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METHOD OF GALVANIZING METAL TUBES,
SHEETS AND THE LIKE
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Fig 1.

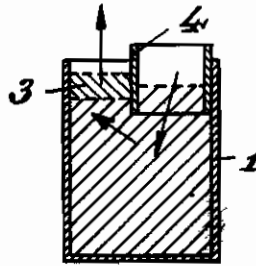
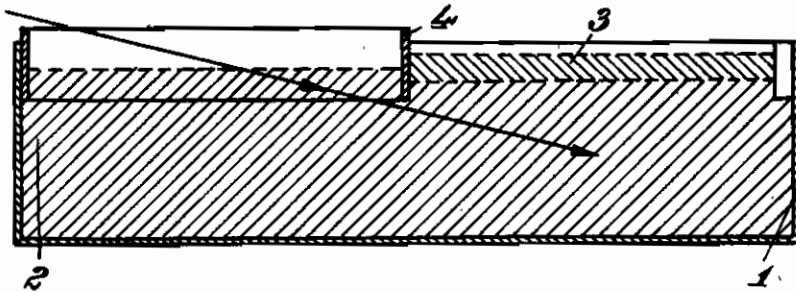


Fig 2.

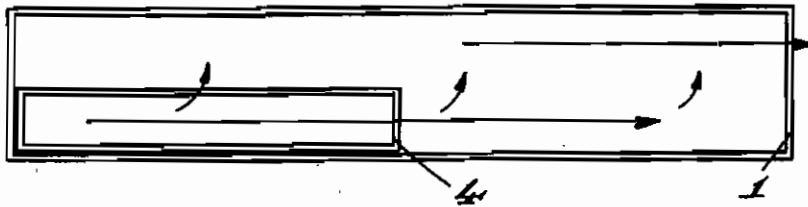


Fig 3.

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METHOD OF GALVANIZING METAL TUBES, SHEETS AND THE LIKE

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This invention relates to a process of galvanizing metallic tubes, sheets and like metal articles in which the parts are first drawn through a lead bath and then through a zinc bath.

The lead-zinc dip galvanizing treatment is ordinarily carried out in a vessel made of material immune to the formation of hard zinc, and in which the molten zinc is floated on and heated by a layer of molten lead. A special separating wall provides that the articles to be galvanized first come in contact only with the lead stratum so as to be thoroughly heated, and thereafter the same are drawn upwardly through the lead stratum into the zinc stratum where galvanizing occurs. On the upper surface of the lead stratum in the area thereof isolated from the zinc by the separating wall there is superposed a fluxing material for removing all impurities from the article to be galvanized.

The ordinary method just referred to is attended with some very serious defects. In the first place the flux above the molten lead is highly heated and gives off extremely disagreeable vapors, which are undesirable for sanitary reasons. Because of loss from vaporization the consumption of the flux is relatively great. The flux also forms a so-called slag which, when tubes are galvanized, prevents perfect galvanization by penetrating into the interior of the tubes. Pipes or tubes, particularly those of small diameter, can even become clogged. Moreover, in the galvanizing stage a very thick zinc coating is obtained on the articles, and the consumption of zinc is undesirably great according to the usual method.

To overcome these defects it is proposed, according to the present invention, to subject the articles to a preliminary separate treatment with a chloride fluxing solution of ammonium chloride

and zinc chloride, preferably cold or at least below the vaporizing temperature of the solution, and then immediately thereafter to pass the articles into the molten lead bath, and thence in known manner from the lead bath into the bath of molten zinc floating on the lead.

With the procedure as described there is no occurrence of dangerous fluxing vapors, and the consumption of the fluxing solution is extremely low. Likewise it is found that the consumption of the lead and zinc per ton of production is considerably less than in previously known methods. The formation of hard zinc and ash is also greatly reduced.

The drawing illustrates a form of galvanizing tank used in carrying out the main galvanizing treatment, Figure 1 being a view in longitudinal section, Figure 2 being a transverse section, and Figure 3 being a top plan view.

The article to be galvanized is first drawn through a fluxing solution contained in any suitable vessel (not shown). Immediately thereafter the article is introduced into the galvanizing tank 1 which contains a molten lead layer 2, an upper molten zinc layer 3, and a special frame 4 which prevents the penetration of the zinc into the interior thereof. The tank may be constructed of Armco iron or like metal resistive to attack by the zinc. Frame 4 also consists of material which will preclude an undesired hard zinc formation.

The article is introduced through frame 4 into the free surface of the lead as it comes from the fluxing solution, and as indicated by the arrows it is drawn through the lead bath and, after being sufficiently heated, is drawn upwardly into the zinc stratum 3 where galvanization occurs.

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