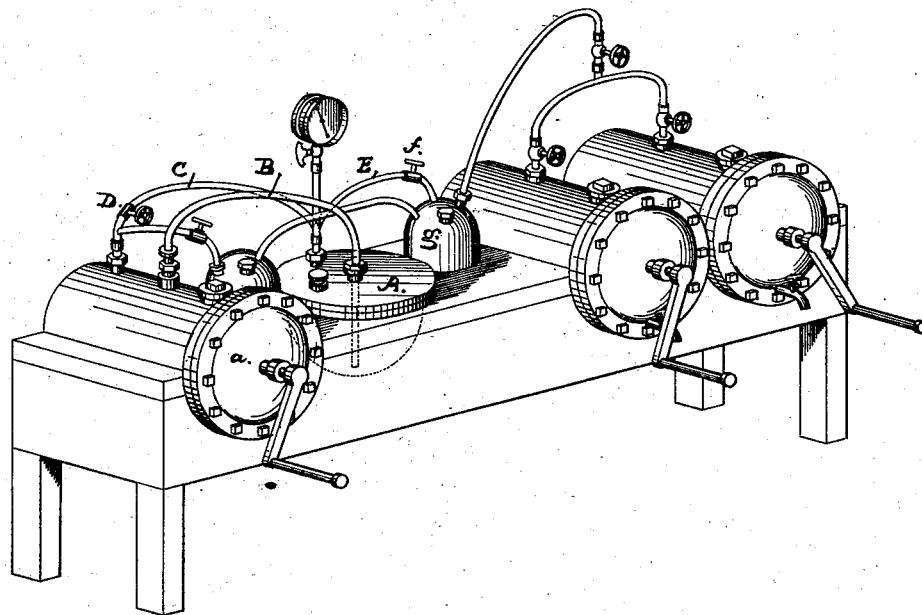


(No Model.)

F. S. WALDO.  
SODA WATER APPARATUS.

No. 264,586.

Patented Sept. 19, 1882.



Witnesses:

*D. Bellock*  
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By his Atty., *Edw. L. Caborn*

# UNITED STATES PATENT OFFICE.

FRANCIS S. WALDO, OF ALAMEDA, CALIFORNIA.

## SODA-WATER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 264,586, dated September 19, 1882.

Application filed July 1, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS S. WALDO, a citizen of the United States, residing in Alameda, county of Alameda, and State of California, have made and invented a new and useful Improvement in Soda-Water Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing.

My invention relates to an improved means of supplying acid from the head or chamber to the generator; and it includes a novel construction and application of such chamber, whereby the supply of acid to the generator is under complete control, and all danger of excessive flow of acid and the explosions incident thereto are entirely obviated.

The following description fully explains the nature of my said invention and the manner in which I proceed to construct, apply, operate, and use it. The accompanying drawing, therein referred to, shows a perspective view of a generator, gas-coolers, and fountains to which my improvements are applied.

My improvements consist in making the acid-head a detached separate chamber from the generator, and, by an arrangement of pipes provided with suitable valves, making connection between the two in such manner that the pressure in the two chambers can be equalized, and the flow of acid to the generator consequently arrested, and by the pressure in one and over the other increasing a flow of acid is produced as often as required.

The construction is as follows: The acid-head A is a separate chamber, connected with the generator *a* by the pipe B, and also having the space above the end connected with the top of the generator by an equalizing-tube, C, provided with a valve, D. The pipe B leads down into the acid, and when communication between the gas-space of head A and the generator is shut off it operates, like a siphon, to draw over a certain quantity of acid as often as gas is taken from the generator.

The pipe C is used to restore equilibrium of pressure between the two chambers A *a* and stop the flow of acid. For this purpose it has a valve, D, which, when opened, gives equal

pressure of gas in both chambers and stops the action of the siphon, and, when closed, sets it in operation.

In starting the apparatus it is necessary to have sufficient pressure of gas in the acid-head to produce a flow of acid through the pipe A. To accomplish this I make connection of the acid-head or the pipe C with the cooler *g* by means of a pipe, E, having a valve, *f*. This serves to lead over from the cooler sufficient gas to give the required pressure above the acid. This is a simple and effective way of obtaining pressure in the acid-head to set the apparatus in operation. This could also be produced by providing a small hand-pump, to be connected to the acid-head when required for use; but the construction here described is simple and sufficient.

The advantage of my improvement over the usual construction and application of acid-chambers having direct communication between the acid-chamber and generator controlled by a plug or other valve consists in its being altogether separate from the generator. Having no valves to corrode and get out of order, it is impossible for any explosions from excess of acid through leaky valves to take place in the generator.

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

1. The acid head or chamber A, having the acid-pipe B, the equalizing-pipe C, and a means for giving required pressure upon the acid in starting the apparatus, substantially as described.

2. In a soda-water apparatus, the combination, with the generator, of the detached acid-chamber A, the siphon-pipe B, the equalizing-pipe C, with its valve D, and a means for producing pressure in the acid-chamber in starting the apparatus, substantially as described.

3. The combination, with the acid-chamber A, of the pipe E, having valve *f*, connecting the acid-chamber with the cooler or other source of gaseous pressure in the apparatus.

Witness my hand and seal.

FRANCIS S. WALDO. [L. S.]

Witnesses:

EDWARD E. OSBORN,  
D. SELLECK.