

No. 778,260.

PATENTED DEC. 27, 1904.

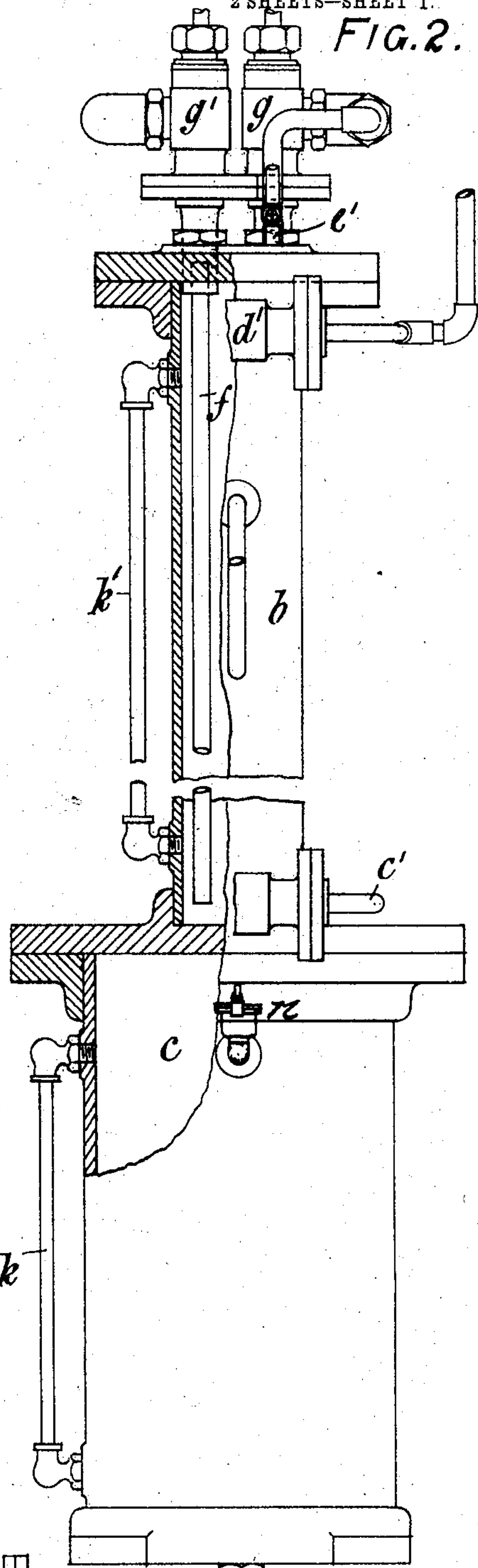
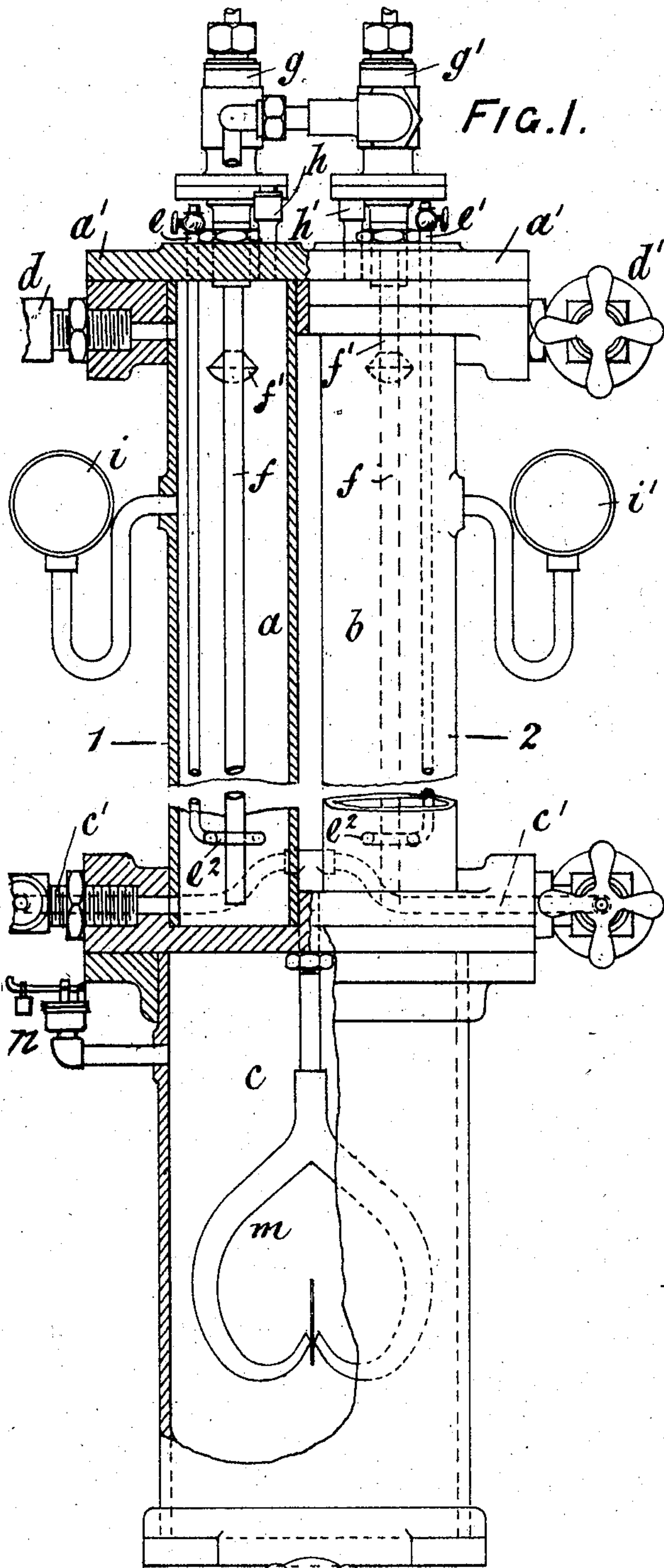
J. T. R. DE MORLEY.

APPARATUS FOR THE MANUFACTURE OF MINERAL OR AERATED WATERS.

APPLICATION FILED MAR. 6, 1902.

2 SHEETS—SHEET 1.

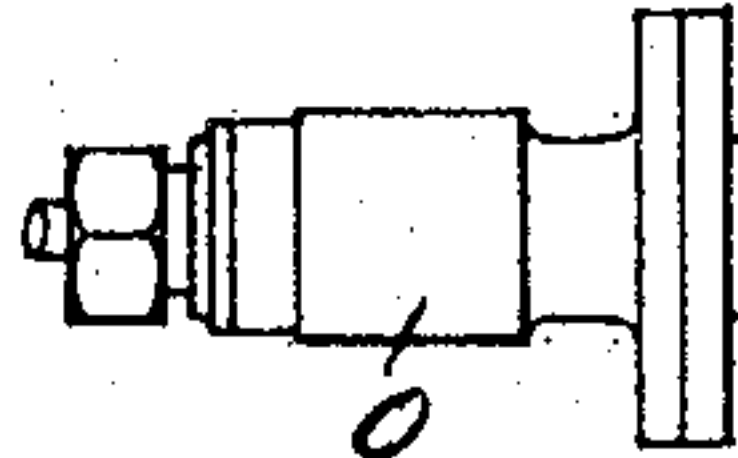
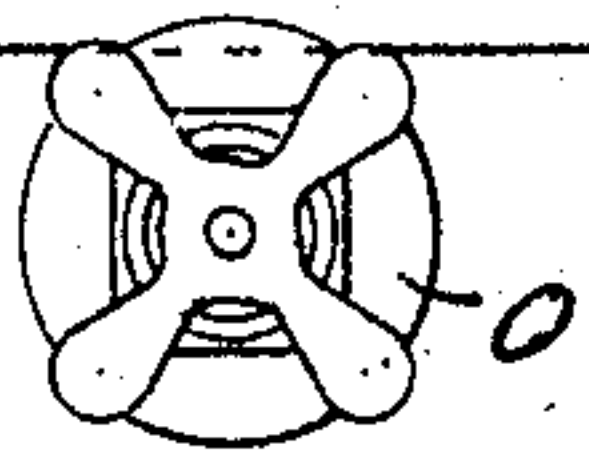
FIG. 2.



Witnesses:

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W. H. Clarke



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FIG. 3.

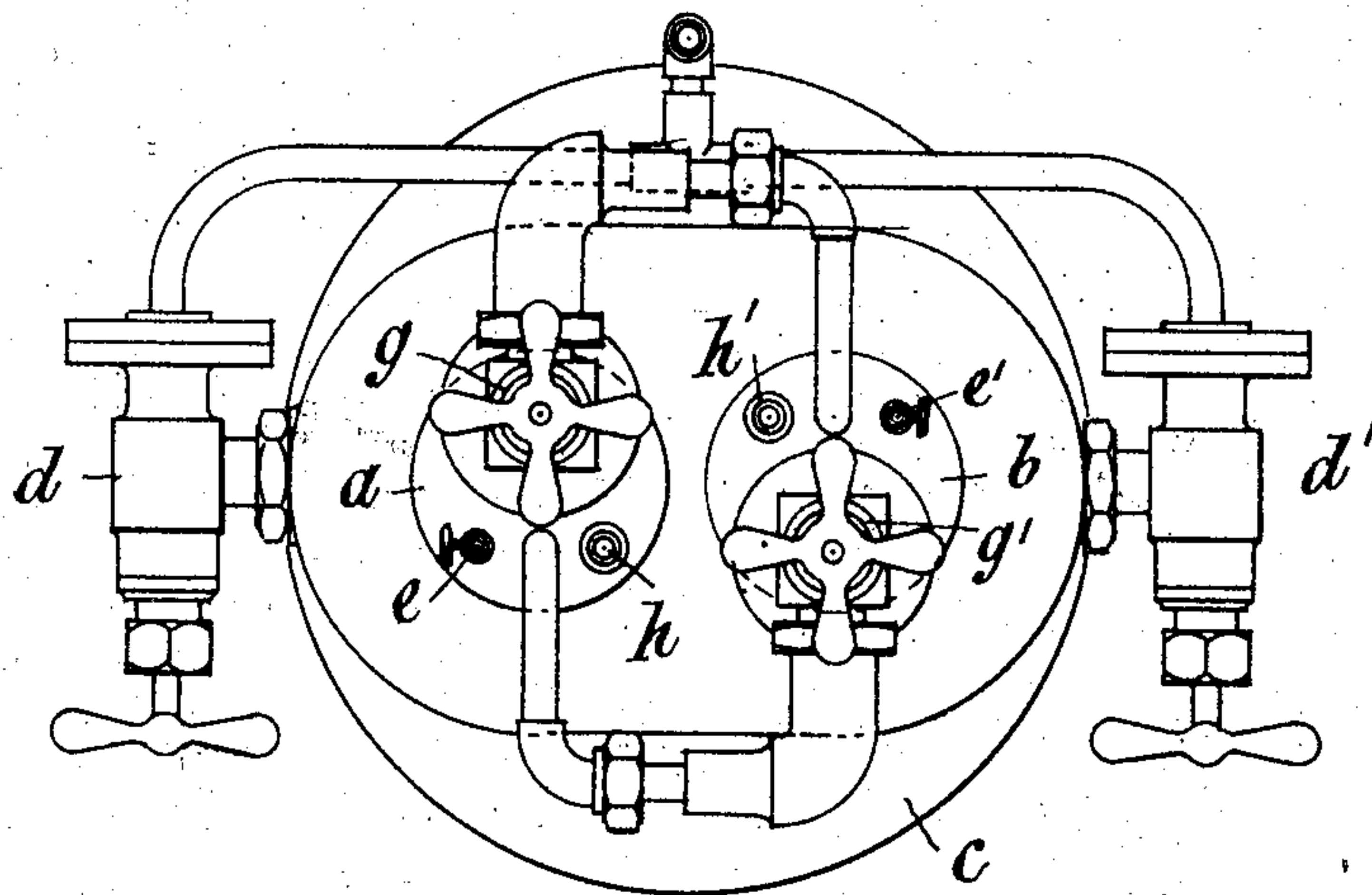
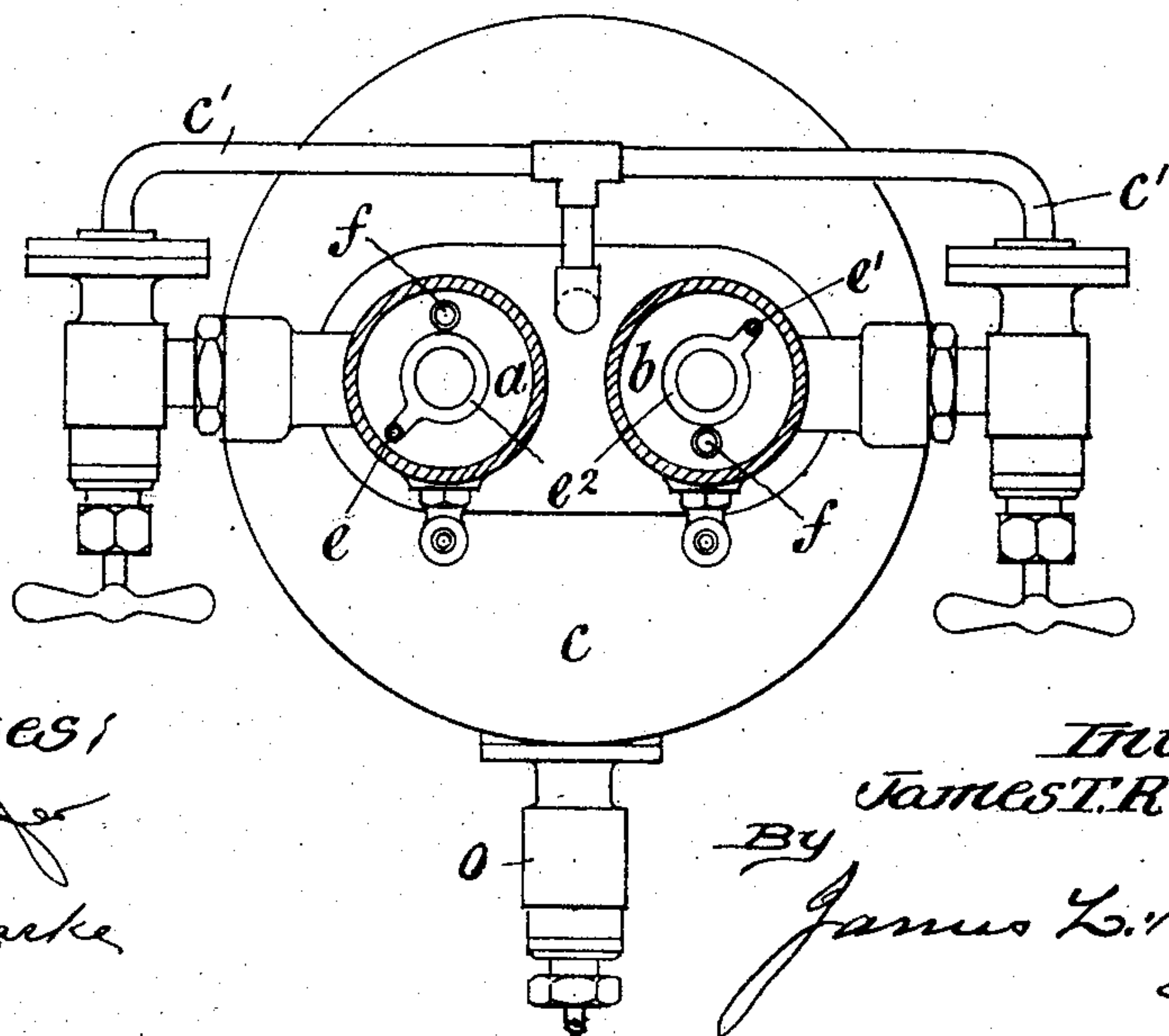


FIG. 4.



Witnesses:

For B. Keefe  
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## UNITED STATES PATENT OFFICE.

JAMES T. R. DE MORLEY, OF LONDON, ENGLAND.

APPARATUS FOR THE MANUFACTURE OF MINERAL OR AERATED WATERS.

SPECIFICATION forming part of Letters Patent No. 778,260, dated December 27, 1904.

Application filed March 6, 1902. Serial No. 96,997.

*To all whom it may concern:*

Be it known that I, JAMES THORNE ROE DE MORLEY, a subject of the King of Great Britain, residing at 7 Challoner Mansions, West Kensington, London, W., England, have invented certain new and useful Improvements in Apparatus for the Manufacture of Mineral or Aerated Waters, of which the following is a specification.

My invention relates to apparatus for the manufacture of mineral waters, aerated liquors, and for similar purposes where it is desired to impregnate a liquid with gas or air. In apparatus of this description it is usually necessary in some portion of the operation to operate a pump or violently agitate a container by means of a hand-lever or other motive power in order to thoroughly impregnate the liquid with the gas or air under pressure.

My invention consists in the utilization of the pressure of the gas or air to thoroughly and quickly impregnate the liquid and as a means whereby the impregnated liquid is agitated and driven from the charging chamber or chambers through blender into a container and from the container into any other receptacle—such as stoppered bottles, siphons, or the like—or into glasses or tumblers, as in soda-fountains.

The accompanying drawings illustrate a suitable apparatus for carrying out my invention.

Similar letters of reference indicate corresponding parts.

Figure 1 is a sectional front elevation. Fig. 2 is a sectional side elevation. Fig. 3 is a plan view. Fig. 4 is a section of Fig. 1 on the line 1 2.

$a$  and  $b$  are two cylinders, which are mounted in connection with a reservoir or container  $c$ . The cylinders are in connection with liquid-supply pipes  $d$   $d'$  and gas (under pressure) supply pipes at  $e$   $e'$ . The two cylinders are connected by flush-over pipes  $f$   $f'$ , fitted with suitable stop-cocks or valves  $g$   $g'$ . The pipes  $f$  pass through the cover  $a'$  of the cylinders and extend nearly to the bottom of said cylinders, as shown, and the pipes  $f'$  pass through the cover into the cylinder and are provided with rose or spray ends. The gas-tubes  $e$   $e'$  also extend nearly to the bottom of the cyl-

inders and are each preferably formed terminally as a perforated ring  $e^2$ , or other device for distributing the gas may be used.

$h$   $h'$  are safety-valves,  $i$   $i'$  are pressure-gages, and  $k$   $k'$  are liquid-gages.

The invention will be best understood and ascertained from the following description of the operation. In starting the machine when empty a little gas is admitted into the cylinders  $a$  and  $b$  through the pipes  $e$   $e'$  and into the container  $c$  through the pipes, so as to blow out any air contained therein and leaving a low pressure of gas in the container of about five or six pounds. All valves are shut. One of the cylinders—say  $b$ —is filled with water by means of the pipe  $d'$  up to a certain mark on opening a suitable vent-tap or by lifting the safety-valve  $h'$ . After closing the vent the gas under pressure (all from a gas-pressure cylinder or other storage-receptacle) is admitted slowly through  $e'$  and  $e^2$ , the pressure-gage  $i'$  showing one hundred and fifty pounds, more or less, as may be required according to the liquid under treatment, the gas-cock being left open. The cylinder  $a$  is then charged with gas through  $e$  and  $e^2$  until the pressure-gage  $i$  shows fifty pounds pressure, more or less, (or about one-third of the pressure in cylinder  $b$ ), when the gas-cock is shut. The flush-over cock  $g'$  is then opened, and the contents of  $b$  are discharged up through the pipes  $f$  and down through the rose or spray pipe  $f'$  in the cylinder  $a$  by the excess of pressure in  $b$ . The cock  $g'$  is then closed. The gas-cock to  $b$  is also shut. On opening the cock in pipe  $e'$  the contents of cylinder  $a$  are discharged into the container  $c$ . The operation may now be repeated, first observing that all the valves are closed. The cylinder  $a$  is filled with water, the residual gas being conducted into the liquid-supply reservoir, where it partially impregnates the liquid. The pressure of gas in the cylinder  $b$  is then adjusted to fifty pounds, more or less, and the operation continued as before described, finally discharging into the container  $c$ .

The orifice of the pipe  $e'$ , which is in the container  $c$ , is provided with a sprayer  $m$  or rose, turbine, or other device to distribute and agitate the liquid within the container  $c$ .



The container *c* is provided at *n* with a safety-valve and is in communication, through the medium of a pipe *o'*, with a draw-off cock at *o*, which may be connected to a fountain or to  
5 a bottling apparatus.

It is not essential that two cylinders should be used as well as the container. The object of using two cylinders is to utilize all the gas instead of discharging same into the air and  
10 to economize the time occupied in the thorough saturation, aeration, or gasification of the liquid. One or more chamber or chambers may be filled with liquid and charged with the gas up to the desired pressure, which  
15 is allowed to remain so for a few minutes, after which the contents are discharged through the sprayer or blender, such as *m*, into the container *c*.

Having thus fully described my invention,  
20 what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for aerating liquids, a container, a pair of receptacles mounted upon said container, gas-supply pipes opening into  
25 said receptacles near the bottom thereof, liquid-supply pipes opening into said receptacles near the top thereof, a flush-over pipe proceeding from near the bottom of each receptacle to near the top of the other, a spray-  
30 rose at the upper end of each flush-over pipe,

a pipe communicating with the bottom of said receptacles and with said container, a pair of valves for said pipe adapted when operated to alternately establish communication between  
said receptacles and said container, safety- 35 valves and gages for said receptacles, and a gage for said container.

2. In an apparatus for aerating liquids, a container, a pair of receptacles, gas-supply pipes opening into said receptacles near the  
40 bottom thereof, a flush-over pipe extending from each of said receptacles to the other and provided with a spray-rose, a valve in each of the supply and flush-over pipes, a pipe establishing communication between said recepta- 45 cles and said container, a pair of valves for said last-mentioned pipe adapted when operated to alternately establish communication between said receptacles and said container, safety-valves and gages for said receptacles, 50 a gage for said container, and means for supplying liquid to said receptacles.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES T. R. DE MORLEY.

Witnesses:

WALTER J. SKERTEN,  
G. F. WARREN.