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LIQUID DISPENSING DEVICE FOR TANK

Filed March 12, 1962

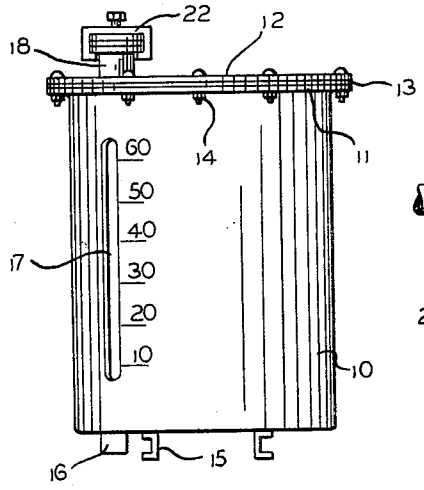

FIG. 1

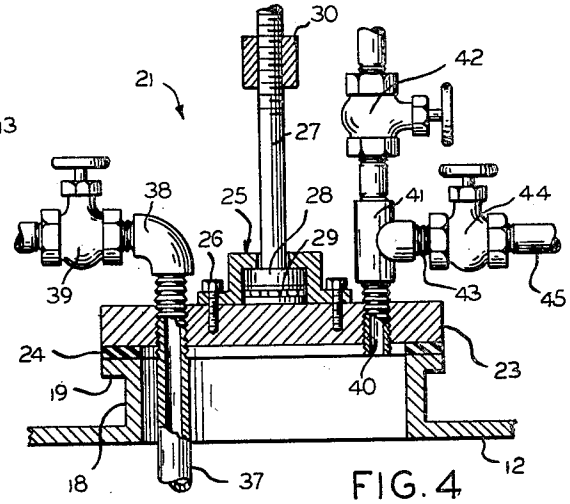

FIG. 4

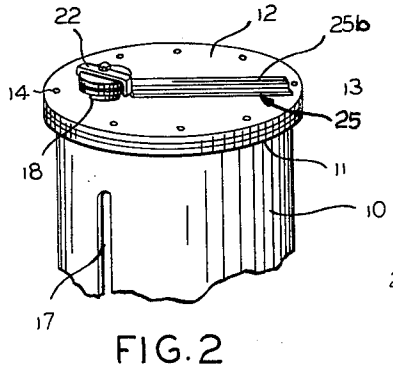

FIG. 2

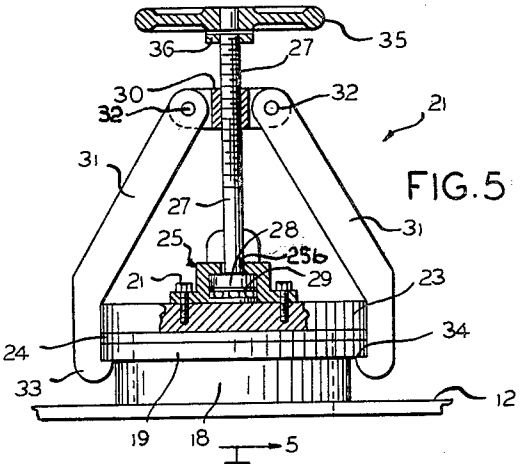

FIG. 5

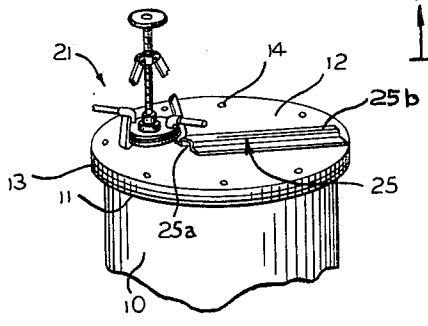

FIG. 3

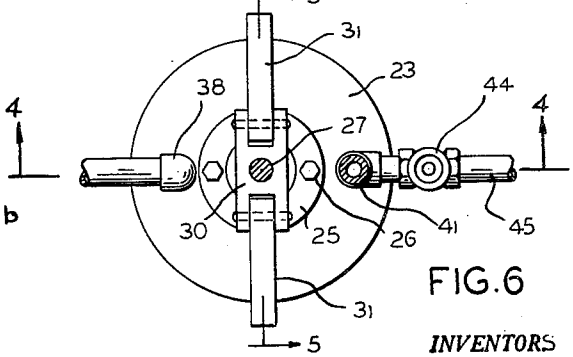

FIG. 6

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LIQUID DISPENSING DEVICE FOR TANK

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Our invention relates to a combination involving a tank and liquid dispensing device, and more particularly to a tank for liquid and a means for dispensing the liquid within the tank, with ease and efficiency.

The object of our invention is to provide a tank for storing any type of liquid, such as chemicals, oils, water or the like, and to equip the tank with a quick attachable and detachable dispensing means.

Another object is to provide a device of the character described, that may be manipulated without special tools or special mechanical skill.

Still another object is to provide a tank made of any material, or equipped with a special lining to preserve the liquid stored therein, and constructing it in a manner to incorporate an adaptor and accessories to permit ease in transporting and dispensing.

A further object of our invention is to provide a combination of a tank and dispenser that efficiently dispenses the liquid contents of the tank with complete control, without danger of waste or spilling, and with a minimum amount of effort in its manipulation.

A still further object is to provide a sealing means for a connection between a dispenser and tank.

It is manifest to anyone familiar with the art, that chemicals, oils, or any other types of liquid, are stored and transported in tanks, or drums, constructed in a manner to enable them to be placed in any desirable and convenient location. It is also common practice to employ air pressure to dispense the liquid contents of the tank. However, quite frequently it requires considerable effort and mechanical skill to prepare the assembled unit for its function, and it is the prime object of our invention to provide a combination of a tank and dispenser, in which both units are arranged in a manner to be made adaptable to one another for their efficient performance.

The device is simple in construction, easy to manipulate, yet highly efficient for the purpose for which it is intended.

Other and further objects of our invention will become more apparent as the description proceeds, when taken in conjunction with the drawings, in which:

FIGURE 1 is a side view of the tank showing the adaptor for the dispensing unit extending upward from the top plate, and showing the capacity gauge on the vertical side and the channels or bottom rails to accommodate the fork of a conventional lift truck;

FIGURE 2 is a perspective view of the top of the tank as illustrated in FIGURE 1, and showing the adjustable clamp and screw arrangement to seal the adaptor, and also showing the lateral re-inforcing rail for the top plate;

FIGURE 3 is a similar view as shown in FIGURE 2, with a perspective view of the dispenser in engagement with the adaptor;

FIGURE 4 is a vertical cross-sectional view of the dispensing device, in its relation to the adaptor and illustrating the valve arrangement, taken at the line 4—4 in FIGURE 6;

FIGURE 5 is a vertical cross-sectional view of the dispenser, showing the clamping method employed to place it into engagement with the adaptor on the cover of the tank, taken at the line 5—5 in FIGURE 6; and

FIGURE 6 is a top view of the dispenser assembly.

Similar characters of reference indicate corresponding parts throughout the several views, and referring now to

the same, the character **10** shows a storage tank which may be of any size, shape, or contour, made of any type of material, or coated on its inside with a protective coating, depending on the liquid stored therein. The tank **10** is shown equipped with a flange extending outward from its upper peripheral edge shown as **11**, and a cover **12** is shown sealing the top of the tank **10**, when used with a gasket **13** and a plurality of bolts or rivets **14**. Obviously the tank may be sealed in any other efficient manner.

The bottom of the tank **10** is shown in FIGURE 1, equipped with a pair of channels **15**, to permit a fork from a lift truck to be inserted below the tank, and a conventional sump **16** is shown to provide a low point in the tank.

We also show a transparent capacity gauge **17** extending along the vertical wall of the tank **10**. However any type of conventional gauge may be employed, to determine the amount of liquid in the container or tank.

The cover **12** is equipped with an adaptor **18** extending therethrough, which adaptor is equipped with a peripheral flange **19**.

A liquid dispensing unit, generally shown as **21**, is designed to seal the adaptor **18**, after the cover **12** has been removed and to enable liquid to be removed from the tank **10**. The dispensing unit **21** consists of a sealing plate **23** of a shape or contour to fit the flange **19**, and a gasket **24** is employed as a seal between the sealing plate **23** and the flange **19** when the liquid dispenser is applied.

The plate **23** is equipped with a flanged channel member **25**, centrally attached thereto by means of bolts **26**, or in any other convenient manner. The channel **25** has an opening **25***a* therein and a longitudinal slot **25***b*. A threaded member **27** extends through the slot **25***b* of the channel **25** and has a circular locating means **28** shown resting on a thrust bearing **29** disposed within the opening **25***a* within the channel **25**.

The threaded member **27** threadedly engages a yoke member **30** and a pair of clamp members **31** are pivotally mounted to the yoke **30** at **32**. The clamp members **31** are tong shaped at their lower end **33** for engagement with the bottom surface of the flange **19** at **34**. The upper end of the threaded member **27** is equipped with means for revolving it such as a hand wheel **35**, the hand wheel **35** being attached by means of the pin **36**, or in any other convenient manner.

The plate **23** is also equipped with a pair of apertures, one to accommodate a longitudinal tube **37** extending downward through the tank **10** into the enclosure formed by the sump **16** at the bottom of the tank **10**, and the upper end of the tube **37** is shown provided with an elbow **38**, and a control valve **39** for dispensing the liquid. The other threaded aperture in the plate **23** is shown supporting a threaded nipple **40** extending upward therefrom and shown equipped with a T **41** supporting a relief valve **42**, which may be a pop-safety valve, and a tube **43** extends from the T **41**, and supports an air-valve **44** and a tube **45** leading from the source of air pressure, such as a compressor or the like (not shown).

From the above description, it will become manifest that the operation of the entire unit is very simple and efficient. After removing the cap **22** from the adaptor **18**, the entire assembled dispensing unit is applied. The tube **37** will extend into the liquid disposed within the tank **10**, and by revolving the hand wheel **35**, after the clamping arms **31** are placed below the flange **19** of the adaptor **18**, the threaded member **27** will move the yoke **30** upward, thereby pushing the plate **23** downward against the sealing gasket **24** on the flange **19**, creating an air tight seal when all the valves are closed.

By opening the valve **44**, air from a compressor or the like (not shown) will be forced into the tank **10**, and when the valve **39** is opened the contents of the tank will

be forced outward and controlled by the valve **39**. The valve **42** is employed to exhaust the air pressure, or if the valve **42** would be a safety valve, it will insure a proper air pressure in the tank **10**, when the valve is set at a pre-determined pressure.

By manipulating the wheel **35** on the threaded member **27**, the entire dispensing unit **21** may be removed, or placed into position.

To position the liquid dispensing unit **21** for the tank **10**, the positioning means **28** is placed in the opening **25***a* of the channel **25**. And the threaded member **27** projects through the longitudinal slot **25***b*. To position the clamp members **31**, the threaded member **27** is disposed along the longitudinal slot at a point substantially equidistant from where the clamp members **31** have the tong portions contacting the underside of the adaptor's flange **19**.

Although we have shown a specific construction of our device, we are fully cognizant of the fact that many changes in the shape and contour may be made without effecting its operativeness, and we reserve the rights to make such changes as we may deem convenient without departing from the spirit of our invention, or the scope of the claims.

We claim:

1. In combination: a tank having an adaptor extending therefrom; a liquid dispensing device detachably connected to said adaptor comprising plate means for sealing said adaptor by being pressed thereagainst, said plate means being equipped with means for pressurizing liquid contained in said tank to force said liquid to flow from said tank in a controlled predetermined manner through a regulating means, said plate means having a channel member attached thereto, said channel member

having a longitudinal slot therein; a yoke; a threaded member threadedly engaging said yoke and protruding therethrough, said threaded member having a locating means attached at one end of said threaded member, said locating means being shaped to be disposed within the slot of said channel member a predetermined distance from one of the ends of said channel member, said threaded member protruding through said longitudinal slot; a pair of clamp members each pivotally mounted at one of their ends to said yoke, the other ends of said clamp members being formed to grip said adaptor and means for turning said threaded member; whereby said threaded member forces said yoke in a direction that causes said clamp members to exert a pulling force on said adaptor and said threaded member is caused to exert a pushing force against said plate means to force it into a sealed relationship with said adaptor and said liquid dispensing device can be positioned to have its clamp members grip said adaptor easily when it is desired to attach said liquid dispensing device to said adaptor.

2. The combination, as defined in claim 1, said adaptor having a flange extending therefrom, said clamp members having tong means extending therefrom for gripping the under side of said flange.

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