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APPARATUS FOR CONTINUOUSLY CONDITIONING CONVEYER ROLLS

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FIG. 1.

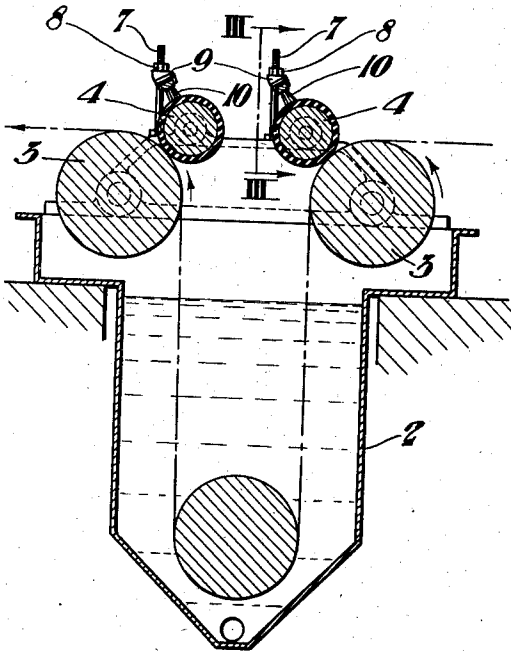


FIG. 2.

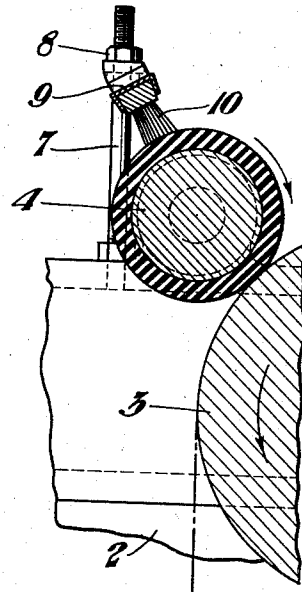
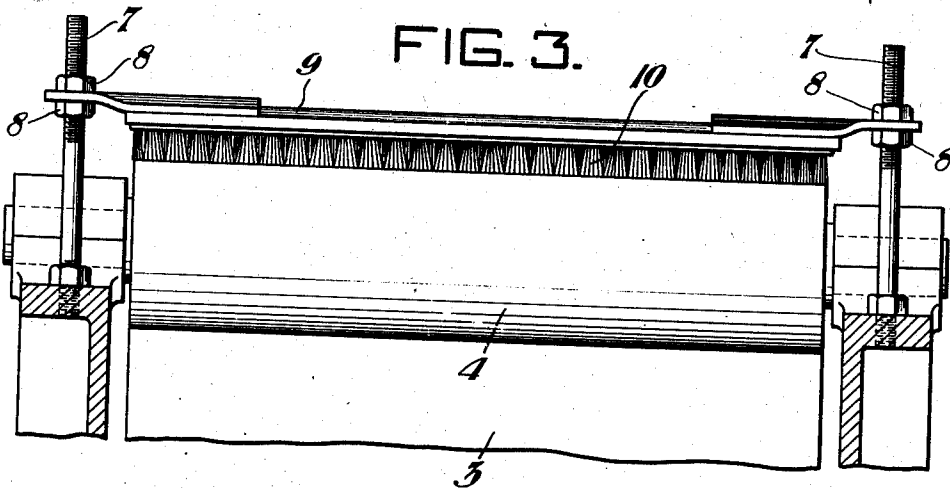


FIG. 3.



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UNITED STATES PATENT OFFICE

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APPARATUS FOR CONTINUOUSLY CONDITIONING CONVEYER ROLLS

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1 Claim. (Cl. 204—206)

This invention relates to conveyer rolls and more particularly to conditioning apparatus therefor.

In the numerous industrial applications conveyer rolls are used for the transfer of strip material, and it is important that they provide a surface which will not mar the strip being conveyed. As an important instance, attention is called to electroplating apparatus wherein metallic strip is provided with a thin metallic coating, such as tin. In the plating tank, conductor rolls are employed for establishing the necessary electric circuit and in order that proper contact be established, it is necessary that freely rotating hold-down rolls be used to hold the strip against the same. Due to the conveyance of the electrolyte from the bath to the hold-down rolls, the surface of the latter becomes impregnated with the plating solution causing a glazed surface and consequent slippage. Such slippage frequently results in complete stoppage of the hold-down rolls which condition, and others short thereof, result in scratching of the strip which damages the thin electrodeposited coating and makes the strip unsuitable for its intended use.

One type of roll used for holding the strip against the conductor rolls of the electroplating apparatus is provided with a rubber surface. It has been found in practice that these rolls after being ground for a new surface turn freely for but a short time and then gradually slow down until they stop entirely with the deleterious results referred to.

It is among the objects of the present invention to provide conditioning apparatus for conveyer rolls which will eliminate glazing or superficial hardening, and accordingly eliminate or materially reduce the slippage between the said roll and the strip.

Another object is to reduce the cost of maintaining resiliently covered conveyer rolls. This accrues from the elimination of the necessity for the removal of the rolls for shop reconditioning.

The foregoing and other objects will be apparent after referring to the drawing, in which: Figure 1 is a sectional elevation of the device of the present invention;

Figure 2 is an enlarged sectional elevation; and

Figure 3 is an enlarged view on the line III—III of Figure 1.

Referring more particularly to the drawing, the numeral 2 generally designates an electroplating tank embodying the usual conductor rolls 3 and resiliently covered hold-down rolls 4 for enabling the close contact of the strip with the said conductor rolls. In installations of this

type, it is particularly important that tension of the strip be controlled and this makes necessary the use of resiliently covered idle rolls which, of course, depend entirely on contact with the strip for the required motivation thereof. Heretofore, it has been necessary to retain sizeable stocks of spare rolls to replace those which become glazed on their surfaces, such replacement rolls usually being installed during the operation of the electroplating apparatus in order to prevent the shutting down of the latter.

According to the teachings of the present invention, there is provided adjacent the ends of the hold-down rolls 4 a suitable support 7 which, in the present instance, takes the form of a threaded bolt. These threaded bolts 7 carry, by means of suitably spaced nuts 8, a bar 9 which extends parallel to the axis of the roll 2. Secured to the bar 9 in any suitable manner, as by example clamping, is an elongated brush 10 embodying a very dense assembly of wire bristles having the required temper.

In operation the outer ends of the bristles of the wire brush are held in contact with the entire length of the rubber covered hold-down roll 4 and at all times properly maintain the surface of the latter by continuously brushing to the desired extent, thus eliminating glazing and other surface defects which result in the disadvantages referred to hereinbefore.

While I have shown and described one specific embodiment of the invention, it will be understood that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention, as defined by the appended claim.

I claim:

In apparatus for electrolytically producing tin plate in strip form, a tank, a conductor roll located above the level of electrolyte in the tank, a freely rotating roll cooperating therewith for holding the strip against the conductor roll and for conveying the strip with entrained plating solution thereon from the plating tank, said second-named roll having a resilient non-metallic surface directly in contact with said strip throughout the width of the latter, and means for conditioning the said contacting surface of the said second roll comprising a stationary bristle brush extending axially of the roll in contact with the effective width of its said surface, and means for pressing said brush against said second roll with sufficient strength to scratch the surface of said roll, said brush having bristles of a temper sufficient to prevent glazing of the roll surface by the said entrained plating solution.

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