

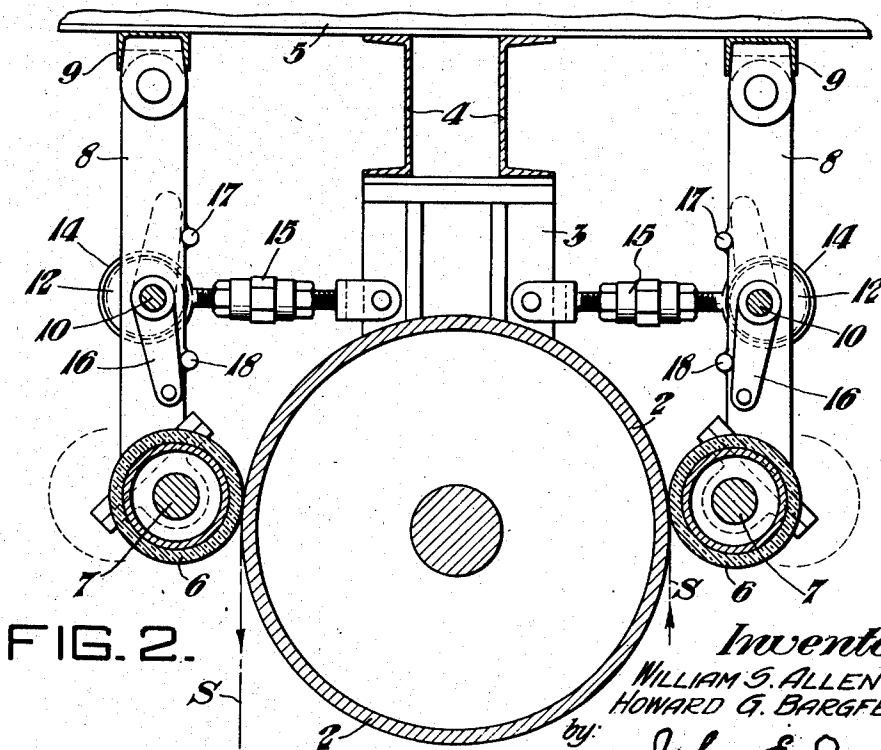
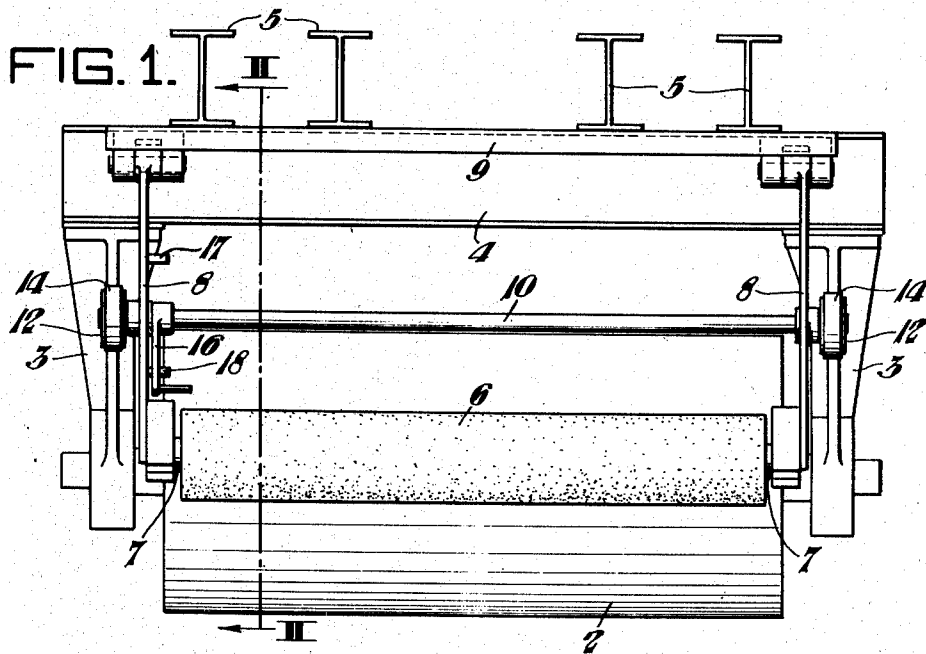
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DEVICE FOR HOLDING METALLIC STRIP IN CONTACT WITH CONDUCTOR ROLLS

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## UNITED STATES PATENT OFFICE

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## DEVICE FOR HOLDING METALLIC STRIP IN CONTACT WITH CONDUCTOR ROLLS

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## 1 Claim. (Cl. 204—206)

The present invention relates to a device for maintaining metallic strip in positive contact with a conductor roll whereby electrical energy may be efficiently transferred between the conductor roll and the strip.

An object of the present invention is to provide a readily releasable hold-down roll so that the metallic strip passing over a conductor roll is maintained in intimate contact therewith.

Another object of the present invention is to provide a device for applying pressure to metallic strip passing over a conductor roll at points at which the pass line of the strip becomes tangent to the conductor roll.

Other objects and advantages will become apparent as the description proceeds and reference is had to the accompanying drawing, in which:

Figure 1 is a side elevation of the present invention; and,

Figure 2 is a section on line II—II of Figure 1.

In the drawing, the conductor roll 2 is shown as being supported by bearing brackets 3 which are fastened to supporting members 4 secured to beams 5 forming a part of a supporting frame (not shown).

Metallic strip S is indicated as passing over the conductor roll 2. Since it is desired that electrical energy be transferred to the strip from said conductor roll in the most efficient manner, there are provided rubber covered hold-down rolls 6. These hold-down rolls are so positioned that they can, by means of the mechanism to be subsequently described, be used to apply pressure to the metallic strip at the point at which the pass line of the strip is approximately tangent to the periphery of said conductor roll. This point of contact is chosen since it has been determined that most of the transfer of the electric energy takes place in this vicinity.

The hold-down rolls 6 are mounted on shafts 7 carried by bearings of conventional design. The bearings are supported by arms 8 pivotally connected to a cross member 9 which is secured to the beams 5. Extending between the arms 8 supporting each hold-down roll is a shaft 10. Mounted on each end of said shaft 10 is an eccentric 12 which is capable of rotation within an eccentric strap 14, which strap is part of a turnbuckle arrangement designated generally at 15. The turnbuckle arrangement is securely fastened to the bearing brackets 3.

Rotation of the eccentrics is accomplished by means of the hand lever 16 mounted on said shaft 10. Secured to the arms 8 are stops 17 and 18 for limiting the throw of the hand lever 16. When the hand lever 16 is in the position shown, that is against the stop 18, the hold-down roll is forced into contact with the metallic

strip passing over the conductor roll and applies the desired pressure at the point of contact, which pressure can be regulated as desired by the turnbuckle arrangement 15. In the position shown, the eccentric 12 is a trifle past the center line, thereby locking said hold-down roll in position. When the hand lever 16 is rotated to contact the stop 17, the hold-down roll 6 is moved away from the strip material by reason of the rotation of the eccentrics within their cooperating eccentric straps. This permits the ready threading of the metallic strip over the conductor roll.

Under such a construction, quick release of the hold-down roll is possible and such release will not affect the amount of pressure applied when the hold-down roll is again brought into engagement with the strip. By providing such a hold-down arrangement, damage to the surface of the metallic strip caused by arcing is eliminated. This is of particular importance in continuous electroplating processes; for example, in the continuous electroplating of steel strip, since it ultimately results in defects in the coating applied to the strip.

While we have shown and described a specific embodiment of the present invention, it will be seen that we 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 following claim.

We claim:

In combination with a plating tank for electroplating metallic strip, a conductor roll for supplying electric current to the metallic strip, said conductor roll being mounted with its axis occupying a substantially horizontal plane and so disposed with respect to the plating tank as to cause the strip to move substantially vertically into and out of the same, and means for holding the metallic strip in positive contact with said conductor roll at points where it moves into and out of contact therewith; said means comprising a pivoted substantially vertically depending supporting arm on either side of said conductor roll, a rotatable roll carried by each of said supporting arms with its axis in substantial parallelism with the axis of said conductor roll, a pair of links, means for anchoring one end of each of said links, eccentric means connecting each of said links with one of said supporting arms, and means for operating each of said eccentric means, whereby each of said last-named rolls are moved into and out of contact with said conductor roll at points where the metallic strip moves into and out of contact therewith.

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