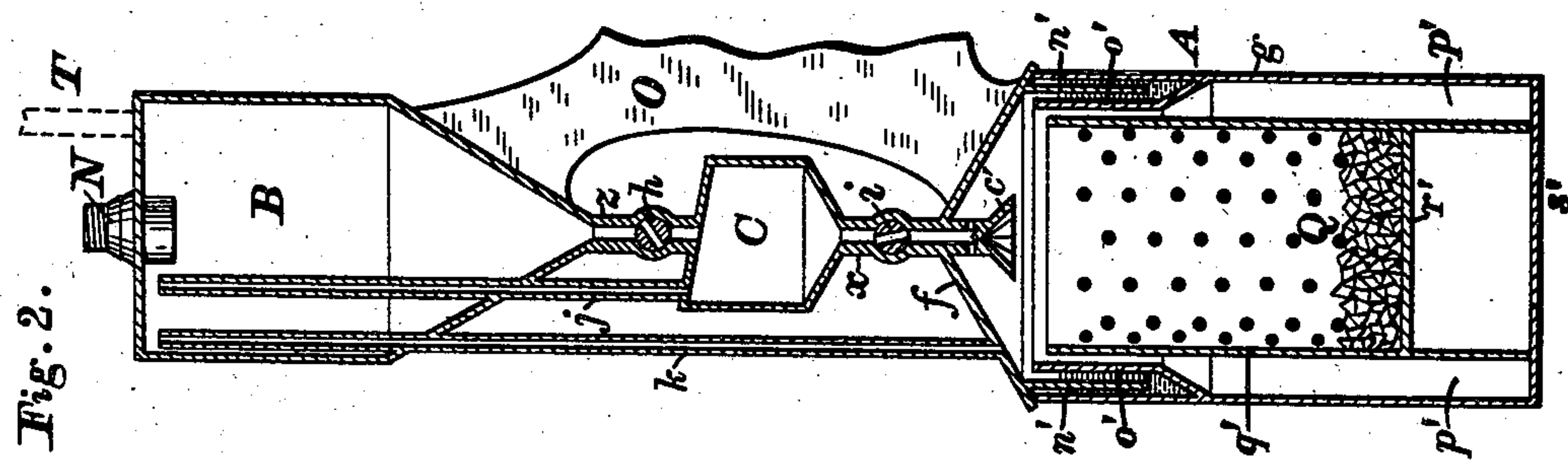
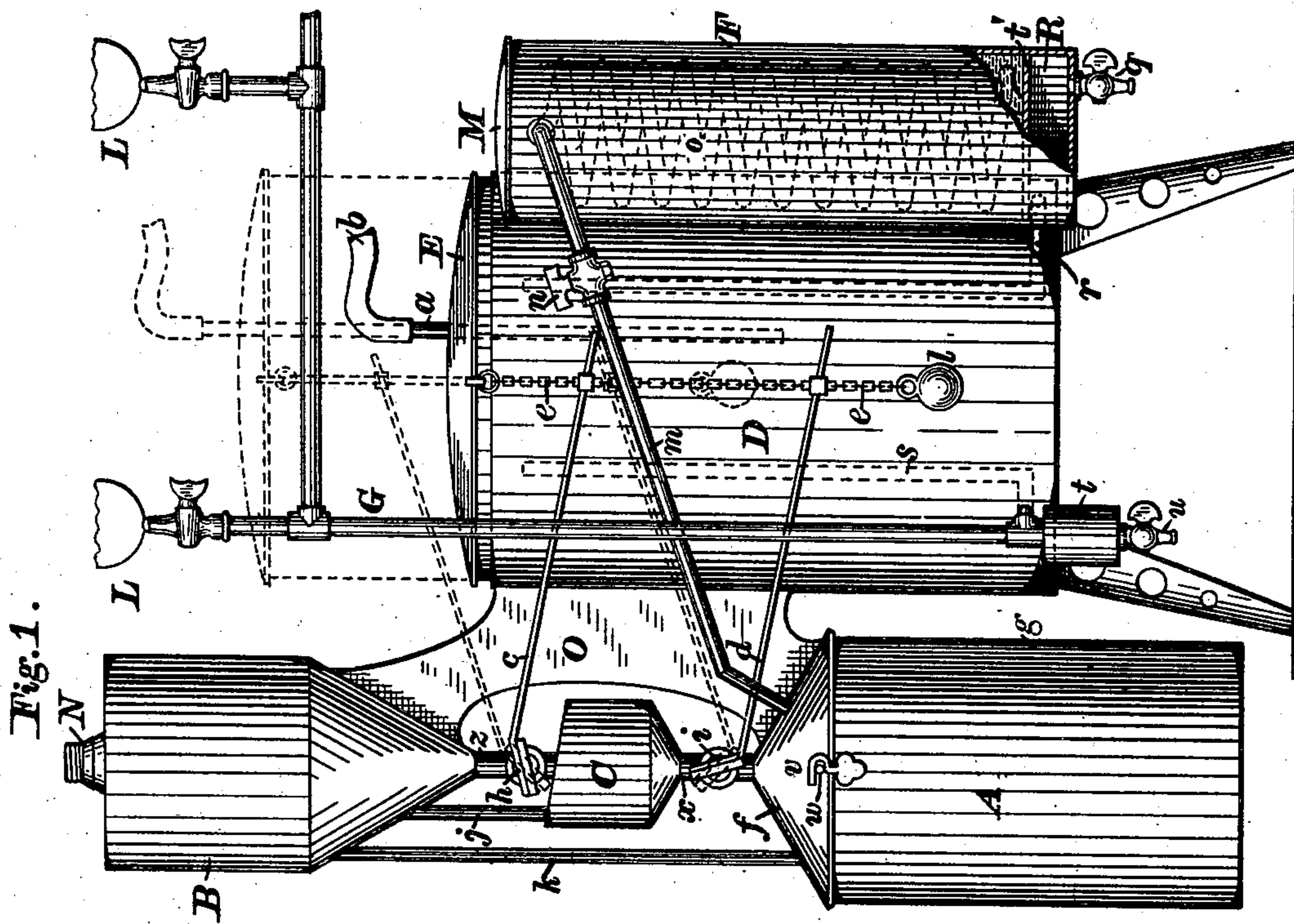


(No Model.)

J. J. PATTERSON.
 APPARATUS FOR GENERATING ACETYLENE GAS.
 No. 582,546. Patented May 11, 1897.



WITNESSES;

G. S. Dey.
 C. G. Crumell.

INVENTOR;

J. J. Patterson
 By Geo. B. Selden,
 atty.

UNITED STATES PATENT OFFICE.

JEROME J. PATTERSON, OF BATAVIA, NEW YORK, ASSIGNOR OF THREE-FOURTHS TO ISAAC R. BARTON, OF SAME PLACE, JOHN WILLIAM SPEAIGHT, OF BROOKLYN, AND WALTER C. NICHOLS, OF BUFFALO, NEW YORK.

APPARATUS FOR GENERATING ACETYLENE GAS.

SPECIFICATION forming part of Letters Patent No. 582,546, dated May 11, 1897.

Application filed December 22, 1896. Serial No. 616,581. (No model.)

To all whom it may concern:

Be it known that I, JEROME J. PATTERSON, a citizen of the United States, residing at Batavia, in the county of Genesee, in the State of New York, have invented an Improved Apparatus for Generating Acetylene Gas, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improved apparatus for generating and storing acetylene gas, the construction of which is fully described and illustrated in the following specification and the accompanying drawings, the novel features thereof being specified in the claims annexed to the said specification.

In the accompanying drawings, representing my improved acetylene-gas apparatus, Figure 1 is a front elevation. Fig. 2 is a central vertical section through the water-supply tank, the gas-generating chamber, and the intermediate receiver, showing also the connecting-piping.

In the accompanying drawings, A is the generating chamber or receptacle; B, the water-supply tank; C, the intermediate water-receiver; D, the gas-holder or gasometer, and F the cooler.

m is a pipe connecting the generator A with the worm o of the cooler F, and G is the delivery or service pipe, through which the gas is conveyed to one or more of a series of suitable burners.

The various parts of the apparatus are arranged in any suitable relation to each other, being connected together, for instance, by the bracket O, and a suitable support being provided, the generator being placed at such a distance from the floor as to allow of the convenient removal of the outer shell g, Fig. 2, of the generator.

In the practical operation of the apparatus the water from the tank B is fed through the receiver C onto the carbid of calcium Q in the generator A by the up-and-down movement of the inverted inner tank E of the gas-holder, by which the valves h and i are opened and closed, so as to deliver the water in the proper quantities into the generator. The valves h and i are connected with the movable tank E

of the gas-holder by the levers c and d and the chain or other suitable connection e.

The water-supply tank B is of any suitable dimensions, being preferably made cone-shaped at its lower end, so that all the water in it may be discharged into the pipe z, provided with valve h. The tank B is provided with a suitable orifice closed with a plug or other suitable device, such as the screw-cap N, by which the tank may be closed after being filled. The intermediate receiver C is also preferably made cone-shaped at its lower end, which connects with the pipe x, provided with valve i.

Any suitable valves may be employed between the tank B and the receiver C and between the receiver and the generator, but in practice I have found that ordinary conical plug-valves, as shown, answer satisfactorily. These valves are arranged so that one is opened and the other closed, or vice versa, by the simultaneous movement of the levers c and d in either direction. Thus when the tank E descends, owing to the consumption of the gas, the lower valve i is opened, so as to permit the water to descend into the generator, while when the tank rises the lower valve i is closed and the upper valve h opens, so as to allow the water from the tank B to enter the receiver C. From the top of the receiver C, which is preferably cone-shaped or inclined, as shown, the pipe j, open at both ends, extends upward into the tank B, terminating above the highest water-line therein, so that as water descends through pipe z when the valve h is open the air may escape from the receiver to the tank. The pipe k forms a passage between the top of the generator and the top of the supply-tank, so that the water may be fed freely from the receiver C into the generator. The lower end of the pipe x terminates inside the cover f of the generator in a rose-jet or other distributing device, such, for instance, as the inverted cone c', Fig. 2, by which the water is spread out over the surface of the carbid. All these parts may be attached together by brazing or soldering or by any other suitable kind of joints.

The body or shell *g* of the generator *A* is made removable for the purpose of removing the lime and of inserting fresh carbid. The shell *g* is attached to the cover *f* in any convenient way, as by the catches or hooks *v* and pins *w*, so that it may be readily detached. A water seal is formed between the cover *f* and the shell *g* by means of the flange *n*, which descends into an annular trough, partially filled with water, formed between the upper part of the shell and the annular lip or flange *o'*, attached thereto. This flange *o'* is located on the inside of the shell, so that in case of any overflow of the water in the trough it will descend into the annular space *p'*, formed between the shell *g* and the circular wall *q'*. The carbid *Q* rests on the partition *r'*, placed at a suitable distance about the bottom *s'* of the shell *g* inside the wall *q'*, which is perforated above the bottom, to allow of the escape of any excess of water into the space *p'*.

The pipe *m* is provided with the valve *n*, which is used to cut off communication between the generator and the gas-holder when the carbid has to be replenished. The outer casing *F* is filled with water, in which the worm *o* is immersed for the purpose of cooling the gas as it passes through the worm. At the bottom of the cooler *F* the worm connects with the partition *t'*, which forms a drip-chamber *R*, provided with the cock *q*, through which any condensed products may be discharged.

From the drip-chamber *R* the pipe *r* runs inside the movable tank *E* and delivers the gas therein. The pipe *s* carries the gas from the interior of the tank *E* to the service-pipe *G*, which is provided at its lower end with the drip-chamber *t*, having the drip-cock *u*. A weight *l* may be attached to the chain or connection *e*. The pipe *a* passes through the top of the movable tank *E* and extends downward inside the same for a suitable distance, being arranged to blow off any excess of gas from the tank *E* when it rises to the limit of its upward travel, at which time the lower end of the pipe *a* will be above the level of the water in the outer tank *B*. The pipe *a* is attached to a flexible tube *b*, which is arranged to deliver the excess of gas into any suitable locality or into another gasometer.

One mode of operating my invention consists in connecting the tank *B* with any suitable source of water-supply under a pressure greater than that in the gas-generator, and in this case the pipes *j* and *k*, or one of them, may be dispensed with. Such a connection

of the tank *B* with an ordinary service-pipe is indicated at *T*, Fig. 2, and in such case the dimensions of the tank may be materially reduced, or the pipe itself may answer as the tank. The cooler *F* may be provided with the cover *M*.

I claim—

1. The combination of the gas-generating receptacle, the closed water-supply tank and the intermediate receiver, the valves between the supply-tank and the intermediate receiver and between the receiver and the generator, the pipes connecting the receiver and the generator with the supply-tank, the movable gas-holder, suitable mechanism whereby the valves are connected with the gas-holder so as to be operated thereby, and suitable piping connecting the generator with the gas-holder, substantially as described.

2. The combination of the gas-generating receptacle, the closed water-supply tank and the intermediate receiver, the connecting-pipe between the supply-tank and the receiver with the valve therein, the connecting-pipe between the receiver and the generator with the valve therein, the pipes connecting the receiver and the generator with the supply-tank, the movable gas-holder, suitable mechanism whereby the valves are connected with the gas-holder so as to be operated thereby, and suitable piping connecting the generator with the gas-holder, substantially as described.

3. The combination with the gas-generator *A*, consisting of the cover *f* and detachable vessel *g* connected by a water seal, of the receiver *C*, the water-supply tank *B*, the intermediate valves *h* and *i*, the movable gas-holder and suitable mechanical connections whereby the valves are operated from the holder, substantially as described.

4. The combination of the gas-generating receptacle, the water-supply tank and the intermediate receiver, the valves between the supply-tank and the intermediate receiver and between the receiver and the generator, the movable gas-holder, the piping connecting the generator with the gas-holder, and suitable connecting mechanism between the movable gas-holder and the valves whereby one valve is opened when the other is closed, substantially as described.

JEROME J. PATTERSON.

Witnesses:

GEO. B. SELDEN,
C. G. CRANNETT.