W. GEE.

CARBONIC ACID GAS GENERATOR.

No. 187,614. Patented Feb. 20, 1877.

Fig. 1.

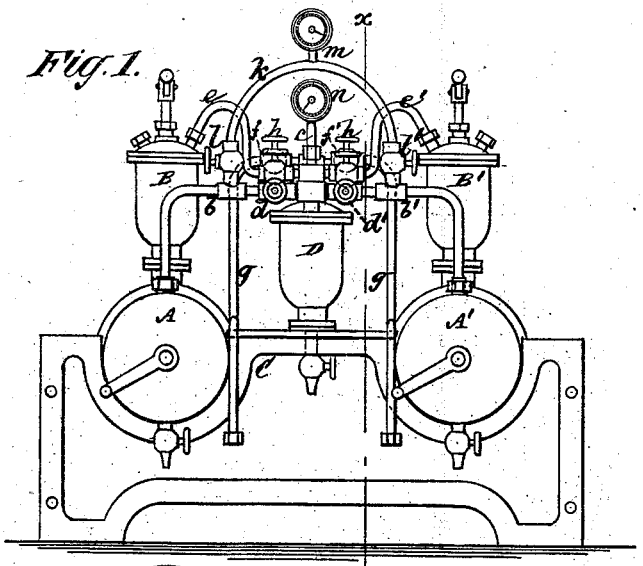


Fig. 2.

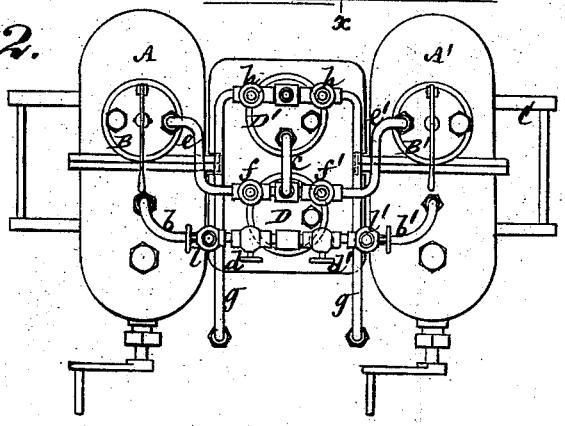
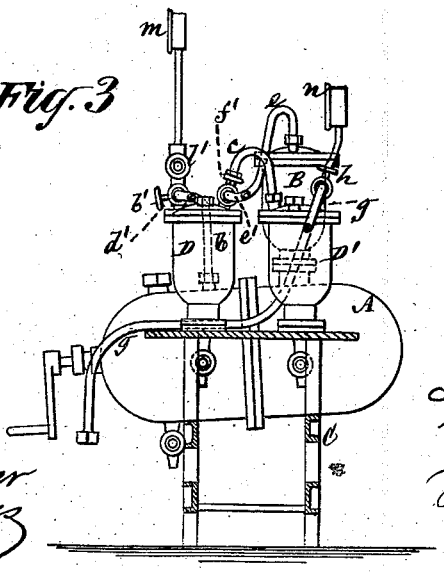


Fig. 3



Witnesses
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William Gee
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UNITED STATES PATENT OFFICE.

WILLIAM GEE, OF NEW YORK, N. Y.

IMPROVEMENT IN CARBONIC-ACID-GAS GENERATORS.

Specification forming part of Letters Patent No. 187,614, dated February 20, 1877; application filed January 17, 1877.

To all whom it may concern:

Be it known that I, WILLIAM GEE, of the city, county, and State of New York, have invented certain new and useful Improvements in Gas-Generating Apparatus for the Manufacture of Soda-Water and other Aerated Liquids, of which the following is a specification:

The invention consists in certain novel combinations of parts in a gas-generating apparatus employing duplicate generators, whereby a continuous supply of the carbonic-acid gas may be kept up with increased facility and regularity.

In the accompanying drawing, Figure 1 represents a front elevation of a gas-generating apparatus constructed in accordance with my invention; Fig. 2, a plan of the same in part, and Fig. 3 a transverse vertical section thereof on the line *x x*.

A A′ are duplicate generators of the gas, each provided with an acid-chamber, B B′, and both mounted on a suitable frame, C. D D′ are duplicate purifiers, operating, as usual, in succession, to produce a first and second washing, but both being used in connection with the two generators, which operate distinct from each other to keep up a continuous supply of gas. Said generators are connected, by pipes *b b′* and intermediate branch, with the first purifier D, and the latter connected with the second purifier D′ by a pipe, *c*. Valves *d d′*, applied to the pipes *b b′*, serve to open or close communication, as required, between each generator, respectively, and the purifier D, in which the gas is first washed, and from which it passes to the purifier D′ by the pipe *c*, to undergo a second washing. Pipes *e e′*, controlled by valves *f f′*, connect the acid-chambers B B′ with the purifier D, for the purpose of equalizing the pressure between the acid-chambers and the purifiers. The second or last purifier D′ has branching from, or connected with, it pipes *g*, controlled by valves *h*, and serving to supply duplicate fountains; or any greater number of fountains may be supplied with gas from the same purifier. The pipes *b b′* are connected outside of the valves *d d′* by what I term a "regulating-pipe," *k*, having duplicate valves *l l′* and a pressure-gage, *m*. Another pressure-gage, *n*, is mounted on or connected with the purifier D′.

The operation is as follows: First charge the generator A with marble and water, and its acid-chamber B with the necessary acid. Close the valves *l d′ f′ l′*, and open the valves *d* and *f*. This puts the generator A in communication with the purifiers D D′, and connects the acid-chamber B with the purifier D by the pipe *e*, while it excludes the generator A′ from communication with the purifiers, and the acid-chamber B′ from communication by the pipe *e′* with the purifier D; but this working communication of either generator with the purifiers may be reversed. Supposing, however, the generator A to be the one first put in a working communication, as described, the acid is then let down from the chamber B, and gas raised to a pressure of, say, forty pounds, more or less, as indicated by the back gage *n*. This will keep the marble from settling in generator A while charging generator A′. The next proceeding in order will be to charge in like manner the generator A′, and then to open the valve *l′*, in order to ascertain by the front gage *m* the pressure in the generator A′, and to raise the gas therein also to about forty pounds, more or less, or to about the same pressure as that previously indicated by the gage *n* for the generator A. Such pressure is maintained in the generator A′ until needed. After, however, the charge in the generator A, which has been raised to its standard pressure, say from one hundred and eighty to two hundred and twenty pounds, is exhausted, and the pressure therein is reduced to, say, twenty or thirty pounds, more or less, the valves *d* and *f* are closed, which shuts off the generator A, and the gas is raised in the generator A′ until the pressure, as indicated on the front gage *m*, is higher than that indicated on the back gage; or the gas can be raised to its standard or working point, say from one hundred and eighty to two hundred and twenty pounds, before the generator A is exhausted. The valve *f′* is then opened and the valve *d′* opened gradually, in order that the gas may pass slowly into the purifiers, and said valve *d′* ultimately opened wide, to work the generator A′ as the other generator A had been worked. The valve *l′* can be closed or left open until the generator A is recharged, after which it should

be closed and the valve *l* opened, to tell the pressure in the generator A while recharging and raising the gas in the latter. This action is repeated for each generator in turn.

The valves *l l'*, pipe *k*, and the gage *m* are for the purpose of regulating the pressure of the gas, and before turning the gas into the purifiers, by opening either valve *d d'*, the gage *m* should always indicate a higher pressure than the other gage, *n*, or at least an equal pressure, to prevent water passing from the purifiers into the generator about to be charged.

By thus combining, connecting, and working duplicate generators, a continuous supply of gas at a uniform pressure, or nearly so, may be kept up, and the same purifiers answer for each generator. Labor, too, is economized as compared with other gas-generating apparatus for manufacturing aerated waters.

I claim—

The combination of the regulating-pipe *k*, its pressure-gage *m*, and valves *l l'* with the generators A A', the pipes *b b'*, the valves *d d'*, and the purifier D, substantially as specified.

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Witnesses:
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