No. 690,773. Patented Jan. 7, 1902.

J. H. ROSS.

ACETYLENE GAS GENERATOR.

(Application filed Dec. 8, 1900.)

(No Model.) 3 Sheets—Sheet 1.

FIG 1

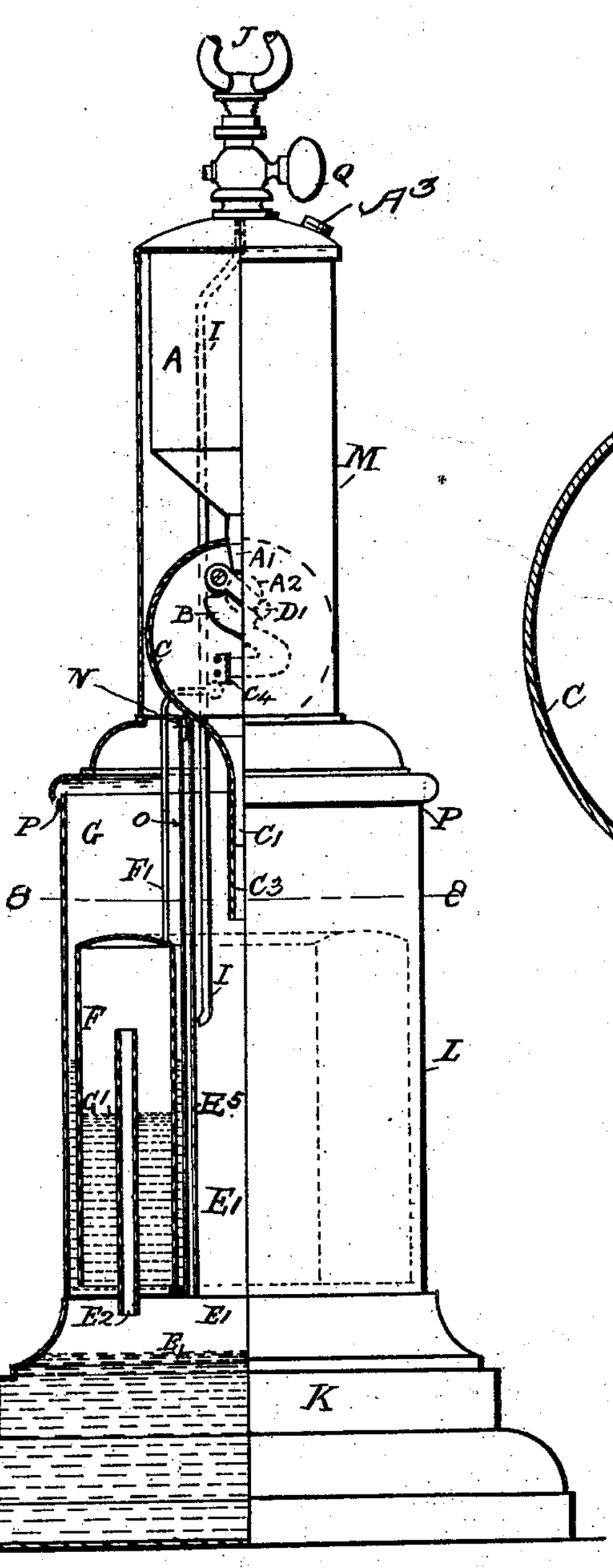


FIG 2

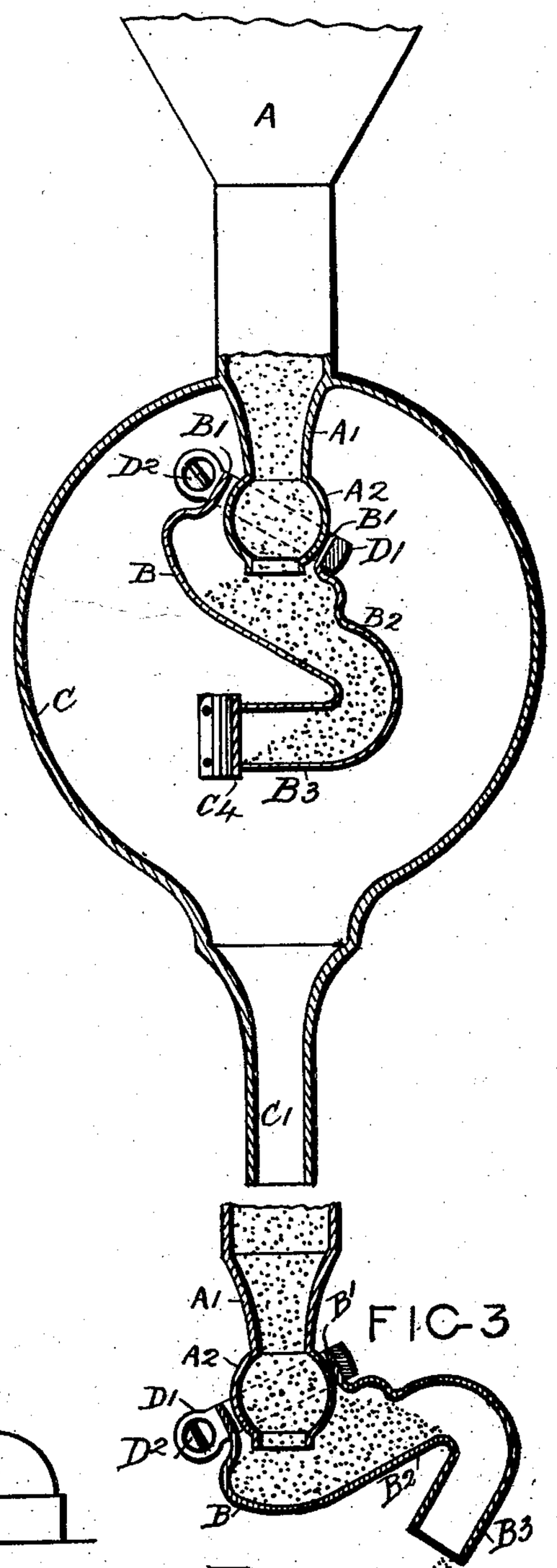


FIG 3

Witnesses
Charles J. Powell
E. Hayward Powell

Inventor
John Howard Ross.

No. 690,773. Patented Jan. 7, 1902.

J. H. ROSS.

ACETYLENE GAS GENERATOR.

(Application filed Dec. 8, 1900.)

(No Model.) 3 Sheets—Sheet 2.

FIG 4

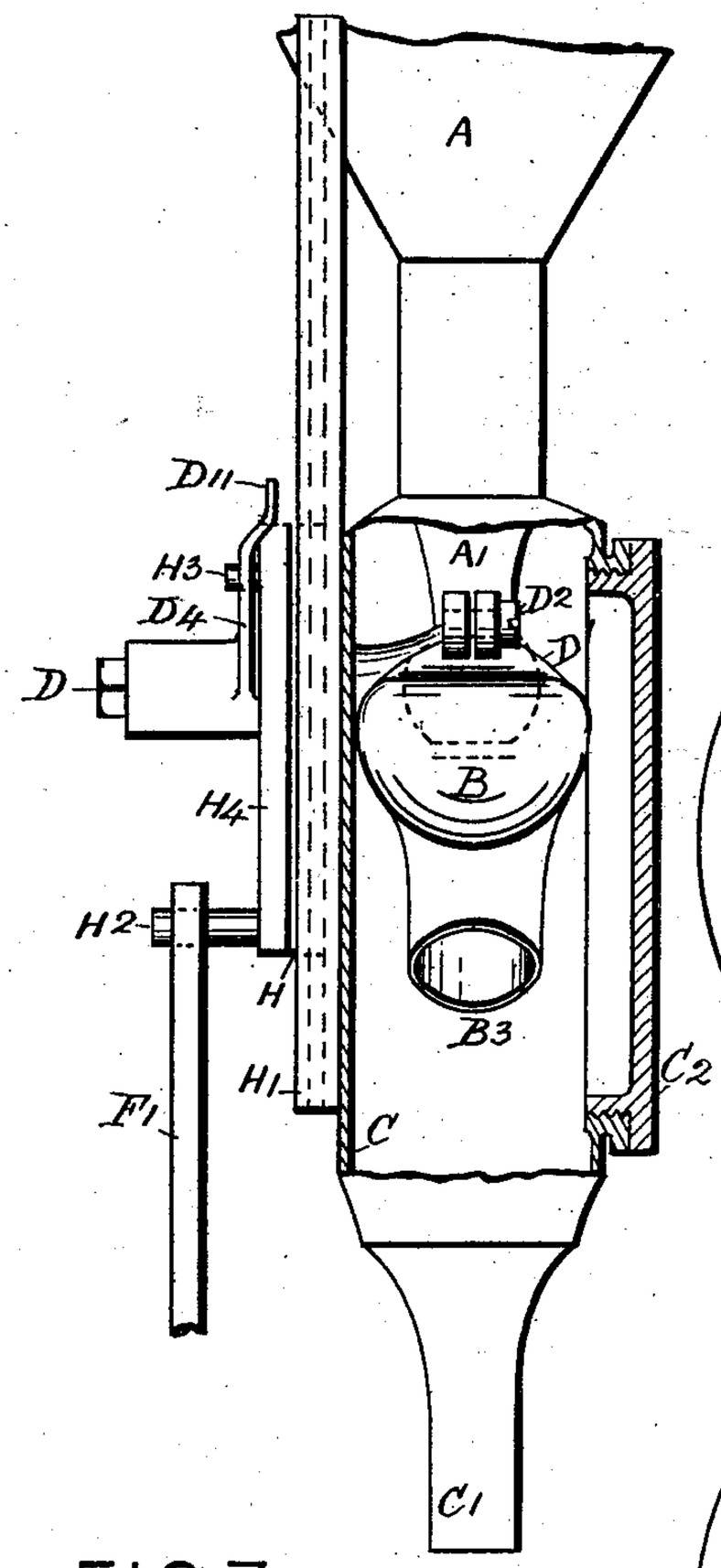


FIG 5

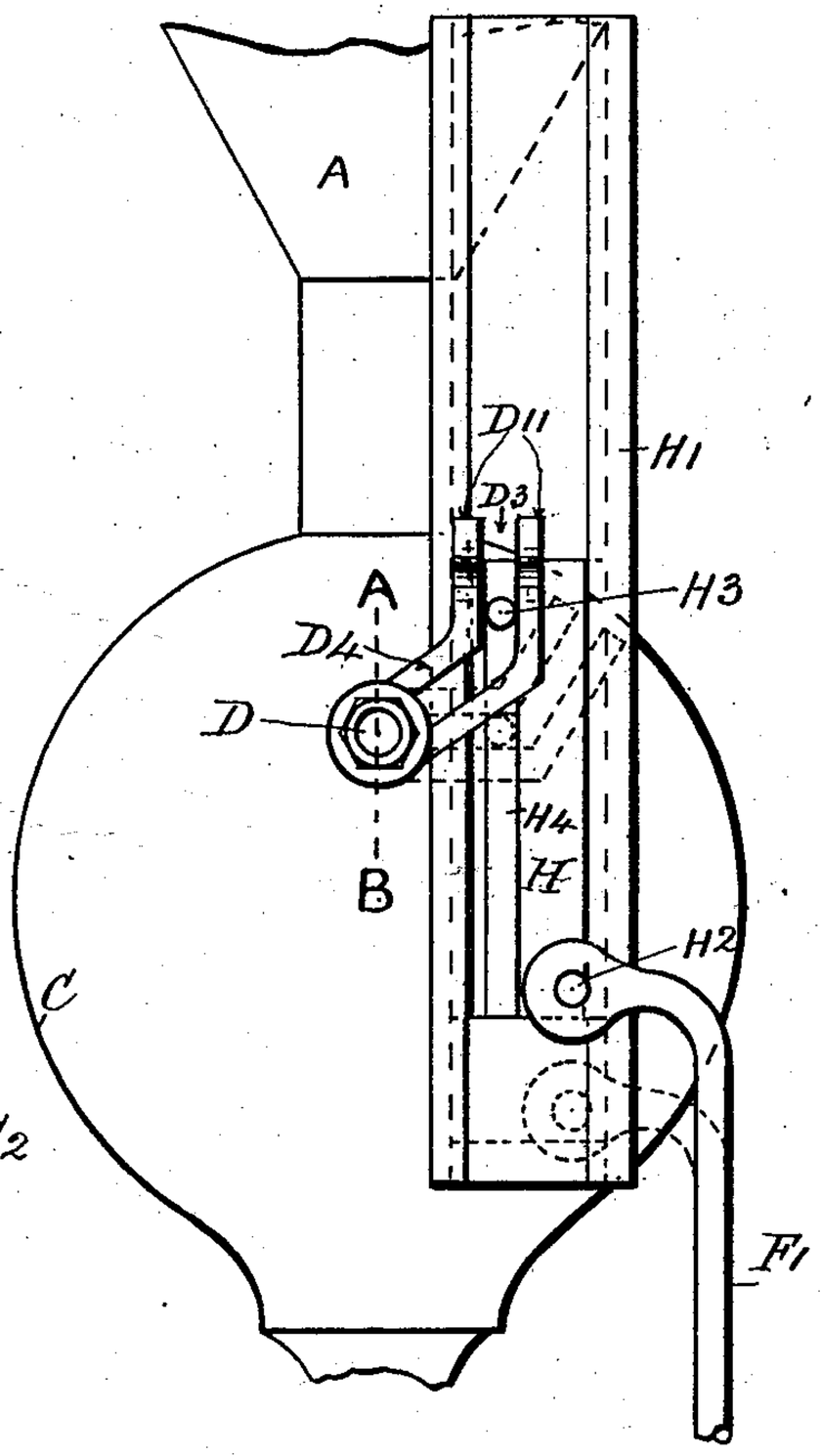


FIG 6

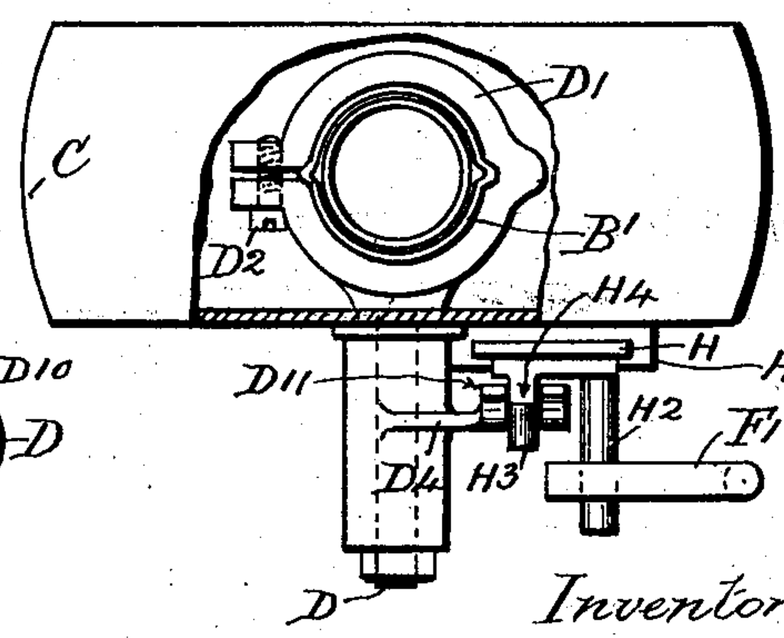


FIG 7

Witnesses
Charles F. Powell
C. Hayward Powell

Inventor
John Howard Ross.

No. 690,773. Patented Jan. 7, 1902.

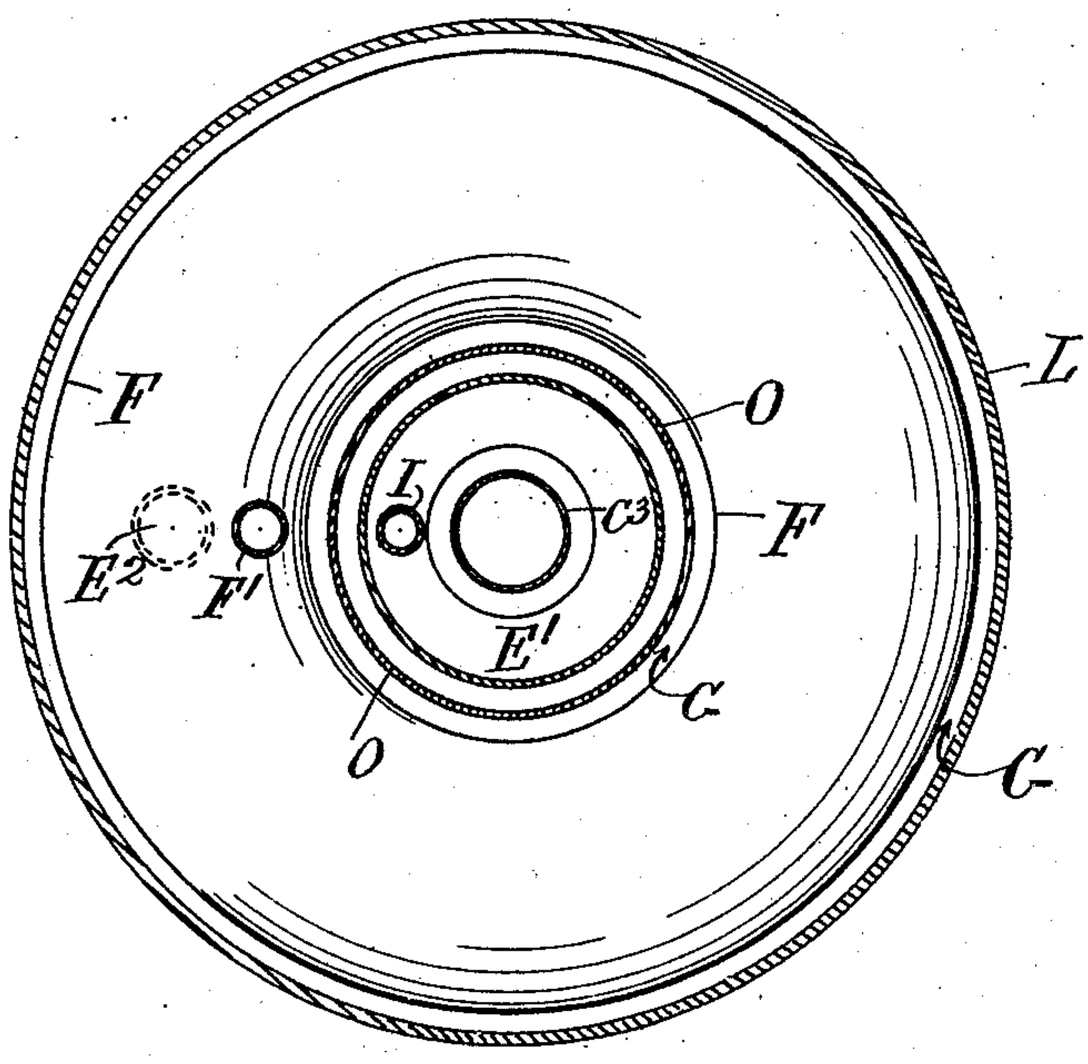
J. H. ROSS.

ACETYLENE GAS GENERATOR.

(Application filed Dec. 8, 1900.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 8.



Witnesses.
C. E. Kesler
J. O. Parker

Inventor
John Howard Ross
per Charles J. Powell
Attorney

UNITED STATES PATENT OFFICE.

JOHN HOWARD ROSS, OF ASTON, ENGLAND.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 690,773, dated January 7, 1902.

Application filed December 8, 1900. Serial No. 39,213. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOWARD ROSS, a subject of the Queen of Great Britain, and a resident of 35 Wills street, Aston, near the city of Birmingham, England, have invented new and useful Improvements in Acetylene-Gas Generators, (for which I have made application for patent in Great Britain, No. 9,537, bearing date May 24, 1900,) of which the following is a specification.

My invention relates to improved apparatus for generating acetylene gas; and it has for its object to provide improved means for automatically delivering at certain times a definite quantity of granulated carbid of calcium to the water in the generating-chamber. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a part-sectional view of my invention as applied to a lamp. Fig. 2 is a part-sectional view in detail of the measuring-spout device charged with calcium carbid and ready for delivering the same. Fig. 3 is a sectional view of the measuring-spout device as it appears when delivering the charge. Fig. 4 is a side view, in part section, of the measuring-spout device and the mechanism for automatically operating the same from the movement of the gas-holder. Fig. 5 is a rear view, and Fig. 6 a part-sectional plan view in detail, of the mechanism for operating the measuring-spout device. Fig. 7 is an enlarged sectional view of the means for effecting a gas-tight joint about the spindle which operates the tubular measuring device, the section being in the line A B, Fig. 5. Fig. 8 is a sectional plan view, the section being taken in the line 8 8, Fig. 1.

Similar letters of reference are used throughout the several views to denote the same thing or part.

In the upper part of the apparatus the carbid-container A is secured, from which depends the narrowed pipe A′, having the part-spherical termination A^2, about which moves the upper part of the measuring-spout B. To the pipe A′ is secured the box C, having the removable screwed door C^2, so that the parts therein may be hermetically shut off from the exterior, excepting the outlet-passage C′. Through the side of this box is carried the spindle D, by which an oscillating movement is given to the measuring-spout B, as follows: On the inner end of the spindle is formed the gripping-collar D′, which firmly embraces the band B′ upon the upper part of the spout B by means of the clamping-screw D^2. The spout B is thus pivotally carried immediately beneath the direct supply from the carbid-container. The spout B is of tubular form, and its upper end surrounds the lower end or spout of the hopper A, and said tubular spout or member B is mounted for oscillation about an axis situated above the lower end of the hopper A, and it has an acute bend B^2 intermediate its length. A fixed stop C^4 is secured to the box, against which the mouth of the spout B^3 may rest during the time no charge is required, by which the communication from the carbid to the lower part of the apparatus is cut off. When the spout is in the position shown in Fig. 3, the carbid in the spout B^3 and as much as can fall by gravitation beyond the bend B^2 is discharged and falls through the pipe C′ into the water E in chamber E′. Gas is thereby rapidly generated in chamber E′ and passes through pipe E^2 into the annular gas-holder F, which latter is capable of the usual rising-and-falling movement in chamber G, the water G′ forming the sealed joint. To the holder F is secured the rod F′, whose upper end is connected to stud H^2 on slide H, which is capable of movement in slideway H′, attached to the box C. Upon this slide is also formed the rib H^4 and the stud H^3, which latter engages with the slot D^3, formed in the lever D^4, which is secured to the spindle D. Hence as the lever D^4 is alternately moved backward and forward by the gas-holder F through suitable means its motion is conveyed to the spindle D and thence to spout B. The outer end D^{11} of lever D^4 is bent inwardly, so as to forkwise embrace the rib H^4 on the slide H, when the said slide is pushed upward so far that the stud H^3 leaves the slot D^3, and thereby retains the lever in the same position as when the stud H^3 left the slot D^3. When, however, the slide is lowered to position as indicated in dotted lines in Fig. 5, the slide H reaches a point below and clear of the bent ends D^{11}, and the stud H^3 is then free to move the lever D^4 to the position indicated. From

the generating-chamber E′ or other suitable place is carried the gas-supply pipe I to the burner or burners J. To the pipe C′ is secured the conical hood C^3.

For convenience in use the base K and the body L are connected together to form the chambers E′ and G. To the lower end of the upper part M is soldered the depending tube O, having interiorly thereof and at or near its top the threaded surface N, adapted to receive corresponding threads at the upper end of the tube E^5. Said tube E^5 is soldered at its lower end to the base K and rises therefrom, it being substantially coextensive with the tube O and forming the wall of the chamber E′. Air-inlet space is provided at P to permit of free movement of gas-holder F.

The putting together and operation of the apparatus will therefore be somewhat as follows: The upper part M is unscrewed at N from the lower part L. Water is charged into the two chambers E′ and G. Carbid is charged into container A through opening at A^3 and descends into spout B. On reference to Figs. 2 and 3 it will be noticed that the rear of the spout B is concaved or dished, and consequently only a given quantity of carbid can fall into said spout, inasmuch as the exit of pipe A^2 becomes choked, the carbid itself preventing further flow. The tap Q is closed. The holder F having been placed in position, the upper part M is now screwed to the lower part. The holder F necessarily incloses a large body of air, which maintains it in an elevated position. By now opening the tap Q a large quantity of such air escapes and the holder falls. This falling movement of the holder gives motion to the spout B and a charge of carbid is allowed to fall into the water E, when gas is rapidly generated, which raises the holder F, and thereby the rod F′ raises the slide H, which turns the lever D^4 so that the spout B is moved into the position to receive its charge, as seen in Fig. 2. As the gas is exhausted, however, the holder falls, and thereby the slide H is lowered, by which movement the lever D^4 is oscillated, and thereby the spout B moved into the discharging position, as seen in Fig. 3, by which a fresh charge is dropped into the water, and so from time to time a repetition of the action takes place. By closing the tap Q the light is turned out, when the various movements will cease until relighted.

It will be readily seen that the shape and arrangement of the lamp generally may be modified without affecting the nature of this my invention.

What I claim, and desire to secure by Letters Patent, is—

1. In an acetylene-gas generator, the combination of a hopper and a tubular member the upper end of which surrounds the delivery end of the hopper, said tubular member being supported for oscillation about an axis situated above the lower end of the hopper and having an acute bend intermediate its length.

2. In an acetylene-gas generator, a hopper and a tubular member the upper end of which surrounds the delivery end of the hopper, said tubular member being supported for oscillation about an axis situated above the lower end of the hopper and having an acute bend intermediate its length, combined with a cut-off controlling the discharge end of said tubular member.

3. In an acetylene-gas generator, a hopper and a tubular member the upper end of which surrounds the delivery end of the hopper, said tubular member being supported for oscillation about an axis situated above the lower end of the hopper and having an acute bend intermediate its length, combined with a generating-tank, a movable gas-holder and connections between said gas-holder and said tubular member for operating the latter.

4. In an acetylene-gas generator, the combination of a movable gas-holder, a generating vessel and a hopper to feed carbid thereto, a movable tubular member arranged at the lower end of the hopper to regulate the feed of carbid, a forked lever connected to the tubular member to operate the same, a reciprocating slide connected with the gas-holder, and having a longitudinal rib thereon which is straddled by the forked portion of said lever to hold the same in fixed position, and a stud on the slide also coöperating with the said forked portion to turn said lever and feed carbid to the generating vessel.

5. In an acetylene-gas generator, the combination of a hopper and an oscillatory tubular member having an acute bend intermediate its length and arranged to receive carbid from said hopper, said tubular member serving to measure definite charges of carbid from the hopper.

6. In an acetylene-gas generator, a hopper and an oscillatory tubular member having an acute bend intermediate its length and arranged to receive carbid from said hopper, said tubular member serving to measure definite charges of carbid from the hopper, combined with a gas-holder and connections between said gas-holder and said tubular member for actuating the latter.

JOHN HOWARD ROSS.

Witnesses:
CHARLES T. POWELL,
C. HAYWARD POWELL.