No. 697,400. Patented Apr. 8, 1902.

J. F. FAWCETT.

LIFT MECHANISM FOR TIN PLATE.

(Application filed Sept. 3, 1901.)

(No Model.)

FIG. II.

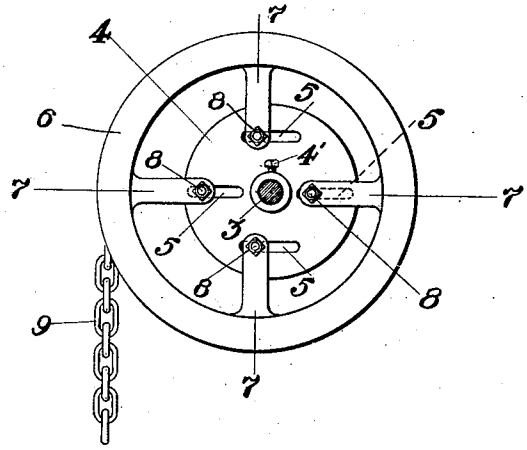


FIG. III.

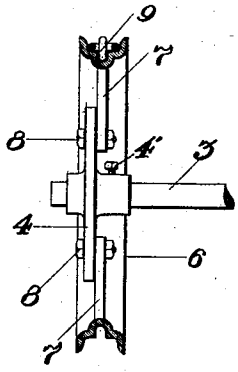


FIG. I.

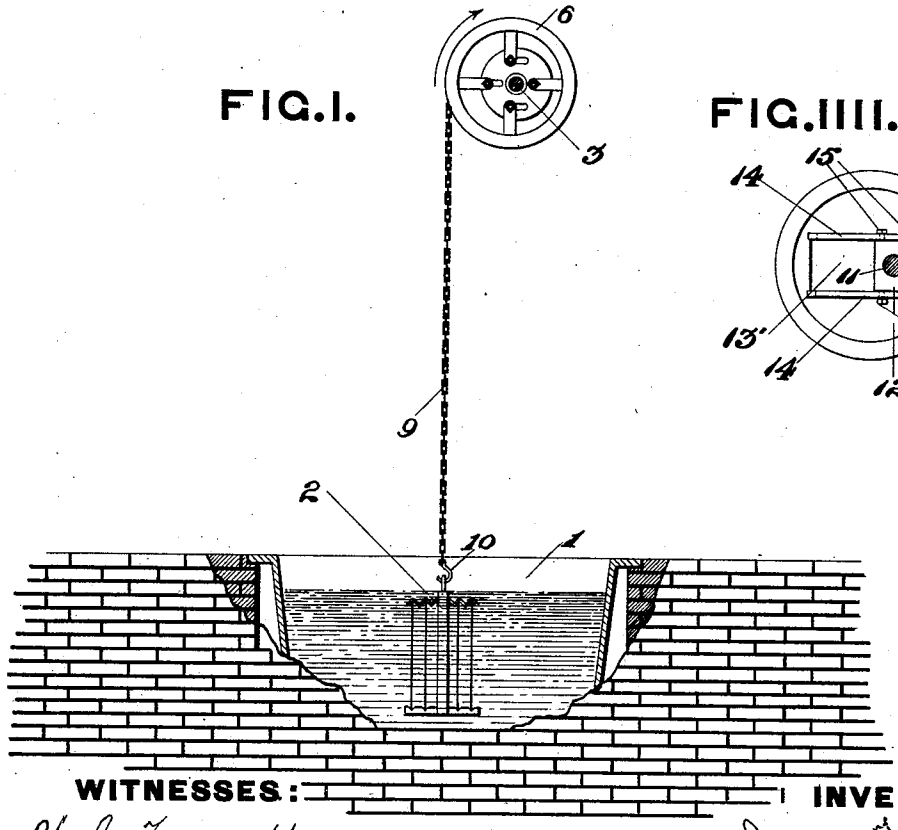


FIG. IIII.

WITNESSES:

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LIFT MECHANISM FOR TIN-PLATE.

SPECIFICATION forming part of Letters Patent No. 697,400, dated April 8, 1902.

Application filed September 3, 1901. Serial No. 74,119. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. FAWCETT, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Lift Mechanism for Tin-Plate, of which improvement the following is a specification.

In the art of "tinning" plate by mechanical devices, wherein the speed of withdrawal is constant, it has been found that the coating is greater in thickness at the base or end lastly leaving the bath, which is due to the metal while in its molten state flowing toward and being chilled at that end when leaving the bath.

My object, therefore, is to provide a simple and practical means whereby equality of coating is established throughout the depth of plate during withdrawal of the same from the bath.

In the accompanying drawings I have illustrated means whereby my object may be successfully carried into effect, in which drawings—

Figure I is a side elevation of the device and tinning vessel as it would appear during plate immersion and wherein the vessel is shown partly in section. Fig. II is an enlarged side view of the lift-wheel. Fig. III is a front view of the same, partly in section. Fig. IV is a side view of a modified form of lift-wheel.

Further referring to said views for a description of the detail parts, the numeral 1 designates a tinning vessel, and 2 a plate-holding rack, either or both of which may be of any suitable structure.

The numeral 3 represents a shaft which is adapted to be connected to suitable power-driven mechanism. An eccentric lift-pulley is mounted upon this shaft, which pulley consists of a concentric plate 4, rigidly secured to the shaft by a set-screw 4′ and having therein the transverse elongated slots 5. A peripheral grooved pulley-rim 6, having inwardly-extended radial arms 7, is eccentrically secured to said plate by means of bolts 8 passed through openings in the arm ends and said plate-grooves. By this means the eccentricity of the pulley may be increased or decreased in accordance to the speed determined. At a suitable point in the peripheral groove of this pulley-rim is attached one end of the chain 9, and to the opposite or lower end of this chain is secured a hook 10 for engaging with an eye on the plate-holding rack.

Assuming that the rack has been filled with plates and thence lowered into the tinning vessel and the eccentric lift-pulley stopped at its point of greatest throw, as shown at Fig. I, the operation of lifting the plates from the vessel would then be as follows: Power being applied to the shaft causes the eccentric to rotate (in the direction indicated by the arrow at Fig. I) and through the medium of the chain elevates said plates from the bath, and as the eccentric is upon its highest point at the moment of starting the plates will start to ascend quickly and as the withdrawal proceeds will gradually lessen in speed until the plates have been fully removed from the molten metal, at which time the eccentric will be at its lowest point and by suitable means arrested in further elevation. By withdrawing the plates quickly at the beginning and gradually decreasing the speed, as described, the flow of molten metal from the upper portion of the plates is arrested and chilled to a greater degree than would be effected by a continuous speed lift, with the result that the coating will be approximately uniform in thickness throughout the depth of plate.

At Fig. IV, I have shown a modified form of lift-pulley, with means of increasing or decreasing the eccentricity of the same. This modification consists of a box 12, rigidly secured upon a shaft 11, and a grooved pulley-wheel 13, having a transverse opening 13′ therein for the reception of said block. A flange 14 extends along the longitudinal edges of said opening, each of which is provided with a longitudinal slot to engage the bolts 15 of said box. By loosening these bolts the box may be adjusted to increase or decrease the eccentricity of the pulley, as desired.

Other modifications may be possible without departing from the principle of the lifting apparatus.

Having thus fully shown and described my

improvements, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with an actuating-shaft, of an eccentric pulley mounted thereon, and a flexible lifting device secured at one end to the periphery of said pulley and having means at its other end for carrying the article to be lifted thereby, substantially as described, whereby the speed with which the article is lifted is varied while the same is being lifted, as specified.

2. A plate-lifting mechanism for tinning apparatuses, or the like, comprehending a device for carrying the plates, an eccentric lifting-pulley, means for turning said pulley, and a flexible connection between the periphery of said pulley and the plate-carrying device, substantially as described and for the purpose set forth.

3. A means for producing an approximately uniform coating of plates, or the like, comprehending, in combination, a vessel containing the coating liquid, an eccentric lifting-pulley, means for turning the latter, a flexible connection secured at one end to said eccentric pulley so as to be lifted thereby at varying speed, and a plate-carrier attached to the other end of said connection, substantially as described and for the purposes set forth.

4. The combination with an actuating-shaft, of a pulley eccentrically mounted thereon, means for varying the eccentricity of said pulley, an article-carrier, and a flexible connection between the periphery of said pulley and said carrier.

5. The combination with an actuating-shaft, of an eccentric lifting-pulley fixed thereon, said pulley comprehending an inner member fixed on the shaft, an outer member having an opening which receives said inner member and means for adjustably connecting said outer member with said inner member whereby the eccentricity of the former may be varied, a flexible lifting device attached at one end to the periphery of the outer member of said pulley and actuated thereby at variable speed, and an article-carrier connected to the other end of said lifting device.

6. The combination with a vessel containing a coating liquid, of a means for lifting therefrom the articles coated and for gradually reducing the speed of the articles while being elevated, said lifting means comprehending an actuating-shaft, an eccentric pulley mounted thereon and having means for varying the eccentricity thereof, a rack for the articles being coated, and a flexible connection between said rack and pulley, said connection having one of its ends attached to the periphery of said pulley.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAMES F. FAWCETT.

In presence of—
RICHARD S. HARRISON,
E. D. HICKMAN.