

(No Model.)

3 Sheets—Sheet 1.

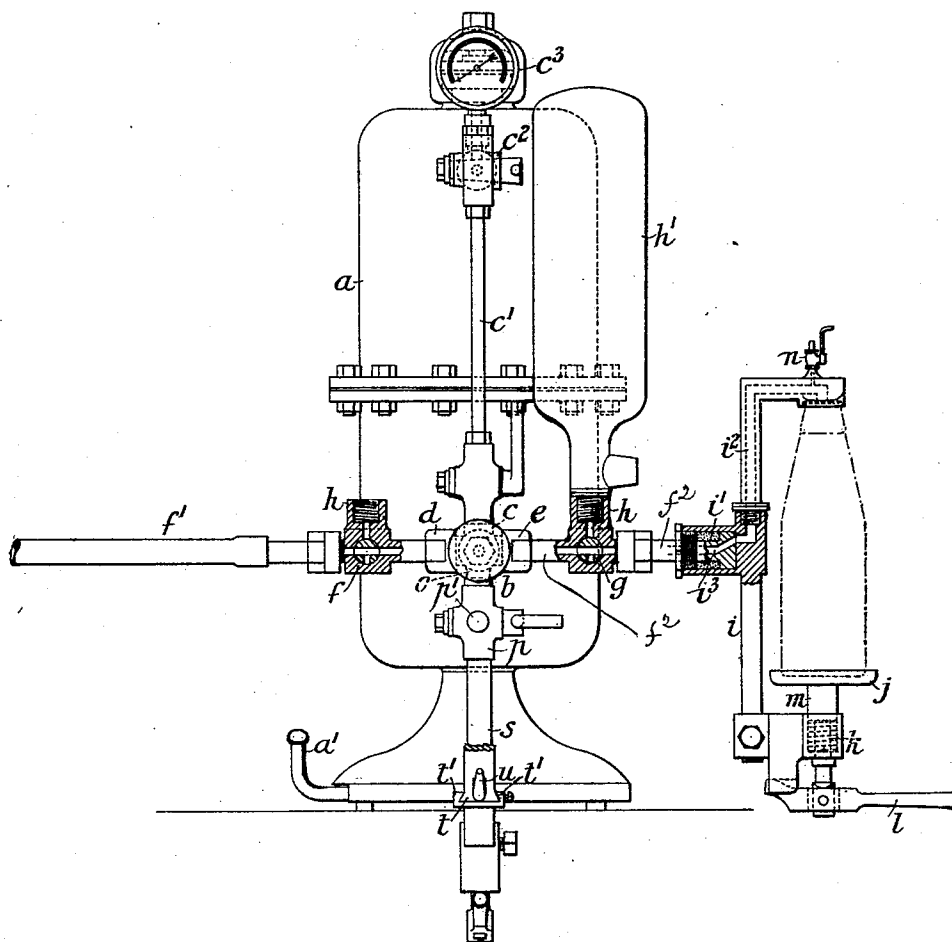
L. G. & S. M. CHINNERY.

APPARATUS FOR THE MANUFACTURE OF AERATED LIQUIDS.

No. 482,841.

Patented Sept. 20, 1892.

Fig. 1.



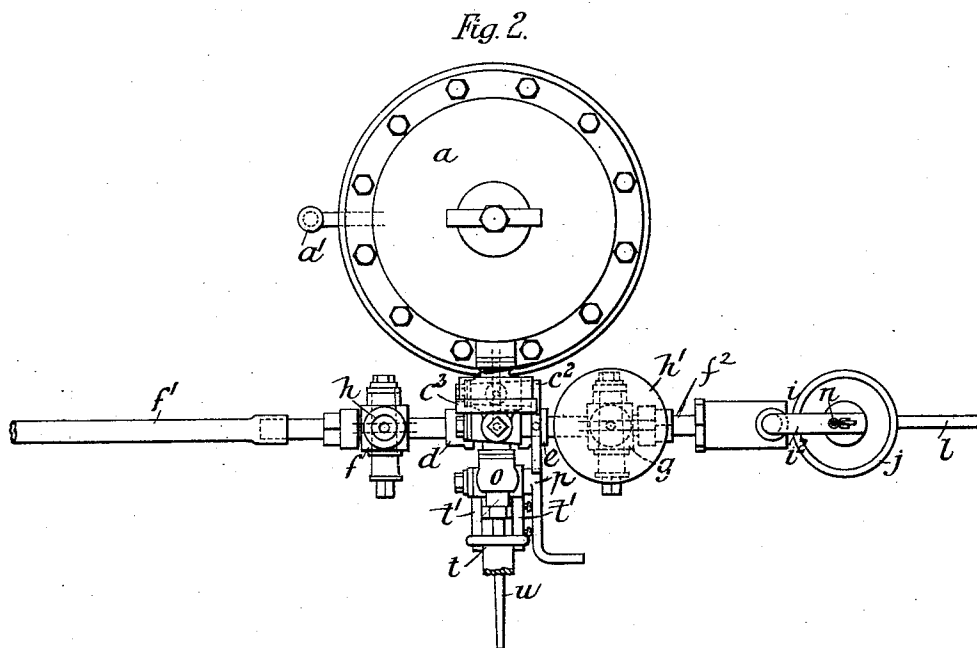
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(No Model.)

3 Sheets—Sheet 2.

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No. 482,841. Patented Sept. 20, 1892.



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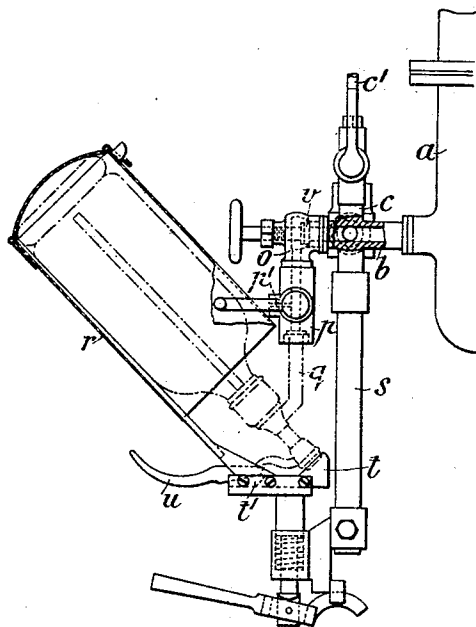
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(No Model.)

3 Sheets—Sheet 3.

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Fig. 3.



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UNITED STATES PATENT OFFICE.

LUTHER GEORGE CHINNERY AND SWARTZ MARTYN CHINNERY, OF LONDON,
ENGLAND, ASSIGNORS TO CHINNERY & CO., OF SAME PLACE.

APPARATUS FOR THE MANUFACTURE OF AERATED LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 482,841, dated September 20, 1892.

Application filed October 28, 1890. Serial No. 369,581. (No model.)

To all whom it may concern:

Be it known that we, LUTHER GEORGE CHINNERY and SWARTZ MARTYN CHINNERY, subjects of the Queen of Great Britain, residing at London, England, have invented new and useful Improvements in Apparatus for the Manufacture of Aerated or Gaseous Liquids and for Filling or Charging the Same into Bottles, of which the following is a specification.

This invention relates to apparatus for the manufacture of aerated or gaseous liquids; the improvements being especially applicable to apparatus of the kind described in the specification of former Letters Patent granted to us, No. 399,739, dated the 19th day of March, 1889—that is to say, to apparatus in which an agitator is provided for causing the intimate mixing of the gas with the liquid to be aerated.

The object of our invention is to provide such apparatus with means for filling or charging bottles or siphons.

In the accompanying drawings, Figure 1 is a sectional front elevation of the improved apparatus, certain parts being removed for the sake of clearness. Fig. 2 is plan of the same; and Fig. 3 is a side elevation, partly in section, of a portion of the apparatus.

In carrying out our invention we provide a reservoir *a*, in which the water to be aerated is contained and within which is arranged an agitator having a handle *a'* for operating the same, the said reservoir and agitator being preferably constructed as described in the specification before referred to, and in which specification is described a glass chamber within the reservoir, having a diameter smaller than that of the reservoir to permit the gas to surround this glass chamber inside and out to equalize the pressure on the glass. The outlet of the said reservoir is provided with a five-way connection *b*, one arm *c* of which has connected to it a water-gage *c'*, the upper part of which is connected to the reservoir *a* by a five-way cock *c²*. On the cock *c²* and connected therewith is a pressure-gage *c³* for indicating the pressure within the reservoir, and the other arms *d e* of the connection *b* have connected to them three-way cocks *f g*, respectively. The cock *f* allows of

feeding the apparatus with a supply of water through a pipe *f'*, while the cock *g* allows the passage of the aerated liquid through a pipe *f²* into the bottles to be filled. Each three-way cock *f* or *g* is provided with a socket *h*, to which a compressed-gas-containing vessel—such as a cylinder *h'*, shown in connection with the cock *g*—can be attached, the three-way cocks also serving to allow the escape of the gas into the interior glass chamber in the reservoir *a*, as required.

The bottles to be filled are each placed in a cradle *i*, adapted to be rotated on a trunnion *i'*, one part of which cradle is provided with a passage *i²* to serve as a filling-tube and is adapted at its extremity to receive the mouth of the bottle, while the other end is provided with a table *j*, acted upon by a spring *k* in such a manner that the mouth of a bottle placed upon the said table will be pressed tightly into contact with the filling-tube. A lever *l*, fulcrumed beneath the cradle *i* and pivoted to a prolongation of the stem *m*, carrying the table *j*, serves for moving the table, so that the bottle can be removed from the cradle. The filling-tube *i²*, when the bottle is in the position shown in Fig. 1, communicates with a passage *i³* in the trunnion, extending to the cock *g*, so that liquid from the reservoir can enter the bottle. When, however, the cradle is rotated upon the trunnion, the connection between the passages *i² i³* is closed, as will be obvious. A small cock *n*, communicating with the passage *i²*, serves for allowing the snifting of the air from the bottle during the filling of the same.

In order to allow of filling siphons, we attach to the front of the five-way connection an elbow *o*, provided with a three-way cock *p*, adapted to receive at one end the spout *q* of a siphon to be filled, as shown in Fig. 3, the siphon, with its spout in this position, being supported in a cage *r*, carried upon an arm *s*, attached to or formed upon the under side of the five-way connection *b*. The cage is mounted upon a table *t*, arranged in guides *t' t'*, so as to be adjustable, and is acted upon by a spring and lever in the same manner as the table *j*. The table *t*, however, is provided with a lever *u*, which when the siphon is in

place serves for opening the valve of the siphon by acting upon the lever thereof, as clearly indicated in Fig. 3.

The three-way cocks avoid the need of several distinct connections, and consequently lessen proportionately the chances of leakage, besides making the structure more compact.

The very short metallic connections between the bottle and the glass portions of the structure avoid as far as possible the contact of the aerated water with metal on its passage to the bottle.

The operation of the apparatus hereinbefore described is as follows—that is to say: We first fill the reservoir, through the cock *f*, by means of a pump or other suitable means. We then close the said cock *f* and operate the cock *g* to permit the compressed gas from the chamber or cylinder *h'* to enter the reservoir *a*, the amount of gas thus entering being indicated by the gage. When the required pressure within the reservoir has been obtained, the cock *g* is closed and the liquid in the reservoir is agitated by means of the agitator to cause an intimate mixing of the water and gas. If now it is required to fill bottles—for instance, Codd's bottles—the bottles are each placed in the cradle *i* in the manner hereinbefore described, the bottle and cradle being in the reverse position to that shown. The cradle is then turned over and the cock *g* is turned to allow the liquid from the reservoir to enter the bottle. When the bottle is filled, the cradle *i* is reversed to shut off the supply of liquid and allow the stopper to fall to its seat and prevent the escape of the liquid from the bottle. The filled bottle can then be removed. If a siphon is to be filled, it is placed in the cage *r*, as shown in Fig. 3, with its spout *q* in connection with the cock *p*. The latter is then opened to fill the bottle and then again closed prior to the removal of the same. The said cock is formed with an auxiliary opening *p'*, through which the air from the siphon is snifted when filling.

In order to allow of the withdrawal of the liquid directly into a glass, we provide the elbow *o* with a valve *v*, so that by placing a glass or tumbler beneath the cock *p*, when

open, and then opening the valve *v* the liquid will enter the glass.

In the foregoing description we have referred to the aeration of the water by means of gas contained in a special cylinder *h'*; but it is obvious that the gas may be aerated within the reservoir *a* in the manner described in the specification of the patent before referred to.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. In combination with a vessel for compressed gas and with devices connected thereto for filling bottles, a system of connecting pipes *f'* *f*² and their connections with the water-reservoir and the gas-reservoir, and a three-way cock in said pipe *f*², controlling the amount of gas to be mixed with the liquid and also the passing of the aerated liquid into the bottle or vessel to be filled, substantially as set forth.

2. In combination with the gas vessel, the liquid-containing vessel, the pipes *f'* and *f*², cocks *f* and *g*, and the device *b*, having five ways or passages, a separate device connected to each of said passages and a revolvable bottle-filler having the filling-tube *i*², connected with a stationary trunnion on a supply-tube having a passage *i*³ therein, and whereby the rotation of the bottle-filler shall close the connection between said passage and tube, substantially as and for the purposes set forth.

3. The combination, in a liquid-aerating apparatus, of a three-way cock for admitting to a mixing-vessel the liquid to be aerated, another three-way cock for admitting gas to the same vessel and for discharging the liquid after its aeration, and an intermediate five-way connection between said cocks communicating with them and also with the reservoir *a* and with the water-gage, as and for the purposes set forth.

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