Nov. 7, 1933. V. P. WENDLE 1,934,577

FLUX BOX GATE

Filed June 23, 1931

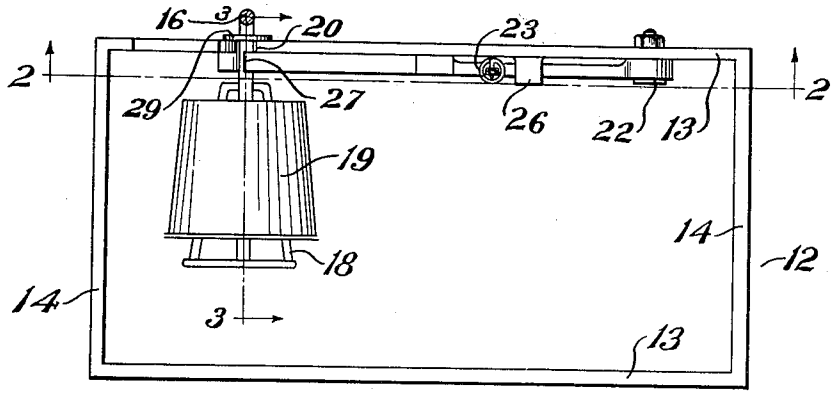


Fig. 1.

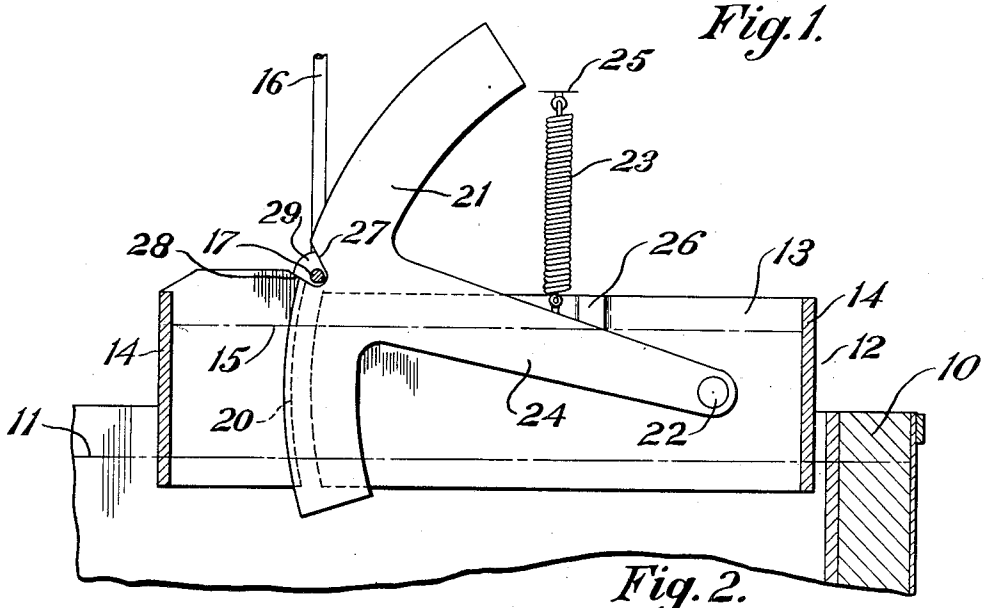


Fig. 2.

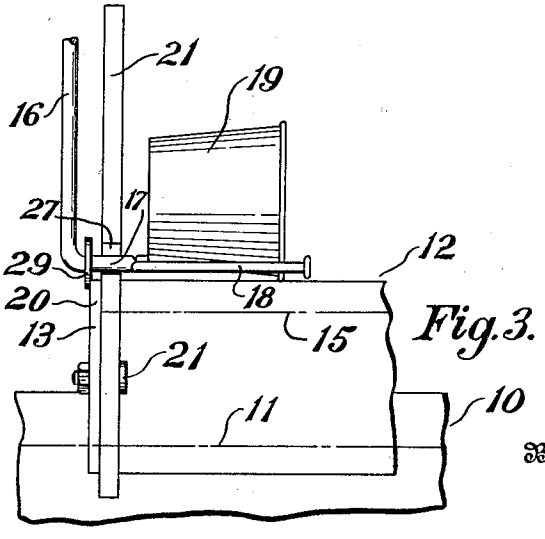


Fig. 3.

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FLUX BOX GATE

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5 Claims. (Cl. 91—12.6)

The invention relates to the coating of pails, buckets and other articles with zinc, tin or other coating materials, and more particularly to a gate for the flux box of apparatus for mechanically coating such articles.

In the production of high grade galvanized, tinned and other coated pails and other metal articles, it is customary under present practice to form such articles from uncoated sheets and then dip the formed article into the molten metal for coating the same.

Although these articles have formerly been hand dipped into the molten zinc or tin, for the purpose of coating them; machines, such as disclosed in the application of John Carroll, Serial No. 316,754, filed November 2, 1928, which has matured into Patent No. 1,787,141 issued December 30, 1930 have recently come into use for mechanically coating pails and other formed articles.

Such machines provide carriers, suspended from a conveyer, for supporting the pails or other articles to be coated; these carriers being arranged to move the articles down through a flux box, into and through the molten zinc, or other coating metal, after which the coated articles are moved up out of the molten metal at a point beyond the flux box, drained and carried to an unloading point.

This movement of the article to be coated through the flux box and into the molten metal bath and then out of the bath at a point removed from the flux box necessitates the provision of a slot in one wall of the flux box to permit the carrier to pass therethrough. It will be seen that unless this slot is closed at all times, the sal ammoniac or other flux contained in the flux box will leak through the slot and over the surface of the molten metal used for coating.

The object of the present improvement is to provide a simple, inexpensive and efficient mechanism in the form of a flux box gate which permits the carrier to pass through this slot in the wall of the flux box and at the same time maintains the slot closed or sealed against leakage at all times.

The above and other objects may be attained by providing a sector pivotally mounted upon the wall of the flux box in which the slot is located, the sector overlying the slot and provided with a notch normally located beyond the slot, to receive the carrier, the sector being arranged to move with the carrier as it passes through the slot in the flux box wall, means being provided for returning the sector to normal position after each carrier has passed through the slot in the flux box wall.

The above and other objects which will be readily apparent from an inspection of the accompanying drawing and the following detail description may be accomplished by a mechanism such as illustrated in the accompanying drawing, in which

Figure 1 is a top plan view of a portion of a flux box provided with the improved flux box gate;

Fig. 2, a section on the line 2—2, Fig. 1 showing the gate in elevation; and

Fig. 3, a section on the line 3—3, Fig. 1.

Similar numerals refer to similar parts throughout the drawing.

A portion of the galvanizing pot or tank is shown generally at 10, the level of the molten zinc or other coating metal therein being indicated by the broken line 11.

The flux box shown generally at 12 is open at the top and bottom and comprises the side walls 13 and end walls 14. This flux box is mounted at one end portion of the galvanizing tank, the lower portion of the flux box extending below the molten metal level 11 and sal ammoniac or other flux is contained in the flux box above the level of the molten metal to a height substantially as indicated by the dot and dash line 15.

For the purpose of conveying the articles to be coated through the flux and then through the molten metal in the tank 10, carriers are suspended from a conveyer and arranged to support the articles. Each carrier may include a depending rod or arm 16 having at its lower end an angular portion 17 provided with a supporting frame 18 for supporting pails or other articles to be coated as indicated at 19.

In order to permit this carrier to pass the pail or other article down through the flux in the flux box 12 and then through the molten metal in the tank 10, it is necessary to provide a slot in one wall of the flux box to receive the carrier. This slot is shown as an arcuate slot 20 in one side wall 13 of the flux box arranged to receive the angular portion 17 of the carrier and permit the same to move downward through the slot in order to pass the pail 19 first through the flux and then into the molten metal.

It will be seen that this slot must be covered at all times to prevent the flux from leaking through the same onto the surface of the molten metal and for this purpose, a sector shaped gate 21 is pivoted as at 22 to the side wall 13 in which the slot 20 is located, the sector lying against the

side wall 13 either against the outside or inside surface thereof as desired and covering the slot 20, being normally held in the position shown in the drawing by any suitable means such as a light spring 23 connected to the arm 24 of the sector and to any stationary portion of the device indicated generally at 25 for holding the sector up against the stop 26 which may be formed upon the adjacent side wall 13 of the flux box.

A notch 27, preferably downwardly inclined as best shown in Fig. 2, is formed in the periphery of the sector 21 and arranged to be normally located just above the upper end of the slot 20 when the sector is in the initial position shown in the drawing.

As the carrier descends with the pail or other article to be coated supported thereon, the angular portion 17 of the carrier will be received into the notch 27 of the sector, the inclined cam surface 28 upon the adjacent side wall 13, assisting in guiding the angular portion 17 of the carrier into the notch.

As the carrier continues to descend, it will oscillate the sector 21 downward against the pull of the light spring 23, the angular portion 17 of the carrier passing downward through the arcuate slot 20 in the adjacent side wall of the flux box, the upper portion of the sector, that is the portion above the notch 27, continuing to cover the slot 20 during this time.

As the notch 27 of the sector passes below the lower end of the slot 20, the carrier will be released from engagement with the notch as it continues to move downward and the spring 23 will pull the sector back to the initial position shown in the drawing, ready for the reception of the next descending carrier.

It will be seen that the pail or other article supported upon the carrier will thus be carried down through the flux and into the molten metal in the tank 10, after which the carrier will move the pail through the molten metal to a point beyond the flux box, and then out of the metal where the coated pail may be removed from the carrier.

If desired, a disk 29 may be formed upon the angular portion 17 of the carrier for the purpose of preventing any slight leakage through the notch 27 of the sector.

I claim:

1. Apparatus for coating articles including a carrier for supporting the article to be coated, a tank of molten metal, a flux box at the top of the molten metal and provided with a slot through one side, a sector shaped gate pivoted at one side of the slot and covering said slot, said gate having a notch in its periphery to receive the carrier, said carrier being arranged to move downward through said slot and to oscillate the gate, and means for moving the gate upward to the initial position after the carrier has passed through said slot.

2. Apparatus for coating articles including a carrier for supporting the article to be coated, a tank of molten metal, a flux box at the top of the molten metal and provided with an arcuate slot through one side, a sector shaped gate pivoted at one side of the slot and covering said slot, said gate having a notch in its periphery to receive the carrier, said carrier being arranged to move downward through said slot and to oscillate the gate, and means for moving the gate upward to the initial position after the carrier has passed through said slot.

3. Apparatus for coating articles including a carrier for supporting the article to be coated, a tank of molten metal, a flux box at the top of the molten metal and provided with a slot through one side, a sector shaped gate pivoted at one side of the slot and covering said slot, said gate having a notch in its periphery to receive the carrier, means adjacent to the top of the slot for guiding the frame into said notch, said carrier being arranged to move downward through said slot and to oscillate the gate, and means for moving the gate upward to the initial position after the carrier has passed through said slot.

4. Apparatus for coating articles including a carrier for supporting the article to be coated, a tank of molten metal, a flux box at the top of the molten metal and provided with an arcuate slot through one side, a sector shaped gate pivoted at one side of the slot and covering said slot, said gate having a notch in its periphery to receive the carrier, means adjacent to the top of the slot for guiding the frame into said notch, said carrier being arranged to move downward through said slot and to oscillate the gate, and means for moving the gate upward to the initial position after the carrier has passed through said slot.

5. Apparatus for coating articles including a carrier for supporting the article to be coated, a tank of molten metal, a flux box at the top of the molten metal and provided with a slot through one side, a sector shaped gate pivoted at one side of the slot and covering said slot, said gate having a notch in its periphery normally located at the top of the slot for receiving the carrier, said carrier being arranged to move downward through said slot and to oscillate the gate, and spring means for moving the gate upward to the initial position after the carrier has passed through said slot.

VIRGIL P. WENDLE.