No. 688,991. Patented Dec. 17, 1901.

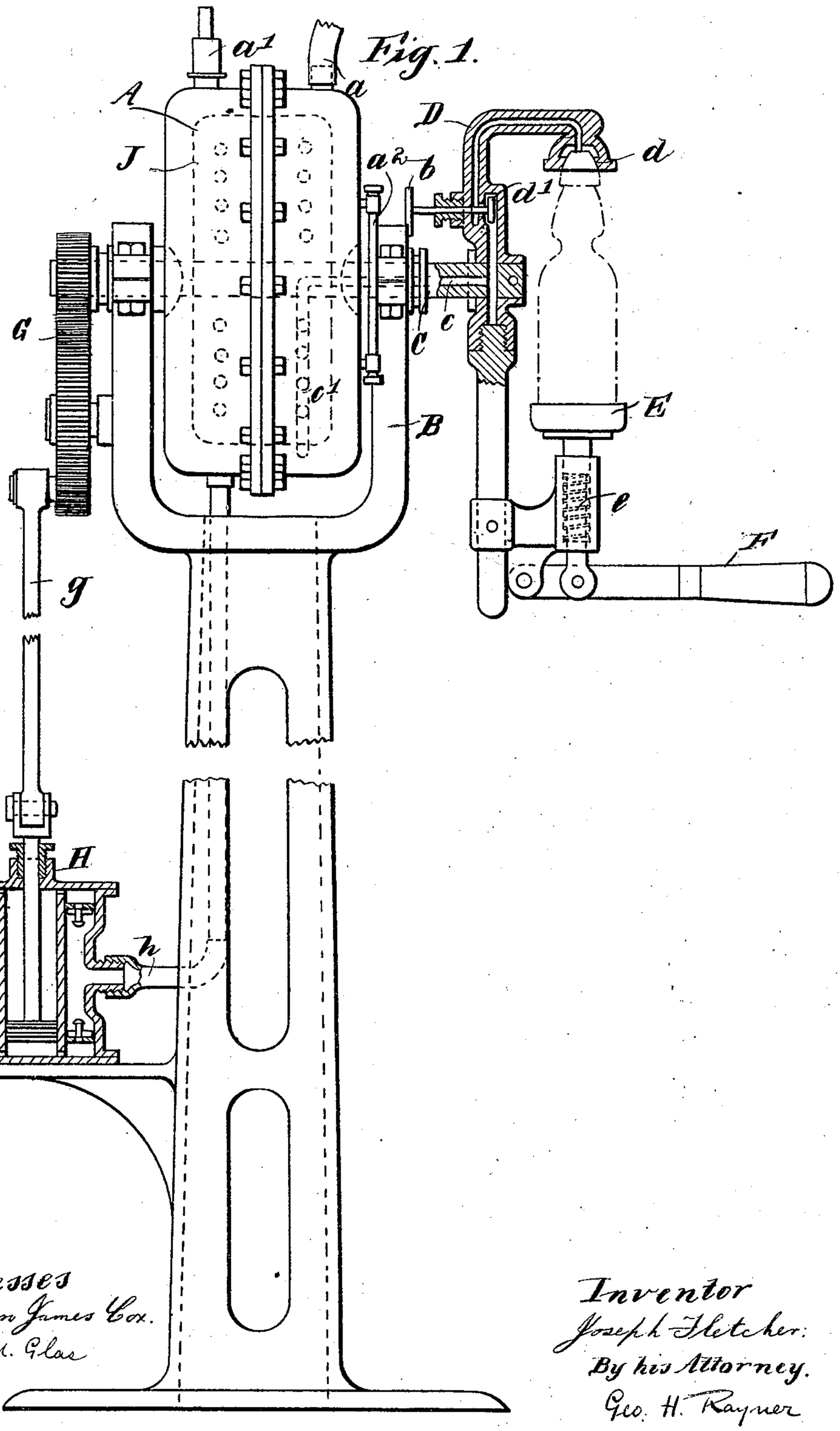
J. FLETCHER.

APPARATUS FOR CARBONATING LIQUIDS AND FILLING BOTTLES UNDER PRESSURE.

(Application filed June 29, 1901.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



Witnesses
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A. M. Glas

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Fig. 2.

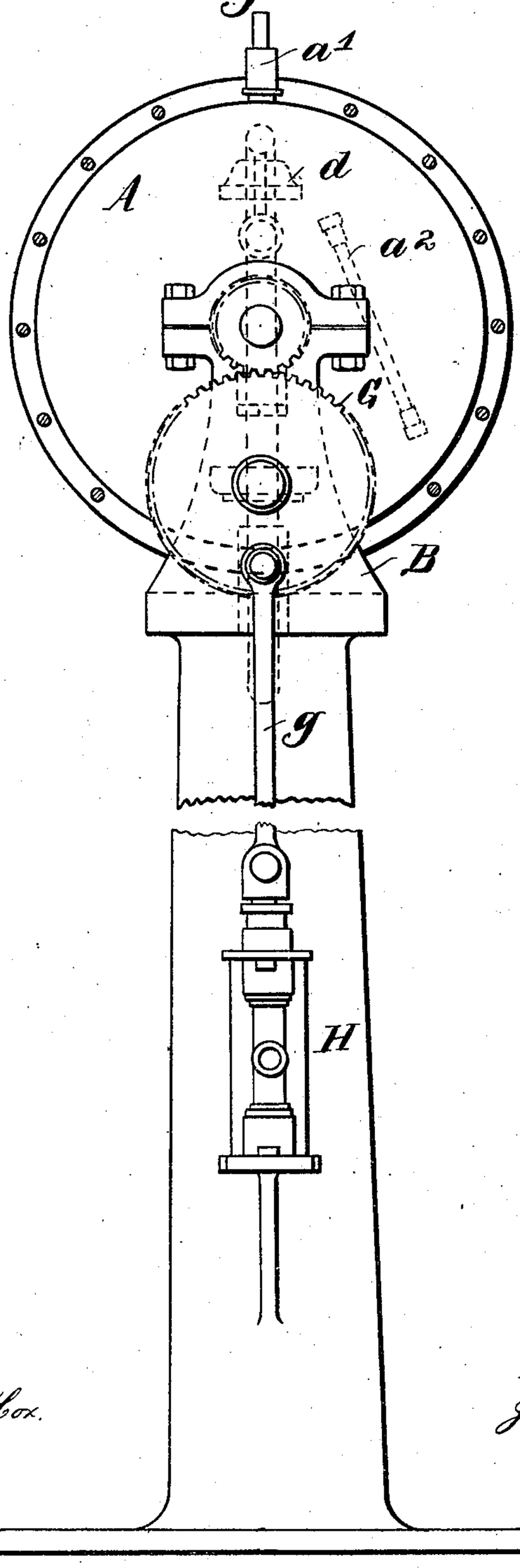

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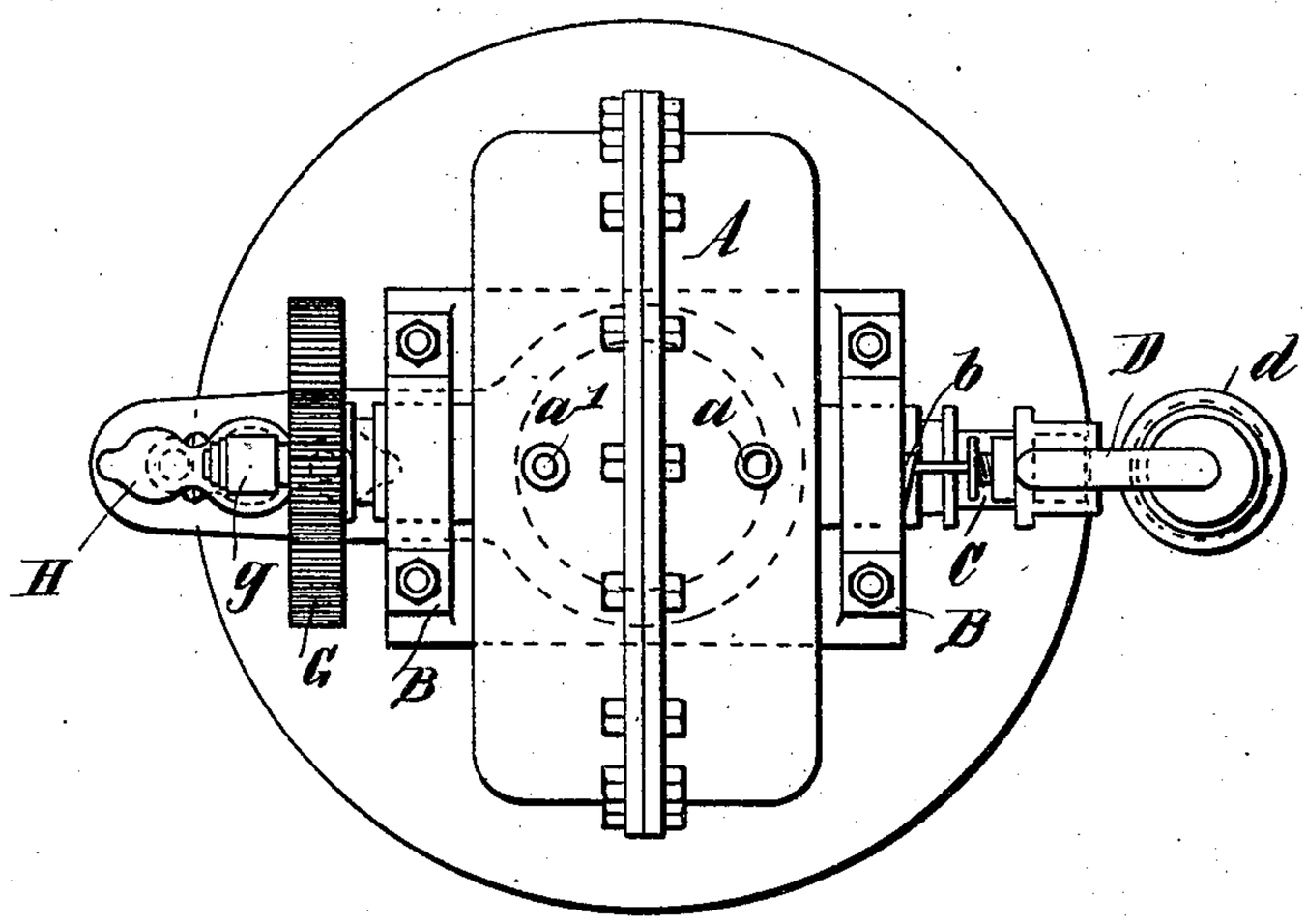
Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH FLETCHER, OF LONDON, ENGLAND.

APPARATUS FOR CARBONATING LIQUIDS AND FILLING BOTTLES UNDER PRESSURE.

SPECIFICATION forming part of Letters Patent No. 688,991, dated December 17, 1901.

Application filed June 29, 1901. Serial No. 66,541. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH FLETCHER, a subject of the King of Great Britain and Ireland, residing at Narford road, Clapton, London, N. E., England, have invented certain new and useful Improvements in Apparatus for Carbonating Liquids and Filling Bottles Under Pressure, of which the following is a specification.

This invention relates to apparatus employed especially for carbonating or aerating beer, mineral waters, and other liquids and for filling bottles or siphons, and provides an apparatus of great simplicity by which a constant supply of aerated liquid can be obtained.

The accompanying drawings show the general construction of my apparatus.

Figure 1 is a side elevation, partly in section. Fig. 2 is an elevation at right angles to Fig. 1, and Fig. 3 is a plan.

The apparatus consists of a cylinder A, carried by a vertical standard B, the axis of the cylinder being preferably horizontal. Through this cylinder, which is fixed in position, a rotating spindle C passes, one end of which has a small bore *c*, opening at its inner end to the interior of the cylinder through a tube *c'*, which extends in one position of the spindle to within a short distance of the bottom of the cylinder. On the tubular end of this spindle the bottle holding and filling device is fitted, this consisting of a tubular arm D, in communication with the bore of the spindle, bent over and provided with the usual arrangement *d* for receiving the mouth of the bottle or an attachment for the spout of the siphon. The arm is extended at the other side of the spindle and carries an adjustable stand E for receiving the bottle, the support having a spring *e*, which causes the bottle to be gripped between it and the mouth-holder. A lever F is carried by the adjustable stand and is connected to the spindle of the bottle-support. On pressing back this lever the support is pulled back against the pressure of the spring and the bottle is released or a fresh one is inserted. The general construction of the turn-over bottle-filling device is well known.

The tubular arm through which the liquid is supplied is provided with a small stop-valve *d'*, which allows the liquid to pass only when it is opened. The spindle of this valve projects for a short distance, and the end of the standard is provided with a beveled stop or extension *b*, adapted to meet the valve-stem when the arm is turned into vertical position with the bottle upright. In this position only can liquid pass from the cylinder into the bottle, and immediately the bottle-holder is turned along with the spindle the supply of liquid is cut off and the bottle can be removed. The lever above described serves as a handle for turning the holder and spindle. The other end of the spindle is provided with the gearing G, operating through the connecting-link *g* a double-acting force-pump H, which forces through the pipe *h* a supply of liquid into the cylinder against the pressure of the gas, which is constant and is supplied from any suitable source through a reducing-valve in the well-known manner. Connections from the gas-holder pass to the supply-tube *a* at the top of the cylinder or at any convenient part. A safety-valve *a'* is also provided in case of excessive pressure. The construction of the force-pump H may be of any well-known suitable description.

After each bottle is full the holder is given a turn (or, if necessary, two turns) during the operation of removing the full bottle and placing an empty one into filling position, and this action forces sufficient water or other liquid into the cylinder to make up for the quantity withdrawn, so that the action of the apparatus is quite continuous.

The cylinder should be supplied with the liquid to about half its capacity, so that the upper half is filled with gas at high pressure, a gage a^2 being provided to enable the level of liquid to be seen. If this should fall below the proper position, one or two turns of the spindle will supply the deficiency.

Within the cylinder an agitator is fitted, consisting of perforated arms or plates J, carried by the spindle and rotated with it. The tube *c'* is carried along one of the perforated plates and is supported by it.

The liquid in the cylinder being under constant high pressure, the movement given to the rotating spindle and agitator agitates the liquid and forces the gas in the upper part of

the cylinder to mix with the liquid, thus producing carbonated beers, waters, and other aerated beverages.

With this apparatus bottles can be filled with aerated liquids in a very effective and expeditious manner and without any special skill on the part of the operator. All that is necessary to do in working the apparatus is to place the bottle in position in the turn-over holder mouth down, giving half a turn to the holder to bring the bottle into upright position, and to open the small valve allowing of communication between the bottle and the mixing-cylinder, then to give a slight tap to the handle, taking the pressure of the holder off the bottle and allowing some of the air compressed within the bottle to escape, (this operation being the one known as "snifting,") and when the bottle is full to turn it again into reversed position, when it is removed from the holder and a fresh bottle inserted.

If the machine is used for larger bottles than it is especially designed for, two turns may be given for each complete operation—that is, after the bottle has been filled a complete turn and a half are given to it before it is removed.

No special attention is required for the supply of liquid except that the operator must observe the gage at intervals to note the amount of liquid in the mixing-cylinder. As the pump does all the necessary work of forcing the liquid in against the pressure of the gas, no special holders are required in addition to the apparatus excepting the ordinary carbonic-acid cylinder, from which the compressed gas is supplied through a reducing-valve.

This apparatus enables publicans or refreshment-houses to make their own mineral waters at a very small expense, as the apparatus is simple and cheap to manufacture, and a large quantity of bottles can be filled in a very short time.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An apparatus for aerating liquids and filling bottles, consisting of a fixed mixing-cylinder in connection with a gas-holder, a standard carrying the said mixing-cylinder, a rotating spindle passing through the cylinder, mixing-blades upon the said spindle and adapted to rotate with it, a turn-over bottling device upon one end of the spindle and a force-pump supplying liquid to the cylinder connected by gearing to the spindle and operated by the turn-over bottling device which is turned always in the same direction, substantially as herein described.

2. An apparatus for aerating liquids and filling bottles, consisting of the fixed cylinder A upon the standard B, the rotating spindle C passing through the cylinder and having a tubular part communicating with the cylinder, agitating-blades J upon the spindle inside the cylinder, a turn-over bottling device upon the end of the spindle having a small stop-valve allowing the liquid to pass when the bottle-filling device is in one position, and a force-pump connected with the cylinder and with the rotating spindle through suitable gearing, this pump forcing in liquid against the pressure of the gas in the cylinder, substantially as herein described and shown in the accompanying drawings.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOSEPH FLETCHER.

Witnesses:
F. W. PATTISON,
WALTER J. SKERTEN.