

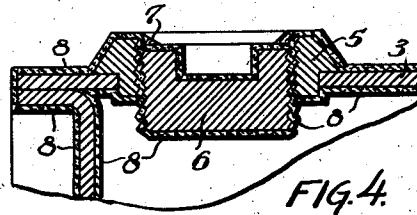
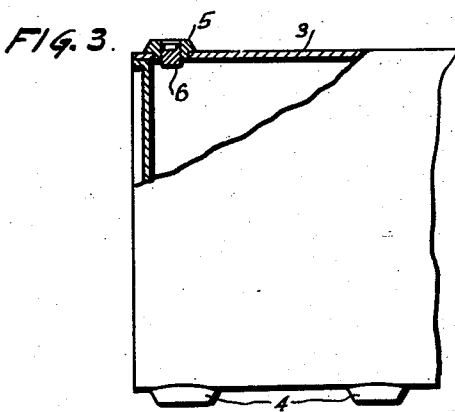
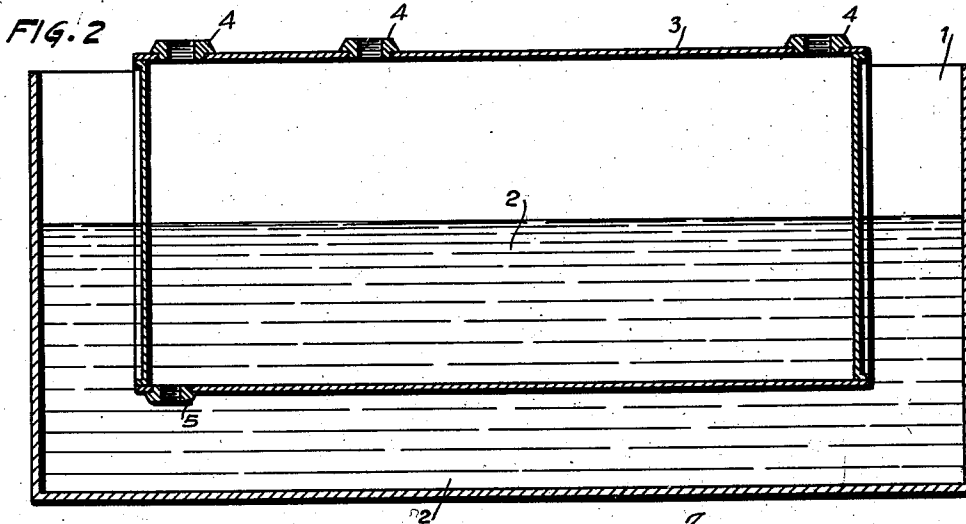
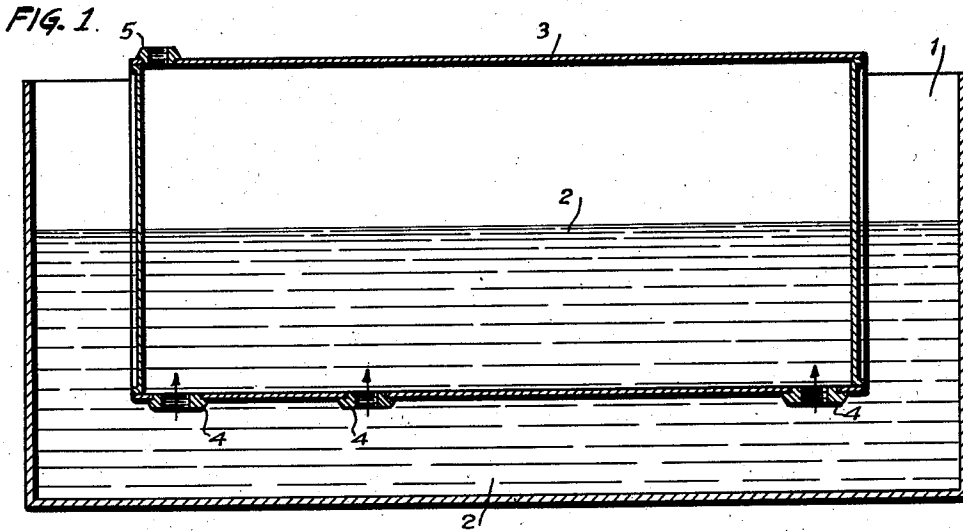
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PLATED STORAGE TANK AND METHOD OF MAKING

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PLATED STORAGE TANK AND METHOD OF MAKING

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2 Claims. (Cl. 91—70.2)

This invention relates to storage tanks and a method of construction thereof.

It is an object of this invention to provide a fluid storage tank fully and entirely plated on interior and exterior surfaces thereof for full protection from corrosion, rusting and attack by constituents of fluid stored therein.

It is a further object of this invention to provide a method of making a tank and for providing full coverage by plating of all interior and exterior surfaces thereof for protection.

It is a further object of this invention to provide a method of securing, by plating, full coverage of all surfaces thereof, and especially surfaces subjected to the attack of corrosive substances.

It is a further object of this invention to provide a method for plating a tank by immersion in a spelter bath in such manner that the spelter may be caused to provide full coverage of the interior of the tank.

These and other objects and advantages will appear from the following description taken in connection with the drawing:

In the drawing:

Figure 1 is a view, in section, of a tank constructed according to the principles of this invention, immediately after immersion in a spelter bath for plating by galvanization the interior and exterior surfaces thereof;

Figure 2 is a similar view of the structure shown in Figure 1, wherein the tank has been rotated 180 degrees;

Figure 3 is a fragmentary view, partly in section, of the tank of Figures 1 and 2, with the closure plug secured in place in the vent provided therein; and

Figure 4 is a fragmentary diagrammatic view, in section, illustrating the full coverage of the interior and exterior surfaces of the tank and plug after insertion.

Referring to the drawing in detail, 1 represents a tank adapted to contain spelter for galvanizing purposes, and 2 designates molten spelter therein. 3 designates a tank comprising a body of cylindrical or other form having circular or other appropriately shaped ends rigidly secured thereto in conventional manner and provided at one side with a plurality of flanges 4 of appropriate size rigidly secured to the body of the tank by welding or in any other suitable manner to provide conventional inlet and outlet openings in the storage tank 3.

Spaced from these flanges 4 and preferably disposed oppositely with respect thereto is a vent flange 5 which is similar thereto, although preferably

smaller than the flanges 4 and which is likewise rigidly secured to the body of the tank by welding or in any other suitable manner. The tank is formed and the flanges 4 and 5 rigidly secured thereto before plating or galvanization of the interior and exterior surfaces of the tank is begun. The flanges 4 are conventional, but the vent flange 5 is provided in the tank 3 solely for the purpose of facilitating full and thorough plating of the interior of the tank 3 according to the principles of this invention.

After the tank 3 is formed with the screw-threaded flanges 4 and 5 rigidly attached thereto, the tank is gradually immersed in the molten spelter 2 in tank 1 with the plugs 4 disposed downwardly. The spelter passes freely upwardly through the flanges 4 due to the provision for venting of air in the interior of the tank 3 through the vent flange 5.

When the tank 3 is substantially half immersed in the molten spelter 2, it is slowly rotated for one or more revolutions in order that the molten spelter 2 on the interior of the tank 3 shall provide complete coverage of the interior walls of the tank 3, the screw-threaded interior of flanges 4 and 5, and all exterior surfaces of the tank 3 and flanges 4 and 5. While the tank 3 is being immersed and rotated in the spelter 2 in the tank 1, the vent plug 6, which is an exteriorly threaded plug adapted for screw-threaded insertion in the vent flange 5, is immersed and suspended in the molten spelter 2 in such manner that all surfaces thereof are fully provided with a galvanized plating.

After full plating of the surfaces of the tank 3 is achieved, the tank 3 is removed upwardly from the spelter bath 2 and, while in the position of Figure 3, with the vent flange 5 disposed upwardly, the fully plated plug 6 is inserted and screw-threadedly attached in the vent flange 5. This occurs while the spelter adhering to the surfaces of the flange 5 and plug 6 is still sufficiently hot to permit fusing of the galvanized surfaces to provide an absolute seal. Optionally, in order to improve the completeness of the seal between flange 5 and plug 6, solder 7 is applied to the exposed threaded joint, as shown in Figure 4.

By this process, complete protection of all surfaces, both interior and exterior, of the tank 3, is achieved with ease and facility hitherto unknown in the prior art. The process eliminates necessity for re-dipping incompletely plated or galvanized tanks because, according to the principles of this invention, complete protective cov-

erage by galvanizing of all surfaces of each tank is achieved.

In Figure 4, the galvanized plating or covering is designated 8 and, as shown in that figure, complete coverage of all surfaces of the tank 3, the flange 5 and plug 6 is achieved in such manner as to impart to the tank 3 the properties, with respect to resistance to corrosion and rusting, of a tank formed entirely of the spelter material.

While the above description applies to the plating of tank structures by galvanizing, it is, of course, to be understood that the principles of this invention are susceptible to various other applications, such as coating operations, electroplating and the like, wherein the provision of the vent opening, for admitting the coating material or electrolyte, materially increases the completeness of the interior protective covering, and wherein the coating of the vent closure plug in the same manner as the tank provides uniform protective coverage for all exposed surfaces of the tank.

It will be understood that the above-described structure is merely illustrative of the manner in which the principles of my invention may be utilized and that I desire to comprehend within my invention such modifications as come within the scope of the claims and the invention.

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

1. In a method of manufacture of galvanized tanks, (1) constructing a tank with inlet and outlet openings, (2) forming a vent opening in said tank disposed oppositely from at least one of said first-named openings, (3) immersing the tank downwardly, half way, into a molten spelter bath, with the vent opening disposed upwardly for releasing air from the interior of the tank, and thus allowing the spelter to contact half of the inner and half of the outer surfaces of the

tank, (4) rotating the thus immersed tank in the molten spelter bath about a central axis located in the plane of the surface of said bath to secure full coverage by the spelter of all interior and exterior surfaces thereof, (5) removing the tank upwardly from the bath with the vent opening disposed upwardly, and (6) inserting in the vent opening a closure plug which is covered with molten spelter while the spelter on the plug and in the vent opening are still molten, thereby allowing the molten spelter on said plug to unite with that on the vent opening and to thus form an absolute seal.

2. In a method of galvanizing a tank having an opening on one side thereof, (1) forming a vent opening in said tank oppositely disposed from said first-named opening, (2) immersing the tank halfway in a molten spelter bath with the vent opening disposed upwardly for venting interior air from the tank and permitting unobstructed entrance of the molten spelter through said first-named opening into the tank interior and thus allowing the spelter to contact half of the inner and half of the outer surfaces of the tank, (3) rotating the thus immersed tank about a central axis located in the plane of the surface of said bath in the molten spelter bath the unsubmerged portions of said tank while removing therefrom the submerged portions and to secure full coverage by the spelter of all interior and exterior surfaces thereof, (4) removing the tank upwardly from the bath and (5) permanently closing said vent opening by inserting in the vent opening a closure plug which has been pre-covered with molten spelter while the spelter on the plug and in the vent openings are molten, whereby the molten spelter on the adjacent and contacting surfaces of said plug and said vent opening unite with each other and form an absolute seal.

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