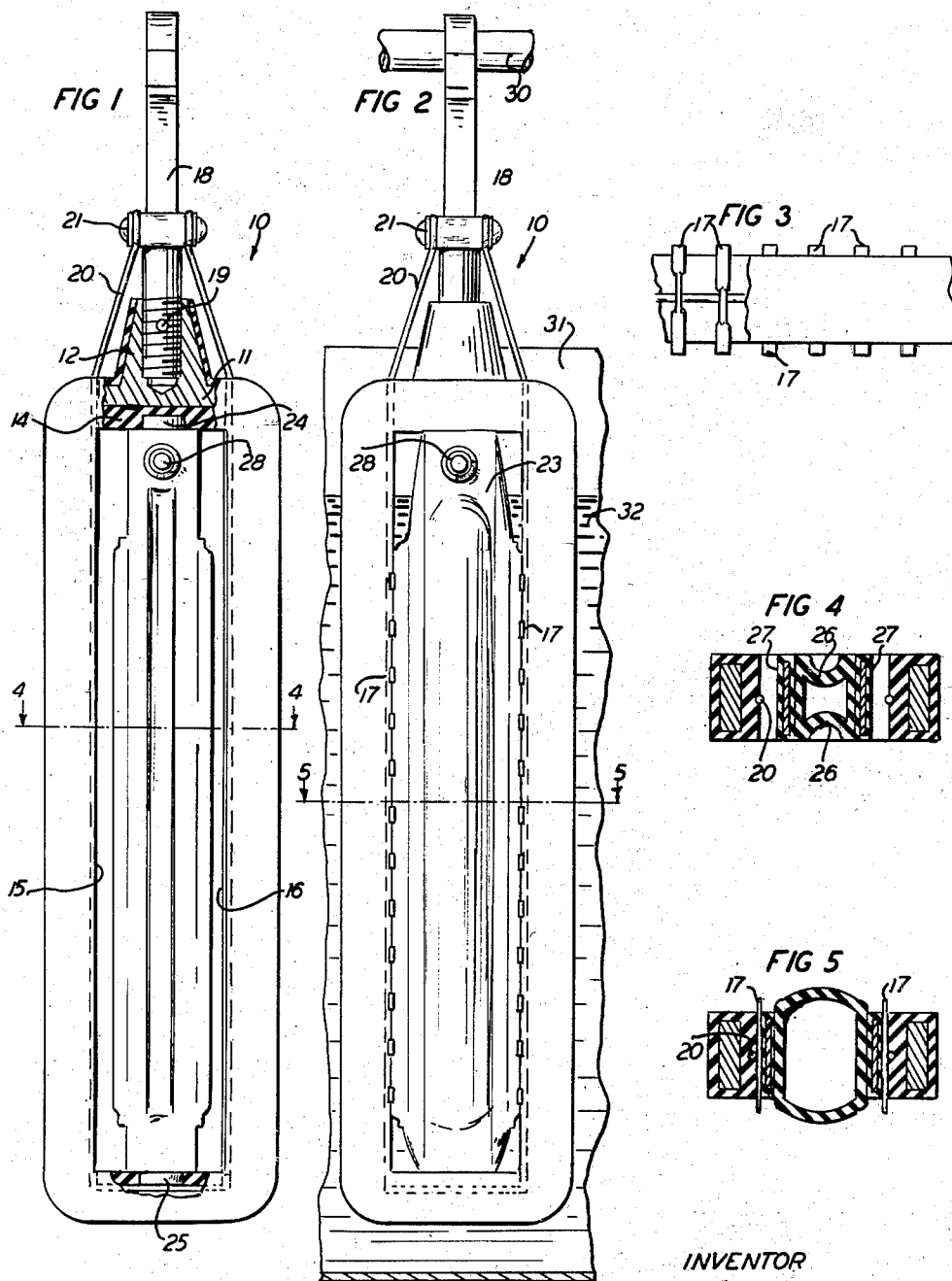
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PLATING RACK

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2,801,965

PLATING RACK

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3 Claims. (Cl. 204—297)

This invention relates to plating racks and more particularly to racks for use in electroplating small articles.

In the manufacture of certain types of electrical units for use in the communication arts, it is desirable to construct parts which are to serve as conductive elements of durable and less expensive materials and to provide the contacting portions thereof with suitable coatings of precious metals to assure permanently effective contacting areas. Many of these parts are too small to support singly in an electrolytic bath and there is also the problem of confining the plating action to only the desired portions of the articles.

The object of the invention is the solution to these problems in the provision of a plating rack which is simple in structure yet highly efficient in supporting a multiplicity of articles for plating only predetermined portions thereof.

With this and other objects in view, the invention comprises a plating rack for supporting an article in an electrolytic bath and including relatively movable flexible members to receive a portion of the article therebetween, while means causing relative movement of the members, results in their masking a portion of the article, leaving only a predetermined portion exposed to the bath.

More specifically, the plating rack includes a rigid rectangular frame of conductive material having the conventional hook for mounting on a cathode bar, the frame having parallel sides and completely covered by a flexible member such as soft rubber. Mounted in the frame and interposed between the sides thereof is a hollow element having rigid members completely covered with the flexible material of the element and adapted, when the element is inflated, to cooperate with the flexible material on the frame to completely mask a given portion of each article, leaving the ends exposed to the plating bath. A conductor, U-shaped in general contour and having its ends fixed to the cathode hook, lies adjacent the inner surface of the flexible member surrounding the frame so as to be electrically connected with all of the articles mounted on the rack.

Other objects and advantages will be apparent from the following detailed description when considered in conjunction with the accompanying drawing wherein:

Fig. 1 is a front elevational view of the rack in open position, portions thereof being shown in section;

Fig. 2 is a front elevational view of the rack in closed position mounted on a cathode bar and extending into an electrolytic bath;

Fig. 3 is a fragmentary side elevational view of the rack illustrating the mounting of various articles therein;

Fig. 4 is a horizontal sectional view taken along the line 4—4 of Fig. 1, and

Fig. 5 is a horizontal sectional view taken along the line 5—5 of Fig. 2.

The rack indicated generally at 10, has a rigid rectangular frame 11 formed preferably of phosphor bronze and having an internally threaded projection 12. The frame 11 is completely enclosed in a flexible member such

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as soft rubber 14, providing parallel flexible surfaces 15 and 16 to be engaged by articles 17 to be plated. The projection 12 has a conventional bronze hook 18 threadedly mounted therein and pinned at 19 against accidental removal. A U-shaped conductor 20 extends from a clamp 21 on the hook 18, downwardly along the surface 15 across to the surface 16 and up to the clamp as shown in Figs. 1 and 2. The parallel portions of the wire 20 adjacent the surfaces 15 and 16 are partially embedded therein and partially exposed as illustrated in Fig. 4 to maintain their positions and to assure contact with the article 17.

A central hollow element 23 is mounted in the frame and has its ends embedded as at 24 and 25 in the member 14. The element 23 is normally of the cross-sectional contour (shown in Fig. 4) with opposing sides 26 extending inwardly, the other sides having rigid members 27 embedded therein and positioned parallel with each other and the surfaces 15 and 16. A conventional valve 28 is mounted in the upper portion of the element 23, this valve being of the normally closed type which may be actuated readily into open position to deflate the element 23 by allowing air under pressure to escape therefrom or to receive air under pressure from a conventional air hose to inflate the element to change its cross-sectional contour from that shown in Fig. 4 to that shown in Fig. 5.

In the present embodiment of the invention, the rack, with its hook 18, is adapted to be mounted on a cathode bar 30 or one of a multiplicity of cathode bars disposed over a tank 31 so as to suspend the rack or a multiplicity of such racks in an electrolytic bath 32. In the present embodiment of the invention, the article 17 are commercially known as contact reeds, the outer ends of which are to be gold plated in the bath 32 which is a solution of gold cyanide.

Considering now the function of the rack, let it be assumed that suitable means is employed to feed or to locate a multiplicity of articles 17 at suitably spaced positions in the rack while in a horizontal position after which air under pressure may be supplied to the element 23 through the valve 28 to inflate it from its position shown in Figs. 1 and 4 to that shown in Figs. 2 and 5. In actual practice, the rack is adapted to receive 60 articles of the type shown in Figs. 2, 3 and 5, but these articles are shown spaced from each other for the purpose of clearness. As illustrated in Figs. 2 and 5, the portions of the articles 17 which are not to be coated, are completely surrounded by the flexible portions of the member 14 and the elements 23 being backed up by the rigid frame 11 and the rigid members 27 to assure accurate masking of all portions of the articles excepting the desired ends which are to be plated and assuring also accurate electrical contact with the conductor 20.

When the rack is loaded, it may be lowered into the tank 31 where the articles will be submerged in the bath 32 while being held by the cathode bar 30 allowing only the exposed ends of the articles 17 to come in contact with the bath, the other exposed portions of the rack in the bath being of a dielectric material capable of sealing or masking the articles against contact with the plating bath other than the desired ends to be plated.

It is to be understood that the above described arrangements are simply illustrative of the application of the principles of the invention. Numerous other arrangements may be readily devised by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

What is claimed is:

1. A plating rack for supporting an article in an electrolytic bath comprising a rigid frame of conductive material having spaced portions, a flexible member of di-

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electric material covering the frame against contact with the bath, and a hollow flexible element supported by the frame between the covered portions and normally spaced therefrom to receive articles therebetween, and means whereby the element may be inflated to force the articles against adjacent portions of the flexible member and to cause the element to cooperate therewith to mask portions of the articles leaving only predetermined portions of the articles exposed to the bath.

2. A plating rack for supporting an article in an electrolytic bath comprising a rigid frame of conductive material having spaced portions, a flexible member of dielectric material covering the frame against contact with the bath, and a hollow flexible element supported by the frame between the covered portions and normally spaced therefrom to receive articles therebetween, means whereby the element may be inflated to force the articles against adjacent portions of the flexible member and to cause the element to cooperate therewith to mask portions of the articles leaving only predetermined portions of the articles exposed to the bath, and a conductor position positioned between the element and the portions of the member and masked from the bath thereby to electrically engage the articles.

3. A plating rack for supporting an article in an elec-

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trolytic bath comprising a rigid frame of conductive material having spaced portions, a flexible member of dielectric material covering the frame against contact with the bath, and a hollow flexible element supported by the frame between the covered portions and normally spaced therefrom to receive articles therebetween, means whereby the element may be inflated to force the articles against adjacent portions of the flexible member and to cause the element to cooperate therewith to mask portions of the articles leaving only predetermined portions of the articles exposed to the bath, and rigid members embedded in spaced portions of the element to maintain adjacent the sides of the element parallel with their respective portions of the frame.

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