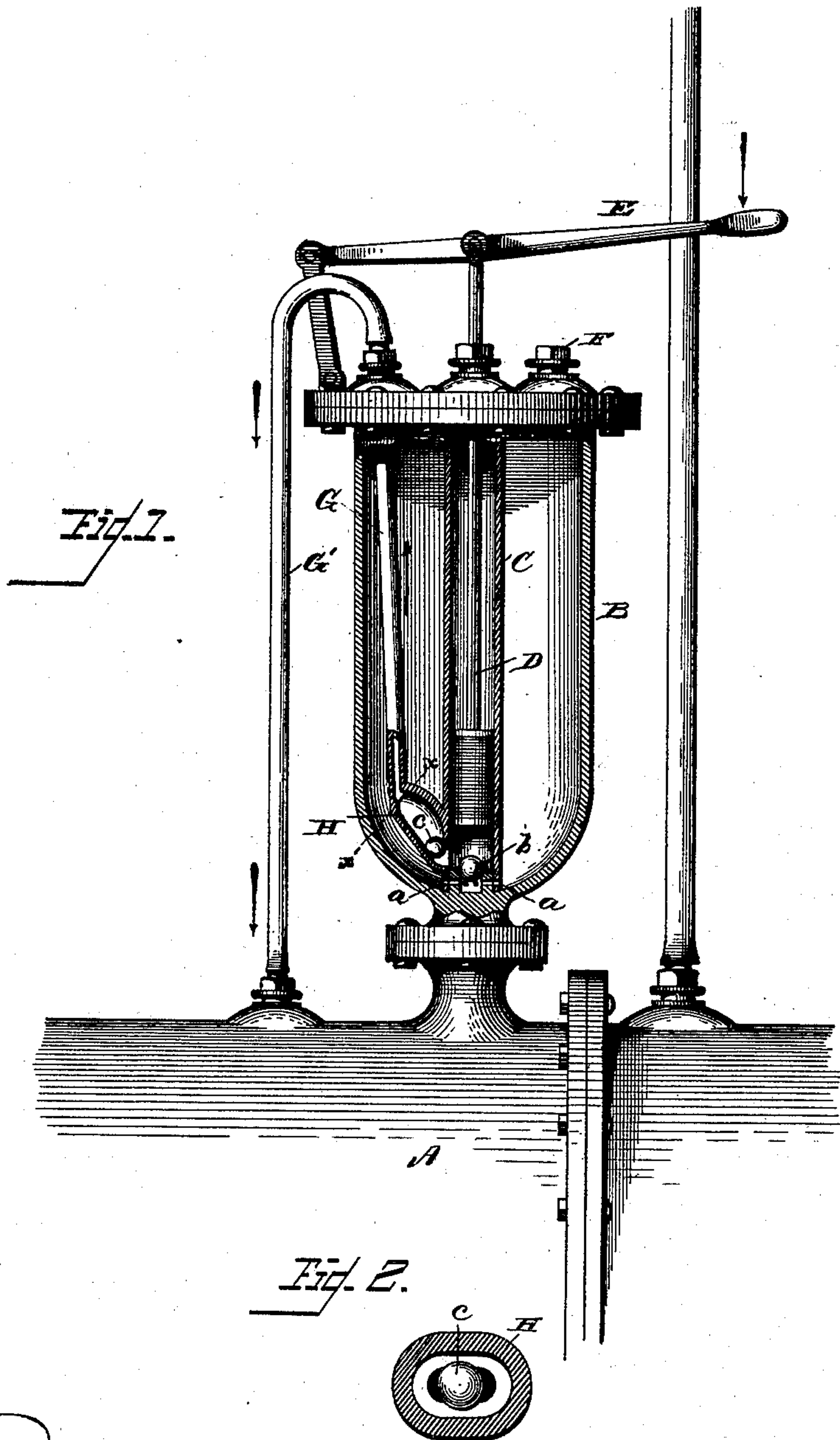


(No Model.)

G. A. SPRING.  
SODA WATER APPARATUS.

No. 330,167.

Patented Nov. 10, 1885.



Witnesses  
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# UNITED STATES PATENT OFFICE.

GEORGE A. SPRING, OF COVINGTON, PENNSYLVANIA.

## SODA-WATER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 330,167, dated November 10, 1885.

Application filed August 6, 1885. Serial No. 173,746. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. SPRING, a citizen of the United States, residing at Covington, in the county of Tioga and State of Pennsylvania, have invented certain new and useful Improvements in Soda-Water Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in soda-water apparatus, and relates more particularly to the means of supplying acid to the generator.

The invention consists in the peculiar combinations and the construction and arrangement of parts, all as more fully hereinafter described and claimed.

Referring to the drawings, Figure 1 is a side elevation of my invention, shown partly in section; and Fig. 2 is a detail view taken on the line *x x* of Fig. 1.

A represents a generator, such as is ordinarily used in the manufacture of soda-water.

B is an acid-chamber having an imperforate bottom.

C is the barrel of a pump arranged within the acid-chamber. The lower portion of the pump-barrel is provided with a series of holes or perforations, *a a*, through which the acid enters from the chamber. At a point in the barrel of the pump immediately above the perforations *a a* a spherical valve, *b*, is seated.

D is the piston of the pump, and E the handle.

F represents a screw-cap covering an opening in the top of the chamber through which the acid may be supplied.

The pipe G, through which the acid is supplied to the generator, is arranged within the acid-chamber, as shown, and opens into the barrel of the pump at a point slightly above the level of the valve *b*, and is closed by means of the spherical valve *c*, seated within the entrance. An oblong chamber, H, is provided within the entrance of the pipe G to receive the valve *c*, when the same has been unseated.

G' is a pipe connecting the upper end of the pipe G with the generator, and forms a continuation of said pipe G, but is detachable therefrom.

The operation will be readily understood. We will suppose the acid-chamber to have been filled and it is desired to supply a quantity of the acid to the generator. The handle of the pump is raised and the valve *b* is unseated. The acid flows through the perforations *a a*, filling the barrel of the pump. A downward movement of the piston reseats the valve *b* and forces the valve *c* to the upper end of the chamber H in the outlet-pipe. The chamber at this point is of such a form as to prevent the further passage of the valve, as shown in Fig. 2, and yet allow the acid to be forced past it to the generator.

I do not desire to confine myself to any particular form of pump or valve for use in connection with my apparatus, as it is evident that any of the various pumps adapted to such use may be employed. I have used a pump of the form described with satisfactory results.

I deem it important that the pipe G be arranged entirely within the acid-chamber, for by this means it is protected from injury, and if any leakage should occur it would be directly into the acid-chamber and not outside, as would be the case in devices of this kind as heretofore constructed, where the pipe is arranged outside of the chamber.

Having thus described my invention and set forth its merits, what I claim to be new, and desire to secure by Letters Patent, is—

1. In a soda-water apparatus, the combination, with the generator A, of an acid-chamber, B, having an imperforate bottom, and means for connecting it with said generator, the pipe G, arranged within said chamber, the independent detachable pipe G', connecting said pipe with said generator, and a piston working within a tube in said chamber for forcing the acid therefrom through said pipes into the generator, as set forth.

2. In soda-water apparatus, the combination of an acid-chamber, a pipe arranged therein and forming a pump-barrel and provided near its bottom with perforations, a pipe connecting directly with said perforated pipe, valves within said pipes, a plunger within said per-

forated pipe, and means for operating said plunger, all constructed and adapted to serve with a generator, as specified.

3. In soda-water apparatus, an acid-chamber having an imperforate bottom, a pipe arranged therein and communicating therewith near its bottom, a valve within said pipe, a discharge-pipe therefor having an enlargement to form a valve-chamber, and a valve  
10 arranged within said valve-chamber and of

less area than the discharge-orifice of the same, all constructed and adapted to serve with a generator, as and for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE A. SPRING.

Witnesses:

C. F. KING,

JOHN KENDRICK.