Aug. 21, 1934. G. C. GABLER ET AL 1,971,308

ART OF LINING TANKS

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Fig. 1.

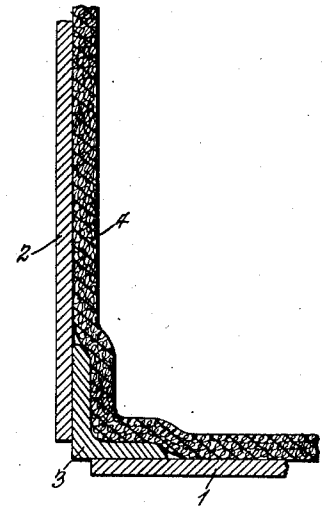
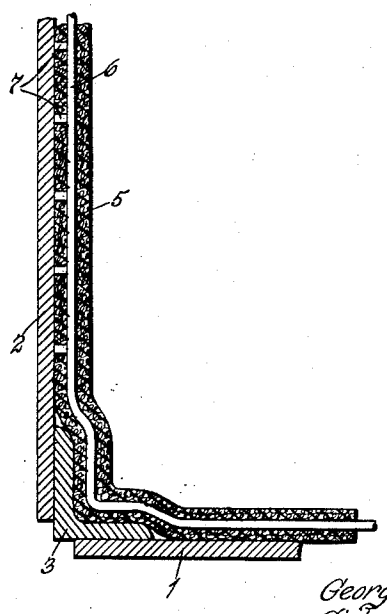


Fig. 2.



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ART OF LINING TANKS

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3 Claims. (Cl. 220—63)

This invention relates to the art of lining steel tanks to protect the tank from the corrosive action of contained material.

The general practice in protecting the interior of a steel tank to prevent corrosion from the action of the contained material is to apply a thin coating that is impervious to gas, oil and water with the material of the tank sealed from the corrosive agent. In the use of a thin coating for such purpose, the coating fails by not being permanently elastic or of insufficient thickness so that when subjected to changes in atmospheric conditions, corrosive agents, physical disturbance, or other cause, it will crack and peel away from the protective material, thus permitting the corrosive agent to undermine the material and subject a considerable portion to progressive chemical attack.

An object of this invention is to provide a coating for tanks which will more perfectly protect the surface.

Other objects will appear from the following detailed description.

In accordance with this invention, a coating is provided which is of a substantial thickness, flexible, durable, not easily disintegrated, insoluble in the gases or liquids to be contained in the tank, resistant to their chemical attack, but not necessarily impervious. The main requirement of this coating is that it remain permanently in place even though the metal protected will be in contact in some degree with the corrosive agent.

With this condition present, the corrosive agent will react with the metal to a much lesser degree than if not protected. The corrosive agent cannot freely penetrate the thick coating, and while some of it may be in contact with the walls of the tank, it is in a quiescent or stagnant state.

Where a chemical deposit results from such corrosive action as does occur, it will be held in place by the protective coating. The chemical film thus held in place will hinder admission of the corrosive agent to the unattacked metal beneath the film. A certain amount of corroded material may be suspended in the liquid which will be filtered out by the adsorbent coating, and the pores of the coating may thus be filled with a deposit. The deposit, whether as a film on the wall of the tank or within the pores of the protective coating, will be held in position and render more difficult the access of the corrosive agent to the unattacked metal, and materially lengthen the life of the tank in consequence of the effective protection thus obtained.

One of the applications of this invention is to steel tanks for the storing of crude oils and distillates which show presence of sulphur and sulphur compounds.

The class of materials which can be used is large. They embrace those materials which can be formed into a relatively thick coating, flexible, durable, not easily disintegrated, adsorbent, insoluble and chemical resistant. They may include innumerable organic and inorganic substances, such as cotton, wool and other fibres. As an exemplification, hair felt between one and two inches in thickness may be used and saturated with a cement which will have the property of adhering the fibres together as well as tacking the felt to the tank. In the case of a tank bottom, this method of attaching will be found sufficient. On the vertical walls of the tank, noncorrosive wire may be used as an additional attaching means.

The application of the invention is illustrated in the accompanying drawing, in which—

Fig. 1 is a sectional view of a tank with the protective coating applied in one manner.

Fig. 2 is a similar view showing a different form of attachment for the coating.

In Fig. 1 the tank includes a bottom 1 and a wall 2 which is joined to the bottom in a conventional manner by the angle 3. A layer 4, of felt or other like material, is secured to the tank bottom and walls in that embodiment by a cement which has the property of adhering the fibres together as well as tacking the layer to the tank.

In the embodiment shown in Fig. 2 a layer 5 of fibrous material has in it reinforcing wires 6 of noncorrosive metal and the layer 5 is attached to the side wall 2 of the tank by tack welds 7. Such welds are ordinarily unnecessary for the attachment of the fibrous layer to the tank bottom.

This invention is not limited to the materials exemplified as it may readily be seen that many equivalents may be found; nor is it limited to the precise method of attachment described. Various changes may be made within the scope of the

appended claims without departing from the spirit of this invention.

We claim:

1. The combination comprising a tank formed with a corrodible inner wall, and a thick pervious flexible lining attached to the wall, said lining being formed of fibrous material held together and to the wall by a binder.

2. The combination comprising a tank formed with a corrodible inner wall, and a thick pervious flexible lining held intimately in contact with the wall by a binder, said lining being formed of felted fibrous material.

3. The combination comprising a tank formed with a corrodible inner wall, and a thick pervious flexible lining attached to the wall, said lining being formed of felted fibrous material held together and to the wall by a binder.

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