Oct. 27, 1959 K. EGGE 2,910,422

APPARATUS FOR CONTINUOUSLY ELECTROPLATING STRIP

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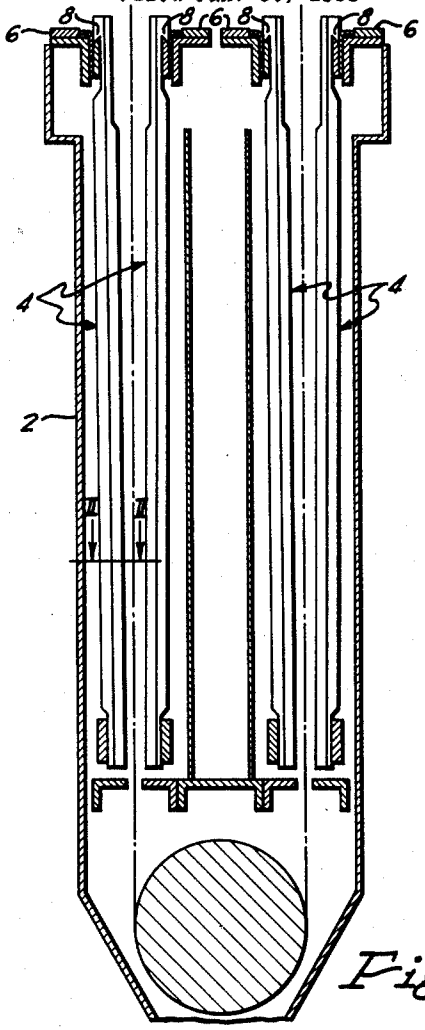


Fig. 1

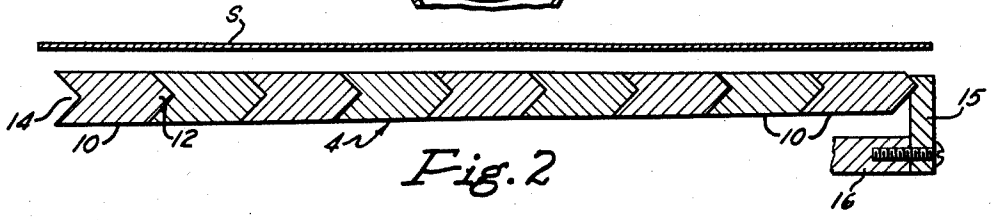


Fig. 2



Fig. 3

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APPARATUS FOR CONTINUOUSLY ELECTROPLATING STRIP

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4 Claims. (Cl. 204—206)

This invention relates to apparatus for continuously electroplating strip and more particularly to apparatus such as shown in Taylerson Patent No. 2,312,452, dated March 2, 1943. In the apparatus shown in Taylerson a series of vertically disposed anode bars form each anode and are moved transversely of the strip during the plating operation. New anode bars must be added periodically and are pushed into position from one end of the anode with the eroded anode bars being removed from the other end. Localized erosion of the tin anode bars occurs at the corners and abutting edges of the anode bars. This results in rounded anode edges with consequent poor seating at the joints between the anode bars. Poor seating at the anode bar joints causes so-called "anode streaks" which are dark discolorations occurring longitudinally on the tin coated surfaces of the strip. Buckling or overlapping of the bars also may occur when the anode bars are pushed along the feeder bar. This is caused by the lower portions of the anode bars being eroded into weird shapes or being completely eroded and the upper edges of the anode bars becoming rounded from localized erosion. When such buckling or overlapping occurs variations in tin coating weights across the width of the strip result. Also, when the strip is travelling at high speeds, the suction created by the moving strip tends to pull the anodes toward the strip.

It is therefore an object of my invention to provide apparatus for continuously electroplating strip in which there is an interlocking joint between adjacent anode bars.

Another object is to provide means for preventing movement of the bottom of the anodes toward the strip.

These and other objects will be more apparent after referring to the following specification and attached drawings, in which:

Figure 1 is a schematic vertical sectional view of a plating tank with my invention incorporated therein;

Figure 2 is a view taken on the line II—II of Figure 1; and

Figure 3 is a view, similar to Figure 1, showing a second embodiment of my invention.

Referring more particularly to the drawings, reference numeral **2** indicates a plating tank having a plurality of anodes **4** therein. The anodes **4** are supported on anode bridges **6** which extend across the top of the tank **2**. The anodes **4** have a hook-like portion **8** at their upper end by which they are hung from the anode bridge **6**. The anodes **4** are made up of a plurality of anode bars **10**.

The parts so far described, except for the shape of the bars **10**, are essentially as shown in the Taylerson patent and these parts and related structure are described in more detail in the Taylerson patent. The anode bars of my invention differ from those shown in Taylerson in that there is a vertical V-shaped projection **12** at one longitudinal edge of the anode bar and a vertical V-shaped recess **14** at the other edge, the vertical projection of one anode bar being received in the vertical recess of the adjacent anode bar. This provides interlocking between the anode bars making up each anode. Thus, when a new anode bar is added to the left of the anode as shown in Figure 2, its projection **12** will fit in the recess **14** of the preceding anode bar. It will be seen that there is an interlock throughout the anode even though the anode bars decrease in thickness as they are moved along the bridge. When a new anode bar is added to the left of Figure 2 the eroded anode bar is removed from the right. In order to prevent movement of the bottom of the anode bars **10** toward the strip S being coated, a link **15** is attached to a bracket **16** adjacent the bottom of the anodes in any suitable manner. The bracket **16** is attached to the tank **2**.

Figure 3 shows another embodiment of my invention in which anode bars **10'** are of generally Z-shape. Thus, it will be seen that the bars have rectangular projections **18** at one longitudinal edge and rectangular recesses **20** at the other edge for receiving the projection **18** of the adjacent anode bar. The operation of this embodiment is essentially the same as that shown in Figure 2.

While two embodiments of my invention have been shown and described it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

I claim:

1. In apparatus for continuously electroplating strip, means for supporting said strip for movement in a vertical path, a series of elongated vertically disposed anode bars supported for movement transversely of the strip, said series of anode bars being mounted adjacent the strip and extending across the width thereof, each of said anode bars having a projection at one vertical edge and a recess at the other vertical edge, the vertical projection of one anode bar being received in the vertical recess of the adjacent anode bar.

2. In apparatus for continuously electroplating strip according to claim 1, means for preventing movement of the bottom of said anode bars toward said strip.

3. In apparatus for continuously electroplating strip according to claim 1 in which the said projections and recesses are V-shaped.

4. In apparatus for continuously electroplating strip according to claim 1 in which the said projections and recesses are rectangular.

References Cited in the file of this patent

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