June 6, 1961 W. N. MATSON 2,987,228

DISPENSING APPARATUS

Filed April 30, 1959

FIG. 1

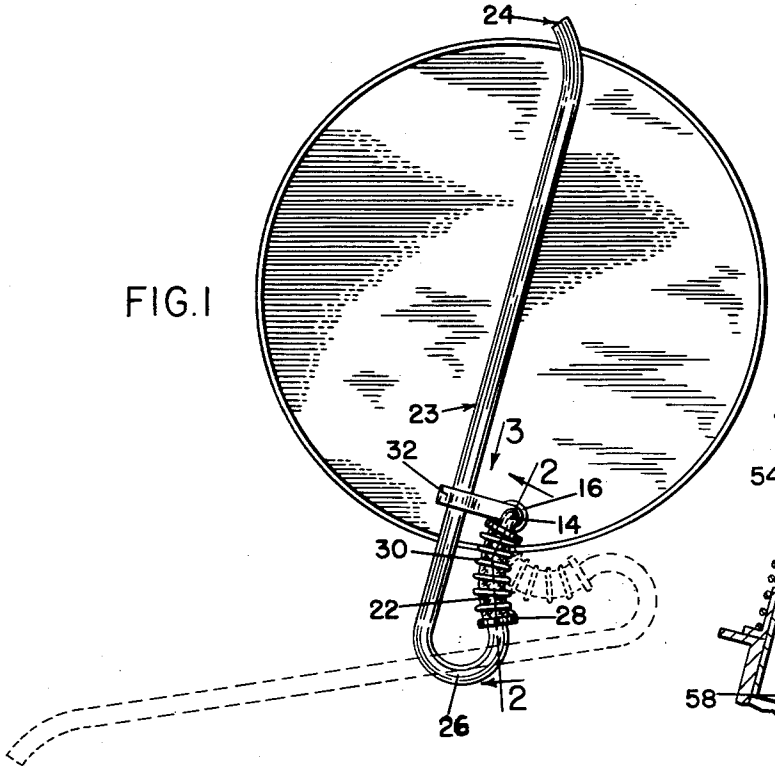


FIG. 5

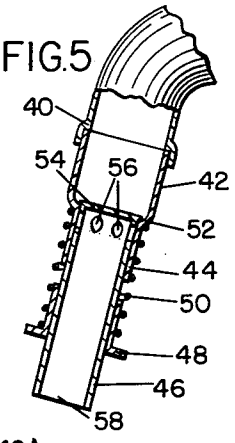


FIG. 6

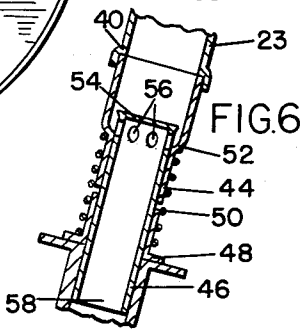


FIG. 2

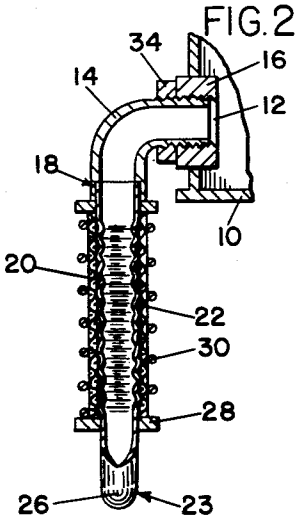


FIG. 4

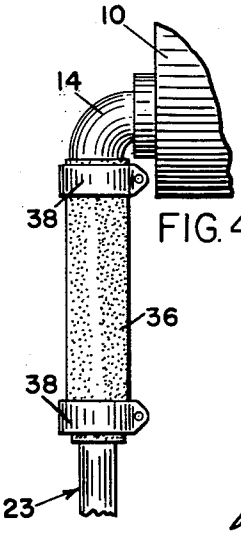
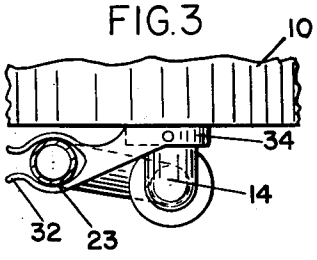


FIG. 3



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DISPENSING APPARATUS

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3 Claims. (Cl. 222—513)

This invention provides a new and improved leak-proof dispensing apparatus for barrels and other fluid containers in which there are no moving valve parts, all joints are permanent so that there is no leakage at any point thereof, and comprising in general a movable filler type pipe, the outlet of which remains above the fluid level at all times when not in use but which is movable to a dispensing level against the action of resilient means which always returns the same to a point above the fluid level so that the device is completely self-closing, and the pipe thus retracts to a closed (vertical) position automatically whenever it is released; the construction also contemplates the provision for full flow of fluid even though the fluid may be relatively thick or contains sediment or particles in suspension so that it will be seen that the apparatus is completely non-clogging, the pipe being always full-open from end-to-end with no seats or valve members to become clogged; the construction provides also a built-in automatic gauging feature simply by bringing the pipe down to the liquid flow level point.

Other objects of the invention include the provision of a dispensing pipe normally held in vertical position and having a connection with the bottom of the container to which it is attached by means of a permanently closed and immovable fixture which can never leak, the same being connected to a flexible metal hose or rubber hose which allows movement in any direction of the dispensing pipe but which always provides for return motion of the dispensing pipe to its closed vertical position.

Furthermore, the present invention provides against fire hazards which are normally present with leaky valves used in the prior art on oil and gasoline containers of the class contemplated herein.

The invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly set forth in the appended claims.

Reference is to be had to the accompanying drawings, in which

FIG. 1 is a view in front elevation showing the pipe in solid lines in closed position and in dotted lines in full open position;

FIG. 2 is an enlarged section on line 2—2 of FIG. 1;

FIG. 3 is a sectional view, looking in the direction of arrow 3 in FIG. 1 showing the pipe in locked condition;

FIG. 4 is a modified form shown in elevation; and

FIGS. 5 and 6 are sectional views illustrating a novel arrangement.

In carrying out the invention, the same is shown as applied to an oil drum of general construction such as is indicated at 10. This oil drum is provided with an outlet or a bung at 12 and the elbow illustrated at 14 is connected in any way desired as by the fixture at 16 so that this elbow 14 is completely immovable and solidly connected to the barrel itself so that it can never leak.

This elbow 14 is modified to provide for a brazed joint indicated by the reference numeral 18 for connecting permanently and solidly thereto the accordion pleated metal end of a pipe, the same being indicated at 20. This pipe is provided with a woven wire mesh covering 22 and is well known in the art. However, in the present case, it forms merely the end of the filling pipe generally indicated at 23 which is integral and continuous with the accordion pleated part of the pipe which is flexible. Of course the filler pipe itself is not flexible except in the portion where it is accordion pleated.

The filler pipe has a plain open outlet 24 and an elbow or reverse bend 26 and it will be seen that the elbow 14 has its outlet pointing downwardly whereas the bend 26 of the filler piper is pointed upwardly, the flexible portion of this pipe connecting the tube and normally being generally vertical and pointing downward.

There is provided a washer or locking means of any kind indicated at 28 on the pipe 23 above the bend 26, and this forms a connection for a coil spring 30 surrounding the flexible portion of the pipe. This spring has a tension which is sufficient to maintain the filler pipe 23 in its upwardmost position as shown in full lines in FIG. 1; but at the same time allows the flexible portion of the pipe to be bent as shown in dotted lines in FIG. 1, so that the filler pipe may be brought all the way down to a portion well below the bottom of the barrel for full open position thereof.

There is no actual "on" or "off" valve means independent of pipe 23 which itself is the valve. Its nozzle 24 being above the barrel when in the vertical closed position, obviously no liquid can flow out. However, by bringing the pipe downwardly, the instant it starts to flow, the level of the liquid in the barrel is clearly shown.

In some cases it may be desirable to substitute a length of rubber hose 36 for the accordion pleated metal material at 20, and in this case it will of course be necessary to connect the hose as by clamps 38 both to the elbow 14 and the pipe 23 above the bend 26 at about the point shown by the washer 28 in order to provide for such a construction. Of course the spring 30 is also used in this case also but if the rubber hose is heavy enough, in some cases it will be able to bring the pipe back to vertical due to its own inherent resilience.

When the pipe is in its uppermost position as in solid lines in FIG. 1, it may be snapped into and held by a spring clip 32, the same being mounted by means of central apertures in enlargements 34 on the elbow 14 as clearly shown in FIGS. 1 and 2.

Some of the advantages in the use of this device reside in the great saving from leakage because the ordinary tap-type of valve will give a considerable loss of fluid material over the course of the years. Odors and wet untidy surroundings are eliminated, and at the same time this gets rid of a fire hazard occasioned by the drip and leakage from the average tap and this in turn of course saves property and human life. In addition, the device is easily operated and provides low cost insurance against fire and accident. Particularly with the all-metal construction and the locking means as a part of the assembly, the entire device is a unit and may be set up or removed easily. It is not a permanent part of the container and it may be applied to any container, no matter how large it is, so that the invention in this case is not by any means limited to a carrying can.

The present construction provides a device which replaces the usual valve by means of a retractable pipe arrangement which may be connected to a large container which cannot be tipped although the present apparatus is useful with smaller containers also.

Furthermore, a full uninterrupted flow is provided by the piping arrangement herein, with no valves or valve seats to clog or slow the flow down. The construction is completely leak-proof because the outlet is always above the fluid level when not in use, and there are no moving parts connected to the container. Any scale in the barrel will not clog and the pouring of liquids which may contain impurities or semi-solid or solid particles in suspension may be handled. No other valve type will handle this type of material.

Furthermore, the coil spring prevents damage to the more or less delicate flexible member and it will be seen that this spring therefore has three functions, it retracts the hose, protects it, and prevents flattening or de-forming of the hose. In the absence of the spring material, a rubber hose, for instance, or even a flexible metal hose, tends to flatten out and either restrict or even stop the flow of fluid, and this is prevented herein by means of the coil spring which maintains the circular cross-sectional shape of the hose, regardless of its position between the two extremes shown in FIG. 1.

Furthermore, by having the flexible portion of the device depending from the barrel, a better flow is assured at all times, and it puts the parts in tension which is a more desirable configuration. Also, by use of the flexible metal hose, other fluids may be dispensed such as acids or oils which might prevent the use of rubber tubing.

In some cases, it is preferred to have a closure valve for the spout particularly when storing and dispensing volatile fluids. To this end there is provided a new and improved light-weight valve as shown in FIGS. 5 and 6. In this case, the pipe **23** has a spout at **40** which is flared and to this flared end **40** there is brazed or otherwise secured a reducer generally indicated at **42**. This reducer terminates in a cylindrical portion **44** which slidably receives a sleeve **46**. This sleeve is provided with a fixed spring seat which is in the form of a flange or the like **48** and this forms a seat for a spring **50**. The shoulder portion at **52** of the reducer **42** acts as the limiting means for the other end of the spring, and the ends of the reducer portion **44** and the spring seat form a limiting means to stop travel of the valve inwardly. The valve has a cap **54** which limits the travel thereof in the other direction. The sleeve is also provided with a series of holes **56** near the cap **54** at the inner end thereof and the sleeve is open at the outer end at **58**.

In the operation of this valve, it will be seen that it is normally held closed by the spring **50** in a position where the apertures **56** are closed by the wall of the tubular portion **44** of the reducer **22**. However, in order to open the valve it is merely necessary to grasp the spout as a handle, put the exposed sleeve end in the container and bear down so that the spring seat bears on the container. The sleeve then slides into the reducer, exposing the holes to permit flow of liquid as shown in FIG. 6.

This valve is extremely light-weight and being automatic, prevents the evaporation of volatile fluids besides preventing any possible entrance of dirt or dust into the spout **23**.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. A valve for a dispensing spout comprising a reducer on said spout, said reducer including a cylindrical open portion, a slidable sleeve in said cylindrical portion, said sleeve being open at its outer end which extends outwardly from the reducer and is closed at the inner end within the reducerm, there being apertures in the sleeve adjacent the closed end thereof, a flange on said sleeve exteriorly of said reducer, a spring surrounding the reducer and sleeve and bearing at one end on said flange and at the other end thereof on the reducer, said spring acting to maintain said sleeve in its outwardmost position wherein the apertures are closed by the cylindrical portion of the reducer, and said flange acting as an abutment so that the sleeve may be relatively moved inwardly against the action of the spring in order to free said apertures within the reducer to open the valve.

2. The valve of claim 1 including stop means limiting the motion of said sleeve relative to said reducer in both directions of motion thereof.

3. A non-leaking dispensing apparatus for fluid containers, said apparatus comprising a tubular fixture immovably connected to said container adjacent the lower portion thereof and projecting downwardly, a flexible cylindrical hose secured to said fixture and normally projecting downwardly, a rigid elongated dispensing pipe having a return bend adjacent one end, the end of said pipe adjacent said bend being connected to said hose with the opposite end of said pipe extending upwardly to a point adjacent the upper part of said container, said hose being sufficiently rigid to normally maintain said pipe in an upright position to prevent flow of fluid therethrough, whereby upon movement of said pipe to a downwardly extending position by flexing of said hose fluid will be dispensed therethrough, the rigidity of said hose also being sufficient to prevent collapse thereof during flexure and to automatically return said pipe to upright non-dispensing position.

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