

(No Model.)

E. APPLEBY.  
ACETYLENE GAS APPARATUS.

No. 598,837.

Patented Feb. 8, 1898.

Fig. 1.

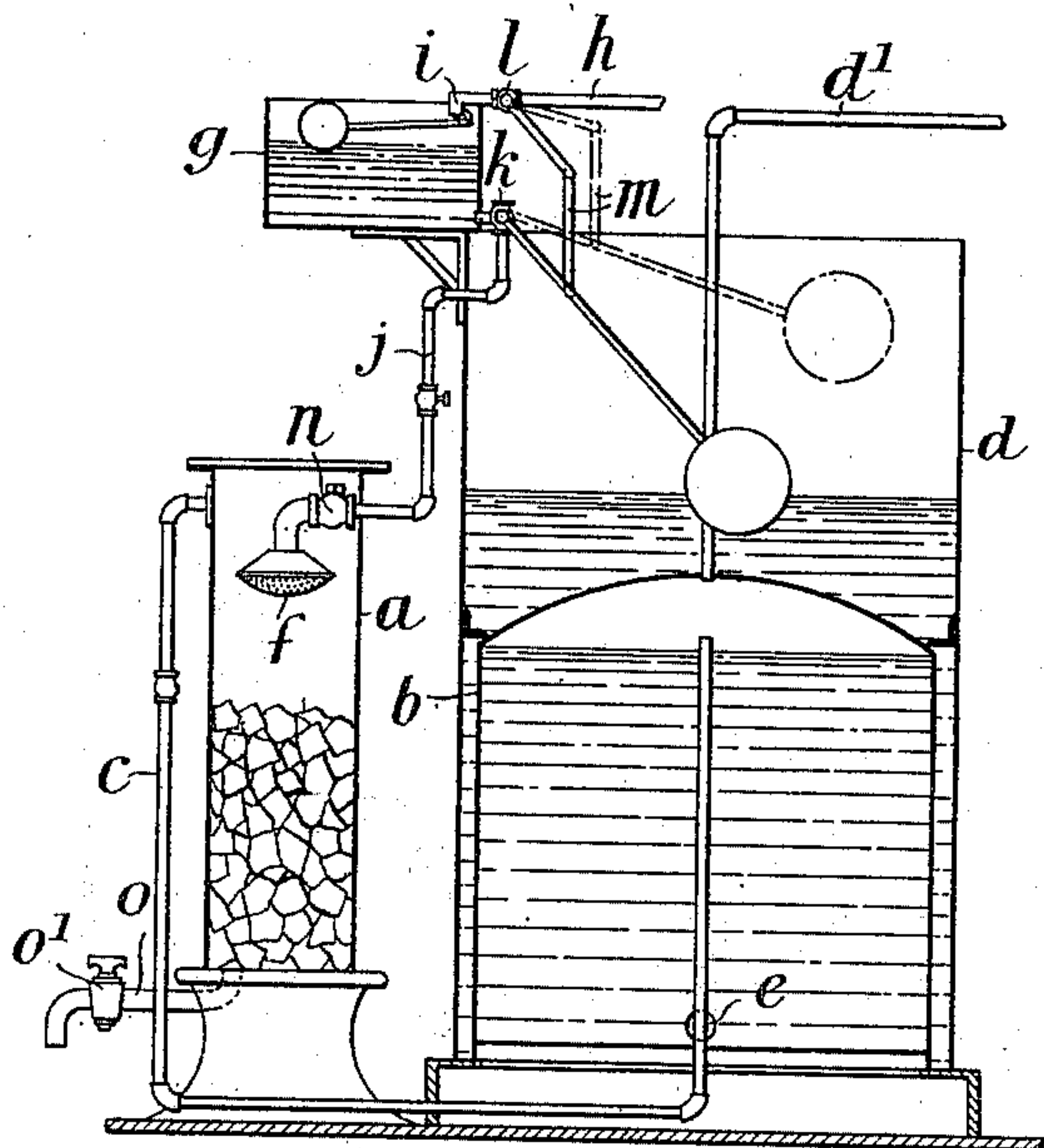


Fig. 2.

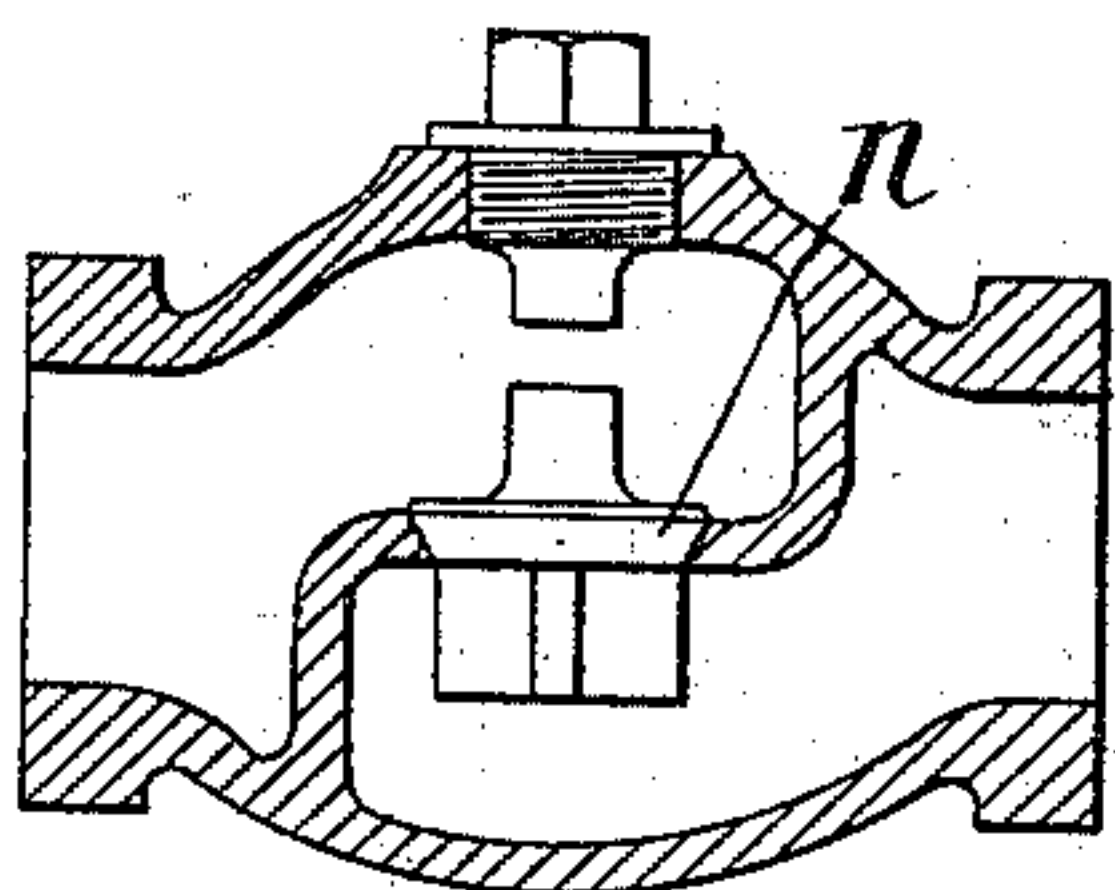
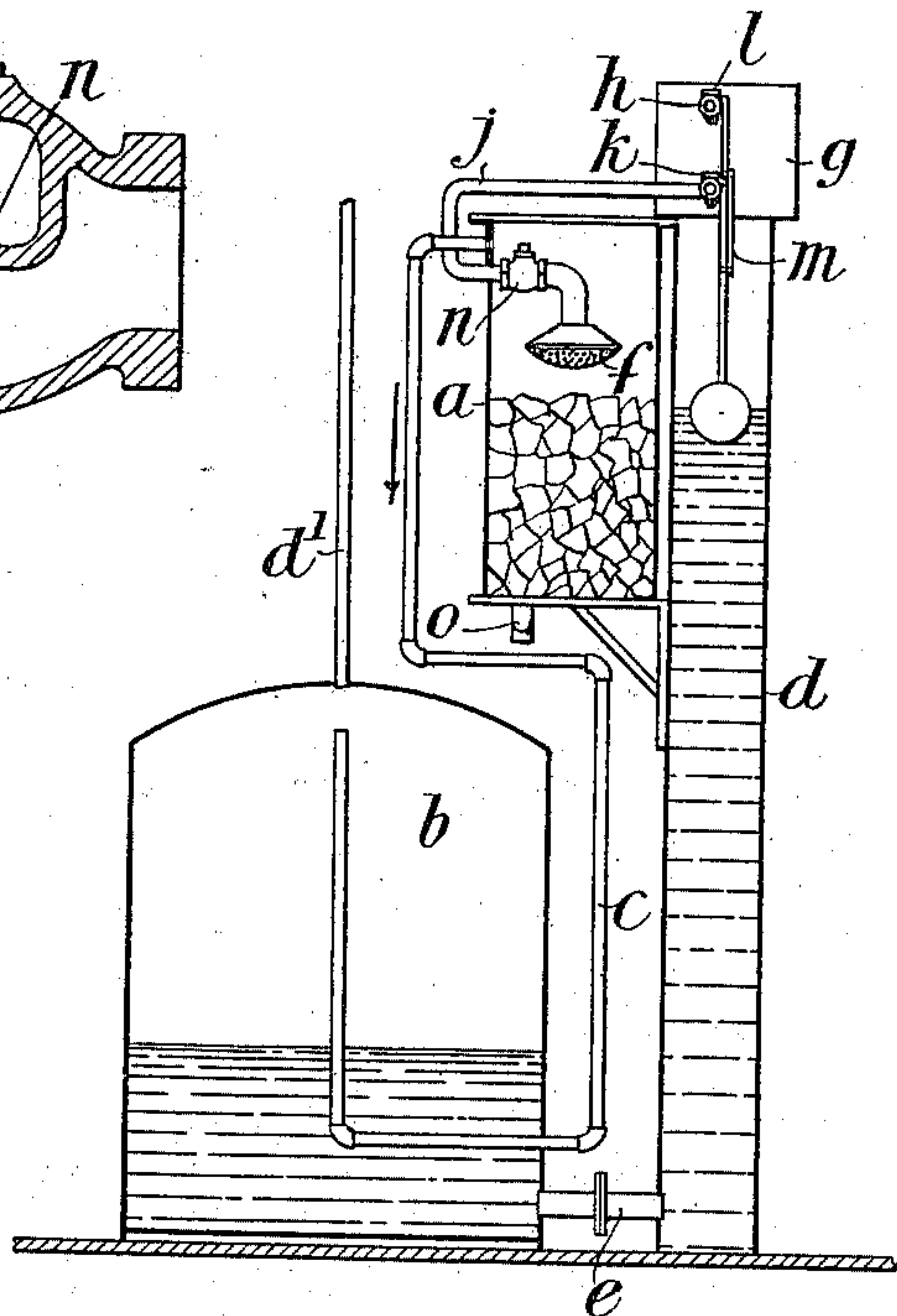


Fig. 3.



Witnesses

G. J. Reafer  
John E. Pousfield.

Inventor.

E. Appleby



# UNITED STATES PATENT OFFICE.

EDWIN APPLEBY, OF LONDON, ENGLAND, ASSIGNOR OF ONE-HALF TO  
HUBERT FOURACRE HARRIS, OF SAME PLACE.

## ACETYLENE-GAS APPARATUS.

SPECIFICATION forming part of Letters Patent No. 598,837, dated February 8, 1898.

Application filed March 22, 1897. Serial No. 628,685. (No model.) Patented in England March 17, 1896, No. 5,976.

*To all whom it may concern:*

Be it known that I, EDWIN APPLEBY, a subject of the Queen of Great Britain, residing at London, England, have invented new and  
5 useful Improvements in Apparatus for the Manufacture of Acetylene Gas, (for which I, jointly with Hubert Fouracre Harris, also of London, England, have obtained a patent in Great Britain, No. 5,976, dated March 17,  
10 1896,) of which the following is a specification.

My invention relates to apparatus for the manufacture of acetylene gas, and has for its chief object to provide means whereby the gas shall be generated in given quantities  
15 from time to time, as required for use, thereby obviating waste and at the same time rendering unnecessary the storage of more than a small quantity of gas.

In carrying out my invention I provide a  
20 generator, a water-supply apparatus provided with a measuring device for introducing given quantities of water into the generator, a gas-holder adapted to contain the quantity of gas which the water introduced into the genera-  
25 tor at any one time will generate, and a water-tank of a capacity equal to that of the gas-holder and in communication with the said gas-holder.

To enable my invention to be fully understood, I will describe the same by reference to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a generating and storing apparatus constructed according to my invention, and Fig. 2 is a detail  
35 of the same. Fig. 3 is a view similar to Fig. 2 of a modified form of apparatus.

*a* is the generator, which is advantageously of cylindrical form and provided with a removable gas-tight cover.

40 *b* is the gas-holder, which is connected with the generator by a pipe *c*, extending from the top of the said generator to a point near the top of the said holder, and *d* is the water-tank, which communicates with the holder at  
45 a point near the bottom through an opening *e*. As shown in Fig. 1, the gas-holder *b* is arranged inside the tank *d* in such a manner that a space is formed between the said gas-holder and tank to contain water. In this  
50 case the capacity of the tank *d* will be at least double that of the gas-holder.

*f* is the rose or nozzle, through which the water is injected into the generator, and *g* is a supply-tank provided with a supply-pipe *h* and a ball cock or valve *i*. With this ar-  
55 rangement as water is introduced into the generator and falls on the calcium carbide therein gas will be generated and flow through the pipe *c* into the gas-holder *b*, displacing the water which will flow through the pipe or  
60 opening *e* into the tank *d*. As the gas is used and flows through the pipe *d'*, the water from the tank *d* will flow back into the gas-holder. Should the quantity of gas generated be  
65 greater than that which the gas-holder is capable of containing, the excess will escape through the opening *e* into the tank *d* and thence into the atmosphere.

In order to avoid the waste of gas as far as possible, I provide that the quantity of water  
70 which at any time shall come into contact with the calcium carbide shall be only such as will generate about enough gas to fill the holder *b*. For this purpose I arrange that the vessel *g* shall form a measuring vessel,  
75 the ball-cock being so arranged that when the required quantity of water is in the said vessel *g* the flow of water past the cock *i* shall stop.

In the pipe *j*, which connects the tank *g* with the rose *f*, I arrange a ball-cock *k*, and in the  
80 supply-pipe *h* I arrange another cock *l*, which is connected with the lever of the ball-cock *k* by the link *m*, so that both the cocks *l* and *k* will be operated simultaneously. These  
85 cocks are so arranged that when one is open the other is closed, whereby when the water-level in the tank *d* is so low as to open the cock *k* to allow the contents of the cistern *g* to flow into the generator no water will flow into the  
90 cistern *g*, notwithstanding that the ball-valve *i* is open. As the generation of gas proceeds the level of the water in the cistern *d* rises so that the cock *k* is closed and the cock *l* is opened to refill the cistern *g* through the ball-cock *i*.

It is to be understood that any suitable ar-  
95 rangement of cocks or valves for insuring the emptying of the cistern *g* before the water again commences to flow into it or otherwise supplying measured quantities of water may be used, that which I have described being  
100 only given as an example.

*n* is a check-valve which is arranged be-



tween the rose *f* and the cistern *g* for preventing the gas from flowing back into the said cistern, the said valve opening under the water-pressure, but closing under the gas-  
5 pressure in a manner which will be readily understood by reference to Fig. 2.

*o* is a pipe connected with the bottom of the generator and serving for discharging the contents when washing it out, and *o'* is a cock  
10 therein.

The arrangement of my invention shown in Fig. 3 operates in exactly the same manner as that shown in Fig. 2, the essential difference of this modification from the arrangement de-  
15 scribed being that the tank *d* is outside the gas-holder *b* and that the generator *a* is carried upon the wall of the said tank *d*.

Having now particularly described and ascertained the nature of my said invention and  
20 in what manner the same is to be performed, I declare that what I claim is—

1. In apparatus for the manufacture of acetylene gas the combination of a generator, a gas-holder, a water-tank connected with the  
25 said gas-holder at the bottom and of a capac-

ity capable of receiving the water displaced from the said gas-holder and a water-supply cistern connected with the generator and supplied from a water-main, the cocks for controlling the supply of water to the said cistern  
30 and the discharge of water from the said cistern into the generator being operated by the rise and fall of water in the water-tank, substantially as described.

2. In apparatus for the manufacture of  
35 acetylene gas wherein water is supplied to the generator in measured quantities, the combination with the supply-cistern of a discharge-pipe having a cock such as *k*, an inlet-pipe having a cock such as *l* and a float operating  
40 the said cocks in such a manner that while one cock is closed the other cock is open, the said float being caused to rise and fall by water displaced from a gas-holder and introduced into a tank in connection with the said  
45 gas-holder, substantially as described.

EDWIN APPLEBY.

Witnesses:

G. F. REDFERN,  
JOHN E. BOUSFIELD.