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W. E. TRAVERS.

ACETYLENE GAS GENERATOR.

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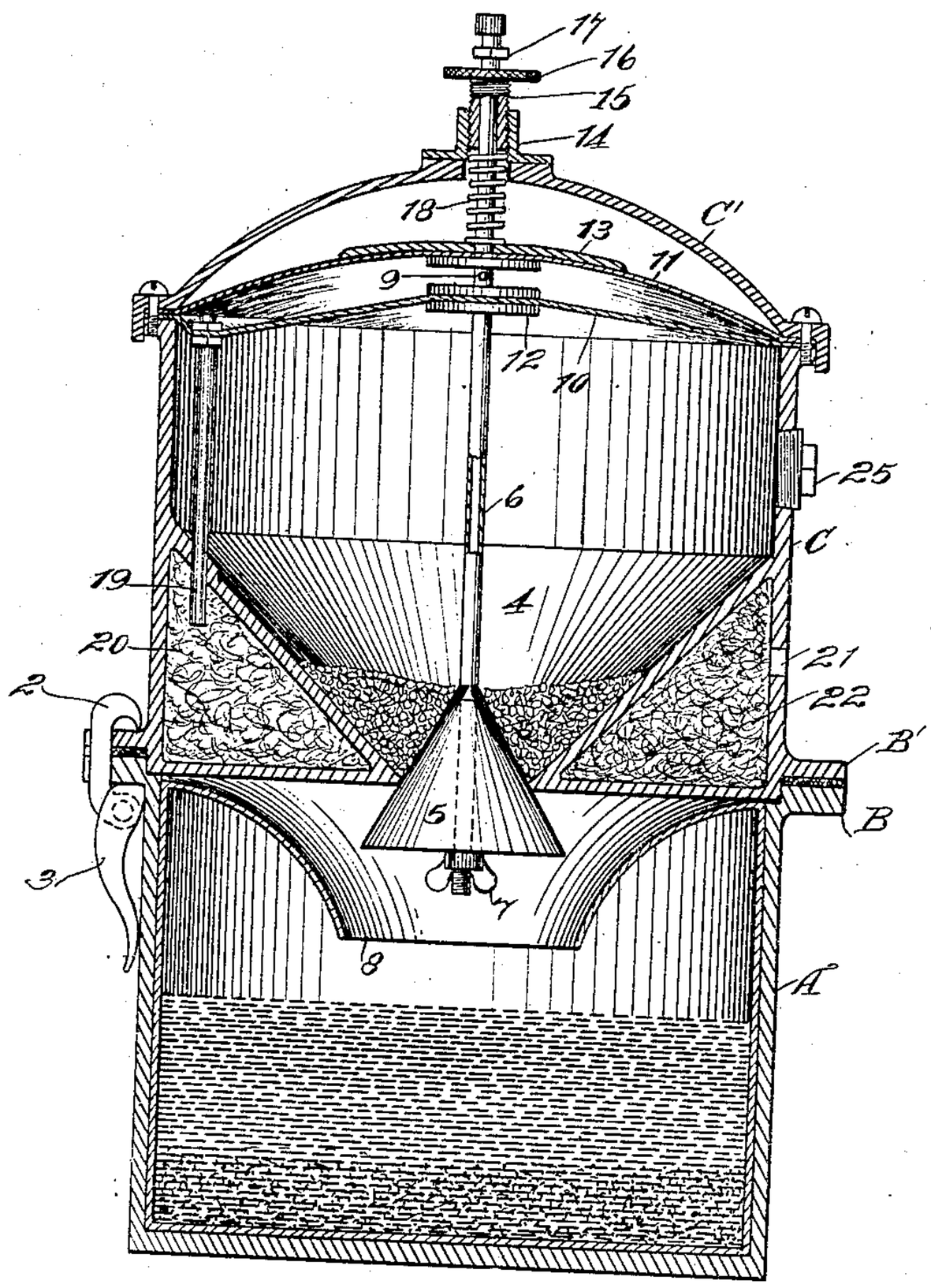

Witnesses:

F. E. Maynard.

[illegible]

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UNITED STATES PATENT OFFICE.

WILLIAM E. TRAVERS, OF OAKLAND, CALIFORNIA, ASSIGNOR OF ONE-FOURTH TO CHARLES A. BOWMAN, OF SAN FRANCISCO, CALIFORNIA.

ACETYLENE-GAS GENERATOR.

No. 891,575. Specification of Letters Patent. Patented June 23, 1908.

Application filed October 18, 1907. Serial No. 398,038.

To all whom it may concern:

Be it known that I, WILLIAM E. TRAVERS, citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

My invention relates to an apparatus which is especially designed for the generation of acetylene gas, and for the delivery of the carbid into the water chamber at such intervals as the requirements for gas make necessary.

It consists in the combination of parts, and in details of construction, which will be more fully explained by reference to the accompanying drawing, in which the figure is a vertical section of the generator.

It is the object of my invention to provide an apparatus for a steady and regulated generation of acetylene gas, the regulation being directed to a supply of the carbid from which the gas is generated; and this supply is controlled in turn by the amount and pressure of gas generated and used.

As shown in the drawings, A is a water containing chamber having flanges, as at B, and C is a second chamber superposed upon the chamber A, having similar flanges B′ at suitable intervals upon the periphery and registering with the flanges B.

2 is a locking device having a hook form, and having pivoted to it a lever 3, with a cam shaped end about the fulcrum; and this lever being fulcrumed to the part 2, when turned in one direction draws the flanges of the two receptacles together and clamps them tightly, there being a suitable gasket between the flanges to make a tight joint. When the lever is turned in the other direction, the locking device is freed sufficiently so that it may be turned out of the slots in the flanges, and the upper part easily removed.

The upper part C has formed in it a conical chamber by the convergent inclined floor or bottom 4, which extends around the inside; and within the opening formed in the center is fitted a conical gate 5, which is secured and adjusted upon the hollow stem 6 by means of a thumb-nut 7, or other equivalent device. This conical chamber is adapted to contain the carbid, which may be introduced through an opening having a closing plug 25, and its shape, taken in conjunction with that of the cone 5, is such that the carbid normally slides down the inclined floor 4 and rests against the cone 5. When this cone is drawn up to fit the opening in the floor it makes a substantially tight joint. When it is depressed it provides an annular passage between itself and the edge of the floor opening, through which carbid may be discharged, and falling over the base of the cone it is directed by the funnel-shaped portion 8 so as to fall into the water chamber in the receptacle A, where it will be acted upon, and gas will be produced. The gas thus produced rises through the hollow stem 6, and also through the annular channel between the floor 4 and the cone 5. The gas which passes up through the pipe or stem 6 passes out through openings, as at 9, and into a confined space between diaphragms 10 and 11. These diaphragms are circular, or shaped to conform to the exterior shape of the chamber C, and their edges are clamped between the flange at the top of the chamber C and the corresponding flange around the dome-shaped top C′, which flange fits over the flange of the chamber C, and the two may be clamped together, thus holding the diaphragms 10 and 11 firmly in place, and at the same time forming a suitable gas-tight joint. The central portion of the diaphragm 10 is secured to the stem 6 by clamping disks 12, and the central portion of the diaphragm 11 is similarly secured by clamping disks, the upper one of which, 13, is shown as being arched in shape, and extending over a considerable area of the diaphragm 11. These two diaphragms and the stem 6, together with the cone 5, are movable in unison.

The stem 6 extends upwardly through a cylindrical box or sleeve 14 upon the top and center of the dome C′, and also through a gland 15 having a milled head 16 by which it may be turned. The upper end of the stem 6 has an enlarged head, as at 17, against which the top of the gland may contact, when raised, so as to draw the parts upwardly and close the carbid chamber. The gland 15 is screw-threaded upon the outside, and fits corresponding screw-threads in the interior of the part 14. When the apparatus is out of service the gland 15 is turned in the screw-threads in the part 14 until it pulls the stem upwardly, so that the cone fits tightly in the

opening in the floor 4. This prevents any passage of carbid or gas through this space. A spring 18 lies between the disk 13 at the top of the upper diaphragm, and the bottom of the gland 15, and this spring will be compressed as the parts are raised.

When it is desired to set the apparatus in operation, the screw gland 15 is turned so as to allow the parts to be depressed, the diaphragms, stem, and cone being moved downwardly until carbid is allowed to pass through the annular channel around the cone, and into the water in the lower chamber. The gas thus produced will, as before stated, rise through the tubular stem 6 into the space between the diaphragms 10 and 11, and also around the cone and through the body of carbid into the interior of the chamber C. The pressure upon the two diaphragms 10 and 11 is thus substantially balanced against that within the chamber above the floor 4.

The chamber between the two diaphragms 10 and 11 serves as a receptacle for the gas produced, and which being loaded with moisture, would if not separated from the carbid chamber, deposit said moisture upon the dry carbid within the chamber, with an injurious effect thereon. This structure forms an independent receptacle for the gas, and thus protects the carbid.

19 is a pipe having the upper end connecting with the space between the diaphragms 10 and 11, and the lower end passes through the inclined floor 4 into the annular triangular-shaped chamber 20 between the floor 4 and the bottom of the chamber C. From this chamber the gas is delivered outwardly through a discharge passage, as at 21, and may thence be conveyed to a point of use.

The operation of the device will then be as follows: The gas being produced by the wetting of the carbid passes into the chambers as above described, and acting upon the upper diaphragm 11 it tends to raise this diaphragm, and with it the connected parts, including the cone 5; and as the amount of gas increases beyond what is discharged from this space, the upward pressure will raise the cone so as to reduce the annular passage through which the carbid may pass; and if sufficiently reduced, it may altogether arrest the passage of carbid. As soon as the gas pressure is sufficiently reduced, these parts are allowed to drop, and again increase the passage for the discharge of carbid. Sufficient air is movable around the stem where it passes through the box or sleeve 14 at the top, to allow the diaphragm to move freely in either direction. The apparatus thus becomes automatic in its operation, and it may be adjusted by the screws so as to regulate the amount of gas manufactured to suit the necessities of use.

By screwing the gland 15 upwardly in the sleeve 14, it will contact with the head 17 of the stem 6, and the whole device may be raised so as to close the channel around the cone, and stop the gas-making operation.

As shown in the drawing, the pipe 19 delivers the gas into the chamber 20 at a point diametrically opposite the discharge 21, and the chamber being filled with a suitable filtering medium 22, the gas is deprived of its moisture.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In an acetylene gas generator, superposed separable water and carbid containing chambers, a convergent floor for the carbid chamber having a central opening, an upwardly convergent cone, a hollow stem by which said cone is suspended in the opening of the carbid chamber, flexible diaphragms, means for securing the diaphragms to the stem, an opening whereby gas may pass through the stem and into the space between the diaphragms, a gas chamber formed around the base of the carbid chamber, a passage leading thereto from the space between the diaphragms, and a discharge opening from said gas chamber.

2. In an apparatus of the character described, a water chamber, a superposed carbid chamber having a cone-shaped downwardly convergent floor, with an exterior surrounding gas chamber below the floor, and a central opening leading into the water chamber, an upwardly convergent cone, a hollow stem extending upwardly and from which the cone is suspended, flexible diaphragms having their peripheries secured gas-tight around the upper part of the carbid chamber, disks between which the diaphragms are clamped and by which they are secured to the hollow stem, a gas passage opening from the stem to the space between the diaphragms, and a passage from said space into the gas chamber below, means for adjusting the cone and diaphragms, said means comprising a screw-threaded gland movable within the sleeve through which the stem passes, a head upon the upper end of the stem, and a spring located between the gland and the disk of the upper diaphragm.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM E. TRAVERS.

Witnesses:

GEO. H. STRONG,

S. H. NOURSE.