

(No Model.)

2 Sheets—Sheet 1.

T. KENDALL.

ACID FEEDER FOR SODA WATER APPARATUS.

No. 302,850.

Patented July 29, 1884.

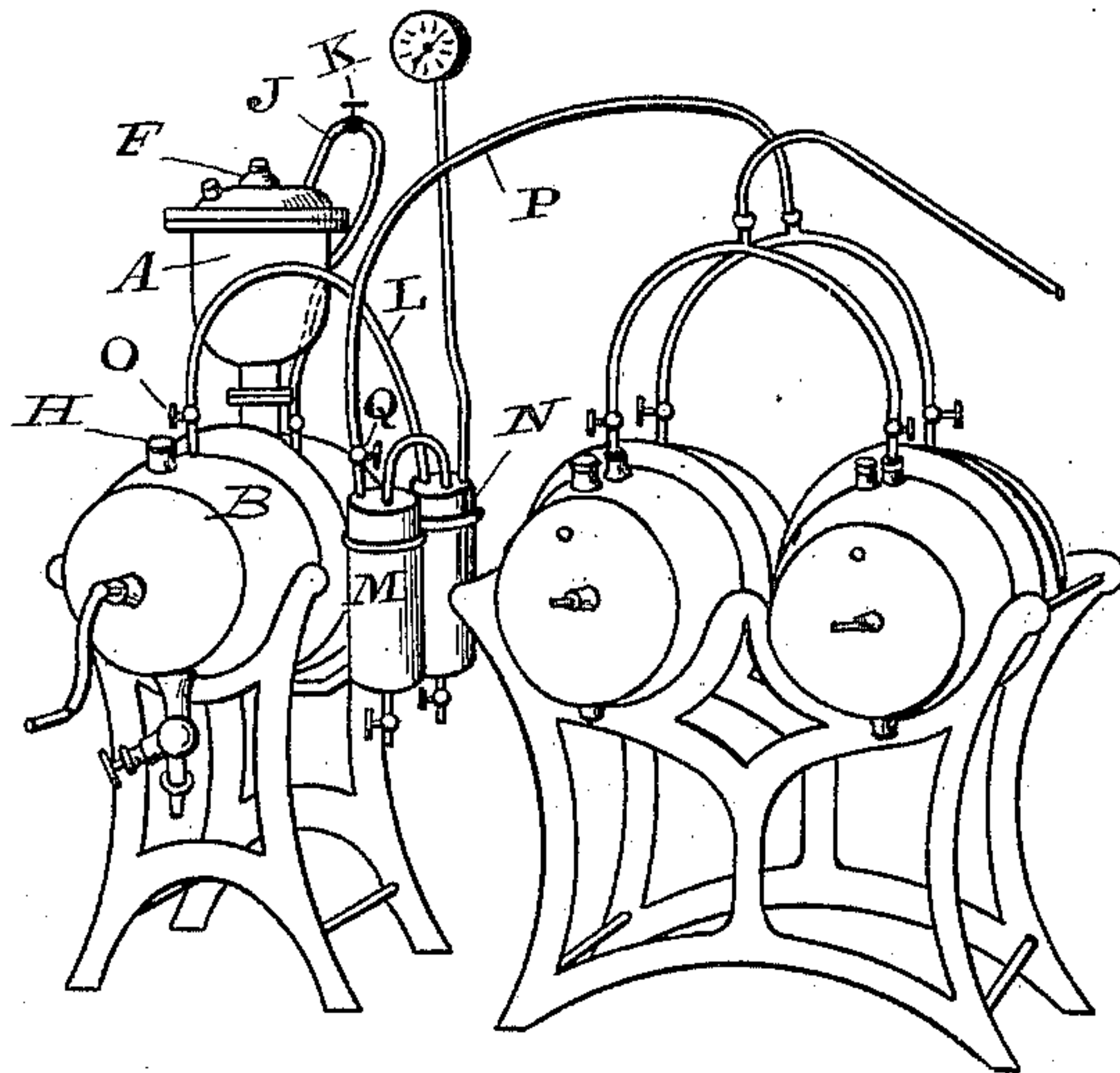


FIG. 1.

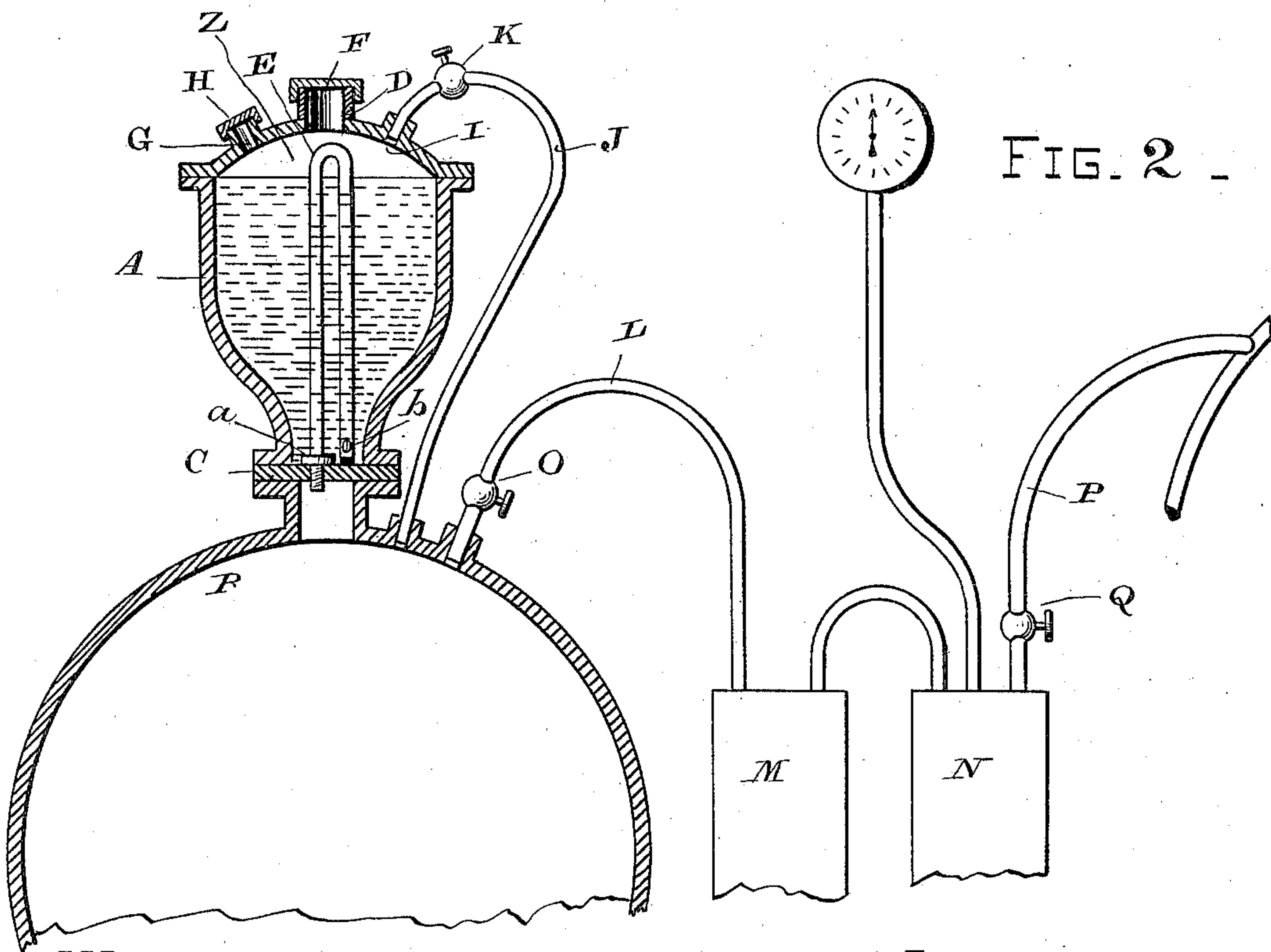


FIG. 2.

WITNESSES  
*Wilmer Bradford*  
*Edwin Derby*

INVENTOR  
*Thomas Kendall*  
By *C. W. M. Smith*  
*Attorney*

(No Model.)

2 Sheets—Sheet 2.

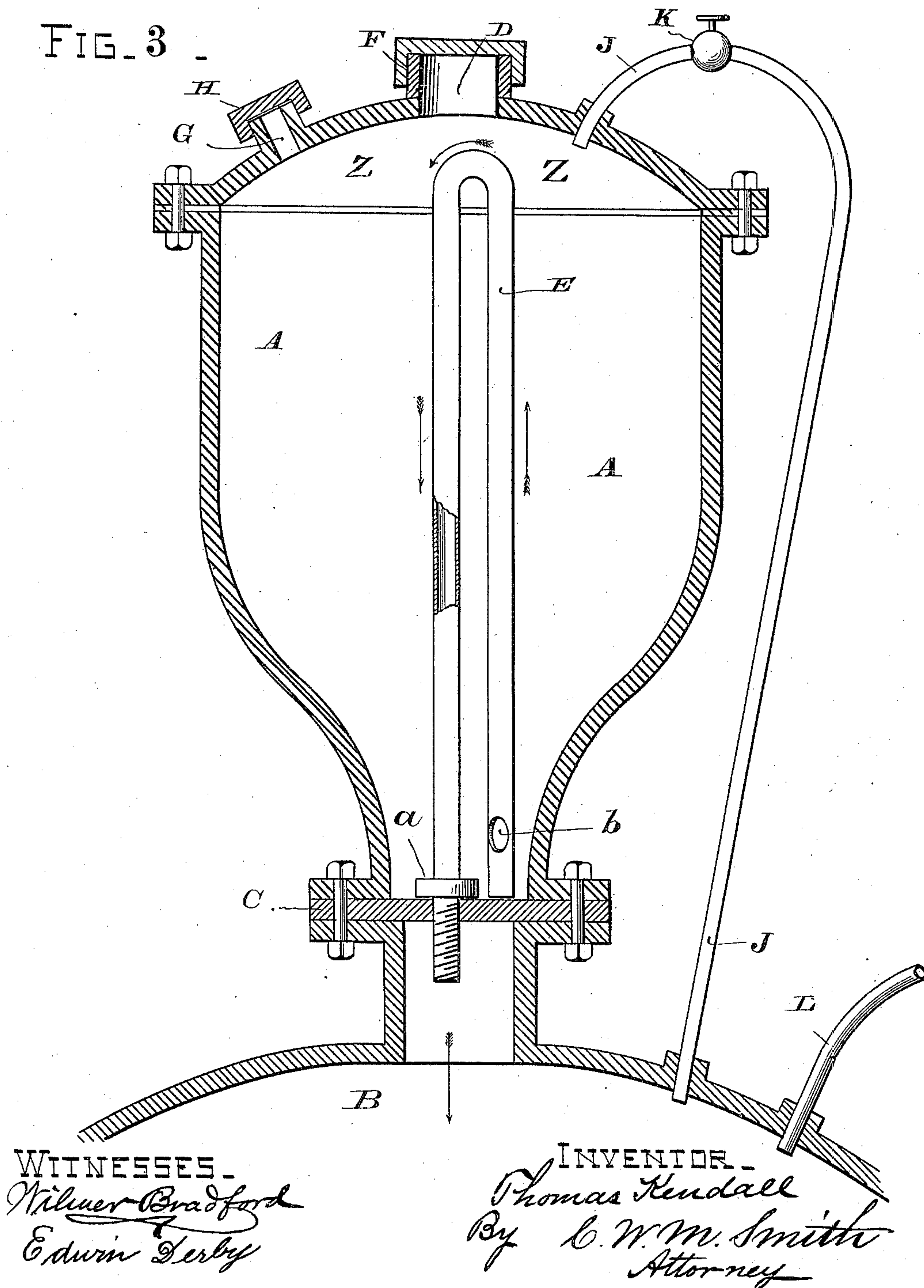
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FIG. 3.





# UNITED STATES PATENT OFFICE.

THOMAS KENDALL, OF SAN FRANCISCO, CALIFORNIA.

## ACID-FEEDER FOR SODA-WATER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 302,850, dated July 29, 1884.

Application filed July 6, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS KENDALL, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Acid-Feeders for Soda-Water Apparatus, of which the following is a specification.

Heretofore it has been customary to feed the sulphuric acid to the gas-generator through an opening or passage-way controlled by a conical plug or valve operated by levers or thumb-screws upon the valve-stem, and also by means of a complicated system of exterior pipes and tubes, whereby a siphonage might be produced and an equalization or preponderance of gas-pressure could be obtained in the acid-head for the purpose of causing a flow of acid.

Hence the objects of my improvements are to provide an acid-feeder for soda-water apparatus or other machines for the manufacture of aerated waters, which shall be of simple and cheap construction and automatic in its mode of operation; and, second, to provide an acid feeder or head for soda-water apparatus with an interiorly-contained siphon-pipe, through which the acid may be automatically fed to the gas-generator. These objects I accomplish by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view showing my improved acid-head applied to a soda-water apparatus. Fig. 2 is a sectional detail view showing the general arrangement of the acid-head and its connecting parts. Fig. 3 is a vertical section through the acid head or tank.

Similar letters of reference are used to indicate like parts throughout the several figures.

The acid holder or tank A, commonly known as the "acid-head," is constructed in the form shown.

B is the gas-generator, and C is a leaden diaphragm, which is interposed between the acid-head and the inlet to the gas-generator, and is held in place by the bolts which pass through it and the flanges on the top of the generator and bottom of the acid-head, as shown in Fig. 3.

The cover of the acid head or tank is made removable, and is provided with a series of

openings, of which the central one, D, should be large enough to admit of the insertion and removal of the siphon-pipe E, (to be hereinafter more particularly described,) and this opening should be provided with a tightly-fitting screw-cap, F. The opening G, through which the tank or head is charged with acid, is closed by a screw-cap, H. The remaining opening I in the cover of the acid-tank receives the discharge end of the equalizing-pipe J, which has its inlet in the top of the gas-generator B, as shown in Figs. 2 and 3, and is provided with a cock or valve, K.

L is the supply-pipe, to feed the gas from the generator to the coolers M and N, and has a cock, O, by which the flow of gas may be regulated. The gas, after having been cooled and purified in the coolers, then passes through the discharge-pipe P to the fountains, and is bottled in the usual manner.

The feeder or siphon E is made of any suitable kind of pipe or tubing. The long leg is screwed through the lead diaphragm C, and is provided upon the upper side of the said diaphragm with a shoulder, *a*, and suitable washers, by which means I am enabled to make a gas-tight joint, and by giving a broader support to the pipe prevent vibration or loosening of the same when the machine is in operation. The short leg of the siphon is brought down parallel with the long leg, and rests upon the top face of the diaphragm C. A small hole or inlet, *b*, is made in the lower end of the short leg, through which the acid or vitriol may pass upward.

The operation of my improved internal automatic acid-feeder will be as follows, to wit: The generator B is partially filled with water and carbonate of lime. The acid head or tank is also partially filled with sulphuric acid, and the cocks K and Q upon the equalizing and discharging pipes are closed, and a blow-pipe being placed over the hole G, the operator applies his lips to it, and by blowing produces a pressure upon the surface of the acid within the tank sufficient to drive it over the bend of the siphon or feeder, and thus establish a current which drips or trickles down into the gas-generator, and carbonic-acid gas is developed. The cock K is now opened, and a com-



munication is had between the top of the acid-chamber and the gas-generator, and the cap H is now screwed to place over the opening G. When a sufficient pressure of gas has been  
 5 obtained, as indicated by a gage attached to the machine, the cock K is then to be closed, and as the pressure of the gas in the generator increases beyond a certain limit, the acid will be forced backward through the siphon or  
 10 feeder, and the gas following it will bubble up and accumulate in the compression-chamber or air-dome Z in the top of the acid-tank, and the flow of acid will be stopped. However, as soon as the operator hears the gas bubble  
 15 in the air-dome, he opens the cock K, which will immediately produce an equalization of the gas-pressure in the generator and in the air-dome Z. The gas may now be drawn off into the fountains until the pressure has been  
 20 somewhat reduced and it becomes necessary to produce more gas. Such being the case, the cock K is closed, which will retain in the air-dome Z the amount of pressure indicated by the gage at the time of the closing of the cock.  
 25 The operation of drawing from the generator is then resumed and continued until the gas-pressure in the generator has been so far reduced as to leave a preponderance of pressure in the air-dome Z and upon the surface of  
 30 the acid, which overbalancing pressure will force the acid up over the bend of the siphon, and the flow of acid to the generator will be resumed. The cock K should now be reopened and the acid permitted to flow until the de-  
 35 sired pressure has been again reached, and thus the operation may be repeated again and again.

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

1. In an apparatus for aerating liquids, the combination, with the generator B, of the acid-head A, separated from it by a leaden diaphragm, C, which receives the long leg of a siphon-pipe, E, and the equalizing-pipe J, hav-  
 40 ing a cock, K, and connecting the generator with the air-dome above the body of acid in the head A, substantially as described.

2. In an apparatus for aerating liquids, the combination, with the generator B and acid-head A, having an interior siphon, E, of the pipe J, having a cock, K, and discharge-pipe L, having a cock, O, substantially as shown  
 50 and described.

3. The combination of the acid-head A, hav-  
 55 ing openings D G, closed by screw-caps, the gas-generator B, the diaphragm C, the siphon E, contained within the acid-head and having its long leg passed through said diaphragm, the pipe J, connecting the gas-generator with  
 60 the upper part of the acid-head, said pipe having a cock, K, the discharge-pipe L, having cock O, and the coolers M N, connected to the fountains by means of a pipe, P, having cock  
 65 Q, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

THOMAS KENDALL. [L. S.]

Witnesses:

WILMER BRADFORD,  
 CHAS. E. KELLY.