Dec. 17, 1929. B. P. FINKBONE 1,740,081

GALVANIZING APPARATUS

Filed Nov. 30, 1925

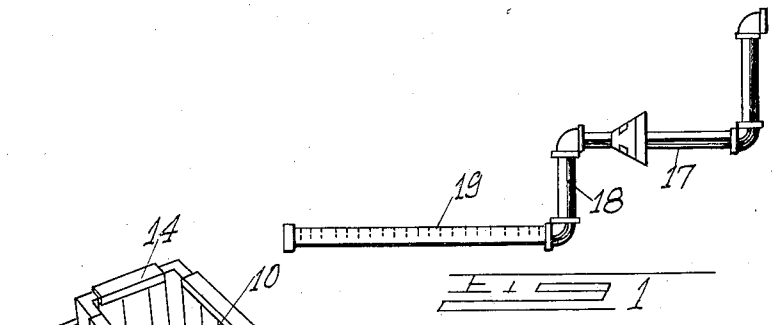


FIG 1

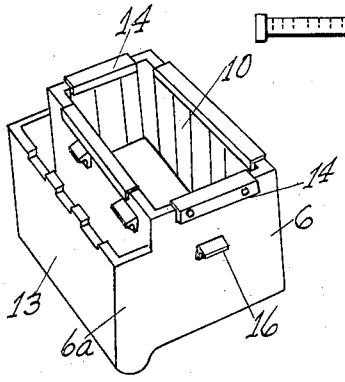


FIG 2

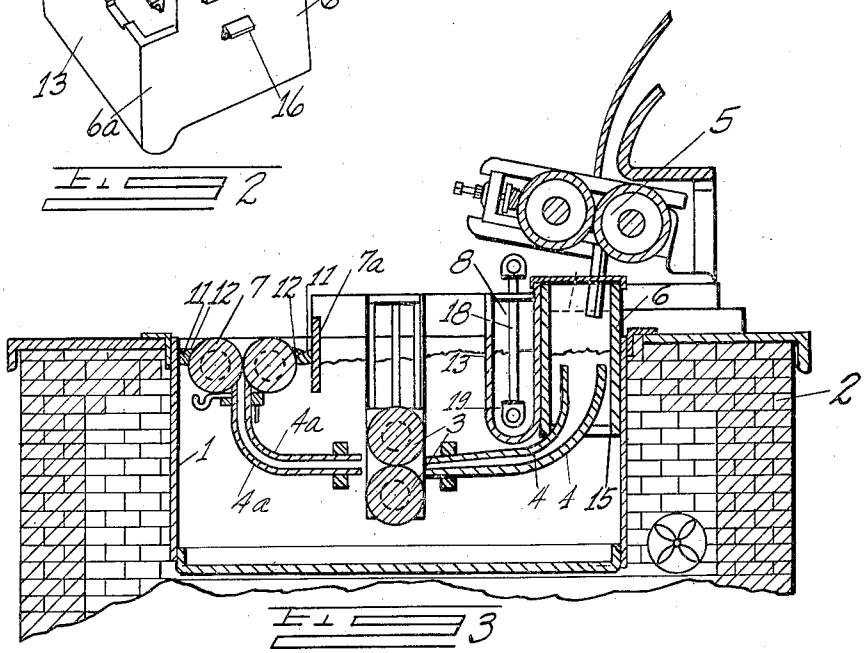


FIG 3

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UNITED STATES PATENT OFFICE

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GALVANIZING APPARATUS

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My invention relates to devices for use in the forming of metal coating of sheets, and has particular relation to a mechanical arrangement of parts which I find to be well adapted to the use of high melting point spelter.

In the galvanizing or tinning of sheet metal, the usual process is to first clean the sheet, then pass it down through a pot of molten zinc, using suitable guides, and at the exit end of the pot, wiping off the excess of the spelter which has been collected by the sheet.

At the entrance end of the pot it is customary to float a body of molten flux, such as ammonium chloride, and in order to keep the flux in place, a box is used which is in the form of a hollow rectangle, supported on the sides of the pot. The guides extend up into this box, and through it the sheet passes into the pot, thereby receiving a surface cleansing, in order to assure a proper adherence of the metal coating.

My invention is directed to the provision of means in a metal coating apparatus, particularly where galvanizing is done, whereby the flux box is suitably prepared to withstand chemical decomposition, and whereby the temperature of the flux box itself may be controlled to the end of providing a properly liquid body through which the sheet will pass.

I accomplish my object by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawing:—

Figure 1 is a side elevation of a gas burner used with my flux box.

Figure 2 is a perspective view of the new flux box.

Figure 3 is a section taken through a galvanizing device, showing the flux box in place.

Referring first to the full equipment, it should be noted that no particular novelty is claimed in the pot, guides and feeding rolls shown. Thus there is a brick-work 2, in which is set a zinc pot 1. In the lower central portion of the pot are arranged the feed rolls 3, which are driven as desired. Within the pot, and leading to and from the feed rolls, are the upper and lower guide bars 4 and 4^a, which direct the sheets being coated, through the desired path, without buckling.

A pair of entrance rolls 5 pass the sheet into the structure, where it enters the guides 4, and exit rolls 7, 7, driven to feed out the sheet, serve their usual purpose in this connection. A baffle bar 7^a and the end of the pot, provide protected spaces within which there may be floated a suitable flux for the exit rolls. In practice using pure zinc spelter, I will float a body of sand 11, in these two places, on top of which is a constantly moistened body of ammonium chloride flux. The purpose of these materials is to keep the exit rolls clean and smoothly plated with zinc coating.

The novel portion of my mechanism is the flux box. It is formed of a hollow structure of metal plates 6 forming the one side and two ends thereof. The side plates are extended at 6^a, and the rear side plate 13 is bent around and up against to form with the extended end plates, a hollow chamber 8, at the back of the flux box.

Around the top and bottom of the hollow structure, I arrange suitable metal channels 14 and angle iron 15, same serving to hold a complete lining in the flux box of some inert material such as fire bricks 10. By bolting the channels in place at the top, and resting the fire brick on the angle bars at the bottom, a tight structure can be obtained, which is demountable so as to permit of easy replacement of the lining.

Metal plates 16, serving as supporting brackets, are secured to the sides of the flux box, whereby it rests on the sides of the zinc pot, with the major portion thereof dipping down into the pot, thus penetrating well below the molten body in the pot.

Suitable means are provided to heat the pot, and do not require illustration as there is nothing novel in them.

To control the temperature in the flux box, by means of addition to the usual pot heating burners, I provide a gas burner, having a pipe 17, which is bent at 18 to dip down into

the chamber 8. The burner 19 will thus lie in the bottom of the chamber, and when set alight will heat the rear wall of the flux box, and thus control any additional temperatures required in the flux box. If lower temperatures were desired than of the molten metal in the pot, then air or wet steam could be blown through the pipe instead of using it for gas.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In combination with a pot for molten metallic coating material, a flux box having a hollow body depending into the pot and compartment means closed at the bottom adjacent to the hollow body, the wall of the box forming one wall of the compartment, and a heating element introduced into said compartment.

2. In combination with a pot for molten metallic coating material, a flux box having a hollow body formed of metal plates, and a body of inert material mechanically and demountably supported within said hollow body to form an inner lining therefor.

3. In combination with a pot for molten metallic coating material, a flux box having a hollow body formed of metal plates, and a body of inert material demountably supported within said hollow body to form a lining therefor, said metal plates being extended to form a chamber closed at the bottom along one side of the said hollow body, and a heating element within said chamber.

4. In combination with a pot for molten metallic coating material, a flux box having a hollow metallic body formed of metal plates, and a body of inert material mechanically mounted within said hollow body to form an inner lining therefor.

BENJAMIN P. FINKBONE.