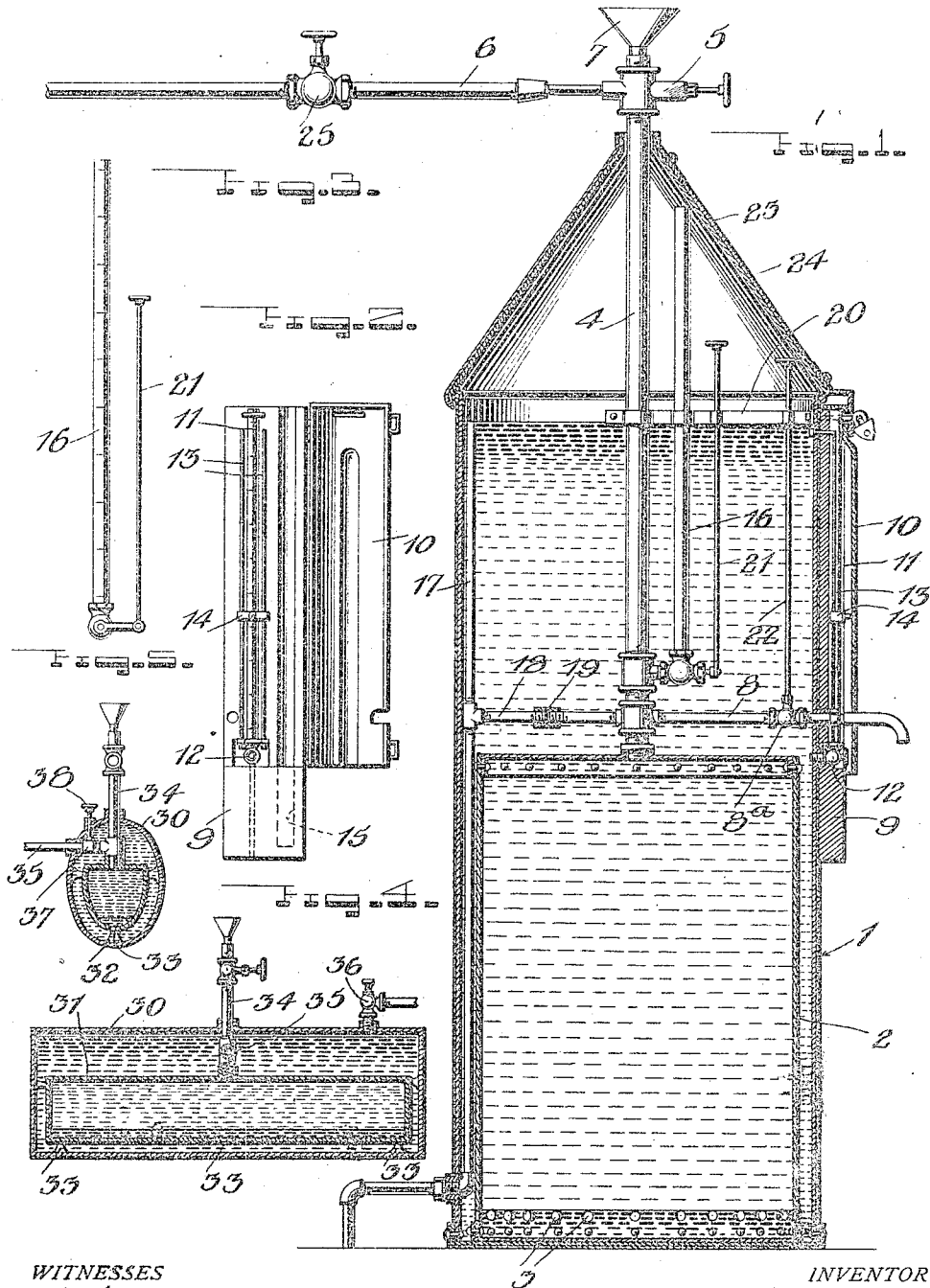


T. T. BATHURST.
STORING AND DISPENSING APPARATUS.
APPLICATION FILED FEB. 12, 1913.

1,127,391.

Patented Feb. 9, 1915.



WITNESSES

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STORING AND DISPENSING APPARATUS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS T. BATHURST, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented new and useful Improvements in Storing and Dispensing Apparatus, of which the following is a specification.

This invention relates to improvements in storing and dispensing apparatus, and more particularly to a device for storing and dispensing volatile or combustible liquids in which the liquid is at all times surrounded by a heavier non-combustible liquid.

While this invention may have many uses it is primarily designed to provide a safe portable means for storing and dispensing gasoline or other volatile and combustible liquids. The gasoline is contained within a container submerged and surrounded by a heavier non-combustible liquid, preferably water, having a dispensing pipe leading from the top of the gasoline container so that the gasoline is drawn off at the top and the device is so arranged that as the gasoline is drawn off the surrounding water or heavier non-combustible liquid enters at the bottom of the container, the weight of the water above the container forcing the gasoline out through the dispensing pipe without the use of a pump. This device is provided with gages by which the amount of gasoline in the container is indicated, by which the specific gravity of the gasoline may be determined and by comparison of the gages they will indicate whether or not the device has been tampered with and water substituted for gasoline that has been drawn off.

While the preferred forms of this invention are illustrated upon the accompanying sheet of drawing, yet minor detail changes may be made without departing from the scope thereof.

Figure 1 is a view in vertical section taken through the one form of this device. Fig. 2 is an enlarged detail view in front elevation of the indicator or gage box. Fig. 3 is an enlarged detail view of the gasoline gage tube. Fig. 4 is a vertical sectional view taken through a modified form of this device. Fig. 5 is a view in transverse section of Fig. 4.

In accordance with this invention an outer container or tank 1 is provided which is preferably of greater height than width. An inner gasoline container 2 of less height

and diameter rests upon the bottom of the outer container. The outer container is opened at the top, while the inner container is closed at the top and provided with one or more openings 3 in proximity to the bottom of the outer container, preferably in the side of the inner container adjacent its bottom or in its bottom. A filling pipe 4 leads from the top of the inner container to a point above the top of the outer container where it is connected by a gate valve 5 to a water supply pipe 6, preferably from the city water supply. The water supply preferably enters the valve at right angles to the filling pipe and the valve on the side diametrically opposite the filling pipe is provided with a filling opening 7 for the admission of gasoline. A dispensing tube 8 leads from the top of the inner container provided with a valve 8^a within the outer container, or from the filling pipe adjacent the top of the container, and passes through the walls of the outer container preferably at right angles to the filling pipe and is provided at its exterior with a discharge nozzle. The discharge nozzle preferably extends through one side of an indicator or gage box 9 secured to the outer side of the outer container, which box extends from the top of the container to some distance below the discharge nozzle and is provided with a door 10 opening on a line with the discharge nozzle. Within the box is arranged a water gage 11 open at the top and connected at the bottom with the interior of the outer container at a level slightly above the top of the inner container. The usual pet cock 12 on the bottom of the gage glass holder will discharge through an opening in the bottom of the box. The safety rods 13 on each side of the gage glass are bent at right angles at the top, passed through the box and wall of the outer container and are secured thereto upon the inner side. The gage glass is provided with a movable indicator 14 comprising a horizontal band bent about the front of the gage glass with the ends passing under and around the safety rods whereby the indicator will be retained in the desired position. The water gage glass is preferably arranged adjacent the discharge nozzle leaving a space 15 in the indicator of gage box for storing the longer gasoline gage glass hereinafter described for shipping.

A gasoline gage glass 16 is arranged pref-

erably parallel with and attached to the filling pipe having a connection therewith at the bottom adjacent the top of the inner container and open at the top. The water gage glass and the gasoline gage glass are graduated for the purposes of comparison as hereinafter described. An overflow pipe 17 is arranged within the outer container along one side thereof passing between the outer and inner containers having an opening near the bottom of the outer container to a sewer drain and extending to the proper level near the top of the outer container. A by-pass 18 is provided between the overflow pipe and the filling pipe connected with a union having a blind melting gasket 19. It is preferable to arrange a brace 20 from the filling pipe to the wall of the outer container which brace will act as a support for the gasoline gage glass and also for the stems 21 and 22 of a gasoline gage valve and a dispensing valve in the dispensing pipe. The gasoline gage glass and the handles of the gasoline gage valve and dispensing valve preferably extend above the top of the outer container.

The top of the outer container is provided with a conical cover 23 having an opening in its top slightly larger than the filling pipe and a vertical opening in one side over the valve handles, which opening is provided with a hinged door 24. It is preferable to arrange the indicator or gage box and vertical opening in the top, so that the doors of both the top and box may be secured by a single padlock.

The method of operation is to first close the dispensing valve and open the gate valve, admit water through the filling pipe 4 until the water stands at a level above the dispensing tube 8, then open the dispensing valve and allow the water to seek the level thereof. Close the dispensing valve, open the gate valve admitting water to the filling pipe until it reaches the level of the overflow pipe, then admit gasoline while the water is running which provides a means for screening the gasoline. The water will pass out the overflow pipe and the gasoline being lighter than the water will collect in the top of the inner container forcing the water below it through the apertures in the bottom of the inner container. Admit water and gasoline until the filling pipe is full to overflowing with gasoline which insures a full gasoline container without danger of letting gasoline into the water receptacle. When the water in the outer container seeks its level at the overflow, the gasoline in the filling pipe seeks its level at the top of the filling pipe, thereby obviating the danger of overflowing the inside container.

To dispense the gasoline it is only necessary to open the dispensing valve as the weight of the water above the inner con-

tainer will force the gasoline through the top of the container down to the last drop, the water seeking its former level and thereby drawing off no water. It is to be noticed that the water gage glass in the gage box is of less length than the gasoline gage glass attached to the filling pipe, the reason thereof being that gasoline is lighter than water. These two gage glasses are properly graduated so that the outer water gage glass is so graduated as to indicate by the level of the water in the outer container the amount of gasoline drawn from the inner container. The gasoline gage glass is so graduated as to compare with the water gage glass in such a manner that it can be easily distinguished as to whether the tank is tampered with and also tell the specific gravity of the gasoline. The water gage glass is graduated in gallons to indicate each gallon of gasoline that is drawn off, as each gallon of gasoline drawn off causes the level of the water in the outer container to sink as the water enters through the bottom of the inner container taking the place of the gasoline removed, and therefore the level of the water in the water gage glass may be graduated to indicate the amount of gasoline drawn off. The gasoline gage glass has corresponding graduations so that when the valve at the bottom of the gasoline gage is open it permits the gasoline to seek the level of the corresponding graduations which would indicate whether the apparatus had been tampered with or not, because should a gallon of gasoline be drawn off and a gallon of water substituted the water level would be higher in the water gage glass than the corresponding graduations on the gasoline gage glass at which the gasoline would stand.

The inner gasoline container is made and originally tested to contain a certain known quantity of gasoline of the lowest commercial specific gravity, and the relation of the height of the overflow for the water in the outer container to the filling pipe is such that when the container is filled with gasoline of highest commercial specific gravity the gasoline will overflow at the top of the filling pipe insuring that the inner container is not flooded. When a high grade of gasoline is used the filling pipe will overflow before the gasoline container is filled. The relation of the height of the overflow is such that there is a sufficient amount of water in the outer container to force all of the highest commercial grade of gasoline out of the inner container, so that when the lower grade of gasoline is used when the water reaches its level there will be a certain amount of gasoline left in the inner container which will necessitate the addition of more water to dispense all of the gasoline.

The gasoline gage glass is graduated in

a series of scales for different specific gravity and is provided with an indicator, so that by comparing the two glasses the specific gravity of the gasoline contained will be immediately indicated, and the indicator may be placed in proper position on the proper scale, so that in case the apparatus has been tampered with by taking out gasoline and substituting water it will be immediately revealed by comparing the two gages.

The outlet from the overflow pipe to the sewer is above the opening of the inside container so that should the overflow pipe be broken off a water seal would still be left. To prevent freezing in cold weather a brine is used instead of water which can be readily made by putting salt in the bottom of the outer container. The outer container and top cover are preferably provided with an asbestos covering. The fusible gasket will melt at 125 degrees F. or any desired degree, so that should the temperature in the room be caused by any source to reach the determined degree the gasket would melt and automatically discharge the gasoline from the container through the overflow pipe or otherwise to the sewer or suitable container in a safe place. When the valve in the gasoline gage is open for the purpose of making tests the air will enter through the top and permit the gasoline to seek its level. When the test is completed it is only necessary to blow down the tube and immediately close the valve leaving no gasoline to evaporate or become wasted. According to the location of the device, it may be desirable to insert a valve 25 in the water pipe 6 between the filling valve and source of supply, which may be regulated to permit any desired supply of water while filling, thus insuring a sufficient balance for the gasoline.

The device shown in Fig. 1 is a portable storage dispensing apparatus for a garage or other building. Figs. 4 and 5 illustrate the application of this invention to the gasoline tank of an automobile in which the outer tank or container 30 may be of any desired shape and in this particular instance it is illustrated as being oval in cross-section, which is the popular form at the present time for automobile gasoline tanks. The gasoline container 31 is preferably flat on the top with its sides corresponding in shape to the shape of the outer container wall, and is preferably held above the bottom of the outer container by rigid supports 32. In this form it is preferable to provide a single central opening 33 in the gasoline tank upon the under side. The filling pipe 34 through which both water and gasoline enter extends from the top of the gasoline container through the top of the outer container wall, and is preferably provided with

a gasoline pipe 35 leading at right angles thereto in proximity with the top of the gasoline tank through the outer container wall to the carbureter. The outer container is provided with a pet cock 36 upon its upper side leading to an overflow. It is preferable that the gasoline pipe leading to the carbureter be provided with a valve 37 on the interior of the outer container having a stem 38 passing through a stuffing box in the walls thereof. The relation of the inner and outer containers to each other is such that when the outer container is filled with water and the inner container filled with gasoline there is a sufficient amount of water in the outer container to deliver all of the gasoline from the inner container. The same gages as shown in Fig. 1 will be applied to this container as well.

If preferable the gasoline gage glass may be arranged on the outside of the outer container in the same housing with the water gage glass closed with a valve on the inside of the outer container. If preferred a rotary pressure gage which accurately registers light pressures may be used instead of the glass tube, obtaining the same results by so doing. While in the form illustrated the inner gasoline container is shown stationary with a change of water level as the gasoline is dispensed, the same result could be obtained by a movable tank for containing the gasoline in the water so that as the tank is filled it rises and as the gasoline is dispensed the tank sinks. If desired the filling tube can be incased in a water jacket so that the gasoline will at all times be entirely surrounded by water, or the filling pipe may be so constructed that it can be telescoped beneath the surface of the water after filling.

What I claim is:

1. A storing and dispensing apparatus for volatile and combustible liquids, comprising an outer container adapted to contain a heavier non-combustible liquid, and an inner container for the lighter liquid supported therein and provided with an aperture adjacent the bottom of the outer container and communicating therewith, a filling pipe for filling both containers leading from the top of the inner container, a dispensing tube leading from the inner container, and an overflow pipe within the outer container all constructed in such relation to each other that upon introducing the liquids through the filling pipe, the lighter liquid will fill the inner container and thereafter overflow at the mouth of the filling pipe and the heavier liquid will pass through the inner container completely surrounding the same and pass out through the overflow.
2. In a storing and dispensing apparatus for volatile and combustible liquids, the combination with an outer container, of an

inner container communicating at the bottom with the outer container, a filling pipe leading from the inner container through the outer container for filling both containers, a dispensing tube leading from the inner container, and an overflow pipe leading from the outer container constructed and arranged so that upon the introduction of a combustible liquid with a heavier non-combustible liquid through the single filling pipe the inner container will be filled with the combustible liquid, the outer container filled with the heavier non-combustible liquid and thereafter the excess of the heavier non-combustible liquid will pass off through the overflow pipe, said heavier liquid dispensing the combustible liquid through the dispensing tube but not passing therethrough. 15

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Witnesses:

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