Sept. 22, 1931. E. F. FISHER 1,824,538

FILLER PIPE

Filed Aug. 16, 1929

Fig. 1.

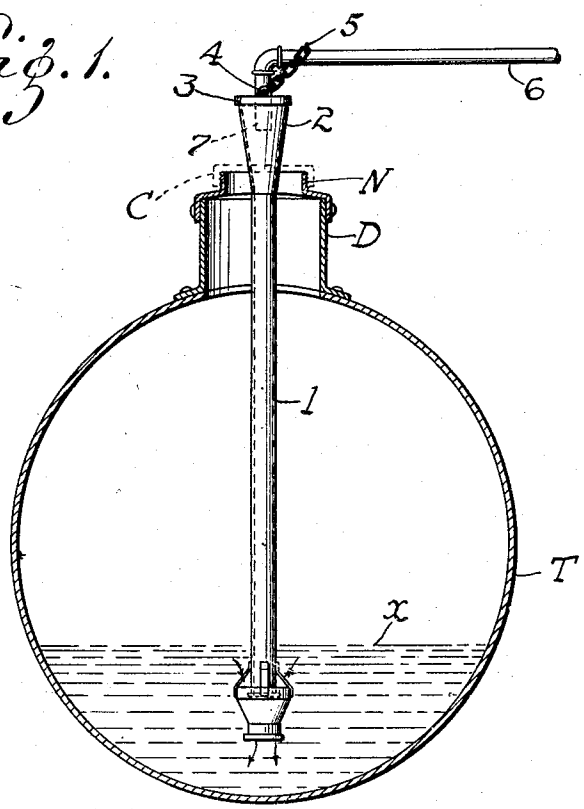
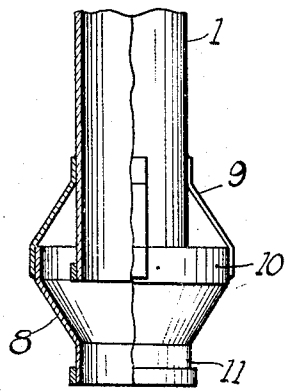



Fig. 2.




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# UNITED STATES PATENT OFFICE

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## FILLER PIPE

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My invention has relation to improvements in filler pipes for use in filling tanks or tank cars and it consists in the novel features of construction more fully set forth in the specification and pointed out in the claims.

Briefly, the invention comprises a pipe that is disposed within and extends to near the bottom of the tank that is to be filled with volatile liquids such as gasoline, said pipe having a funnel formed at its upper end and a funnel shaped member surrounding its lower end to expedite the flow of the liquid through the pipe.

The object of the invention is to provide a filler pipe through which the volatile liquid enters the tank instead of issuing directly from the supply pipe, so that the tank will be filled from the bottom to avoid violent splashing, bubbling and the undue evaporation caused thereby. A further object is to provide a filler pipe that is simple in construction, durable, and one that may be manufactured at comparatively low cost. Further and other advantages will be better apparent from a detailed description of the invention in connection with the accompanying drawings, in which—

Fig. 1 is a vertical cross-section through a tank showing my improved filler pipe in operative position therein, for filling the tank with gasoline or similar fluid; Fig. 2 is an enlarged combined elevation and longitudinal section of the lower, or discharge end of my improved filler pipe.

Referring to the drawings, T represents a tank having the usual dome D at the top thereof, on which is provided a threaded neck N for receiving a cap C (dotted in Fig. 1). When the tank is to be filled the cap is removed so that my improved filler pipe 1 may be inserted through the neck N. The filler pipe 1 has a funnel 2 formed at its upper end, said funnel terminating in an annular flange 3, in which are fixed oppositely disposed eyes 4 to receive the ends of a chain 5 whereby the pipe may be suspended from the supply pipe 6 which leads from the storage supply for the gasoline. It will be observed that the spout 7 of pipe 6 projects slightly into the funnel 2 and that the top of the funnel 2 is considerably above the bottom of the dome D which is the highest point to which the tank would be filled. Thus there is a considerable head of liquid in the pipe 1 even after the tank is almost full, and the weight of which head is sufficient to cause the liquid in the pipe to rapidly force its way into the tank. To prevent loss of gasoline vapors during the beginning of the filling operation, I have provided a funnel shaped member 8 at the lower end of pipe 1, said funnel 8 being fixed to the pipe 1 by straps 9, preferably welded to the pipe and to the upper cylindrical portion 10 of the funnel. The cylindrical portion 10 of the funnel is considerably larger in diameter than the pipe 1 which enters it, and the lower cylindrical portion 11 of the funnel is of the same diameter as the pipe. When the tank T is being filled, the level $x$ will gradually rise above the funnel 8. However, at the beginning of the filling operation and until the level $x$ about reaches the top of funnel 8 there will be so much churning and bubbling of the liquid that the evaporation therefrom is great. The function of the funnel 8 is to offset this loss of gasoline vapor. Until the level of the liquid rises above the funnel the flow through the pipe 1 acts as an injector and causes a circulation of accumulated vapor through the funnel as indicated by the arrows (Fig. 1). The gasoline vapor that is sucked downwardly through the funnel 8 is again condensed or absorbed by the gasoline stream flowing through pipe 1 and re-enters the body of the liquid in the tank T.

Of course, it is a simple matter to increase the size of pipe 1 to obtain a more rapid discharge of the liquid from said pipe, but to do so is to increase its weight making it more difficult to handle, and also increase the cost of manufacture.

Having described my invention, I claim:

1. A tank filler pipe arranged to be positioned in the tank and extending to near the bottom thereof, a funnel at the upper end of the filler pipe, means on said funnel for supporting the filler pipe in place, and means at the lower end of the filler pipe for collect-

ing accumulated vapor and causing it to reenter the liquid.

2. A tank filler pipe arranged to be positioned in the tank and extending to near the bottom thereof, a funnel at the upper end of the filler pipe, means on said funnel for supporting the filler pipe in place, a funnel-shaped member disposed at the lower end of the filler pipe and adapted to receive said lower end, the top of said member being of a larger diameter than the bottom of the filler pipe so as to provide an annular space between the member and the pipe.

In testimony whereof I hereunto affix my signature.

ERNEST F. FISHER.