AGITATOR DIP TANK

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The present invention pertains to a novel dip tank for the immersion of metal plates to be coated with paint or the like, and wherein there is provided an agitating device. Hitherto it has not been possible to dip such articles continuously or automatically into pigment paints, for the reason that the pigment thereof soon settles and the homogeneity of the paint is thereby lost. The principal object of the invention is to provide an apparatus which overcomes these difficulties so that the articles to be coated may be dipped continuously and receive a uniform coating.

The invention is fully disclosed by way of example in the following description and in the accompanying drawing, in which—

Figure 1 is a plan view of a tank constructed according to the invention;

Figure 2 is a side elevation thereof, partly in section; and

Figure 3 is a cross sectional view of the agitating screw.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

The tank 1 in which the dipping occurs is of triangular construction having an open top 2 lying in a horizontal plane and a corner 3 disposed beneath the open top, preferably midway between its ends. At the end walls of this corner are provided bearings 3' which support a shaft 4 carrying a feed screw 5. At one side of the shaft are secured radially extending stems 6 which carry paddles 7 between the turns of the screw and lying in planes intersecting the axis of the shaft at an angle complementary to that of the screw at the same side of the shaft or equal to that of the screw at the opposite side of the shaft. As a result of this construction, the screw tends to move the material in the tank in a given direction, and the paddles tend to move it in the opposite direction, whereby an effective stirring action is realized. When the tank contains pigment paint, as contemplated in connection with this invention, the pigment is maintained in suspension to produce the uniform results already described. Also, the agitation of the paint avoids the formation of eddies on the surface, which eddies have the property of collecting oil.

The driving means for the shaft 4 includes a motor 8 mounted on a framework 9 built around the bottom of the tank. On the upper edge of the tank and directly above the motor 8 is mounted a bracket 10 carrying a sprocket wheel 11 and a bevel gear 12. The gear 11 is connected to the motor by a chain 13 as shown in Figure 2. Adjacent the bevel gear 13, the bracket 10 carries a bearing 14 in which is journaled a shaft 15 extending to the shaft 4. The upper end of the shaft 15 carries a bevel pinion 16 meshing with the member 12, while the lower end thereof carries a bevel pinion 17 meshing with a similar member 18 on the shaft 4.

Over the agitator screw is mounted a horizontal screen 19 supported on brackets 20 secured to the sloped walls of the tank. This screen protects the screw from injury by objects falling from overhead or from the conveyor which carries the articles to be dipped. A drain pipe 21 is connected into the lower corner of the tank for drawing off the contents when it is desired to clean the tank, and an overflow opening 22 is provided near the upper edge.

Although a specific embodiment of the invention has been illustrated and described, it will be understood that various alterations in the details of construction may be made without departing from the scope of the invention as indicated by the appended claims.

What I claim is:

1. In combination, a dip tank, a feed screw mounted horizontally in the bottom thereof,
paddles carried by said screw and spaced along the length of the screw, and means for driving said screw.

2. In combination, a dip tank, a feed screw mounted horizontally in the bottom thereof, paddles carried by said screw and spaced along the length of the screw, means for driving said screw, and a protective screen over said screw.

3. In combination, a dip tank, a feed screw mounted horizontally in the bottom thereof, paddles carried by said screw, each paddle lying parallel to the direction of the screw at the opposite side the axis of the screw.

In testimony whereof I affix my signature.

VERNIE A. FOX.