

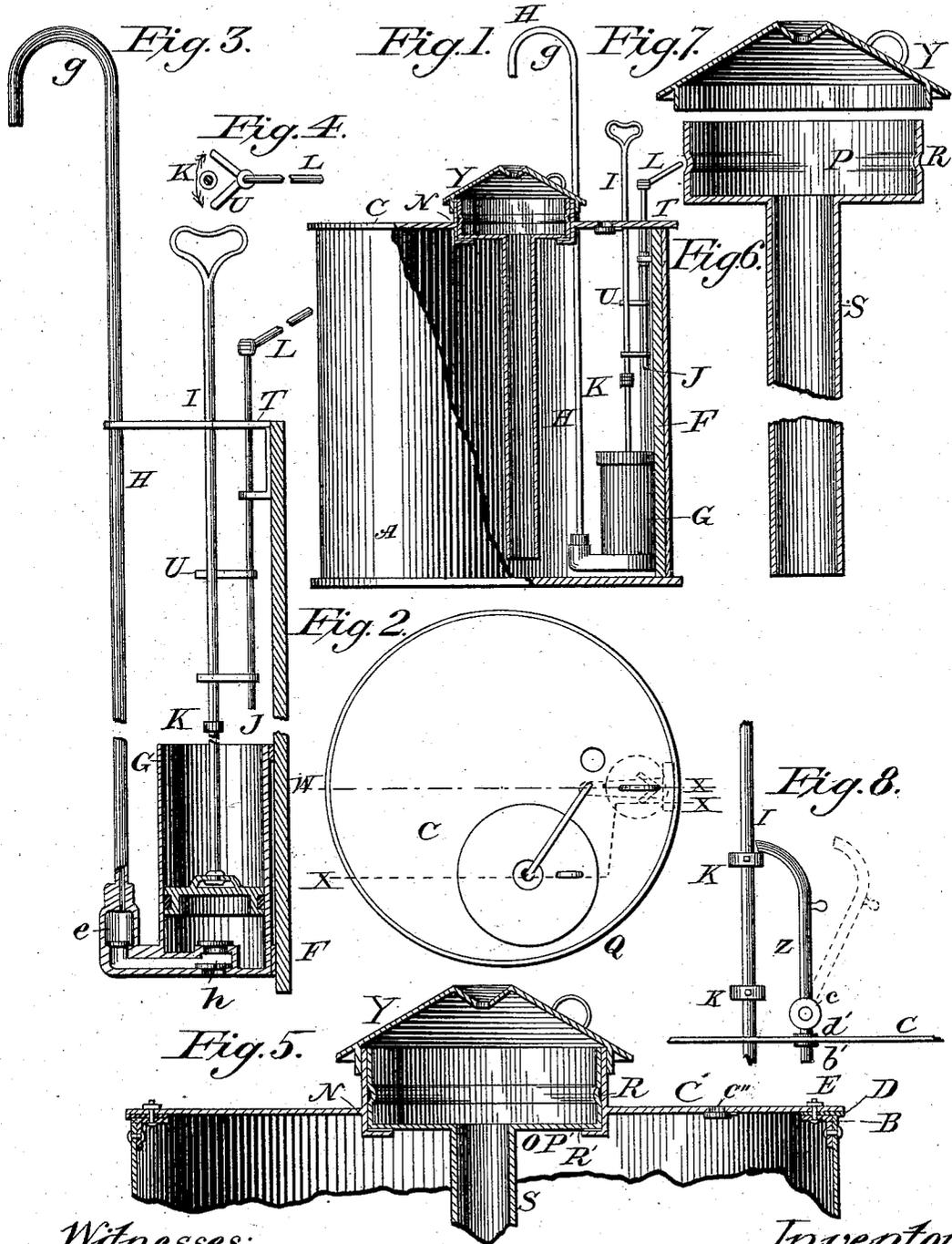
(No Model.)

S. F. & A. BOWSER.

STORAGE AND MEASURING TANK FOR VOLATILE LIQUIDS.

No. 372,250.

Patented Oct. 25, 1887.



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# UNITED STATES PATENT OFFICE.

SYLVANUS F. BOWSER AND AUGUSTUS BOWSER, OF FORT WAYNE, INDIANA; SAID SYLVANUS F. BOWSER ASSIGNOR, BY MESNE ASSIGNMENTS, TO SARAH F. BOWSER, OF SAME PLACE.

## STORAGE AND MEASURING TANK FOR VOLATILE LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 372,250, dated October 25, 1887.

Application filed June 21, 1886. Serial No. 205,822. (No model.)

*To all whom it may concern:*

Be it known that we, SYLVANUS F. BOWSER and AUGUSTUS BOWSER, citizens of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented a new and useful Liquid-Storage Tank or Can, of which the following is a specification.

Our invention relates to improvements in liquid-storage tanks or cans which are used for the storage and for measuring when the liquids are drawn out for use—as for delivery—such liquids or fluids as kerosene-oil, burning-fluid, and the light combustible products of petroleum.

Such tanks or cans are ordinarily used in dwelling-houses, factories, and stores. Such a tank or can should be made of durable materials, should be for all practical purposes substantially fire-proof, should have convenient and durable appliances for drawing and accurately measuring the tank's contents, and in cases where the said tank or can is used for the storage of the more combustible substances hereinbefore named, which substances are more or less volatile, the said tank or can should be made gas or air tight. The said tank or can, in order to meet a ready sale, must be constructed as inexpensively as possible.

The objects of our invention may therefore be stated as follows: first, to provide a substantially "fire-proof" tank or can for storing kerosene and other combustible fluids; second, to provide a convenient device for drawing from the said tank or can its contents, and one which is adapted to deliver the said contents either in the apartment where the said tank or can is located or by means of readily-attachable extensions be adapted to deliver the said contents in another apartment, which may be located above the one where the tank or can is located; third, to provide appliances for accurately measuring the contents of the said tank or can while it is being withdrawn without the use of outside measuring-vessels; fourth, to provide means by which any surplus liquid may be returned and mingled with the said liquid contents of the tank or can without admitting the escape of any gas which

may have accumulated in the upper part of the tank or can. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view with a portion cut away on line *x* to *x'*, Fig. 2. Fig. 2 is a top view of the tank or entire apparatus. Fig. 3 is an enlarged sectional elevation of the pump and measuring devices on line *w*, Fig. 2. Fig. 4 is a top view of the 'swinging gage with its radial arms U and handle L. Fig. 5 is one enlarged sectional elevation of the top portion of the can, showing the method of securing the cover and attaching the case P and sink N and its cover on line *x'*, Fig. 2. Fig. 6 is an enlarged sectional elevation of the case P on line *x'*, Fig. 2. Fig. 7 is an enlarged view of the cover of the case P on line *x'*, Fig. 2. Fig. 8 is another modification of the swinging gage.

Similar letters refer to similar parts throughout the several views.

In Fig. 1, A represents the case of the tank or can, which is made of heavy tin or of any of the various kinds of plate-iron or other material adapted to such uses. The tank or can A is preferably made, as shown, in a cylindrical form, and its top construction will be hereinafter more fully explained.

G represents a pressure-pump, which is fixed to a piece of wood, F, and attached in any suitable way to the side of the tank or can A a short distance above its floor, for the purpose of admitting into the pump-cylinder the liquid contained in the tank, and in order that the said pump may be adapted to operate properly the upper extremity of its cylinder also has internal connection with the interior of the said tank.

At H is represented a vertical conducting-pipe, the lower end of which connects with the pump G and terminates at its upper extremity in a curved delivery any desired height above the level of the cover C.

I represents a piston-rod which operates the pump, and J a gage which graduates the movement of the said piston-rod I. This gage J admits of some variation, which, though somewhat different in detail, accomplishes the same results in about the same manner, and is for

all useful and practical purposes essentially the same. The preferable form of this gage J is illustrated in Figs. 1 and 3.

J is a vertical rod, which is suspended in bearings at T T. Said rod J has a swinging or partially rotary motion, the direction of which is indicated by the double-headed arrow in Fig. 4. This rod J carries the radial finger-dogs U U, Figs. 1 and 3, and at its upper extremity the handle L, by which this mechanism is operated, as will be hereinafter fully explained. Another variety of this gage is illustrated in Fig. 8, in which I is the piston-rod, having to it attached the adjustable collars K K. To the cover C of the tank or can A is attached, by means of a nut, *d'*, above and a nut, *b'*, below, the bolt *C'*, in which is pivoted the swinging arm Z, the operation of which will be hereinafter described.

C represents the cover of the tank or can, and at the top of the side of the said tank or can is secured the angle-iron B. Between the cover C and the top flange of the angle B is placed any suitable packing, D, for the purpose of making an air-tight joint when the cover is secured by means of bolts E. When it is not desired to remove the cover C, it may be soldered on in the ordinary manner.

At N is inserted a sink, which may be lowered into and extend above the cover C, about as shown, or varied to suit the maker, having more above or more below the cover C, as desired or thought best; but we prefer to place it about as shown in the drawings. In the center of the bottom of the sink N is a large opening, O, of indefinite size.

P is a case adapted in size and form to just fill the sink N, being open at its top, and having in its side the notch or groove R, running entirely around the said case, and in its base plate the pipe or tube S, the inner part of which tube S connects with the inner part of the case P. The tube S is open at its lower extremity and connects with the inside of the tank or can A. At the lower extremity of the sink N there is represented an inturning flange, upon which the case P rests, and between these parts I have shown a packing, *R'*, which may be used or not, as desired, in connection with any suitable packing placed in the notch or groove R, for the purpose of forming an air-tight connection between the parts H and P.

At Y is a lid forming a closing for the case P, and at the apex of the said lid is a depression forming a funnel and having connection with the inside of the case P, the use of which will be hereinafter fully explained.

In Fig. 1 this tank or can is represented as being complete, and it will be ready for use when supplied with the liquid which it is intended to store. Having been so supplied, the lid Y is removed, and any desired vessel which is to be used as a receptacle for the liquid now to be drawn from the tank A is placed in the case P under the curved delivery of the pipe H. If, now, it is desired to draw one measure,

(such as two quarts,) the rod J is swung to one side in the direction of one of the arrow-heads, according to the side of the rod J that the radial finger U will be disposed in a vertical line directly over the dog K, which dog K is fastened to the piston-rod I. Now, when the piston-rod I is raised a sufficient distance, the dog K will engage the said finger U and arrest the movement of the said piston-rod I. The raising of the said rod I having raised the piston-head in the cylinder G and drawn within the said cylinder the desired measure of liquid through the valve at *h*, a downward movement to the end of the stroke of the said piston-rod I will send the said liquid out of the said cylinder G and through the valve at *e* up the delivery-pipe H, when it will be discharged into the receptacle in the case P, before mentioned. In like manner, if two measures of liquid are desired (four quarts) to be delivered, the rod J is moved so that the upper finger U will be in a vertical line over the dog K, when the operation of raising the piston-rod I is repeated until the dog K engages the upper radial finger U and is again depressed to the end of its stroke and a double measure of liquid has been delivered, as before described.

It is obvious that a larger or a smaller number of the radial fingers U may be placed upon the rod J and set different distances apart to give different measures of liquid, representing pints, quarts, gallons, &c., or other measures. In like manner in Fig. 8 the swinging arm Z and collars K K fill the office in this mechanism which is filled by the radial fingers U U and swinging rod J and collar K in Figs. 1 and 3. The measure of liquid having been drawn into the receptacle, as hereinbefore described, the receptacle is removed from the case P and the lid Y replaced, as shown in Figs. 1, 2, and 5, to protect the said case P from dust and dirt.

The object of the funnel in the top of the lid is to catch any drippings which may fall from the delivery-pipe H and conduct the same within the case P.

In Figs. 1, 2, and 5 we have illustrated the case P having connected at its lower extremity the pipe S, which pipe S extends nearly to the bottom of the tank or can A. The object of this pipe S is to form an air-tight connection with the upper surface of the liquid in the said tank or can and prevent the escape of gas which may arise from the stored liquid in the can. The further use of the said pipe S is as a conveyer through which the said tank or can A may be filled, or through which overflowing liquids from the delivery-pipe H, as well as any surplus liquid which at any time may have been drawn, may be returned to the interior of the tank or can A. To allow the ingress of air as the liquid is withdrawn, for the purpose of maintaining the atmospheric pressure within the said tank necessary to the proper operation of the pump, any suitable internally-

opening valve, C', may be applied to the side of the said tank, as shown at C' in Fig. 5.

To get at the interior of this tank or can for the purpose of cleaning or otherwise, it is only necessary to lift the case P out of the sink N, when access to the inside may be had through the hole or large opening O.

Before any measure of liquid is drawn from this tank or can, as hereinbefore described, it is first necessary to fill with the stored liquid the ascending column, termed herein the "delivery-pipe," from its base at the valve e to its overflow at its top g. This is performed by drawing upward and forcing downward the piston-rod I, which movements force the said liquid into the delivery-pipe H the desired height, when the proper length of strokes of the piston-rod I, under control of the graduating apparatus hereinbefore described, will deliver the desired measures of liquid.

When it is desired to deliver the contents of this tank or can into an apartment which may be located above the apartment in which this apparatus is located, it is only necessary to extend the delivery-pipe H, piston-rod I, and swinging rod J the desired distance, and to have a suitable connection with the dripping-funnel, which is located in the cover Y.

Having described our invention, we do not claim, broadly, a storage tank or can, A, having combined therewith a forcing-pump; but

What we do claim as new, and desire to secure by Letters Patent, is—

1. In combination with a liquid-storage tank or can having the cover C and sink N, with its perforation O, the case P, having an opening in its base-plate, to which is attached the pipe S, said pipe S communicating at its lower extremity with the interior of the can A, substantially as shown and described.

2. In combination with a liquid-storage tank or can having the cover C and case P, the cover Y, with a funnel in its upper extremity, substantially as shown and described.

3. A pump having the cylinder G and piston-rod I, in combination with collar or collars K and swinging stop or stops, substantially as shown and described.

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