No. 631,460. Patented Aug. 22, 1899.

E. EVANS.

APPARATUS FOR WASHING AND PURIFYING GAS.

(Application filed Feb. 27, 1899.)

(No Model.)

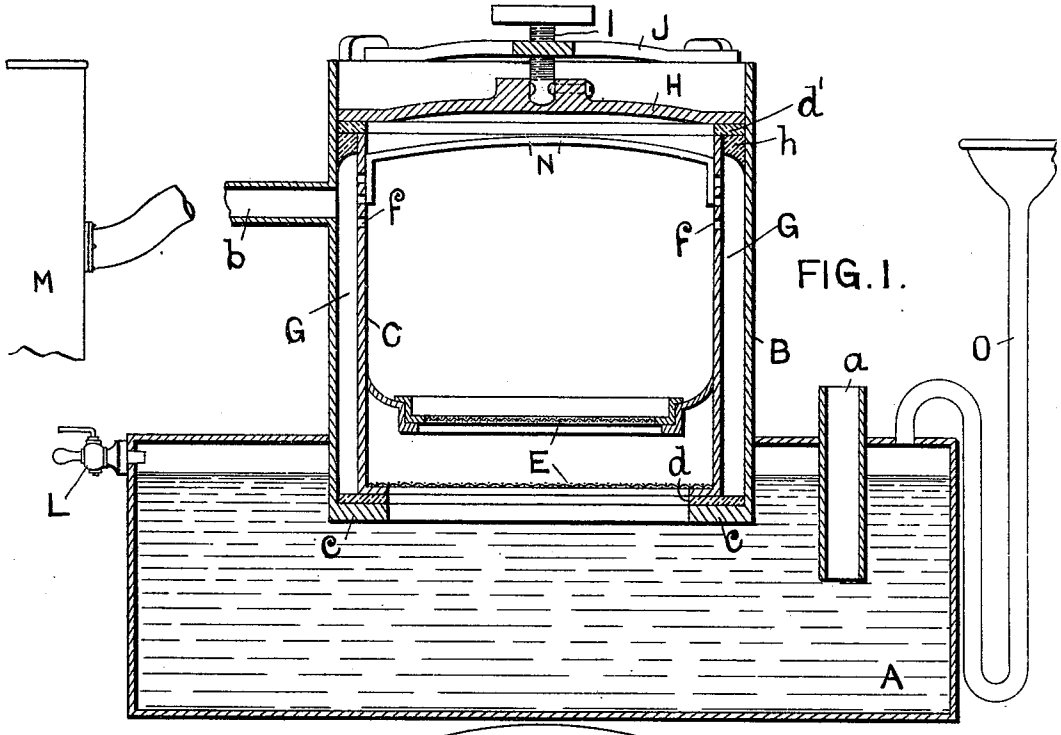
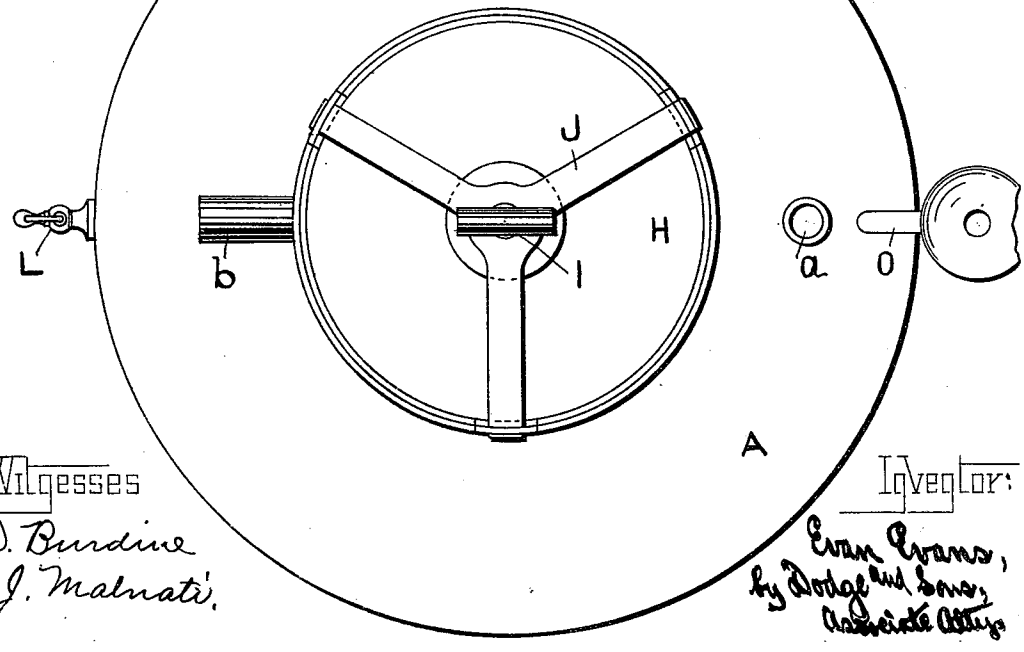


FIG. 1.

FIG. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

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

APPARATUS FOR WASHING AND PURIFYING GAS.

SPECIFICATION forming part of Letters Patent No. 631,460, dated August 22, 1899.

Application filed February 27, 1899. Serial No. 706,995. (No model.)

To all whom it may concern:

Be it known that I, EVAN EVANS, ironmonger, a subject of the Queen of Great Britain, residing at Llanrwst, in the county of Denbigh, in the Principality of Wales, England, have invented certain new and useful Improvements in Washing and Purifying Gas, of which the following is a specification.

My invention relates to an improved apparatus for purifying gas, and especially for use with apparatuses as devised to generate acetylene gas from carbid of calcium.

The crude gas from the generator is liable to contain various harmful ingredients, some of which may be gaseous but soluble in water or other liquid. Others may consist of small quantities of liquid, which it is desirable to prevent from going forward in the apparatus, and other impurities, again, may be solid, consisting of dust or fragments of the substances employed for generating the gas. All these various impurities are effectively removed by the use of my apparatus, and I obtain a purified gas, thoroughly washed from the injurious elements.

The invention is best described by aid of the accompanying drawings, in which—

Figure 1 is a vertical section of my apparatus; Fig. 2, a plan.

In the drawings, A is a tank filled nearly or quite full of water or other cleansing fluid, such as brine or even paraffin-oil.

B is a box or cylinder fitting gas-tight into an opening in the top of the tank, to which it is secured in any suitable manner. C is a second cylinder or box standing on flanges *c* and india-rubber or other seal or washer *d*.

E are two layers of wire-gauze carried in air-tight frames in cylinder C.

f are openings in cylinder C, admitting gas into the spaces G between cylinders B and C. *b* is an exit for gas from this space. The cylinder C may be, however, made shorter than shown, so that the gas can flow over its upper edge to the exit *b*, in which case the openings *f* may be dispensed with.

H is a dished plate covering the cylinder B and space G and supported by a flange *h* on the cylinder B, an india-rubber *d'* being placed between the cover H and flange *h*. This cover is held down by screw I, passing through a nut formed in spider J.

L is a cock for allowing the air to escape when the tank is being filled and for indicating when the tank is full.

M is a second scrubber of any known form for scrubbing the gas with chemicals to take out phosphoreted, sulfureted, or arseniureted hydrogen or other chemical impurities present through the use of impure materials in the formation of the carbid.

N is a wire handle for lifting out the cylinder C after the removal of the lid or cover H.

O is a siphon acting as a safety-valve in case of a too great evolution of gas. It has a funnel or enlargement at top of amply sufficient size to contain all the water capable of lying in the bend, whereby when the water is driven out by a sudden escape of gas it can run back and again fill the siphon. This is only necessary with inferior generators.

The operation of the device is as follows: The tank is filled quite full of water or washing fluid by means of siphon O or through the top of the cylinder B after removing the cover H. The crude gas passes into the tank through the inlet *a*, which may be telescopically arranged so as to be capable of being varied as to height. The gas then bubbles up through the water and, passing through the double layers of gauze E into the cylinder C, immersed in water, is purified of mechanical impurities, which for the most part fall to the bottom of the tank. It then passes out through orifices *f* and *b* into scrubber M, where it is chemically washed in any well-known manner. The gas cannot get into the cylinder C in large bubbles, as the same are cut by the lower gauze, while any getting through the lower gauze are cut by the upper gauze, thus properly washing the gas. Any steam or other vapor that may be in the gas after passing the lower gauze will be condensed on reaching the second or upper gauze.

I claim as my invention—

1. In an apparatus for purifying acetylene gas, the combination of a tank or receptacle; an open-ended chamber extending into the upper portion of said tank; independent layers of gauze or the like secured in the lower

open end of said cylinder, substantially as described; a gas-inlet to said tank; and a gas-exit for the cylinder.

2. In an apparatus for purifying acetylene gas, the combination of a tank designed and adapted to contain a liquid; a gas-inlet for said tank; an open-ended cylinder extending down into the tank; a mechanical filter secured within the lower open end of said cylinder, comprising two separated layers of gauze; and a gas-exit for said cylinder.

3. In an apparatus for purifying acetylene gas and the like, the combination of a suitable tank or receptacle adapted and designed to receive a liquid capable of purifying the gas; an open-ended cylinder extending down into the upper side of said tank; a second cylinder mounted within said first cylinder and forming an air-tight joint therewith at the bottom; mechanical filters secured within the lower end of said inner cylinder; a gas-inlet for the tank; and a gas-exit for the outer cylinder.

4. In an apparatus for purifying acetylene gas, the combination of a tank A adapted and designed to receive a liquid capable of purifying the gas; an open-ended cylinder B extending down into the upper side of said tank; a second cylinder C mounted within said outer cylinder and making a tight joint therewith at its bottom; gauze layers E secured within the lower end of said inner cylinder C; a sealing device for the upper end of said cylinders; openings extending from the upper end of the inner cylinder to a plane intermediate it and the outer cylinder; a gas-exit extending from said outer cylinder; and a gas-inlet for the tank or receptacle A.

In witness whereof I have hereunto signed my name, this 14th day of February, 1899, in the presence of two subscribing witnesses.

EVAN EVANS.

Witnesses:
H. P. SHOOBRIDGE,
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