Nov. 25, 1941. H. K. PENISTON 2,263,826

TANK FILLING SPOUT

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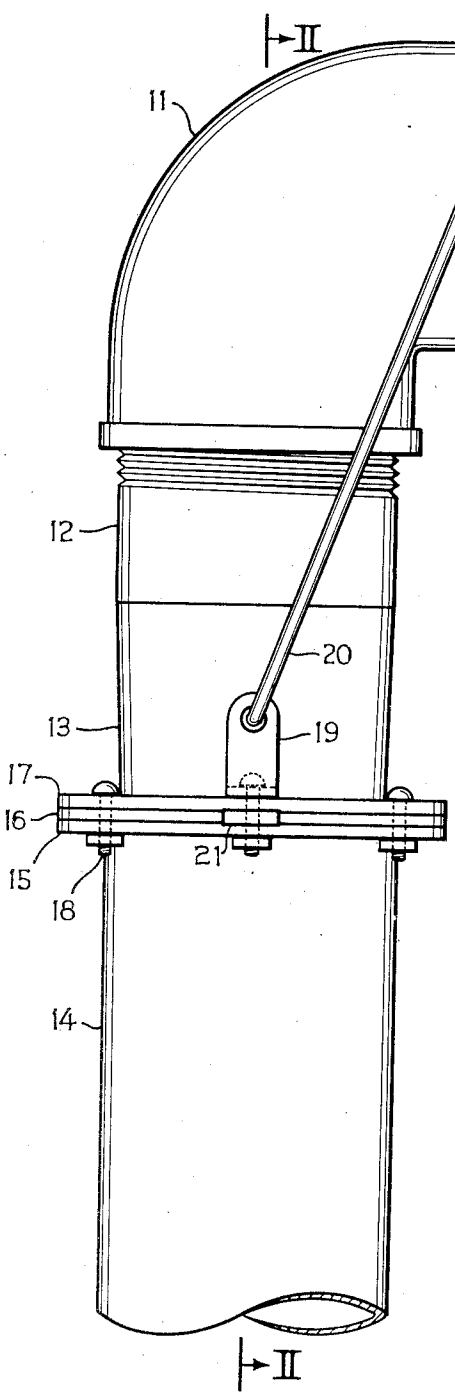


Fig. 1.

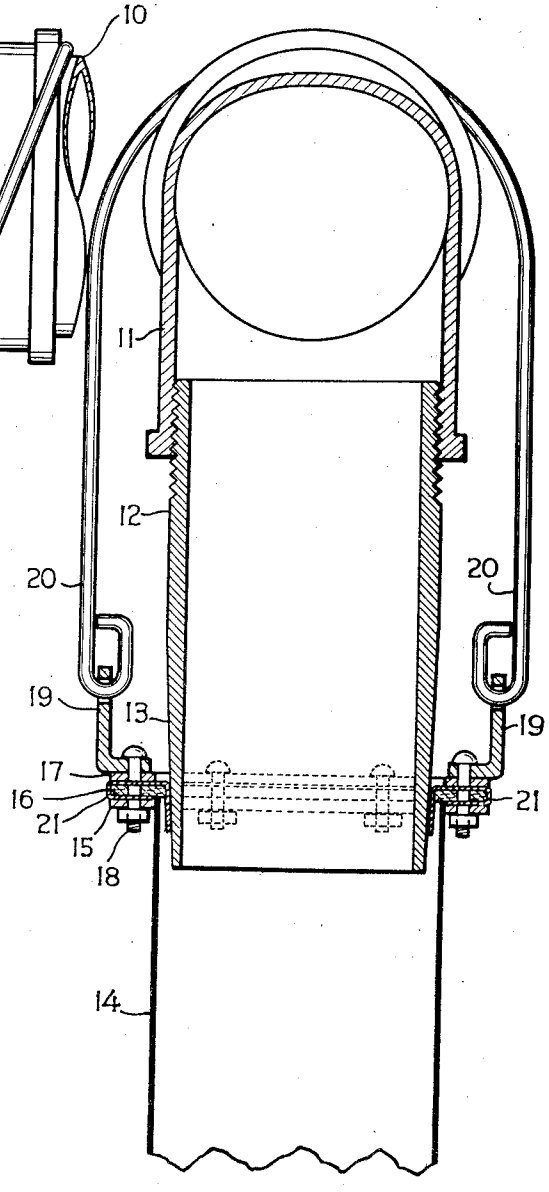


Fig. 2.

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TANK FILLING SPOUT

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1 Claim. (Cl. 173—326)

This invention relates to spouts or funnels adapted to direct a flow of liquid from a filler pipe into a tank, and particularly refers to one for use with volatile and inflammable liquids, such as gasoline, and which will reduce the loss of such liquids by evaporation and prevent the accidental ignition of vapors by static electricity which forms due to the rapid and turbulent liquid flow.

Heretofore various types of open topped funnels, conduits and the like have been used to receive the turbulent stream of liquid from the lower end of the conventional tank truck or tank car filling stem, to direct the liquid into the body of the tank with a minimum of splashing and evaporation loss. Patent No. 1,824,538 issued September 22, 1931, to E. F. Fisher is an example of the first type, and Patent No. 2,115,016 issued April 26, 1938, to C. H. Ehlers is an example of the second.

This invention comprehends broadly a rigid filler pipe spout or adapter that extends downwardly into the body of the tank or otherwise communicates therewith, and is tightly closed or sealed at its upper end by means of a relatively thin or narrow gasket, disposed in a plane at right angles to the fill stem to prevent admission of air into the liquid stream as well as loss by evaporation therefrom. Desirably, means are provided to make a positive electrical bond between the thin sheet metal of the spout and the metal pipe of the fill stem, to prevent accumulation of static electric charges which might ignite an explosive mixture of an inflammable vapor and air.

It is an object of this invention to provide a light, rigid, easily handled metallic funnel or spout for a tank, such as a tank truck or tank car, that will prevent admission of air into the upper or inlet end of the spout, or leakage of vapors from that point.

Another object is to provide a quickly detachable spout or coupler of this character that is simple and economical to fabricate, and that will provide a positive electrical bond to the downwardly depending fill stem which is usually in electrical contact with the earth.

Another object is to provide a quickly and easily assembled coupling arrangement of rigid tubes that will be gas-tight as well as flexible to care for angular misalignment of the filler stem or nozzle with the tank opening.

These and other objects and advantages will be further apparent from the following description, and from the accompanying drawing which forms a part of this specification and illustrates a preferred embodiment of the invention.

In the drawing, Figure 1 is a side elevation view of a spout in place on a conventional fill stem.

Figure 2 is a vertical sectional view on line II—II of Figure 1, showing a preferred arrangement of sealing gasket and bonding means.

Referring to the drawing, and particularly to Figure 1, reference numeral 10 designates the usual horizontally extending pipe portion of a tank fill stem, having an elbow 11 and a downwardly directed outlet pipe 12, the latter preferably tapered as at 13. The spout or funnel of this invention is adapted to be removably secured to the structure just described, and generally constitutes a thin sheet metal tube 14 provided at its upper end with a flange 15. In order to prevent air from being drawn into the top of tube 14 by the rapid downward flow of liquid from outlet pipe 12, means such as an annular resilient gasket 16 is provided, engaging tightly the lower tapered portion 13 of pipe 12, and secured to flange 15 by a cover flange 17 and bolts 18 to be substantially in a single plane at right angles to the axis of tube 14 and substantially at the top thereof. Gasket 16 may be of a synthetic plastic material, that is not affected by the liquid being handled. Such an arrangement has been found to permit of considerable angular misalignment of the fill stem and spout without causing air or vapor leakage around the gasket 16.

Desirably, means are provided other than the friction fit between the sealing gasket 16 and pipe 12 to hold the spout in place on the fill stem. In this example, ears 19 are secured on opposite sides of flange 17 and are connected by a hinged wire bail 20 which is hooked over pipe 10 of the fill stem, as shown in Figure 1.

Usually the material of gasket 16 is an electrical insulator and, in order to prevent accumulation of electrostatic changes on tube 14, it is desirable to provide an electrical bond between pipe 12 and that tube. In this case, a strip 21 of thin conducting material, which may be brass or bronze, is secured at one or more points about the circumference of flange 15 to extend inwardly over gasket 16 and then downwardly inside the opening in the latter to make positive electrical contact with the pipe 12 when the spout is in place thereon, as shown in Figure 2.

Obviously, many changes could be made in the arrangement shown without departing from the invention, and all those that come within the scope of the appended claim are embraced thereby.

I claim:

In a connection for filling a tank with a volatile oil such as gasoline from a downwardly depending fill stem to conduct said oil into said tank with a minimum of admission of air therewith, comprising a rigid metal tube adapted to communicate with the lower portion of the interior of said tank, with its upper end surrounding said fill stem, sealing means secured to the upper end of said tube and extending inwardly to engage said fill stem, means for insuring an electrical connection between said fill stem and said tube comprising metallic strips clamped between said sealing means and said rigid tube and having an angularly disposed portion within the bore of said gasket adapted to contact the wall of said fill stem whereby all of the parts are electrically bonded together to prevent the accumulation of static electricity.

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