

No. 646,272.

Patented Mar. 27, 1900.

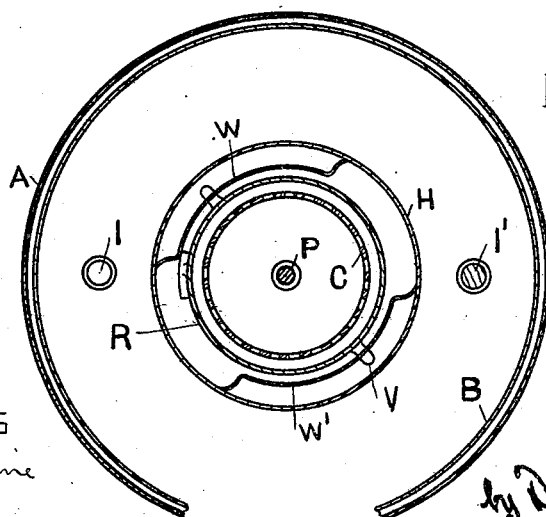
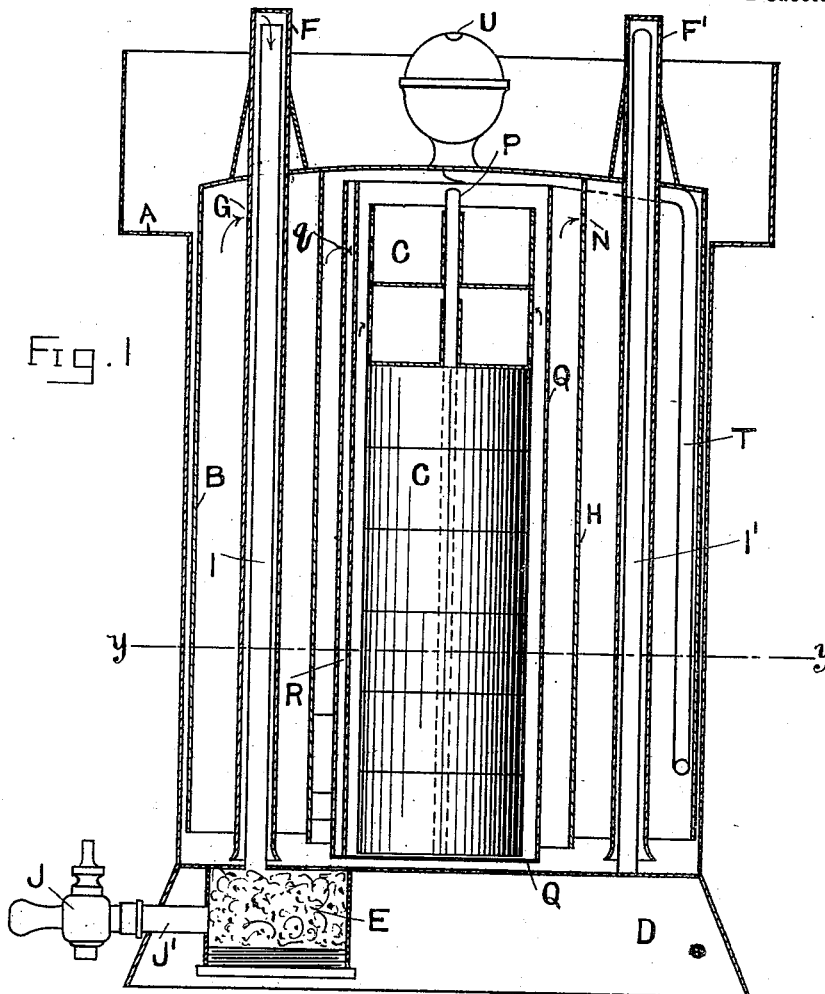
E. EVANS.

APPARATUS FOR GENERATING ACETYLENE GAS.

(Application filed Dec. 9, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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2 Sheets—Sheet 2.

Fig. 3.

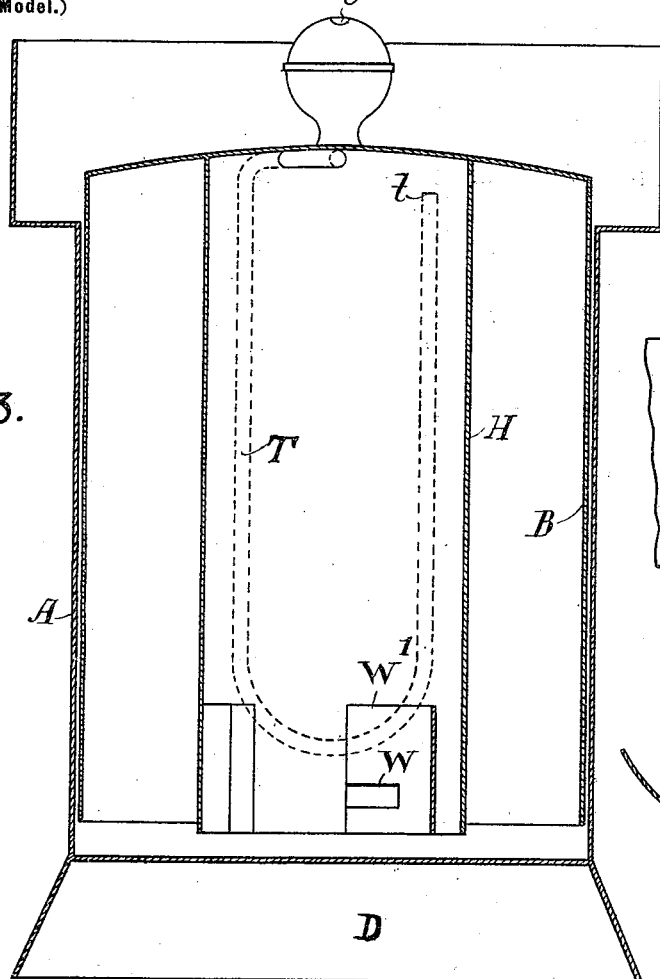


Fig. 4.

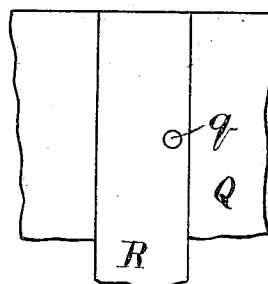
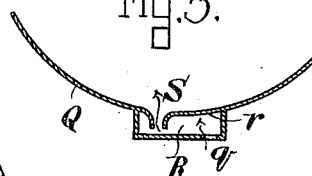


Fig. 5.



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UNITED STATES PATENT OFFICE.

EVAN EVANS, OF LLANRWST, ENGLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE IMPERIAL S. C. ACETYLENE GAS COMPANY, LIMITED, OF MANCHESTER, ENGLAND.

APPARATUS FOR GENERATING ACETYLENE GAS.

SPECIFICATION forming part of Letters Patent No. 646,272, dated March 27, 1900.

Application filed December 9, 1897. Serial No. 661,280. (No model.)

To all whom it may concern:

Be it known that I, EVAN EVANS, a subject of the Queen of Great Britain, residing at Llanrwst, in the county of Denbigh, England, have invented certain new and useful Improvements in Apparatus for Generating and Storing Acetylene Gas, of which the following is a specification.

This invention has for its object an apparatus for generating acetylene whereby the acetylene shall be generated in a safer manner and with less amount of waste than heretofore. It is best described by aid of the accompanying drawings, in which—

Figure 1 is a vertical section of the apparatus; Fig. 2, a plan through the line *y y* of Fig. 1; Fig. 3, a sectional elevation with the central parts removed, and Figs. 4 and 5 details.

I form a tank A of large diameter at top, so as to contain plenty of water there, but of a diameter lower down just large enough to contain the gasometer B. It is supported upon a base-plate D, containing the filter for gas E.

B is a gasometer open at the bottom, carrying two tubes F F', surrounding two tubes I I', fixed to the base-plate or stand D. These act to steady the gasometer in its rise and fall, and tube F accomplishes another purpose, as hereinafter set forth.

D is the stand, already described; E, a box containing any filtering material for the purpose of filtering the gas before it escapes through the pipe J' to the cock J and from thence to the burner. The tube I enters the box E, and the joint between this and the bottom of the tank A is a closed joint. Pipe I, however, is of less diameter than the pipe F, so that gas entering at the small hole G near the top of the gasometer can rise to the top of the pipe F, enter the pipe I, and thus pass through the filtering material.

H is a cylinder fixed rigidly to the top of the gasometer B. This cylinder has a perforation or two (near the top) N, allowing gas to escape into the outer chamber of the gasometer. In Fig. 4 instead of an open perforation it is supplied with a valve having an india-rubber end flattened so that the two sides

touch each other. By this means gas can escape freely out of the cylinder H, opening the flat end of the valve Y'. The moment, however, the pressure in the outer cylinder B exceeds the pressure in the cylinder H this pressure causes the two flat sides of the valve to come together and close the valve against the back current of gas.

I is the pipe, already referred to, delivering the gas.

I' is a second pipe or rod, preferably a dummy, its sole use being to guide the gasometer B and the tube F'

P is a tube or rod upon which the perforated vessels C for containing the carbide of calcium are threaded loosely; Q, a cylinder or chamber supported on brackets W' (secured to cylinder H) by means of small pins or staples V, sliding in grooves W, Fig. 3, therein. Cylinder Q has a long slit S therein, with the material preferably bent outward, as shown in Fig. 5. Over this slit is placed a small plate or partition R, forming a shallow compartment. Into this compartment at one side I place an orifice near the top *q*. This is purposely placed not opposite the slit, so as to prevent any sudden rush through of the water. T is a siphon-pipe opening near the top of the cylinder B and bending down to near the bottom and then out through orifice above tank A at U. This siphon is useful when placing the gasometer in position, as the air can pass out through this siphon. The moment, however, the water in A has risen in gasometer B to the top of this siphon at *t* the water runs in, fills the siphon, and prevents further escaping of air or gas.

The mode of action of the apparatus is as follows: The trays C being filled with carbide of calcium, the parts are assembled as shown in the drawings. The filter A is now filled with water. Air at once escapes through the pipe T and orifice U until the level of the water in A and B is uniform. The water then fills the siphon, and no further air can escape. As, however, the cubical contents of gasometer B are more than half the cubical contents of the cylinder A, water must be continuously added to cylinder A until the siphon

is filled. The water passes through orifice *q* into compartment R and thence through the slit S into compartment Q. As soon as it rises to the level of the bottom tray C, which is preferably somewhat longer than the other trays, it percolates into this tray and generates gas, which passes out through orifice N into the main body of the gas-holder B, causing the gas-holder to rise until orifice *q* is lifted out of the water. When by the emission of gas through jet J the cylinder again falls, so as to admit water through hole *q*, the generation continues as before, and this alternate stoppage of gas generation and supply of fresh water, and consequently a fresh generation, goes on till the carbid of calcium in the lowest tray has been used up. The water then rises till it overflows into the second tray, when the same cycle of conditions continues. If by any chance, however, the supply of gas becomes excessive and the gasometer rises too rapidly, pipe L comes into play, acting as a safety-valve. When all the trays C are exhausted, the gasometer can be lifted out. In actual working the water passing through the hole *q* and the slit S generates gas successively in the various cells C. This gas passes into the cylinder H, which being water-sealed prevents it from going any farther except through the opening N. This opening N thus forms a very valuable regulator. Passing from the opening N it is in the main gasometer and enters through hole G into the pipe F and thence down pipe I to

the spongy mass E and from thence out 35 through pipe J for utilization.

I claim as my invention—

1. In an acetylene-generator, the combination of a series of superimposed carbid-holding trays; a removable chamber surrounding the same and provided with a vertical slit; a boxing surrounding said chamber, at a slight distance therefrom, and provided with a small orifice near the upper end thereof for the entrance of water; and a gasometer surrounding and supporting said chamber, substantially as described. 45

2. In an acetylene-generator, the combination of a generating chamber or cylinder Q provided with a long slotted orifice S; and a channel or way R provided with a small orifice *q* near its upper end, substantially as and for the purpose described. 50

3. The combination with the chamber A, of the gasometer B and the siphon T extending down nearly to the bottom of the chamber and having one open end near the top of the gasometer, and the other extending through the top of the gasometer B to such an extent as to reach above the chamber A when the gasometer is down. 60

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EVAN EVANS.

Witnesses:

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H. P. SHOEBRIDGE.