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APPARATUS FOR HAULING ASPHALT AND SIMILAR MATERIAL

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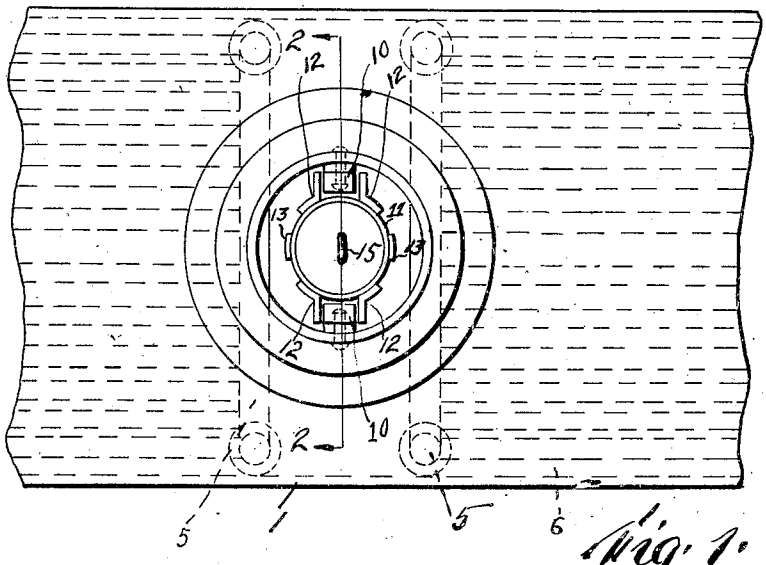


Fig. 1.

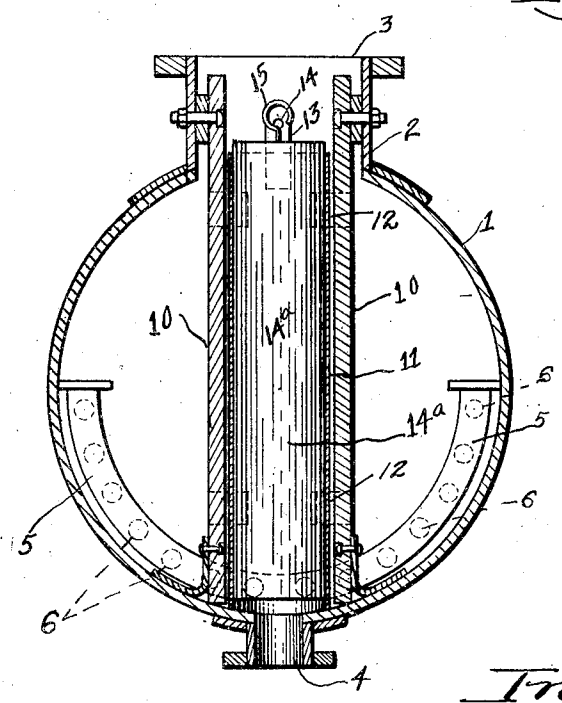


Fig. 2.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR HANDLING ASPHALT AND SIMILAR MATERIAL.

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This invention relates to a method and apparatus to facilitate emptying tanks designed to hold material such as asphalt, which is solid or nearly solid at ordinary temperatures, and which must be heated to render it sufficiently fluid to flow from the tank. While not restricted to such use, this invention has been designed primarily for use with tank cars intended for the transportation of asphalt or similar substances.

According to this invention, therefore, the tank is provided with means by which a passage is formed in the body of the asphalt to the tank discharge opening when the tank is filled, and when it is desired to empty the tank hot asphalt is circulated through this passage passing through the tank discharge opening, heating, and carrying therewith the material adjacent thereto in the tank. By this means a free discharge for the tank contents is insured as fast as it becomes sufficiently heated to flow. This action is preferably further aided by some form of heating means for the tank.

For a more complete understanding of this invention reference may be had to the accompanying drawings in which

Figure 1 is a fragmentary plan of the central portion of the tank of a car, the manhole being removed and the position of certain parts indicated by dotted lines.

Figure 2 is a vertical section on line 2—2 of Figure 1.

Referring to these figures, 1 indicates the shell or body of a tank of any suitable construction having at its top a cylindrical extension 2 terminating in a manhole 3 through which the tank may be filled and which may be closed by a cover of any suitable or usual construction. Beneath the manhole and through the bottom of the tank is the usual discharge opening 4 of smaller diameter than the manhole. For the purpose of heating the material in the tank so that it may flow, steam coils or heating units may be built therein. These heating units may take various forms, but as shown comprise a pair of segmental headers 5 positioned adjacent the bottom and side walls of the tank in vertical planes either side of the manhole, these headers having extending therefrom in opposite directions a series of heating pipes shown at 6, toward the ends of the tank.

For the purpose of carrying out the method of this invention, a pair of guide pieces 10 may be made fast in any suitable way to the tank interior extending on opposite sides of the discharge opening 4 in vertical parallel relation and terminating within the cylindrical extension 2. Passed between these guides 10 is shown a tubular member 11 of smaller diameter than the manhole and of larger diameter than the outlet which may have fixed thereto guide fins or lugs 12 loosely embracing the guide pieces 10. Such guide fins may be located along the length of the tube 11 as may be desired, as shown these fins being positioned adjacent opposite ends thereof. At its upper end the tube may be provided with upstanding ears 13 perforated as at 14 for the reception of a hoisting hook by which the tube may be raised upwardly so that its lower end is removed above the base of the tank at the discharge opening 4, the tube when in its lower position surrounding this discharge opening closing off the tank ends therefrom and leading directly theretoward from the manhole. Slidable within the tube may be placed a cylindrical plug 14^a substantially filling the same so as to prevent the entry of the material with which the tank is loaded into the tube 11. The tube and cylinder 14^a being in the position shown in Figure 2, the tank is filled with the material which at ordinary atmospheric temperatures is solid or very nearly solid.

When it is desired to unload the tank the plug 14^a is removed, its upper end having for this purpose a hook 15 made fast thereto. Material such as is contained in the tank, but at a high temperature so as to be molten is then poured through the tube 11, heat therefrom being conducted through the walls of this tube and serving to soften the material in the tank adjacent thereto. This heated molten material passes readily through the discharge opening of the tank, since a free passageway is formed thereto by the tube when the tank is filled. As the material about the tube becomes molten from the heat conducted thereto through the walls of the tank, the tube is raised somewhat from the tank permitting this molten material to find its way beneath the end of the tube, mingling with the heated material poured therethrough and flowing off therewith. The material of the tank at the same time may be

heated by means of the heating means such as the units 5 and 6 so that the material remote from the tube may flow theretoward as the material adjacent the tube is discharged that it may become more highly heated and fluid so as to be readily discharged.

Having thus described an embodiment of this invention it should be evident to those skilled in the art that many changes and modifications might be made therein without departing from its spirit or scope as defined by the appended claims.

We claim:

1. A tank having a filling opening through its upper portion and a discharge opening through its base beneath said filling opening, guides extending between said upper portion and base adjacent said openings and a tube slidable on said guides and defining a passage between said openings.

2. A tank having a filling opening through its upper portion and a discharge opening through its base beneath said filling opening, guides extending between said upper portion and base adjacent said openings, a tube slidable on said guides and defining a passage between said opening, and a removable plug for substantially filling said tube.

3. A tank having a filling opening through its upper portion and a discharge opening through its base beneath said filling opening, guides extending between said upper portion and base adjacent said openings, a tube slidable on said guides and defining a passage between said opening, and a single removable plug for closing off said tube for substantially its entire length.

4. A tank having a filling opening through its upper portion and a discharge opening through its base beneath said filling opening, guides extending between said upper portion and base adjacent said openings, a cylindrical tube slidable on said guides and defining a passage between said openings, and a closed cylindrical member fitting within said tube and extending substantially the entire length of the tube.

In testimony whereof we have affixed our signatures.

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