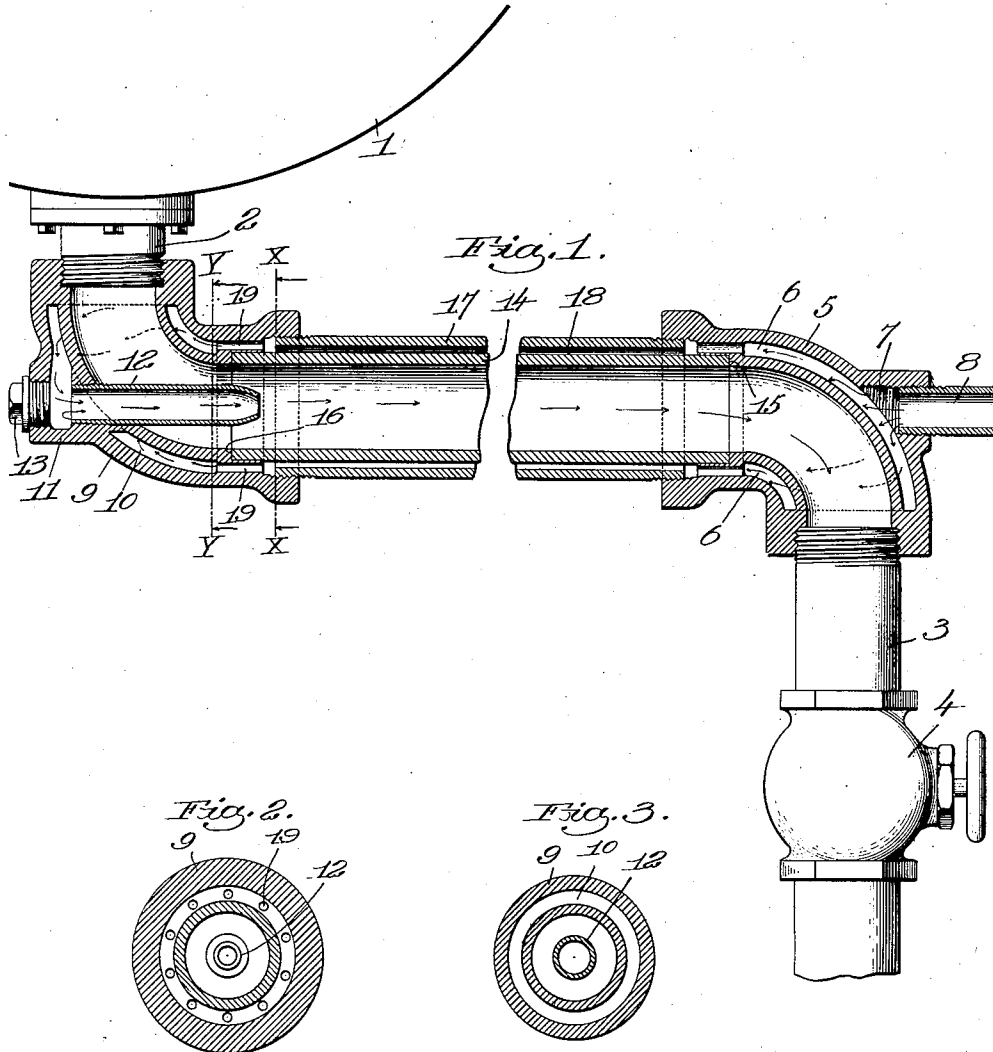


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OIL HEATER AND FORCER.
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1,052,002.

Patented Feb. 4, 1913.



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UNITED STATES PATENT OFFICE.

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OIL HEATER AND FORCER.

1,052,002.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed July 17, 1912. Serial No. 710,041.

To all whom it may concern:

Be it known that I, WILLIAM KENT, a citizen of the United States, residing at Newton, county of Middlesex, State of Massachusetts, have invented an Improvement in Oil Heaters and Forcers, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention is designed particularly for use in transferring substances such as the heavy oils now used in sprinkling and surfacing roads from the car, tank or container in which they are stored to a receiver such as the sprinkling wagon from which they are deposited on the road. But it will be obvious that the invention is useful for any similar purpose where the substance is of considerable viscosity and flows more readily when warmed. These heavy oils for which the invention is particularly designed are heavy and sluggish in their flow, especially when cold. The device of this invention warms the oil during its passage from the container to the receiver, thus making it flow easier and at the same time the device includes a means for forcing the oil along by injecting steam into the oil passage way.

The object of the invention is to provide a suitable form of means for enabling the ready transfer of heavy oils and similar substances, and the nature of the invention will appear more fully from the accompanying description and drawings and will be particularly pointed out in the appended claims.

The drawings illustrate the preferred form of the invention as adapted for transferring heavy road oil from the container such as the tank in which it is stored to a receiver such as the sprinkling wagon.

In the drawings—Figure 1 is a view in longitudinal vertical cross-section of a device embodying the invention showing it connected to a tank and to a pipe running to a suitable receiver. Fig. 2 is a transverse cross-section on the line $x-x$ of Fig. 1. Fig. 3 is a transverse cross-section on the line $y-y$ of Fig. 1.

In the drawings 1 represents a container such as the tank of an ordinary tank car in which heavy oil is transported, and 2 represents an exit nozzle through which the

contents of the tank are removed. A pipe 3 is shown extending from a suitable receiver, such as the sprinkling wagon not shown, and provided with a common form of valve 4. A suitable jacketed conduit is provided for connecting the tank and the receiver. In the preferred form of the invention this conduit is made up of two jacketed elbows and a connecting jacketed pipe, the jackets of the elbows and pipe being in communication. Means are provided for admitting steam to the jacket at one end of the conduit and preferably also a nozzle is provided connected to the jacket at the opposite end of the conduit and projecting into the conduit and pointing longitudinally thereof. In the preferred form of the invention the steam admission pipe is connected to one elbow and the nozzle to the other elbow.

Considering the construction specifically illustrated, 5 represents an elbow adapted to be screwed at one end to the pipe 3. This elbow is jacketed by means of the chamber 6 formed therein. An internally screw-threaded port 7 opens into the chamber 6 and to this port a suitable connection 8 is made with a source of steam supply. A second elbow 9 is adapted for connection to the nozzle 2 at one end and is also jacketed by means of the chamber 10 formed therein. A hollow boss 11 communicates with the chamber 10 and a nozzle 12 is threaded into this boss and projects into the interior of the elbow and points longitudinally of the passage way from the elbow. A plug 13 is screw-threaded into the boss 11 providing for access to the nozzle. The two elbows are connected by a jacketed pipe which in the form shown comprises a tube 14 seated at its ends against annular shoulders 15 and 16 in the ends of the elbows 5 and 9 respectively, and comprises an exterior casing 17 threaded at its ends into the elbows 5 and 9 and spaced from the tube 14 to form a chamber 18 therebetween. The jackets of the connecting pipe and the elbows are in communication because the jackets of the elbows at the ends connected to the pipes open outwardly through apertures 19.

The operation of the device will now be apparent. The steam entering at the pipe 8 fills the chamber 6, then the chamber 18, then the chamber 10, then enters the hollow boss 11 and passes through the nozzle 12 into the connecting pipe. The connecting

conduit being thus jacketed, the oil as it flows along is warmed up and at the same time it is forced forward on the injector principle by the steam issuing from the nozzle 12.

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

1. A device of the character described comprising a jacketed conduit for connecting a container and a receiver, a nozzle connected to the jacket of said conduit at the container end projecting into said conduit and pointed longitudinally thereof, and a steam connection to the jacket of the conduit, whereby the steam passes through the jacket and conduit for facilitating the flow of a viscous substance by warming the same and by forcing it through said conduit.
2. A device of the character described comprising a jacketed elbow for connection to a receiver, a jacketed elbow for connection to a container, a jacketed pipe connecting said elbows with the jackets in communication, a nozzle connected to the jacket of the second elbow, said nozzle projecting interiorly of said elbow and pointing longitudinally of the pipe, a steam connection to the jacket of the first elbow, whereby the steam passes through the jackets of the elbows and pipe in one direction and then passes through the interior of said elbows and pipe in the opposite direction for facilitating the flow of a viscous

substance by first warming the same and then forcing it through the device.

3. The combination with a container for a viscous substance, of a jacketed conduit connected directly to said container, a nozzle connected to the jacket of said conduit near the container and projecting into the conduit away from the container, and a steam connection to the jacket of the conduit, whereby the steam passes through the jacket and conduit for facilitating the flow of the substance by warming the same and by forcing it through said conduit.

4. A device of the character described comprising a jacketed conduit for connecting a container and a receiver, a hollow boss in direct communication with the jacket of the conduit, a nozzle connected to said boss and projecting into the conduit, said nozzle pointing in the direction of flow through the conduit, and a steam connection to the jacket of the conduit, whereby the steam passes through the jacket and conduit for facilitating the flow of a viscous substance by warming the same and by forcing it through said conduit.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM KENT.

Witnesses:

CHARLES J. MCCARTHY,
GEORGE E. STUART.