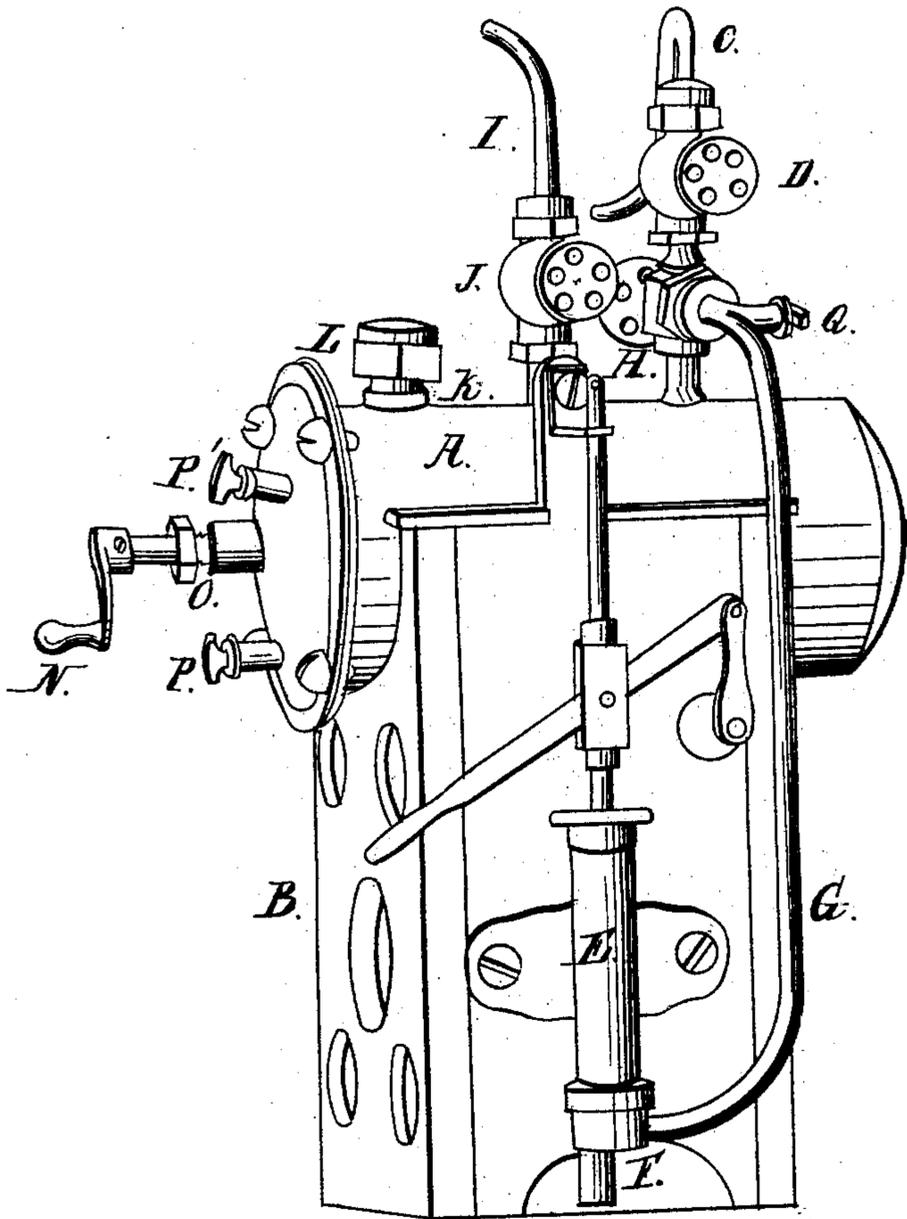


W. Gee,

Charging Soda Fountains,

No. 34,826.

Patented Apr. 1, 1862.



Inventor.

William Gee

UNITED STATES PATENT OFFICE.

WILLIAM GEE, OF NEW YORK, N. Y.

IMPROVED SODA-WATER APPARATUS.

Specification forming part of Letters Patent No. 34,826, dated April 1, 1862.

To all whom it may concern:

Be it known that I, WILLIAM GEE, of the city, county, and State of New York, have invented new and useful Improvements in Means for Making Soda-Water, &c., and Without Escape of Gas or Admission of Air; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing, which makes a part of this specification.

The nature of my invention consists in so providing a cylinder or other vessel with a pump, pipes, and valves so arranged as to supply and gage the quantity of liquid and gas required, and on water being admitted into the cylinder to be impregnated there shall be no escape of gas or admission of air.

To enable others to make and use my improved method or process, I will refer them to the following specification and drawing.

A is a cylinder or vessel of any capacity and supported upon a frame B.

C is a pipe communicating at one end with any ordinary generator containing the impregnating-gas and the other end with the cylinder.

D is a stop-valve for cutting off the supply of gas or closing the communication between the generator (which is not shown) and the cylinder.

E represents an ordinary force-pump; F, the induction-pipe communicating with the water or other liquid to be impregnated.

G represents a pipe connecting the pump with the cylinder.

H is a stop-valve for closing the communication between the pump and cylinder.

I represents a pipe provided with a stop-valve J for conveying the impregnated liquid to the counter or point at which it is to be drawn for use.

K is a short pipe opening into the cylinder and tightly closed by the cap L. This pipe or opening is used instead of removing the cylinder-head, and for the purpose of inspecting and cleaning out of the cylinder.

M is a shaft having a crank N, and passes through a stuffing-box O and cylinder-head, and is provided with suitable arms, which, by turning or vibrating the crank, will agitate or mix the liquid and gas.

P and P' are valves for ascertaining the height or level of the liquid in the cylinder.

Q is a waste-cock to free or clear the pump and pipe G of liquid after the cylinder is charged.

The following is a description of the operation by my method in making soda-water: Close the valve D in the pipe C, which communicates with the generator, (not shown, as I do not claim it,) and also the valve J in the pipe I, which communicates with the counter, and open the valve H, which closes the communication between the pump and cylinder. The pump now being put into operation, water is pumped into the cylinder until its height is indicated by its discharge from the valve P'. The valve H is then closed and valve D opened, thus allowing the impregnating-gas to pass from the generator through the pipe C into the cylinder, filling the cylinder from the height of valve P'. Then by turning or vibrating the crank the gas will be thoroughly mixed or incorporated with the water previously pumped in, and is now ready for use, and may, by opening the valve J, be drawn from the cylinder through the pipe I at a fountain at the counter or at any other desirable place. Further, assuming the valve D to be closed and the liquid to be exhausted from the cylinder as to require recharging, the valve J must be closed and valve H opened, the pump again worked, and a fresh supply of water pumped into the cylinder (which will be against the pressure of expanded gas which fills the cylinder) until its height is again ascertained by trying of the valve P', when the pump is ceased being worked and valve H closed, and if necessary the valve D may again be opened to admit a further supply of gas from the generator to be mixed or incorporated with the water pumped in, as before described. Thus it will be perceived any number of charges may be supplied without the escape of gas or admission of air.

I am aware of many considered improved apparatuses being constructed having one or more cylinders; but they, after having been exhausted of the liquid and requiring recharging, (here it is,) great waste of gas and admission of air are experienced from the aperture through which the water is supplied to the cylinder. I am also aware of some being patented, viz: one to S. Chamberlaine, April 10, 1860, the construction of which I

do not claim as set forth by him, wherein he has two vessels which contain the gas-making ingredients and connected by a siphon, so that in order, when a reduction of pressure is produced in the generating-vessel by permitting the escape of gas or air therefrom, the acid or other liquid from the other vessel will be caused to flow over into the generating-vessel by the difference of pressure. It will also be perceived by Mr. Chamberlaine's claim he uses a double-constructed pump, so that when the gas ingredients are supposed to be impregnated and ready to be deposited the double pump is used to pump a certain quantity of water and a certain quantity of gas into the receiver at a uniform pressure from the two vessels. This method I do not claim, as it is no part of my invention.

I am aware, also, that one cylinder apparatus of peculiar construction is described in J. F. Boyton's patent of October 7, 1856. This I do not claim. Neither do I claim the forcing of water and gas into a cylinder at the same time, as described by one in Paysen's "Industrial Chemistry," or as described by Hayward Tyler in "Ure's Dictionary," pages 1161 and 1162. In using such an apparatus there would be a great waste of gas. In making soda-water the cost depends on the saving of gas, not the water. The forcing of water and gas into a cylinder at the same time there would be a liability of its bursting if there were no way provided for the escape of gas. It will be plainly seen that after the water is drawn off there will be gas remaining to the pressure of one hundred or one hundred and fifty pounds to the square inch, provided the water in the cylinder had previously been charged at two hundred or two hundred and fifty pounds to the square inch. I say two hundred and fifty pounds, as good soda-water cannot be made under much less pressure, and now the forcing of more gas and water in the cylinder at the same time, and to have the same quantity of water, it would have to blow off the gas all the time it is charging. They also occupy a greater amount of room (to occupy a small space is oftentimes a very great advantage) and require two men to work them, whereas one boy can work and see to all of my apparatus.

My fountain or cylinder is charged to the pressure of two hundred and fifty pounds to the square inch, and when the water is out, the gas-valve being closed and the water-valve opened and the pump put in operation, water is forced in until up at the mark before described. Thus it will be perceived I can

make two or more cylinders of soda-water with the same gas, if the cylinder had previously been charged to two hundred and fifty pounds. When the first charge of water is exhausted and the second charge made and agitated, the water will take up part of this gas and make the pressure stand about one hundred and eighty to one hundred and ninety pounds. The next charge would make the pressure much less; but the operator wishing more gas can have it by opening the gas-valve and get the supply from the generator, which consists of a cylinder and a chamber—the first to contain the marble and water or soda and water and the second the acid—and when gas is to be made the acid is let down upon the soda and water, and by its own chemical action the pressure is produced to any number of pounds required.

It may not here be out of place to speak of some of the advantages arising from the results of my improvement: First, the cheapness—say about one-half of the cost of the old kind of apparatus; second, the capacity is only about one-half; third, there is a saving of about two-thirds of the cost of soda-water as manufactured by the old method of fountains; fourth, the quality of soda-water made is much superior to the common way of manufacturing; fifth, making soda-water by my apparatus, the operator is not subjected to the injurious effects produced by the escape of and inhalation of the carbonic acid or other poisonous gases.

Having described some other kinds of apparatus and some of the advantages of mine, I wish to be understood as not broadly claiming one cylinder, a pump, or the pipes, nor the valves, of themselves separately considered; but

What I do claim as new and my improvement, and desire to have secured to me by Letters Patent, is—

The application and use of a pump for the purpose described, when used in combination with a cylinder having connected therewith the within-described pipes and valves, substantially as described, and arranged so that when the whole combination on being operated I am enabled thereby to supply and gage the quantity of liquid and gas required within the cylinder, for the purpose set forth and described.

WILLIAM GEE.

Witnesses:

WM. H. SHIELDS,
GEO. SCHIRMER.