May 12, 1964 D T. ORR 3,132,768

MEASURER AND FUNNEL

Filed Jan. 10, 1963

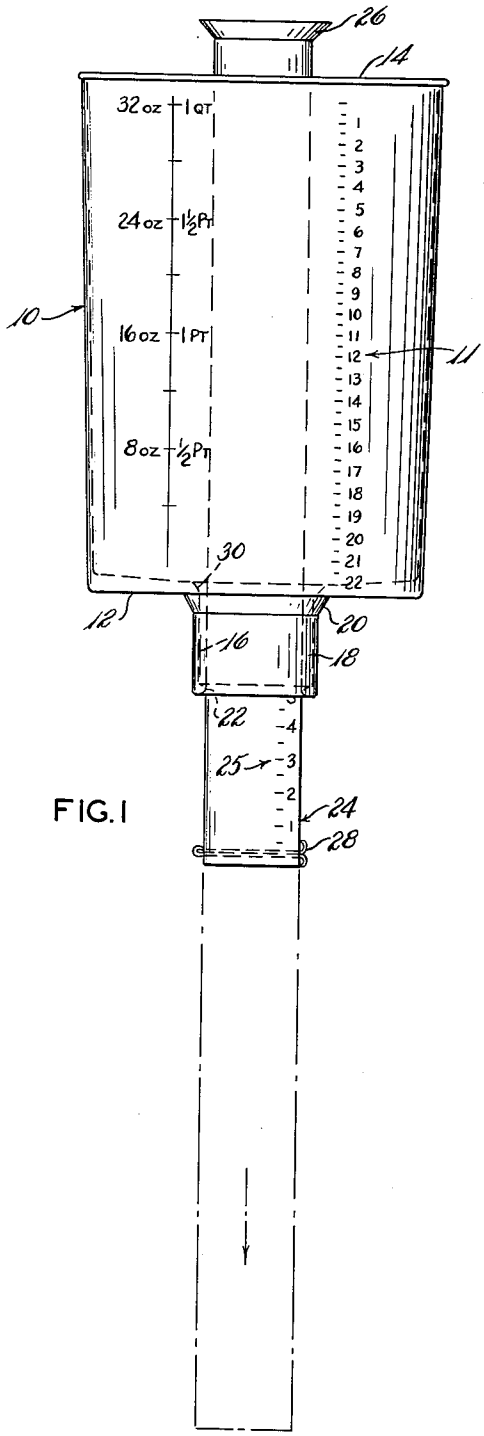


FIG. 1

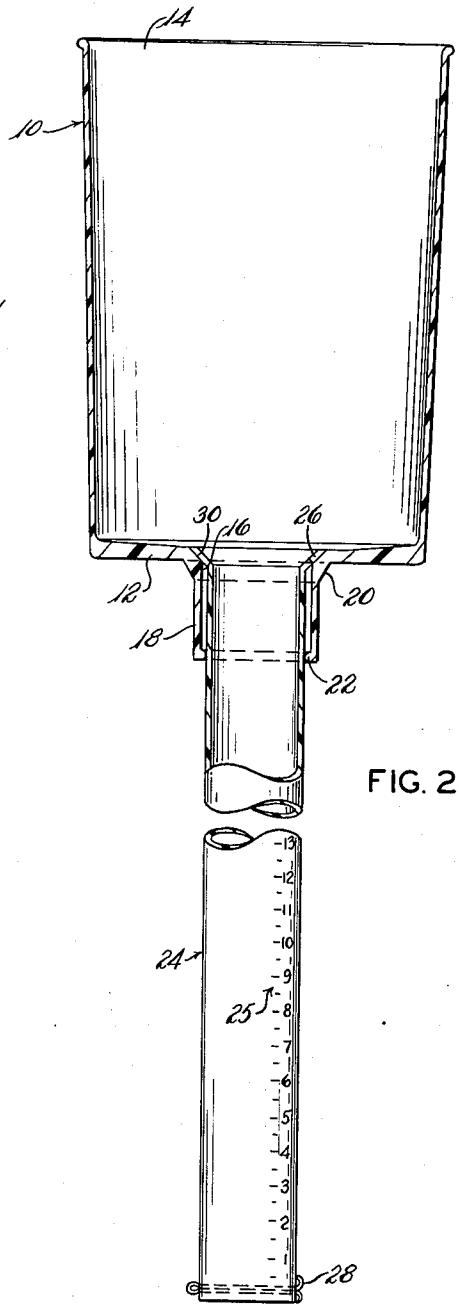


FIG. 2

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United States Patent Office 3,132,768 Patented May 12, 1964

3,132,768

MEASURER AND FUNNEL

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Filed Jan. 10, 1963, Ser. No. 250,690
3 Claims. (Cl. 222—50)

This invention relates to a measurer and funnel apparatus and more particularly to an oil and gas measurer and funnel apparatus for measuring the amount of oil to be mixed with a specific amount of gasoline for use as an outboard motor fuel, and for funneling the required quantities into the fuel mixture in a standard remote outboard motor fuel tank.

It is known that it is necessary to mix a certain amount of oil with gasoline for outboard motor fuel to provide proper lubrication to the outboard motor engine. There have been many and varied ways to do this, such as knowing the volume of the gas tank and putting a specific amount of gasoline and a specific amount of oil in the gas tank and mixing the contents therein. Also, some gas stations will sell specific quantities of outboard motor fuel already mixed to the desired quantities, but these stations are not always available. However, usually one buys the components for the outboard motor fuel individually, and this requires either premixing in a separate container from the gas tank normally used with the outboard motor, or mixing the components into an empty gas tank to be sure the proper amounts are added thereto. This results in a tedious, messy job and may result in improper amounts of oil and gas being mixed together.

It is the general object of the invention to avoid and overcome the foregoing and other difficulties of and objections to prior art practices by the provision of a combined oil and gas measurer and funnel which allows the proper amounts of oil and gas to be determined from and to be mixed in a standard outboard motor gas tank regardless of what the level of fuel is in the tank, and which measurer also serves as a funnel to pass the measured amount of oil and the required amount of gas into the tank.

Another object of the invention is to provide a very simple, lightweight, compact, and accurate measuring device for outboard motor fuels which can easily be carried and stored with outboard motor equipment so that fuel mixtures for the fuel tank can always be accurate thereby giving longer life and better service to the outboard motor.

Another object of the invention is to provide a measurer and funnel apparatus of an optically clear material which can be used to indicate and measure accurately the proportionate amount of oil required in an outboard fuel mixture, and then to funnel same into a desired container.

The aforesaid objects of the invention and other objects which will become apparent as the description proceeds, are achieved by providing in combination a measuring container of an optically clear material with an open top and closed bottom with a small hole therein, a nipple extending from the hole in the bottom of the chamber, a hollow tube slidably passing through the nipple and extending into the chamber, the tube being longer than the combined height of the chamber and the nipple, a seal means positioned between the nipple and the tube, the top of the tube being adapted to seal with the bottom of the chamber when the tube is in its lowermost or funnel position, an upwardly graduated measuring indicia on the tube, and a downwardly graduated measuring indicia on

the chamber that is complementary to the indicia on the tube.

For a better understanding of the invention, reference should be had to the accompanying drawings, wherein:

FIGURE 1 is a front elevation of one embodiment of the invention, showing the tube in the upward or fill position; and

FIGURE 2 is a vertical cross sectional view of the apparatus of FIGURE 1 with the tube in its downward, or funnel position, and with the tube being partially broken away and partially shown in elevation.

Although the principles of the invention are broadly applicable to measuring and funneling practically any type of liquid or powdery substance, the invention is usually employed in conjunction with measuring and funneling oil and gas for outboard motor fuels and hence it has been so illustrated and will be so described.

With specific reference to the form of the invention illustrated in the drawings, the numeral **10** indicates generally a cylindrical container, or funnel made of an optically clear material having an end, or bottom wall **12** and an open top **14**. The end wall **12** contains a circular hole **16** therethrough on the longitudinal center line of the container **10**, which hole **16** is formed by a downwardly extending annular flange, or nipple **18** that forms an integral part of the container **10**. The nipple **18** has an outwardly directed flare **20** at its top portion where it joins to the plate **12**, and has an inwardly directed flared lip, or sealing rib **22** on its bottom open end, for reasons set forth hereinafter in more detail.

To complete the structure of the container **10**, a slidable tube **24** is positioned in and extends through the nipple **18** and the opening **16**. In order to retain the tube in assembly with the container, an outwardly directed flare **26** is formed on the top end of the tube while the tube may include means such as a cotter pin **28** of some suitable type placed through holes at the bottom end thereof. Therefore, the maximum upward limit of movement of the tube **24** in relation to the chamber **10** is controlled by the cotter pin **28** contacting the lip **22** of the nipple **18**. The maximum downward limit of the tube **24** is controlled by the flare **26** contacting an inward face **30** of the hole **16** through the plate **12**. The maximum downward position of the tube **24** is illustrated in FIGURE 2.

In effect, a seal is formed between the nipple **18** and the slidable tube **24** as the inwardly directed lip **22** of the nipple **18** contacts the tube **24** around the entire periphery thereof. This seal remains effective even when the tube **24** is moved vertically upwardly or downwardly. However, in the maximum downward position as shown in FIGURE 2, another seal is formed by the flare **26** of the tube **24** mating with the surface **30** of the hole **16** of the plate **12**.

As seen most clearly in FIGURE 2, the tube **24** is graduated in evenly spaced divisions which are numbered from the bottom to the top of the tube and are referred to as the tube scale **25**. As best seen in FIGURE 1, the container **10** also is graduated in divisions along the longitudinal axes thereof, but it is numbered from the top to the bottom by the container scale **11**. The graduated spaces on the container **10** are usually not equal to the graduated spaces on the tube **24**, but they are correlated, as will be explained later. The container **10** also is shown with measuring graduations, as indicated on the left side

of FIGURE 1 thereon where one can readily tell the amount of liquid present in the container **10**, in this case either in ounces or pint-quart measurement. It should be understood however that any quantity, or measurement could be so indicated on the container **10**.

To operate the apparatus, the tube **24** is positioned at the maximum downward limit, as shown in FIGURE 2, and the tube is then placed through an opened cap in the top of a standard six-gallon remote outboard motor gas tank. The tube **24** is inserted through the opening in the gas tank until the bottom of the tube engages the bottom of the gas tank. The tube is then removed and the level of the gas in the tank is read to where it has moistened the tube scale **25** by the tube being placed in the gas tank. Suppose, for example, that the tube **24** has been moistened up to the graduation mark corresponding to the numeral **10** on the tube. The tube **24** would then be moved vertically upwardly to approximately the position shown in FIGURE 1 of the drawings. In this position, the tube acts essentially as a closed valve to enable the container **10** to hold a fluid. Oil would next be added to the container **10** through the top opening **14** to fill the container **10** until it reached the graduation mark opposite number **10** on the container scale **11** thereon. The tube **24** would then be pulled down into the maximum downward position when inserted through the opening in the top of the gas tank to form, in effect, an open valve position, thereby allowing the oil contained in the chamber **10** to flow into the gas tank, as by a funnel procedure. No gasoline measurement is necessary as the proper amount of oil has been added and the tank just has to be filled to have the proper amount of gas added. The remainder of the gas tank would then be filled to the top by pouring gasoline into the tank through the apparatus of the invention which now is in the form of a funnel. Then the cap would be replaced on the gas tank and the tank preferably is picked up and shaken or swung around by hand to mix the gasoline and oil recently added to the tank.

Thus, exactly the right amount of oil has been added to mix with that amount of gasoline required to fill the empty portion of the tank. The tube **24**, when initially placed into the gas tank, measures the amount of gas remaining in the tank much as the gas gauge on a car measures the amount of gas remaining in the gas tank of the car. The container **10**, with the tube **24** moved to extend therethrough, defines a chamber **30** of fixed volume. By correlating the volume of such chamber with the amount of oil required to be added to different volumes of gasoline in order to fill a standard outboard motor tank, the amount of oil needed can be separately measured in the chamber **30**, and then be permitted to flow into the gas tank. Gasoline then would be added to the tank to fill it and the proper gas-oil ratio is maintained without any separate mixing of the fuel.

The container **10**, it will be seen, can be of any suitable shape and size and preferably is made from a transparent or translucent synthetic resin plastic material.

The apparatus of the invention is quick and convenient to use as the container **10** forms a scaled chamber correlated with the amount of gas needed in a gas tank to indicate and measure the amount of oil needed to be added to the gas tank to fill it with a proper oil-gasoline mixture. Then movement of the tube **24** to its lowermost position enables the container **10** and tube to act as a funnel for the measured oil to flow into a gas tank and to facilitate the filling of the tank with gasoline.

The invention defined and explained herein is applicable to a standard six-gallon, outboard motor, remote tank, but could very easily be converted to any outboard motor tank or any system whereby specific quantities of fluids or powdery substances must be mixed together to give the proper combining characteristics. Thus, when it is not desirable to mix amounts of materials to completely fill a fuel tank, or container, this invention provides a very quick, efficient manner to indicate, or measure the proper amounts of materials necessary to fill the empty portion of the container, and provides a novel and useful funnel means in combination therewith.

While in accordance with the patent statutes, one best known embodiment of the invention has been illustrated and described in detail, it is to be particularly understood that the invention is not limited thereto or thereby but that the inventive scope is defined in the appended claims.

What I claim is:

1. A portable measurer and funnel apparatus for use in measuring oil for delivery to a gasoline tank for proper oil-gasoline mixtures and for filling the gasoline tank and including in combination a measuring container having an open top and a bottom with a hole therein and made from an optically clear plastic material, a tube slidably but snugly received in said hole and extending into the container, said tube being longer than said container, an upwardly graduated measuring indicia on the tube, a downwardly graduated measuring indicia on the container indicating volume levels of a chamber formed in said container between the inner surface of said container and the periphery of said tube when said tube is moved up to extend at least to the top of said container, said indicia of the tube and the container being correlated to each other so that the volume of the chamber at all indicia thereof is inversely proportionate to a volume measured by a liquid level in a gasoline tank of known volume by the indicia on the tube to provide the proper quantity of oil which can be poured into said chamber through the open top of said container for use in filling the tank with an oil-gasoline mixture, said tube having open ends whereby after oil is supplied and measured in the chamber between said container and the periphery of said tube, said tube can be moved downwardly of said container to drain the contents thereof into the gasoline tank through said tube whereby the gasoline tank then can be filled with gasoline through said container and the added gasoline and oil will be in a predetermined ratio.

2. A portable measurer and funnel apparatus for use in measuring oil for delivery to a gasoline tank for proper oil-gasoline mixtures for filling the gasoline tank and including in combination a measuring container having an open top and a bottom with a hole therein and being made from at least a translucent plastic material, a tube slidably but snugly received in said hole and extending into the container, an upwardly graduated measuring indicia on the tube, a downwardly graduated measuring indicia on the container indicating volume levels of a chamber formed in said container between the inner surface of said container and the periphery of said tube when said tube is moved to extend at least to the top of said container, said tube being as long as said indicia on said container, said indicia of the tube and the container being correlated to each other so that the volume of the chamber at all indicia thereof is inversely proportionate to a volume measured by a liquid level in a gasoline tank of known volume by the indicia on the tube to provide the required quantity of oil for use in filling the gasoline tank with a proper oil-gasoline mixture, said tube being exposed at its lower end to be dipped into a gasoline tank and having open ends whereby after oil is supplied and measured in the chamber between said container and the periphery of said tube, said tube can be moved downwardly of said container to drain the contents thereof into the gasoline tank through said tube whereby the gasoline tank then can be filled with gasoline through said container and the added gasoline and oil will be in a predetermined ratio.

3. A portable measurer and funnel apparatus for use in measuring oil for delivery to a gasoline tank for proper oil-gasoline mixtures for filling the gasoline tank and including in combination a measuring container having an open top and a bottom with a hole therein, a cylindrical tube slidably but snugly received in said hole and extending into the container, said tube being longer than said

container and having an outwardly flanged upper end, an upwardly graduated measuring indicia on the tube, a downwardly graduated measuring indicia on the container indicating volume levels of a chamber formed in said container between the inner surface of said container and the periphery of said tube when said tube is moved to extend at least to the top of said container, said indicia of the tube and the container being correlated to each other so that the volume of the chamber at all indicia thereof is inversely proportionate to a volume measured by a liquid level in a gasoline tank of known volume by the indicia on the tube to provide the proper quantity of oil for use in filling the remainder of the gasoline tank with an oil-gasoline mixture, said tube having open ends whereby

after oil is supplied and measured in the chamber between said container and the periphery of said tube, said tube can be moved downwardly of said container to drain the coil therein into the gasoline tank through said tube whereby the gasoline tank then can be filled with gasoline through said container and the added gasoline and oil will be in a predetermined ratio.

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