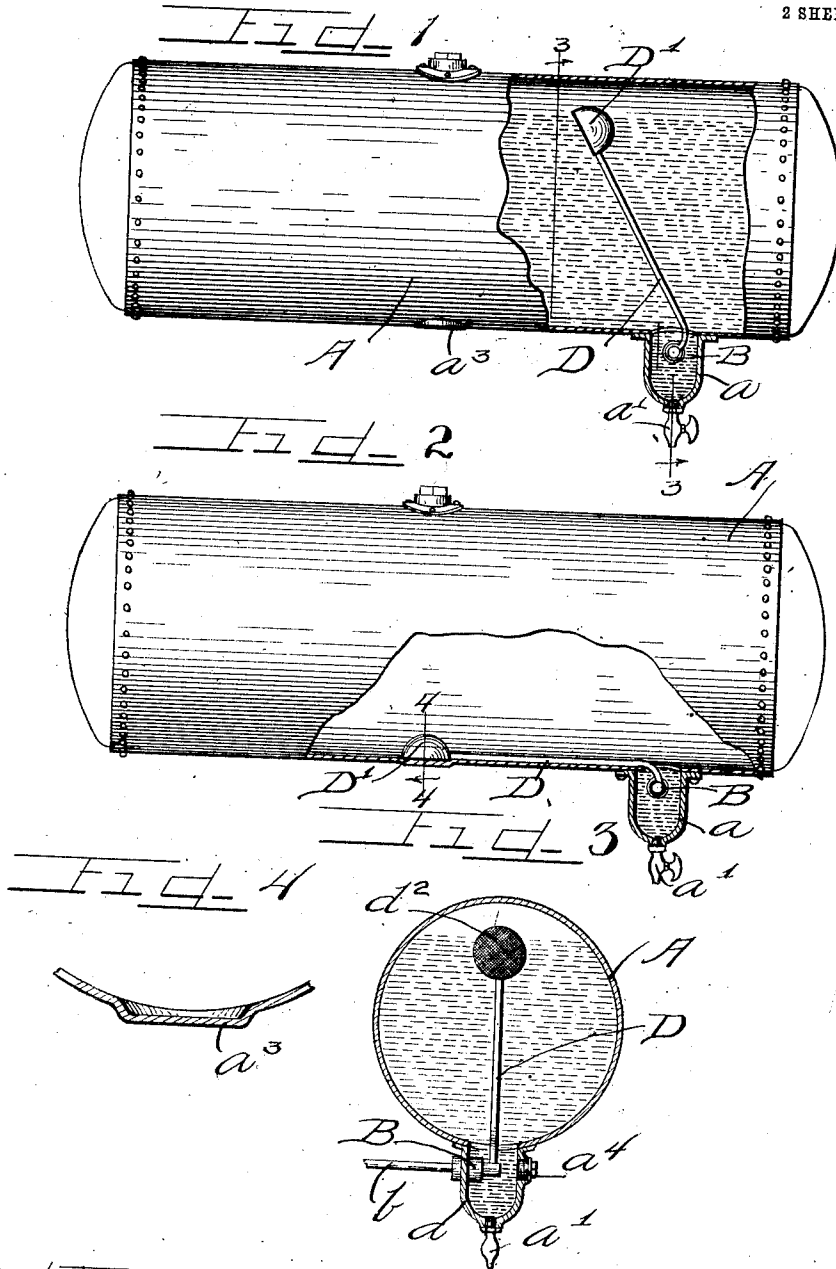


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 SURFACE DISCHARGE APPARATUS FOR TANKS.
 APPLICATION FILED SEPT. 2, 1909.

1,040,872.

Patented Oct. 8, 1912.

2 SHEETS-SHEET 1.



WITNESSES

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 O. B. Farnham

INVENTOR

Robert A. Brooks

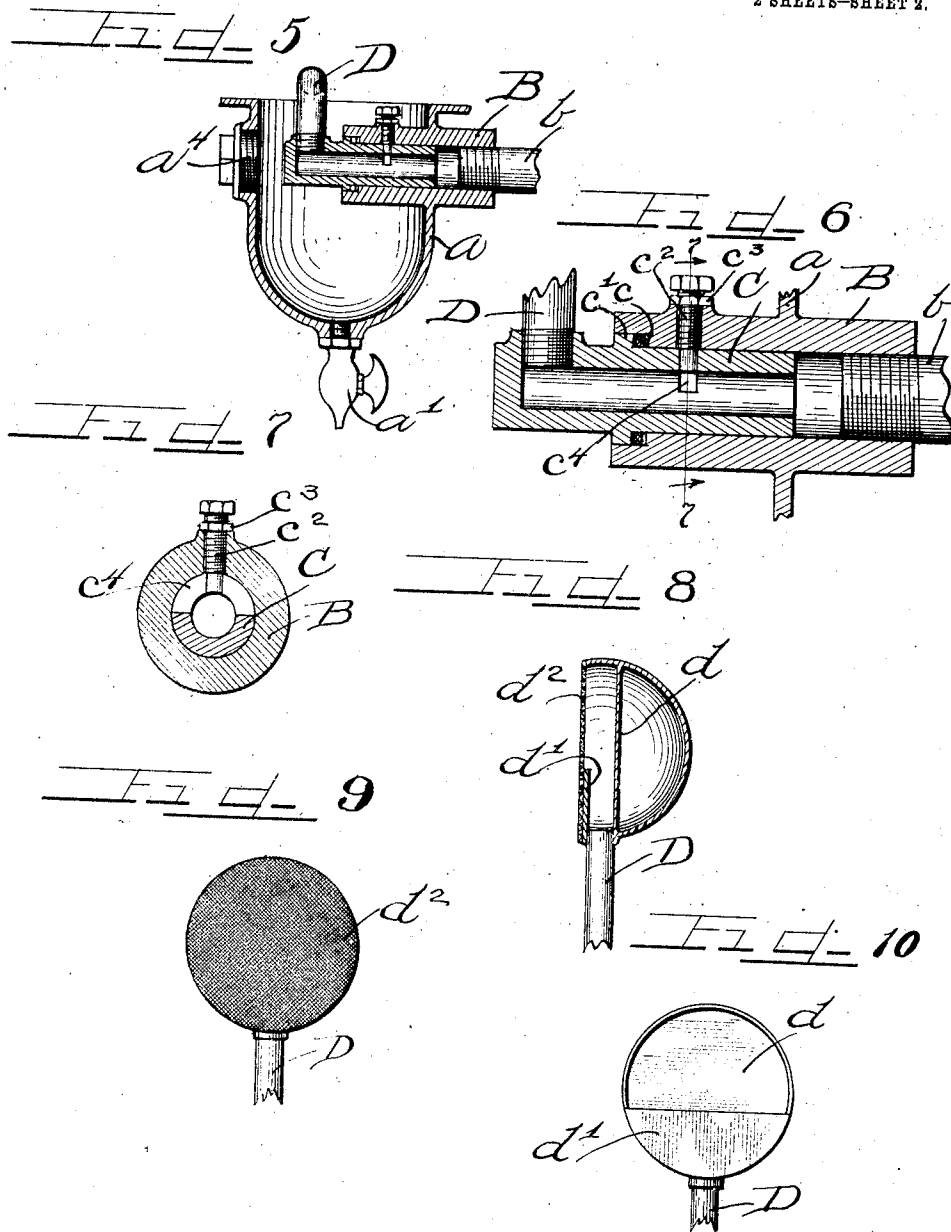
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ROBERT A. BROOKS, OF CHICAGO, ILLINOIS.

SURFACE DISCHARGE APPARATUS FOR TANKS.

1,040,872.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed September 2, 1909. Serial No. 515,884.

To all whom it may concern:

Be it known that I, ROBERT A. BROOKS, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Surface Discharge Apparatus for Tanks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

It has been a source of much difficulty and expense on the part of the users of the automobile and other vehicles and devices driven by hydro-carbon engines, that the liquid fuel in passing from the tank or receptacle containing the same, through the carbureter sometimes carries therewith small particles of dirt, or even small quantities of water which in the one case clogs up the carbureter and in the other prevents the flow of the hydro-carbon fuel therethrough and causes the engine or motor to operate irregularly or not at all. Various devices, some of which are quite expensive and complicated, have been devised for the purpose of removing such dirt or solid particles from the gasoline between the tank and carbureter. None have, however, proven very successful and frequently complications brought into the construction and the various more or less complicated valves employed have been a source of as great annoyance as the occasional stoppage of the carbureter from the causes above mentioned. Although great care is usually employed to prevent water being delivered into the tank with the gasoline, it nevertheless frequently happens, and, once in the tank, it inevitably acts to disturb the operation of the carbureter, no satisfactory means having been heretofore devised to remove the water in its passage from the tank to the carbureter.

The object of this invention is to provide means within the tank for feeding the gasoline or other hydro-carbon vapor from near the surface of the contained fluid in the tank to the carbureter, thereby permitting any water contained in the tank to remain undisturbed at the bottom, from whence it may be drained off, if desired.

It is also an object of the invention to afford in a device of the class described an intake pipe, which is adapted to be self-

adjusting with reference to the liquid in the tank to draw only from near the top thereof and to afford in such a tank a bottom recess or chamber adapted to collect all the dirt, water, or other material or ingredients in the gasoline or hydro-carbon and to permit the same to be discharged quickly from the tank without the possibility of the loss of any considerable quantity of hydro-carbon fluid.

It is also an object of the invention to afford a discharge pipe within the gasoline supply tank for explosive motors, the intake end of which is provided with a float to render the same self-adjusting in the tank with reference to the surface of the fluid contained therein.

The invention consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings: Figure 1 is a side elevation partly broken away of a gasoline tank containing mechanism embodying my invention. Fig. 2 is a similar view showing the tank practically empty. Fig. 3 is a section on line 3—3 of Fig. 1. Fig. 4 is a section on line 4—4 of Fig. 2. Fig. 5 is an enlarged detail section of the collecting recess and the discharge valve therefor. Fig. 6 is an enlarged sectional detail illustrating the pivotal engagement of the discharge pipe with the pipe leading to the carbureter. Fig. 7 is a section on line 7—7 of Fig. 6. Fig. 8 is an enlarged transverse section of the float and screen head for the discharge pipe. Fig. 9 is a face view thereof. Fig. 10 is a view similar to Fig. 9, but with the screen removed.

As shown in the drawings: A, indicates a gasoline or hydro-carbon tank of any kind or construction, which, in the construction shown is cylindrical. Near one end of the tank on the lower side thereof is a receptacle or chamber *a*, of small size, which communicates in the tank and is provided with a drip or vent cock *a'*, to discharge its contents. Said receptacle, as shown, is concave at its bottom, from the middle of which the drip cock extends so that all material or liquid contained therein will readily drain through the cock. Connected laterally in said receptacle and conveniently integral with one of the side walls thereof, is a horizontal sleeve B, as shown in Figs. 5 and 6, the outer end of which is internally threaded and affords connection with a pin-*b* lead-

ing to the carbureter. At the inner end of said sleeve is bored to receive a tube or pipe C, and at the inner extremity of said sleeve is bored to a larger size to receive packing c , against which fits a shoulder c' , on said pipe C.

Threaded into the side of the sleeve B, near its inner end is a set screw c^2 , which may be provided with a jam nut c^3 , to hold the same in adjusted position, and the end of which extends through a peripheral slot c^4 in the tube C, to hold the same from longitudinal movement in said sleeve, though permitting free rotation of said pipe or tube C, in said sleeve.

Threaded into the side of the pipe C, and near the inner closed end thereof, is a metal tube D, which extends upwardly from said receptacle into the tank and is there bent, as shown in Figs. 1 and 2, to permit the inner end of the pipe to lie flat within the tank when the tank is empty, and is of a length when the tank is filled to enable the inner end of the pipe to extend to near the top of the tank.

On the inner end of the pipe D, is secured a combined screen and float D', which, as shown, is constructed of metal and comprises a hemi-spherical shell into one side of which extends said pipe D, and which is divided by a partition d , into a rear closed chamber affording the float. On the front or open side of the shell is an upwardly projecting partition d' , extending for nearly half the width of said open side and secured on said open face in said partition d' , is a fine screen d^2 , preferably of copper wire gauze. In the bottom of the tank at a point coinciding with the position of the float and screen head D', when the tank is empty is a recess a^3 , adapted to permit the screen to fall therein to insure the thorough emptying of the tank and its hydro-carbon contents. Conveniently, the bottom of said recess at its middle point is in alinement with the bottom of the tank thereby permitting the recess to drain readily to the receptacle a , thus preventing any accumulation of water or sediment in said recess.

The operation is as follows: When the tank is filled with gasoline, the float raises the intake end of the pipe D, to bring the screen thereon to the surface of the liquid in the tank. Water and sediment being heavier, sink to the bottom of the tank and eventually to the receptacle a . As the gasoline or other hydro-carbon is consumed the intake end of the pipe gradually descends at all times being positioned to take the liquid from, at, or near the surface of the tank. When the tank is emptied, the screen face at the intake end of the discharge pipe drops into the recess a^3 , in the bottom of the tank, thus removing the gasoline or other hydro-carbon to the last drop except from the

small receptacle a , extending below the tank. In this the water and sediment has accumulated (should any be present) and if, before refilling the tank, the vent or drip cock be opened, all such material may be discharged and practically without loss of gasoline, inasmuch as the receptacle a , may be very small relatively to the size of the tank, the proportions shown in the drawings being somewhat exaggerated for the purpose of clearness of illustration. The operation is wholly automatic and positive, and, owing to the extremely simple construction, does not add greatly to the expense as compared with tanks as at present constructed.

Numerous details of the construction may, of course, be varied, as, for instance, for convenience a tap or plug a^4 , may be inserted in the side of the receptacle a , in alinement with the sleeve B, to facilitate assembling and also to afford access to the interior of the receptacle, should it ever be desired.

I have shown but one of several constructions embodying my invention. I therefore do not purpose limiting this application for patent otherwise than necessitated by the prior art, as obviously many variations from the particular construction and form shown are possible without departing from the principles of this invention.

I claim—

1. The combination with a tank of an outlet pipe therefor pivoted therein and a shell on the intake end of said pipe comprising an air tight chamber or float and an intake chamber with which said pipe communicates, said float adapted to support said intake chamber at approximately the surface of the liquid in the tank.

2. A tank having a receptacle connected in the bottom thereof, an outlet pipe extending through the wall of said receptacle, a discharge pipe pivotally connected with the outlet pipe and extending into the tank, a shell at the upper end of said discharge pipe comprising an intake chamber communicating with said outlet pipe and a float acting to hold the intake chamber near the surface of the liquid in the tank, and a screen in said intake chamber adapted to strain the liquid as it flows into the chamber.

3. A tank, a receptacle connected in the bottom thereof, a discharge pipe pivotally connected above the bottom of said receptacle, a float on the intake end of said pipe extending beyond the end thereof and provided with a chamber with which the intake pipe communicates and a screen affording the outer wall of said chamber.

4. In a device of the class described a tank for liquid, a receptacle connected to the bottom thereof and communicating therewith, a pipe pivotally connected in the receptacle adapted to draw the liquid from the surface of the tank, a float connected to

the pipe and having a chamber through which the liquid flows to the pipe, said tank having a depression in the bottom of the same for receiving the float when the surface of the liquid is near the bottom of the tank, thereby permitting all of the liquid to be drained from the tank.

5. In a device of the class described, a tank, a receptacle secured to the bottom thereof and communicating with the tank, a sleeve integral with the receptacle, a shaft journaled in the sleeve, an oscillating pipe secured to said shaft and projecting into the tank, and a float secured to the upper end of said pipe and provided with an intake chamber with which said pipe communicates to completely empty the tank of its pure liquid content.

6. A device of the class described comprising a tank, a receptacle opening from the bottom thereof, a shaft in said receptacle adapted to turn, a pipe communicating therewith adapted to turn, and a float secured to the pipe having an air chamber and a discharge chamber, said discharge chamber opening into the pipe, and a screen forming one wall of the discharge chamber.

7. The combination with a tank having a depression in the bottom thereof of a pipe pivoted therein to swing from the top to the bottom of the tank and a shell secured to the end of said pipe embracing an inlet

chamber which communicates with the pipe and a float for holding the inlet end of the pipe to receive the liquid from the upper strata of liquid in the tank until the inlet chamber rests in the depression in said tank to completely empty the tank of its liquid content.

8. In a device of the class described a tank, a receptacle communicating therewith, a sleeve extending through one wall of the receptacle, a circumferentially slotted pipe extending at one end into the sleeve, means secured to the sleeve and extending into the slot in the pipe adapting the pipe to turn, but preventing longitudinal movement thereof, a pipe secured to the aforesaid pipe and a float for holding the inlet end of the last named pipe adjacent the surface of the liquid in the tank.

9. A device of the class described embracing a tank, an oscillatable outlet pipe therein and a shell secured on said pipe comprising a float and an intake chamber with which said pipe communicates.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

ROBERT A. BROOKS.

Witnesses:

K. E. HANNAH,
H. ASHLIP.