J. C. Kennedy,

Soda Fountain,

No. 82,622, Patented Sept. 29, 1868.

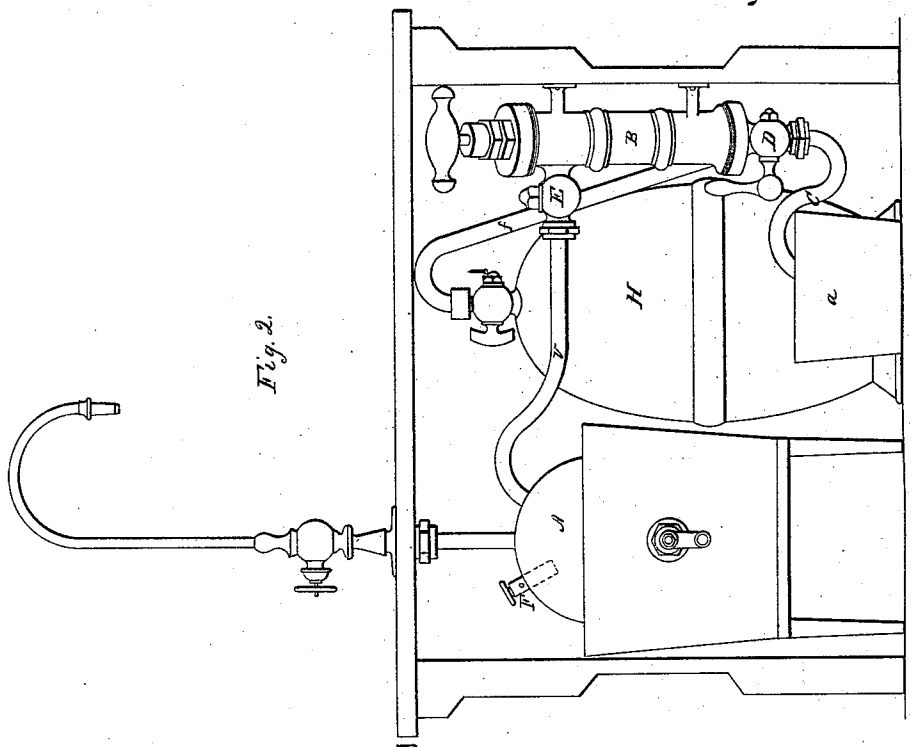

Fig. 2.

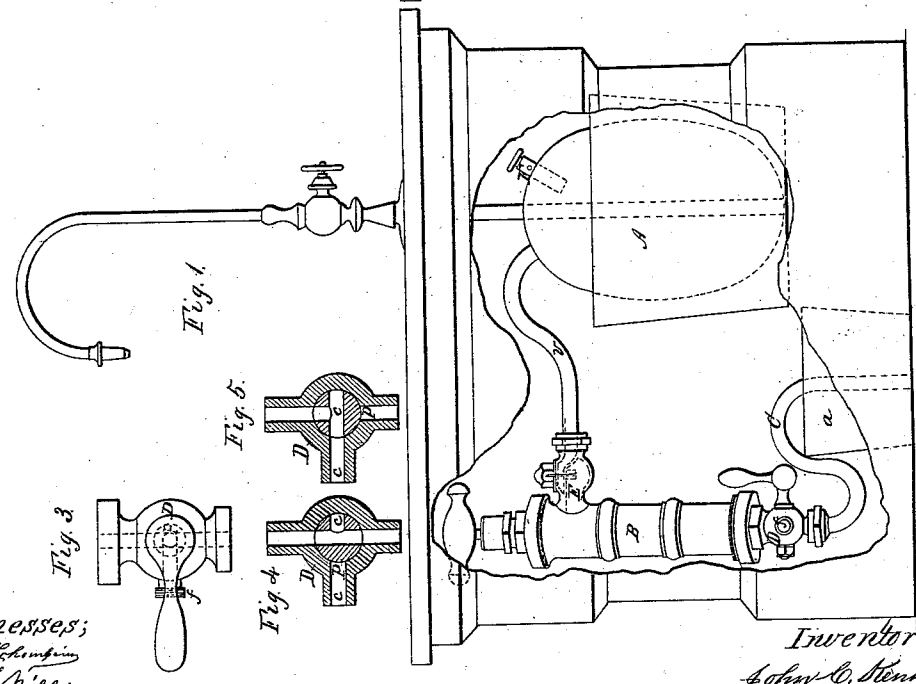

Fig. 1.

Fig. 5.

Fig. 3.

Fig. 4.

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JOHN C. KENNEDY, OF CHICAGO, ILLINOIS.

Letters Patent No. 82,622, *dated September* 29, 1868.

IMPROVEMENT IN SODA-FOUNTAINS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN C. KENNEDY, of Chicago, in the county of Cook, and State of Illinois, have invented certain new and useful Improvements in Soda-Fountains; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which like letters refer to like parts in the different figures.

To enable others skilled in the arts to make and use my invention, I will proceed to describe its construction and operation.

In the drawings—

Figure 1 is a front elevation.

Figure 2 is a rear elevation.

Figures 3 and 4 are detached views.

The object of my invention consists in the construction, arrangement, and operation of atmospheric soda-fountains.

A represents a soda-fountain, which is constructed in the ordinary manner, and may be set up, as seen in fig. 1, or otherwise, if desired.

B represents a pump, which is constructed as seen in the drawing, and is placed in any convenient position for use.

C represents an induction-pipe, which extends from said pump B to any suitable reservoir, as seen at *a*.

D represents a stop-cock, which is constructed as follows:

P represents a plug, which is perforated, as seen in diagram, fig. 4, so that fluids or gases may pass in a direct line through it. A side perforation taps the main or continuous perforation, as will be seen at *c*, Figure 5.

Fig. 3 represents a section of the lower end of the pump, which forms the stop-cock D and through which, in a direct line, the tube or opening of the suction-pipe C passes opposite the plug, and, in range with the side opening, *c*, thereof, enters another tube, *f*, which will be hereafter more fully described.

It will be readily understood that if said plug is turned in the position seen in the drawings, fig. 4, it will take fluids from pipe *f*, but if adjusted to the position seen in diagram 5, fluids will be taken by the pump from the reservoir, through pipe C, as will be clearly understood.

E represents a globe check-valve, which is attached to the side of the barrel of the pump, as seen in fig. 1. To this valve is coupled an eduction-pipe, V, which connects with the fountain A, as seen in fig. 1.

F represents an air-pit cock, the lower end of which extends downward and into the interior of the fount a short distance, as seen in dotted lines, fig. 1.

H represents a fountain, to which pipe *f* connects. This fountain has a capacity about four times greater than that of the one marked A. Said fountain may be readily attached or detached, without in the least disturbing the harmonious and economical operation of the above-described apparatus.

Having described the construction of my apparatus, I will now give its operation and advantages.

First, stop-cock D is so adjusted that the pump will take water from the reservoir. At the same time air-pit F is opened, so as to admit of the free passage of the air, or, in other words, to give the fountain A vent. Water is then injected into said fountain A by means of said pump until it is filled to the required height, which will be indicated by its flowing through the vent or air-pit. The operator then closes the vent, and adjusts the stop-cock D to a position where it will cut off the flow of water and admit atmospheric air through tube *f*. The pumping is then continued, and thus air is forced into the fountain until the pressure is sufficiently great, when the pumping may be discontinued, and the pressure is held in check by the valve E.

The advantages gained by this arrangement are: First, the ease with which the pumping is accomplished. This will be readily understood when we consider that in all other apparatus for this purpose the water is pumped under pressure, the air being confined, while in this the water is pumped entirely without pressure, while the air is pumped under pressure, but as air is much more fluid than water, it passes much more readily

and freely through a pipe, and consequently a proper degree of pressure is attained, with a great saving of power. Secondly, all of the water is forced out of the pipes and pump, so that they are left entirely dry, and thus the water is much more free from the presence of metallic salts than where water is permitted to stand in contact with said tubes.

It will be borne in mind that when a fountain is charged with carbonated water, under a high pressure of carbonic-acid gas, and said water is drawn off by use, there remains in said fountain a large amount of said gas, which, if not used to impregnate other water, must be allowed to escape, and is thus lost.

It has been ascertained by actual experiment that the said gas remains in a sufficient quantity to charge or impregnate over one and one-half the original bulk of water contained in the fountain.

Now, it is clear that any device which will use this free gas economically is of the greatest importance to the operator, as will be readily understood.

This apparatus accomplishes this object without cost or loss of time. Suppose fountain H is charged in the ordinary manner, and the supply has been exhausted by passing through the pump B and check-valve E into fountain A, and thence out in the ordinary manner.

It will be borne in mind that, in order to permit this flow, stop-cock D must be so adjusted that the apertures through plug P are placed as seen in fig. 5.

Now, turn the plug P to the position seen in fig. 4 and open the air-pit F and commence pumping water from the reservoir, and fill fountain A until water flows from the air-pit. Then close said air-pit, and adjust the plug P of stop-cock D to the position seen in fig. 5, and it will be found that the gas in fountain H will pass into and be absorbed by the water in fountain A. When said water has saturated all that is necessary of said gas, the cock is turned into a position to enable it to take in atmospheric air, and the pumping is continued until the desired pressure is attained.

It will be readily understood that, as the air is lighter than the gas, said gas naturally gravitates to the bottom of the air-chamber and rests upon the upper surface of the water, or, if the pressure is sufficient, it will be absorbed by the water. Hence, as the charged water is drawn off from the bottom, and the pressure is too much relieved, more air is pumped in, and thus the operation is continued until the supply is exhausted. The air-pit is opened and the compressed air escapes. Then stop-cock D is again adjusted so as to take water from the reservoir, which is pumped into the fountain, as before. Then the air-pit is closed, as before, and the cock is adjusted so as to let on gas, which again impregnates the water, as before.

When the gas is so exhausted that the pressure in the fountain has been relieved, then, if desirable, the pump may be put in requisition, and thus a large proportion of the gas may be drawn out from said fountain forward and incorporated in the water in fountain A, as before, and thus most of the gas absorbed.

It will be borne in mind that fountain A should never be filled with water to a point higher than the lower end of the tube that extends down from the air-pit cock F, thus leaving an air-chamber, as will be readily understood.

What I claim as new, and desire to secure by Letters Patent, is—

1. The pump B, the three-way cock D, pipes C and V, reservoir A, and air-pit F, all arranged and operated substantially as described.

2. Fountain A, provided with an air-pit and gauge-tube, as described, pump B, globe check-valve E, three-way cock D, and fountain H, the whole being arranged, constructed, and operated in the manner and for the purpose specified.

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Witnesses:

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