(No Model.)

L. SCHUTTE & A. S. VOGT.

APPARATUS FOR DELIVERING MEASURED CHARGES OF FLUID.

No. 566,025. Patented Aug. 18, 1896.

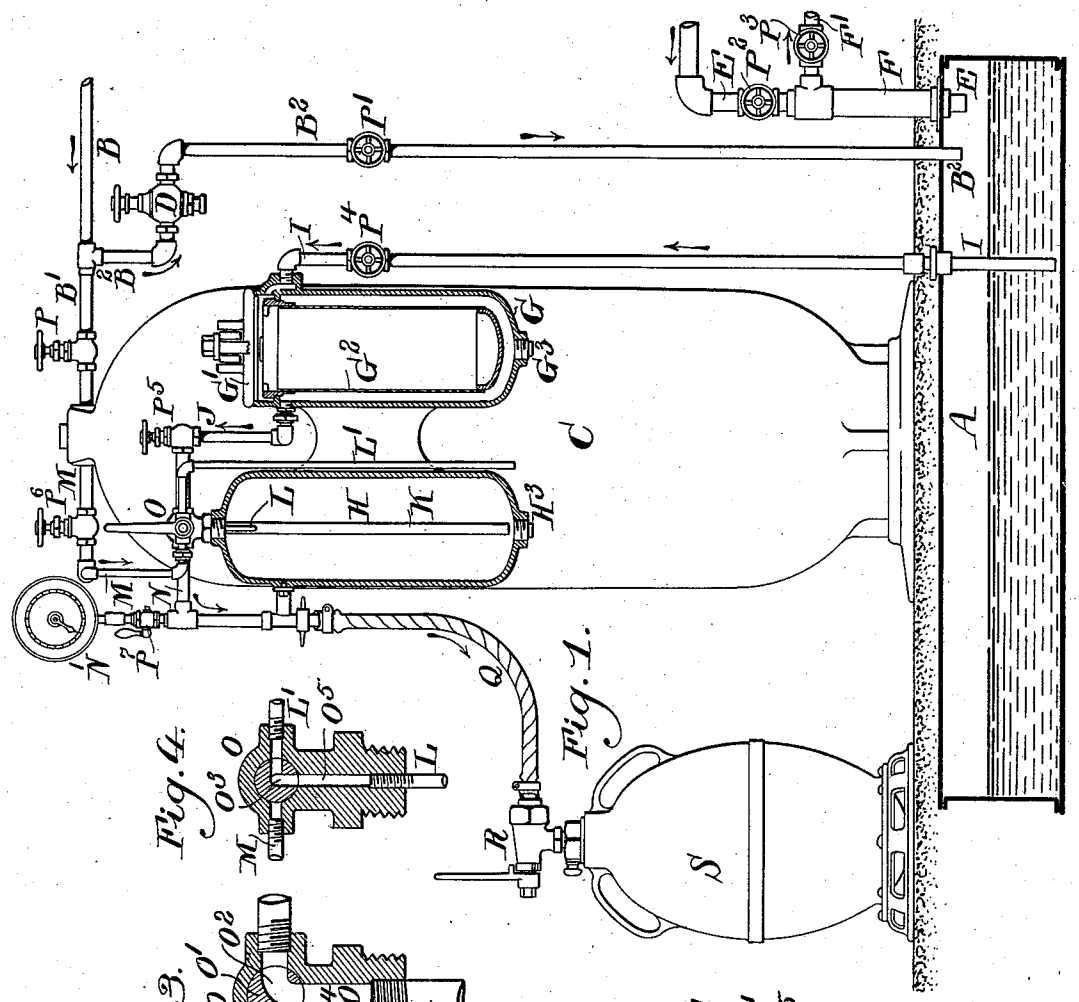

Fig. 1.

Fig. 4.

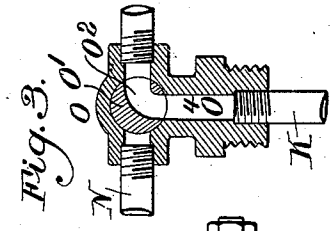

Fig. 3.

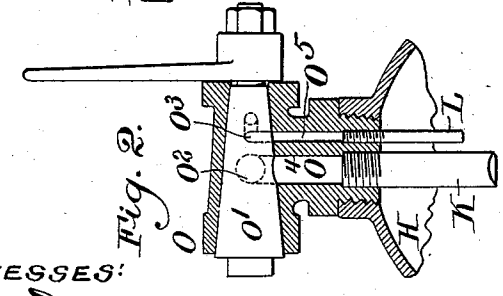

Fig. 2.

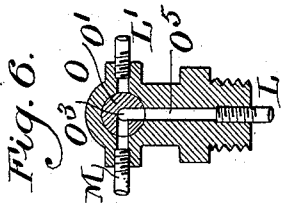

Fig. 6.

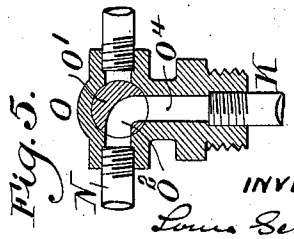

Fig. 5.

WITNESSES:

Henry Pauly

Henry J. Jack

INVENTORS:

Louis Schutte

Axel S. Vogt

by their atty.

Francis T. Chambers

UNITED STATES PATENT OFFICE.

LOUIS SCHUTTE, OF PHILADELPHIA, AND AXEL S. VOGT, OF ALTOONA, PENNSYLVANIA.

APPARATUS FOR DELIVERING MEASURED CHARGES OF FLUID.

SPECIFICATION forming part of Letters Patent No. 566,025, dated August 18, 1896.

Application filed May 8, 1895. Serial No. 548,496. (No model.)

To all whom it may concern:

Be it known that we, LOUIS SCHUTTE, a citizen of the United States, residing in Philadelphia, county of Philadelphia, and AXEL S. VOGT, a subject of the King of Sweden and Norway, residing in Altoona, county of Blair, State of Pennsylvania, have invented a new and Improved Apparatus for Delivering Measured Charges of Fluid, of which the following specification is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

Our invention relates to apparatus the purpose of which is to deliver measured charges of fluid.

Primarily our apparatus is designed for filling what we may call "oil-torches" with a measured charge of hydrocarbon oil and a charge of compressed air which will force the oil out of the torch when its discharging-nozzle is open.

The nature of our invention will be best understood as described in connection with the drawings, in which it is illustrated, and in which—

Figure 1 is a side elevation of our apparatus with an oil-torch shown in position to be filled with oil and compressed air. Fig. 2 is a section taken through the top of the measuring vessel and of the valve-chamber and valve by which the vessel is charged and discharged. Fig. 3 is a section through the valve-chamber and valve, taken through the oil-supply pipe and showing the valve in position for filling the measuring vessel. Fig. 4 is a section through the valve in the same position as in Fig. 3, but on a plane which exhibits the air-vent connection. Fig. 5 is a section taken on the same plane as Fig. 3, but showing the valve turned to the position it occupies in discharging the vessel; and Fig. 6 shows the connection made by the valve in this position with the compressed-air pipe.

A indicates the tank containing the fluid to be delivered in measured quantities.

B is a pipe leading from an air-compressor, (not shown,) and in the arrangement illustrated one branch, B′, passes to a compressed-air reservoir C, while another branch, B^2, passes to the tank A.

D is a pressure-regulating valve by which the maximum pressure of air passing through the pipe B^2 is regulated.

E is a pipe leading into the tank A and by which the said tank is charged with fluid. In the construction shown this pipe passes through another pipe F, also opening into the tank A and by which air contained in the tank escapes to the connection F′ as the level of the fluid rises.

G is a strainer consisting, as shown, of a cylindrical outer casing open at the top and provided with a cover G′.

G^2 is a cylindrical sieve set into the casing of the strainer G and open at the top, so that on the removal of the cover G′ any foreign matter retained in the sieve can be removed.

G^3 is an opening in the bottom of the outer casing of the strainer, which is normally closed, but useful in cleaning out the casing.

H is a measuring vessel having, like the strainer G, an opening at its bottom (indicated at H^3) and which is normally closed, and having also an opening at the top, with which communicates the valve-chamber O.

I is a pipe leading from the bottom of the tank A and opening into the strainer G in such a way that the fluid delivered through it will pass to the inside of the sieve G^2.

J is a pipe leading from the strainer G outside of the sieve G^2 to the valve-chamber O, communicating with the measuring vessel H.

K is a pipe leading from the bottom of the measuring vessel H to a passage O^4 in the valve-chamber.

L is a pipe leading from the upper part of the measuring vessel H to a passage O^5 in the valve-chamber, the two passages O^4 and O^5 being alongside of each other, as indicated in Fig. 2.

M is a pipe leading from the compressed-air reservoir C to the valve-chamber O.

N is a pipe leading from the said valve-chamber O and serving the purpose of a delivery-pipe. Connected with the pipe N is a pressure-regulator N′, by which the pressure can be observed by the operation of opening the cock-valve P^7, and also a flexible pipe Q, by which connection is made to the receptacle in which the measured charge is to be delivered, such a receptacle being indicated at S, and the flexible pipe Q being shown in

Fig. 1 as coupled with the receptacle through the valve-chamber R at the top thereof.

O′ is a cock-valve working in the valve-chamber O, and provided with two annular passages O^2 and O^3, the construction of which is plainly shown in the drawings, and which are adapted in one position to couple the pipe J with the pipe K and the pipe L′ with the pipe L, in another position to couple the pipe N with the pipe K and the pipe M with the pipe L, while in an intermediate position, that, for instance, indicated in Fig. 1 of the drawings, the pipes K and L are closed.

P is a valve situated in the pipe B′; P′, a valve situated in the pipe B^2; P^2, a valve situated in the pipe E; P^3, a valve situated in the pipe F′; P^4, a valve in the pipe I; P^5, a valve in the pipe J; P^6, a valve in the pipe M, and P^7 a valve in the offset of the pipe N, leading to the pressure-gage N′. The convenience and use of this system of valves are obvious.

The tank A being charged with fluid, compressed air is forced into the top of the tank through the pipe B^2 until the pressure is sufficient to force the fluid with the desired rapidity into and through the strainer G to the measuring vessel H, and we will mention here that while we prefer to utilize the power of compressed air for forcing the fluid to the measuring vessel, the result can obviously be secured in other ways, as, for instance, by placing the tank at a proper elevation. The oil is forced from the tank A through the pipe I into the inside of the sieve G^2, and through the interstices of this sieve, which may be of perforated metal, wire-cloth, or any well-known form of filtering material, it passes to the annular space surrounding the sieve, thence through the pipe J into the measuring vessel H, the cock-valve O′ being in the position shown in Figs. 3 and 4. As the oil fills the vessel H the air escapes through the pipes L and L′, and when the vessel is full the fact is announced by the escape of some oil through the open pipe L′, which notifies the operator to at once turn the valve O′, so as to close the connection with the measuring-tank, the valve in the position indicated by the lever in Fig. 1 serving to close both the passages O^4 and O^5. The receptacle to be filled having been coupled with the delivery-pipe, the valve O′ is then thrown to the position indicated in Figs. 5 and 6, and the compressed-air pipe M being in this position coupled with the pipe L the air passes to the inside of the measuring vessel and forces the charge of liquid out through the pipe K, the channel O^4, and the delivery-pipe N, and it will be seen that after the charge from the measuring vessel is thus delivered to the proper receptacle it will be followed by compressed air passing through the same channel as the liquid and entering the receptacle until the pressure therein is equal to that in the reservoir C. In this way the receptacle to be charged is charged under pressure with a measured quantity of liquid and with a known volume of compressed air, which can be used, if desired, for forcing the liquid out of the receptacle. The measuring vessel is then again charged in the way described and again emptied.

It will be obvious, of course, that while we speak of compressed air, any gas under pressure would serve the same purpose, and the adaptability of our apparatus for filling bottles or other receptacles with fluids charged with gases, such as carbonic-acid gas, is of course obvious.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for delivering measured charges of fluid, a measuring vessel as H, a tank as A adapted to contain a supply of the fluid to be measured, a supply-pipe leading from tank A to vessel H, compressed-air conduits leading from a source of supply to said tank and vessel, a delivery-pipe leading from the bottom of vessel H, and valves whereby the supply-conduit can be closed when the vessel is full, the delivery-pipe opened, and the compressed-air conduit also opened into the vessel H to force the charge out of it.

2. In an apparatus for delivering measured charges of fluid, a measuring vessel H, in combination with a strainer G provided with a cylindrical screen G^2 and a cover G′ by which access is given to the screen a conduit leading from the strainer outside of the screen to the vessel H, a reservoir of fluid and a pipe leading therefrom to the inside of the strainer-screen a reservoir of compressed air and a pipe leading therefrom to vessel H, a delivery-pipe leading from the bottom of vessel H, an air-vent from vessel H and valves whereby the vessel H can be charged and discharged as specified.

3. In an apparatus for delivering measured charges of fluid, a measuring vessel H having in combination a charging-pipe J, a discharging-pipe N, an air-vent L′ and a pipe M, for delivering compressed air, all opening into a valve-chamber O and a valve working in said chamber as described and so as to in different consecutive positions first connect the vessel with pipe J and open the air-vent L′ while closing the other connections, second, close all connections and, third, open the delivery-pipe from and the air-pipe to the vessel maintaining the other connections closed.

LOUIS SCHUTTE.
AXEL S. VOGT.

Witnesses as to Louis Schutte:
FRANCIS T. CHAMBERS,
FREDERICK W. BAUER.
Witnesses as to Axel S. Vogt:
CHAS. W. KEPHART,
W. R. FORSTER.