

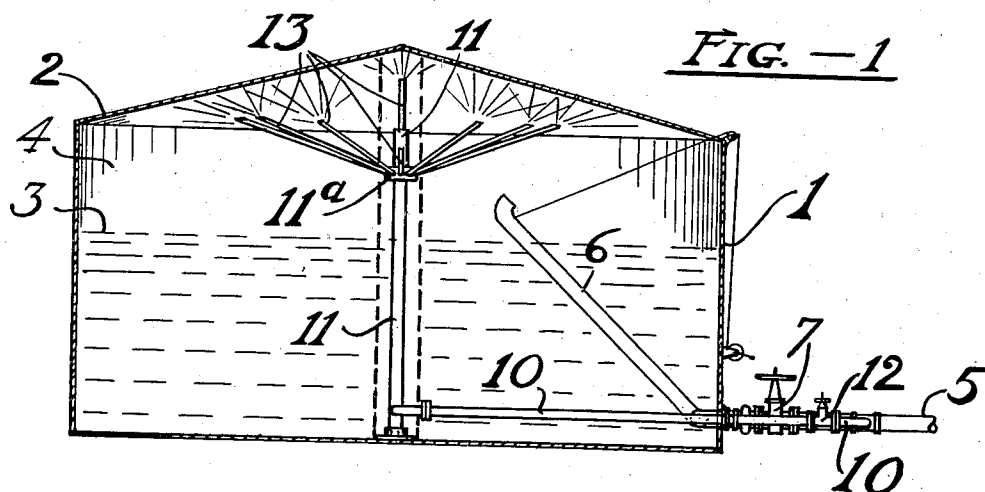
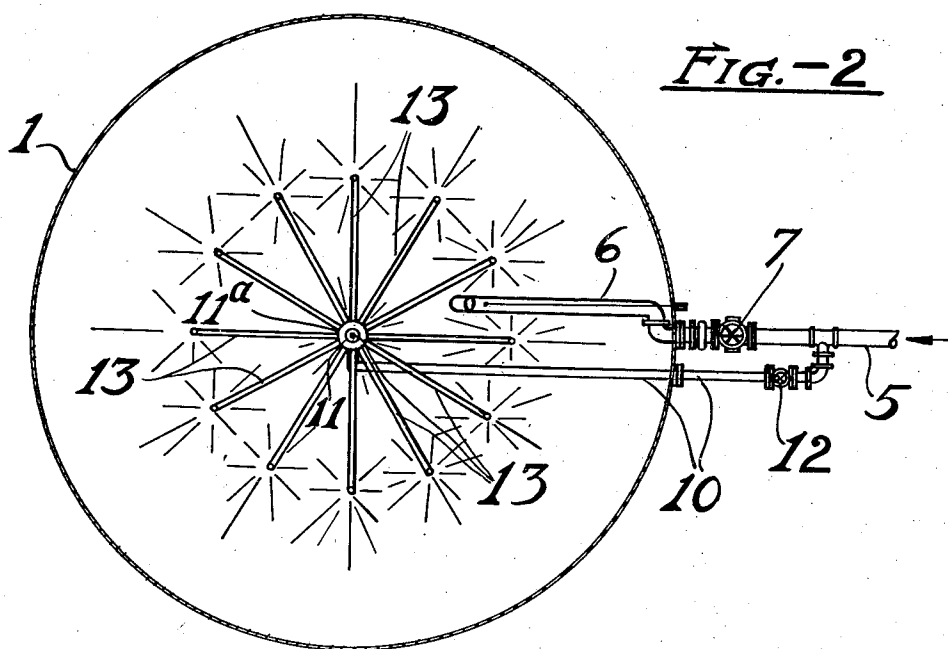
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METHOD AND APPARATUS FOR PROTECTING OIL STORAGE TANKS

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METHOD AND APPARATUS FOR PROTECT-
ING OIL STORAGE TANKSJohn E. Pollock, Baytown, Tex., assignor to
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4 Claims. (Cl. 220—85)

This invention relates to the protection of the interior of oil storage tanks and the like from corrosion.

The invention will be fully understood from the following description taken in connection with the accompanying drawing in which latter—

Fig. 1 is a vertical sectional view through an oil storage tank showing preferred apparatus for projecting oil against the under surface of the roof of the tank; and

Fig. 2 is a transverse sectional view through the tank showing the spray distributing apparatus in top plan view.

Referring particularly to the drawing, reference numeral 1 designates a steel storage tank for oil. The tank 1 is provided with a cone shaped roof 2. The oil is disposed in the tank 1 with its normal level 3 below the base of the cone shaped roof 2 and in actual service the level of the oil may fall to a point close to the bottom of the tank leaving a vapor space 4. The oil in actual service may be a sour oil which causes considerable corrosion of the metal in the vapor space under the usual working conditions in which the roof is free from a protecting film of oil. The corrosion of the tank at the vapor space is due to air, moisture and the corrosive vapors evolved from the oil.

The roof and sidewalks of the tank above the oil level and forming the vapor space of the tank are periodically covered with a protective coating of oil through the following arrangement of parts: The oil to be stored is forced into the tank through a pump line 5 and inlet pipe 6. A valve 7 is provided in line 5. A portion of the incoming oil is diverted from line 5 through a branch line 10 to a feed pipe 11. Line 10 is provided with valve 12. The feed pipe 11 is disposed in a substantially vertical position with its bottom end resting on the base of the storage tank 1. A manifold 11a at the upper end of the pipe 11 is provided with a plurality of branch pipes 13 arranged in the form of an inverted cone. The free ends of the branch pipes 13 and 14 are open and are adapted to direct the oil against the under surface of the roof.

Alternatively the free ends of the branch pipes 13 may be fitted with a circular or whirling spray, or the like, to secure better spreading of the oil. While the spray device has been described as a main distributing pipe having a cone shaped arrangement of branch pipes, it will be understood that it may be otherwise shaped as desired with due regard to ease of construction and area to be wetted. For example, the arms 13 can be radially disposed with respect to each other, or they can be replaced by concentric rings of tubing

having perforations directing the oil toward the under surface of the roof. If desired, the central pipe 11 to convey the oil to the roof can be replaced by an external line to any point on the roof to convey the oil to the distributing arms 13.

In filling the tank with oil to be stored, a portion of the oil is diverted through line 10 to spray the under side of the roof 2. The film of oil thus formed upon the under surface of the roof 2 may become too thin in time to protect the roof from corrosion. The oil can be projected through the spray device at any desired time interval such as monthly or the like to insure the presence of a protective film of oil upon the roof and tank sidewalls.

By the construction described, the under surface of the roof and the upper sidewalls of existing and new tankage can be protected from corrosion at very little expense. No additional agent, other than the oil being stored, is required to effect this protection. While the invention has been described as applied to the protection of a cone shaped roof, it will be understood that it is equally applicable to other shaped roofs having a vapor space between the roof and the upper surface of the body of oil being stored.

Various changes may be made within the scope of the appended claims in which it is desired to claim all novelty inherent in the invention as broadly as the prior art permits.

I claim:

1. The method of protecting the under surface of the roof of an oil storage tank from corrosion, which comprises introducing oil into the tank and by-passing a portion of the incoming oil against the under surface of the roof to form a film of oil upon the surface.

2. In combination with an oil storage tank having a roof the under surface of which is substantially conical, means for injecting oil against the under surface comprising an inlet pipe having a plurality of branch pipes arranged in the form of an inverted cone with end openings to direct oil against the under surface of the roof.

3. The method of protecting from corrosion the walls of the vapor space of a tank containing a liquid capable of inhibiting the corrosive effect of its own vapor, which comprises circulating the liquid in the tank over the walls whereby corrosive activity of the vapor is inhibited.

4. The method of protecting the walls of the vapor space of an oil containing tank from corrosion, which comprises circulating the oil contents of the tank over the walls whereby corrosive activity of the vapor is inhibited.

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