No. 729,277. PATENTED MAY 26, 1903.

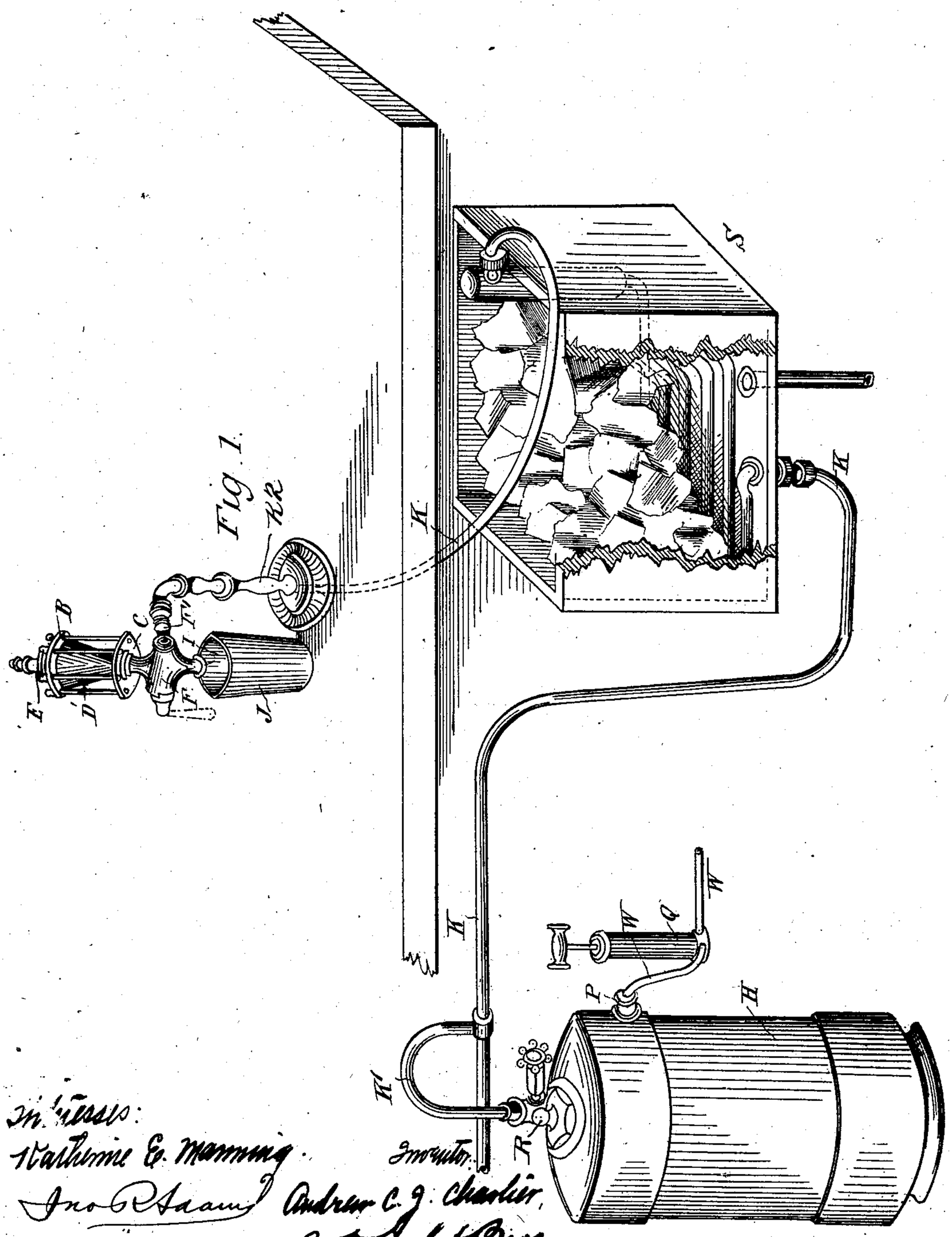
A. C. J. CHARLIER.

APPARATUS FOR DRAWING GASEOUS LIQUIDS.

APPLICATION FILED NOV. 16, 1901.

NO MODEL. 2 SHEETS—SHEET 1

Fig. 1.



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NO MODEL. 2 SHEETS—SHEET 2.

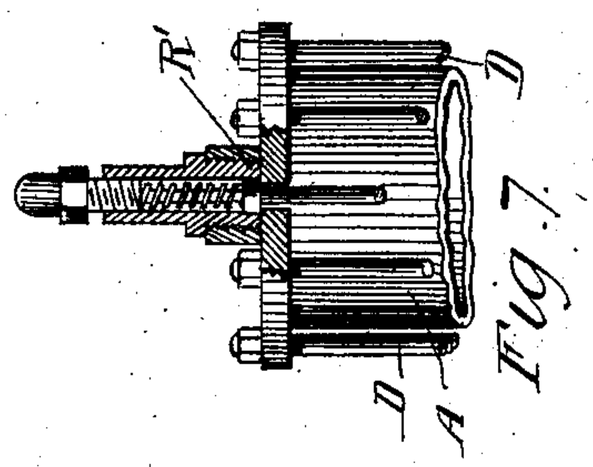

Fig. 7.

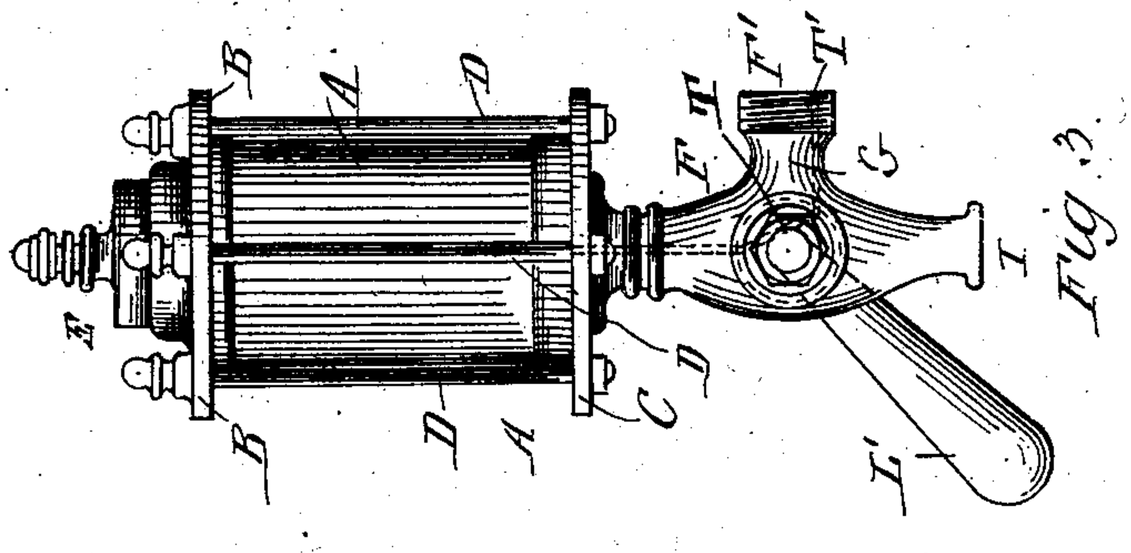

Fig. 3.

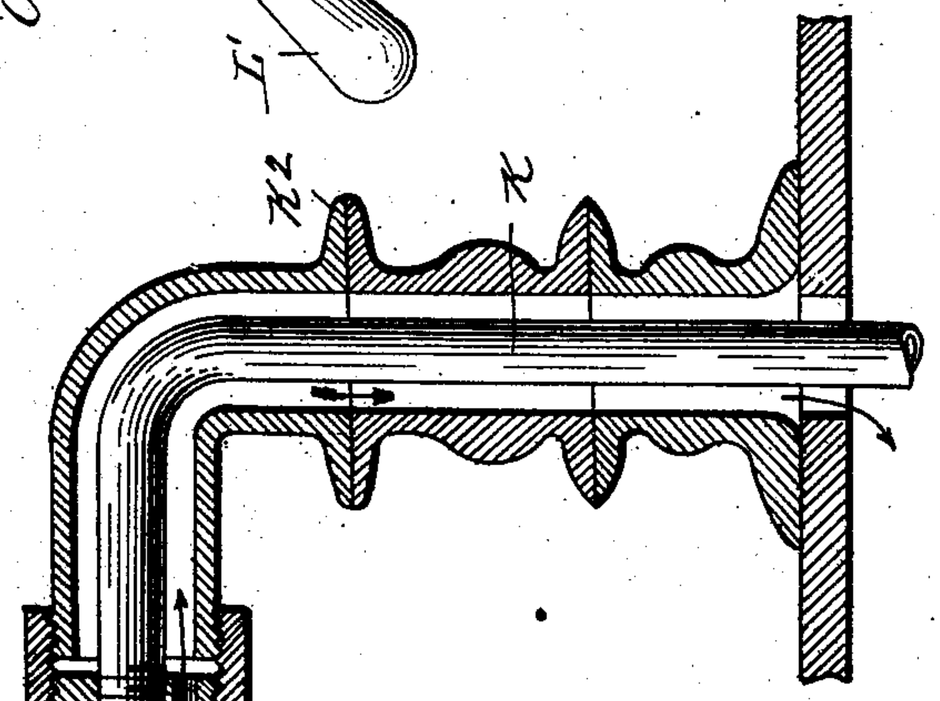

Fig. 8.

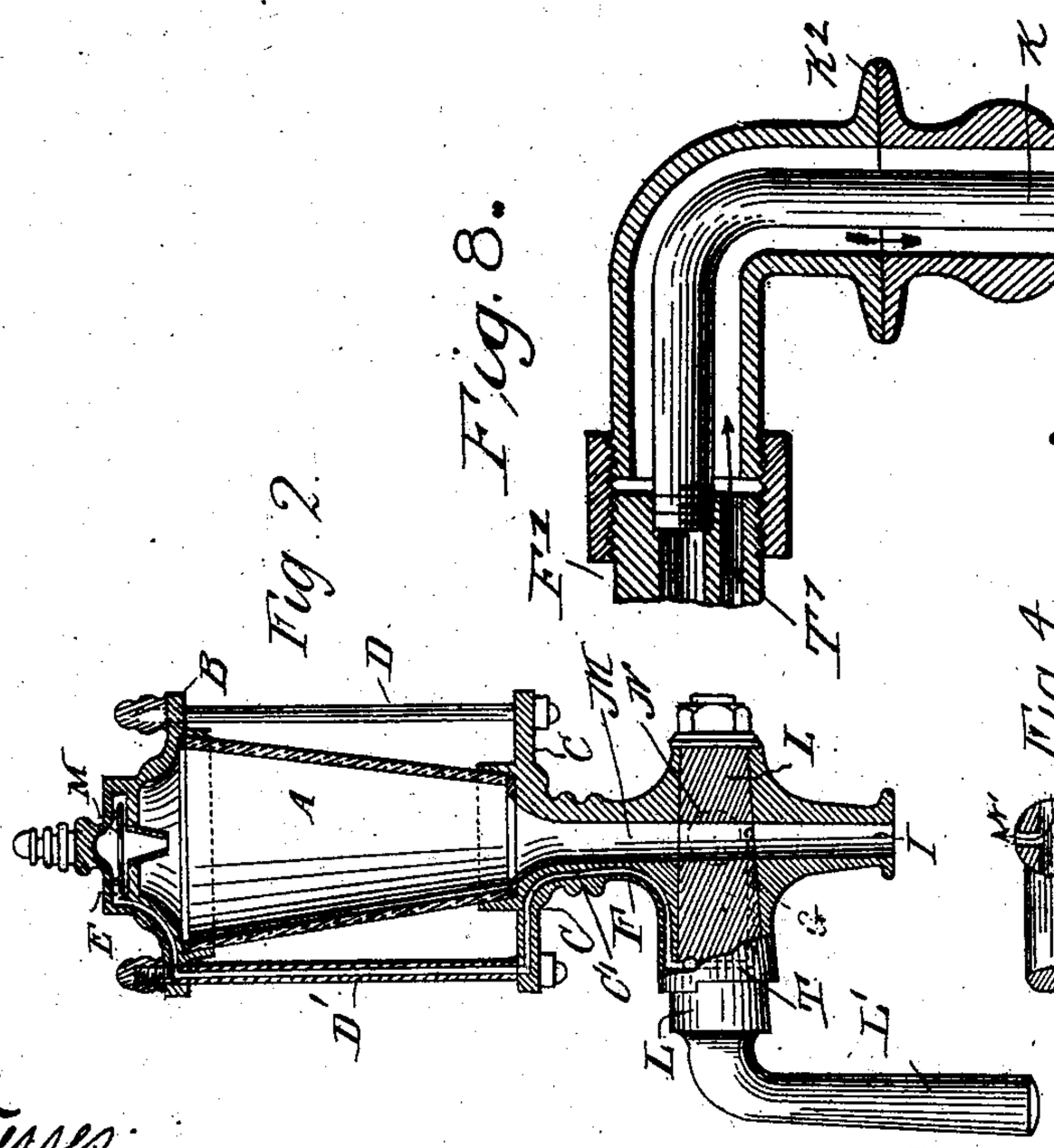

Fig. 2.

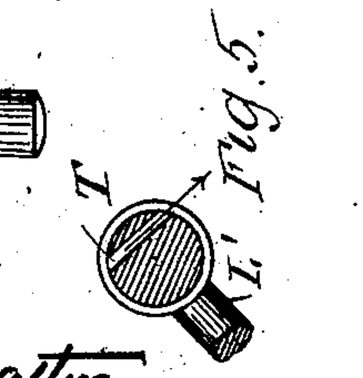

Fig. 4. Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE.

ANDREW CHARLES JOSEPH CHARLIER, OF GLASGOW, SCOTLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WILLIAM OLIPHANT, OF GLASGOW, SCOTLAND.

APPARATUS FOR DRAWING GASEOUS LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 729,277, dated May 26, 1903.

Application filed November 16, 1901. Serial No. 82,578. (No model.)

To all whom it may concern:

Be it known that I, ANDREW CHARLES JOSEPH CHARLIER, consulting chemist and engineer, of Sussex House, Hill street, in the city of Glasgow, Scotland, have invented certain new and useful Improvements in Apparatus for Drawing Gaseous Liquids, of which the following is a specification.

My invention has for its object to provide an apparatus by which liquids under any pressure and fully saturated with any gas can be delivered into open vessels without using the pressure which these liquids may contain as a power for forcing the liquid into open vessels, and thus losing a very large percentage of the aeration or gases contained in the liquid.

My invention applies more particularly to aerated waters—such as soda or potash water, lemonade, ginger-beer, kola, and syrups—which after having been fully aerated can be delivered into glasses ready for consumption and containing a far larger percentage of gas than can be obtained from the ordinary bottles or siphons. It is also applicable to beer, stout, or other alcoholic liquids, as well as being suitable for dealing with all classes of liquids, including milk, under pressure in combination with chemical gases and by which they can be delivered into open vessels at only a slightly-reduced pressure from that contained in the original cylinder.

I am aware that apparatus has been invented to deliver aerated waters under pressure into open glasses; but such apparatus is of such a delicate nature that only liquids which flow freely like water can be dealt with; but by my present improvements I can deal with any liquids even as thick as syrup.

In order that my invention may be properly understood and readily carried into effect, I have hereunto appended two sheets of drawings, of which—

Figure 1 is a perspective view showing my improvements complete, the apparatus in this case being fixed to a slab. Fig. 2 is a section of the glass receptacle or vessel and cock, the former being shown cone-shaped. Fig. 3 is an elevation of the same, the vessel in this case being in the form of a cylinder. Fig. 4 shows the position of cock when open for admission of liquid, Fig. 5 for discharge of air, and Fig. 6 for discharge of liquid from receptacle or vessel into drinking-glass. Fig. 7 is a view of upper side of a modified form of a vessel, showing the puppet-valve. Fig. 8 is a section view of the casting K^2, showing the manner in which the air escapes.

In carrying out my invention I provide a cylindrical, cone, or other suitable shaped receptacle or vessel A, of glass or other suitable material, which is fitted into a framework made up of a top and bottom plate B and C, which are connected together by means of rods D, one of these rods D′ being hollow, whereby it will serve as a passage for the escape of air from the air-chamber E at the top of the receptacle or vessel A, as will be hereinafter more fully described, or a separate pipe may be employed for the escape of the air. A fixed baffle-plate M is provided at the upper end of the vessel A within the air-chamber E a distance above and across the opening which forms a communication to the vessel to prevent any liquid getting into the air-passage.

Connected to or forming part of the bottom there is a pipe F, having a branch F′ with inlet-opening G for supplying the vessel with the liquid from the tank H. At the bottom of the pipe F there is a discharge-opening I for allowing the liquid to pass from the vessel A into the drinking-glass J. The branch F′ is connected to the supply-tank H by means of the pipes K, which pass through an ice-chamber S, as shown in Fig. 1.

The barrel crane or cock L is so constructed that by a quarter-turn of the lever L′ or tap which is connected to it it performs the various functions to be hereinafter described.

The *modus operandi* is as follows: When it is desired to use the apparatus, the lever L is turned into the position shown in Fig. 4, when the inlet-port N is opened, which enables the liquid to pass from the pipes K, leading from the supply-tank H partially through the port N, through port N′, and into the vessel A. The lever L′ is further moved into the

position shown in Fig. 5 and in dotted lines, Fig. 3, when the inlet-port N is closed and the air-escape T is opened, which allows the air above the liquid to pass by the baffle-plate M and down the passage in the hollow rod D′ or other air-escape tube along the hollow passage C′, extending through the flange of the bottom plate C and the wall of the tube F to escape through the passage T in the cock and into the passage T′ in the branch F′, from whence the air passes through a duct in the casting K^2, similar to the duct T′, and escapes into the atmosphere at a point below the slab. The quarter-turn of the lever L′ is then completed, as shown in Fig. 6 and the dotted lines, Fig. 1, when the port N registers with the discharge-opening I, for the liquid and the contents of the vessel A are allowed to pass freely out into the glass J. The same operation goes on continuously so long as it is desired to withdraw liquids.

The supply-tank H is provided with a back-pressure valve P, an air and liquid pump Q, so that should there not be sufficient air in the liquid in the tank H to raise the same through the connections into the vessel A this can be overcome by simply pumping the necessary quantity of air into the vessel. I also provide an inlet-supply pipe W, so that the tank H can be charged with liquid by means of the pump Q without having occasion to remove the top connection K′, and thereby preventing the loss of any of the gases in the tank, which is one of the disadvantages of the existing arrangement of filling tanks. Where milk is used, four hundred or five hundred pounds (or thereabout) air-pressure could be forced into the tank, whereby any germs which might be in the milk would be destroyed and the milk drawn off by the means already described for dealing with the other gaseous liquids, the excessive pressure of air in the tank being in this case preferably drawn off by means of the puppet-valve R′. (Shown in Fig. 7 of the drawings.) In some kinds of liquids—such, for instance, as syrups—it might be necessary to regulate or vary the pressure of air above it, and in such case I also provide a puppet-valve R′, which is loaded to go off at any required pressure, as shown in Fig. 7.

The apparatus can be made in any size, so that it can be adjusted to siphons containing only a quart or to vessels containing any quantity of liquid, and it can also be arranged to supply any liquid, if necessary, without the use of measures so long as the glass receptacle or vessel A is duly marked to register its contents.

I claim—

1. In an apparatus for drawing gaseous or other liquids, the combination with a pressure-relief chamber, of a pressure-escape passage, an air-chamber having continuous communication with the relief-chamber and the pressure-escape passage and located between said passage and relief-chamber, and means within said air-chamber excluding liquid from said passage.

2. In an apparatus for drawing gaseous or other liquids, the combination with a pressure-relief chamber, of a pressure-escape passage, an air-chamber having continuous communication with the relief-chamber and the pressure-escape passage and located between said passage and relief-chamber, and a fixed baffle-plate within said air-chamber.

3. In an apparatus for drawing gaseous or other liquids, the combination with a pressure-relief chamber, a liquid-supply tank, an ice-chamber located between said relief-chamber and tank, suitable connection between said tank and ice-chamber and between the latter and the relief-chamber, of a pressure-escape passage, an air-chamber having continuous communication with the relief-chamber and the pressure-escape passage and located between said passage and said relief-chamber, and a fixed baffle-plate in said air-chamber.

4. In an apparatus for drawing gaseous or other liquids, the combination with a top plate and a bottom plate, of a receptacle positioned between said plates, supporting-rods connecting said plates, one of said rods being hollow, of a pressure-escape passage in said top plate and having communication with said receptacle, and the interior of said hollow rod at the upper end of said rod, of a baffle-plate at the entrance to said escape-passage, a suitable source of supply to said relief-chamber, a cock controlling said source of supply, and a suitable escape-passage leading from the lower end of said hollow rod and controlled by said cock.

In testimony whereof I affix my signature in the presence of two witnesses.

ANDREW CHARLES JOSEPH CHARLIER.

Witnesses:

JOHN LIDDLE,

AGNES MACKINTOSH.