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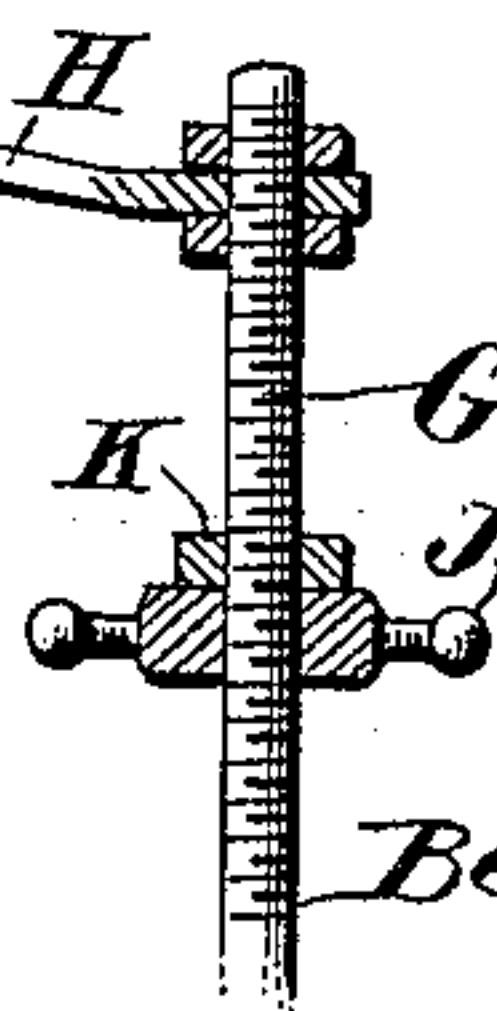
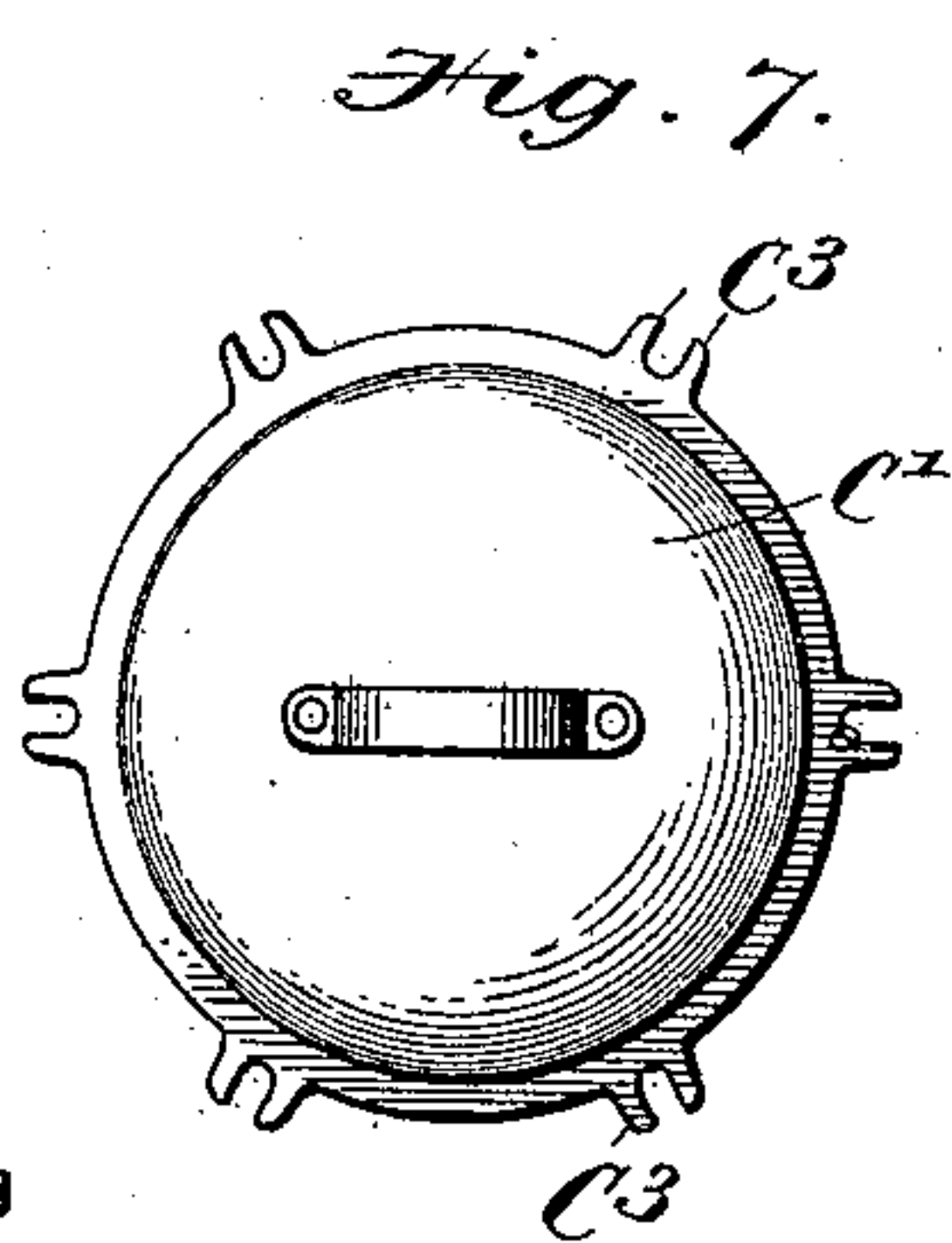
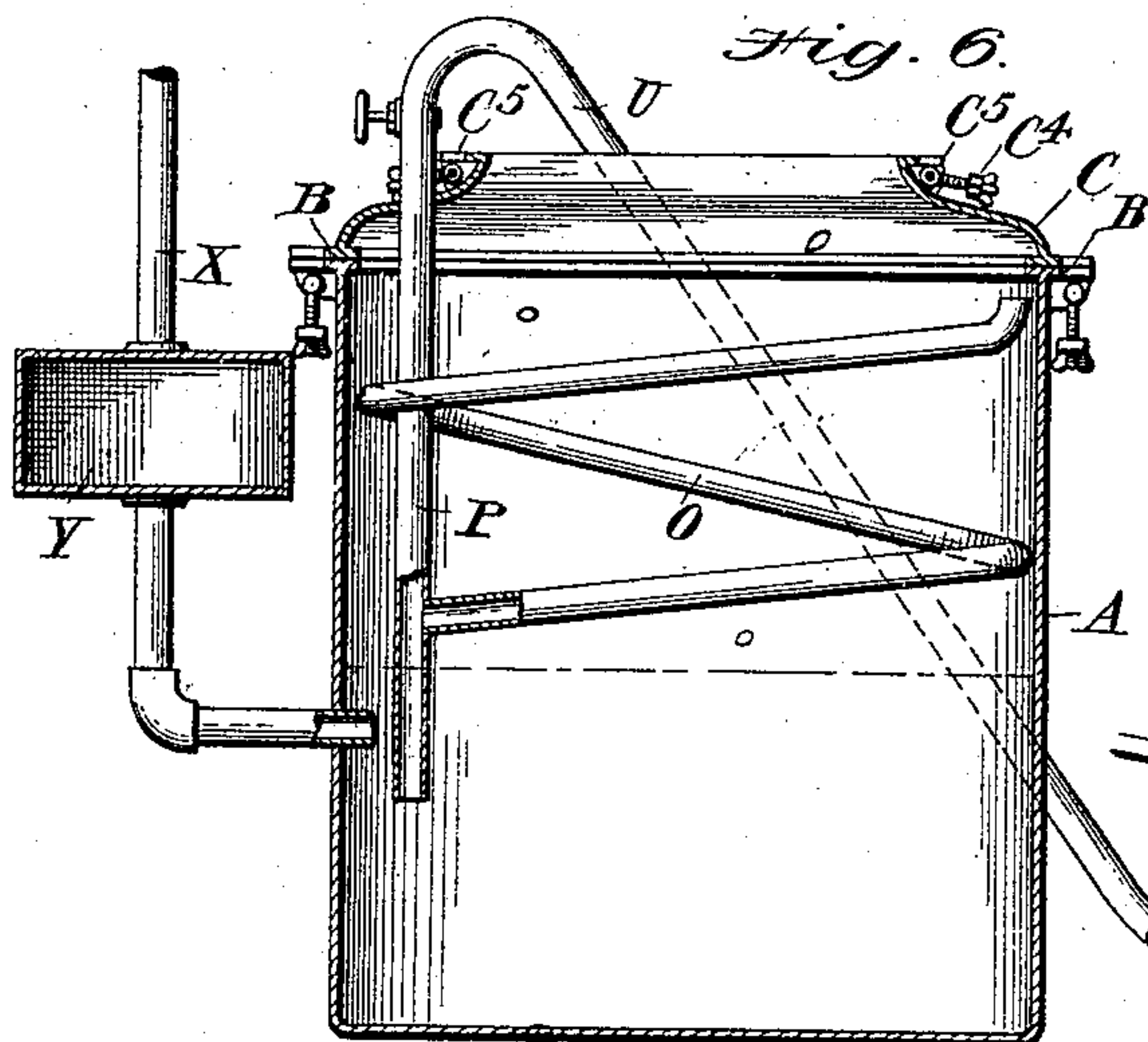
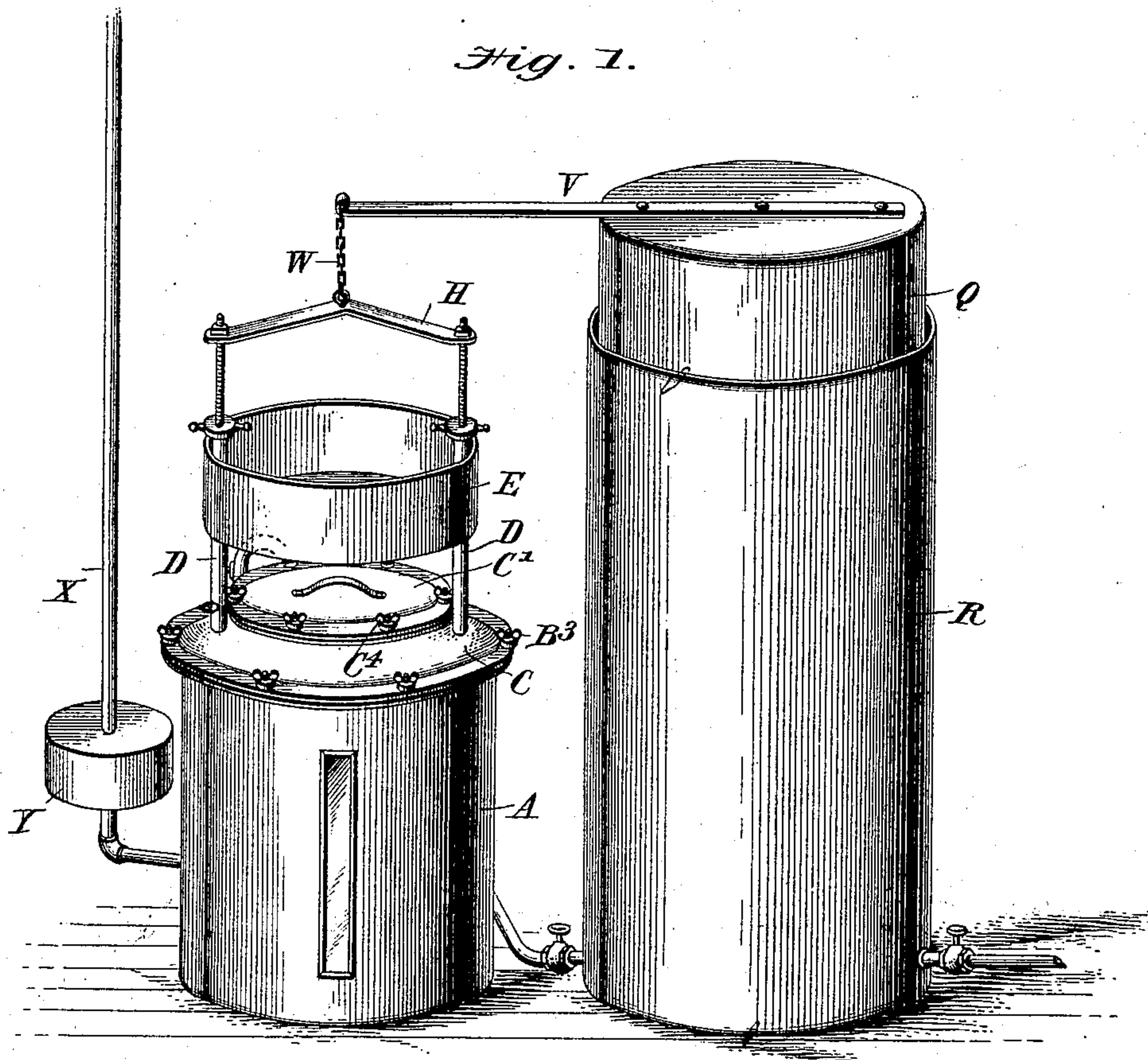
Patented Feb. 28, 1899.

B. F. WILLIAMS.
ACETYLENE GAS GENERATOR.

(Application filed Nov. 8, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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2 Sheets—Sheet 2.

Fig. 2.

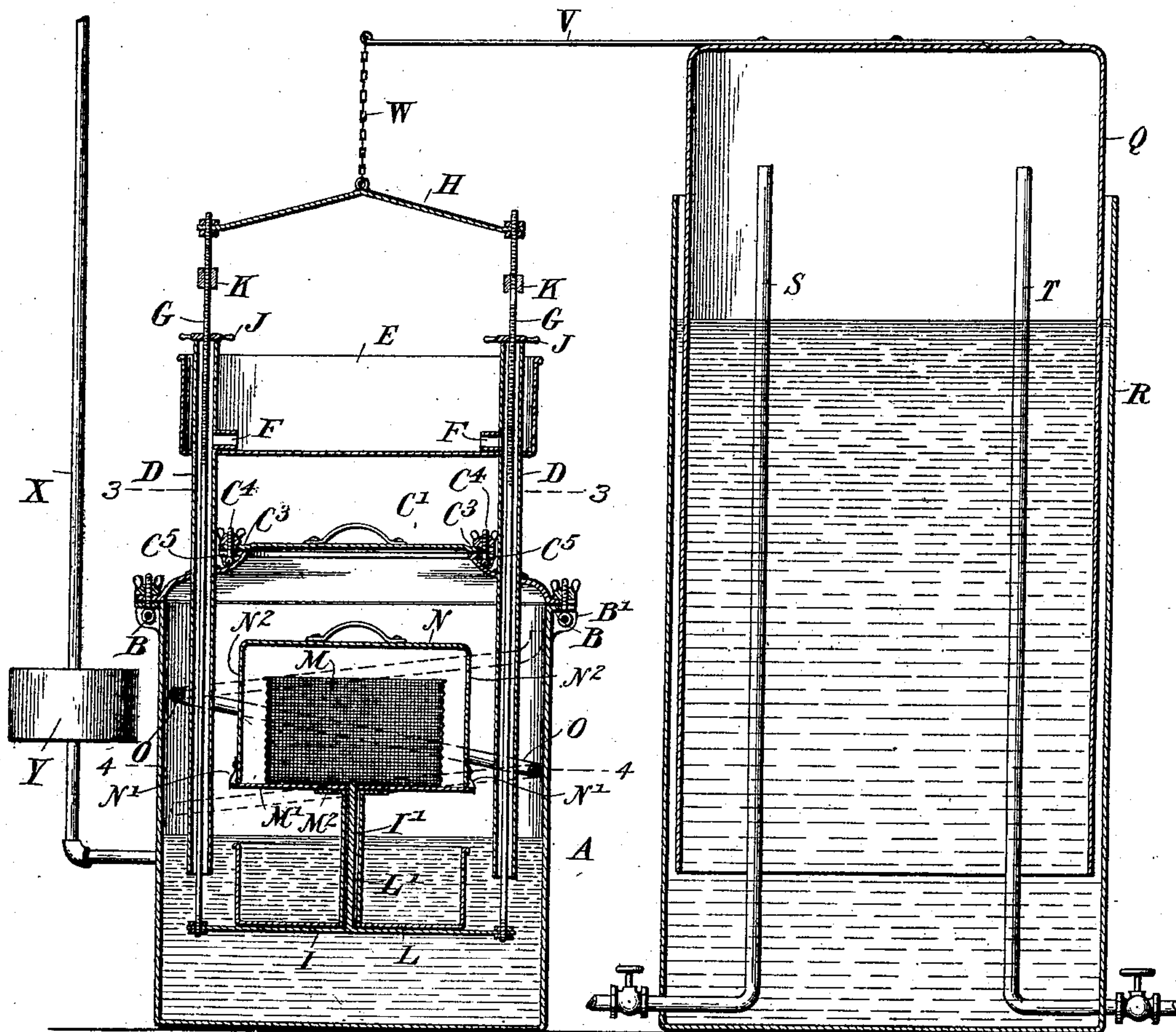


Fig. 3.

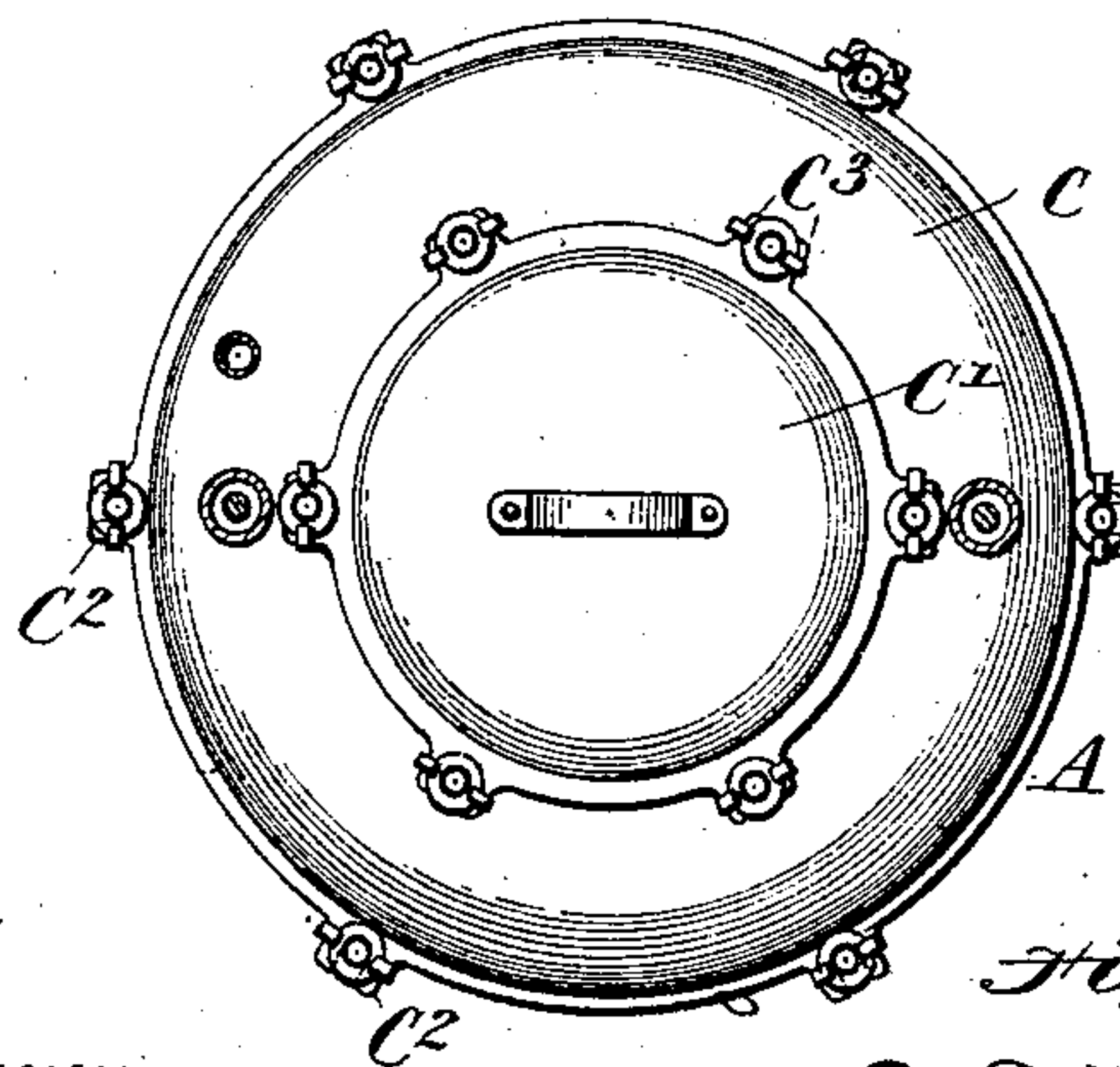


Fig. 4.

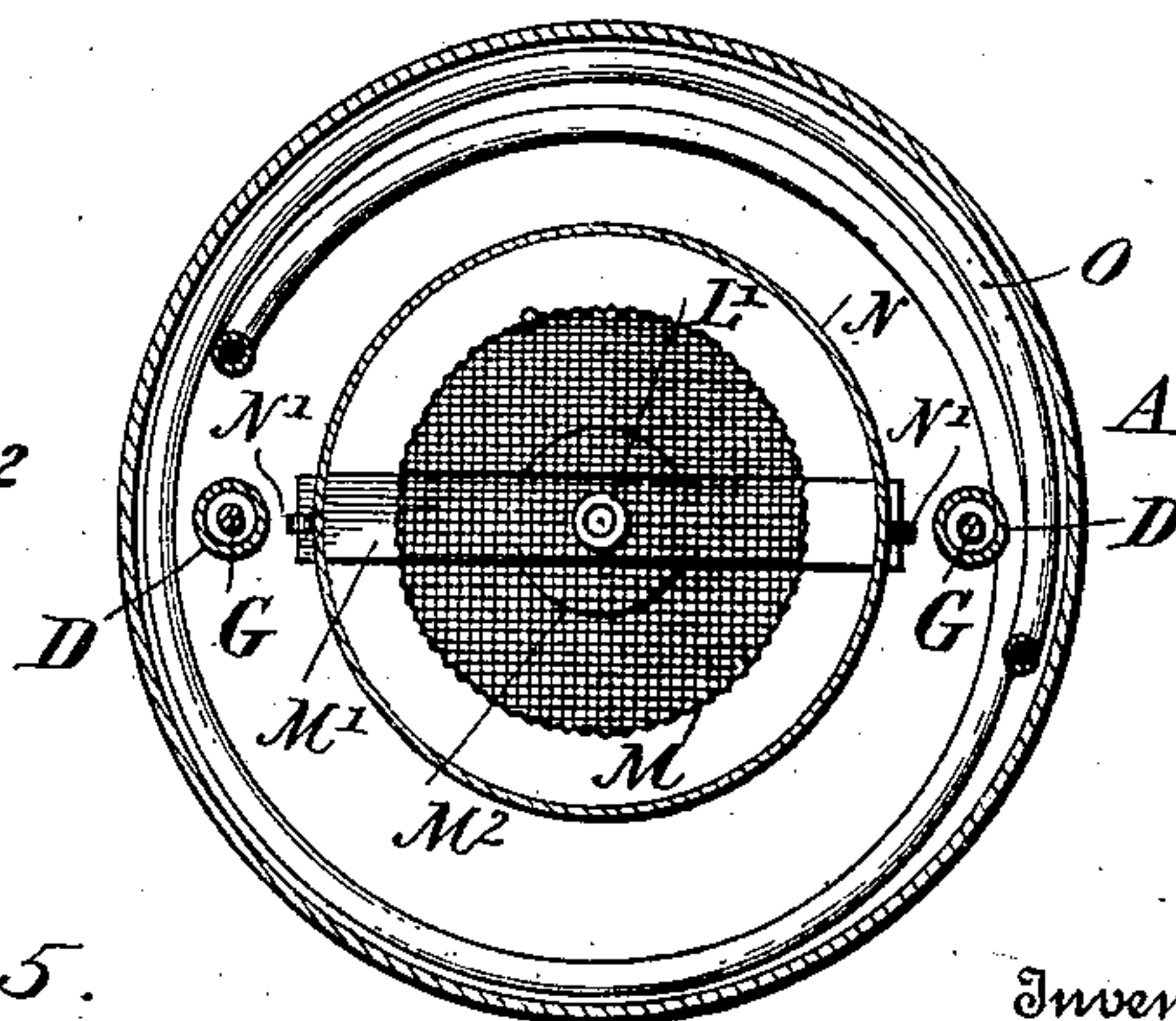
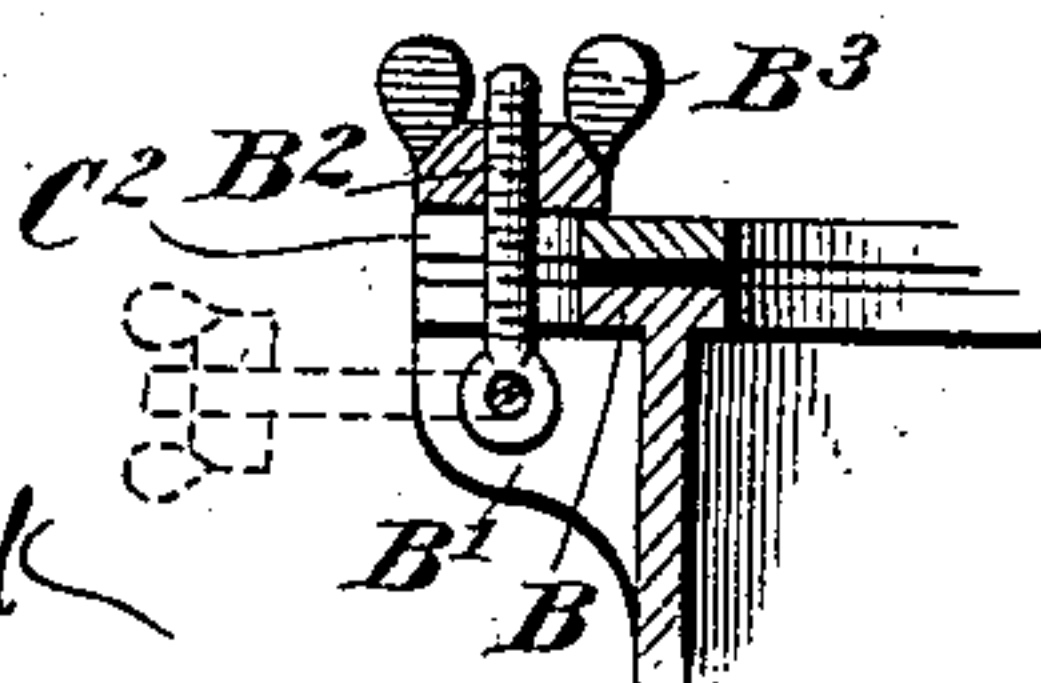


Fig. 5.



Witness

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UNITED STATES PATENT OFFICE.

BENJAMIN F. WILLIAMS, OF QUANAH, TEXAS.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 620,394, dated February 28, 1899.

Application filed November 8, 1897. Serial No. 657,855. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. WILLIAMS, residing at Quanah, in the county of Hardeman and State of Texas, have invented a new and useful Generator for Acetylene Gas, of which the following is a specification.

This invention relates to generators for acetylene gas; and it consists in certain improvements upon the construction described and illustrated in my United States Patent No. 593,628, dated November 16, 1897.

One object of the present invention is to conduct the gas from the generating-chamber to the gasometer in a dry condition and return the condensations therefrom to the generating-chamber.

Another object of the invention is to provide a removable receptacle or catch-pan for the purpose of receiving the precipitated carbide and also for equalizing the weight upon the gasometer.

A further object is to provide a means for regulating the amount of pressure within the generating-chamber in addition to the device used in my former construction, thus rendering the generator absolutely safe at all times, as the surplus gas is conducted from the generating-chambers and explosions prevented.

Another object is to provide an improved means for raising and lowering the carbide-holder-supporting rods, so as to insert or withdraw the carbide from the water.

A still further object is to so construct the generator that access may be readily had to the various parts of the apparatus for cleaning or removing the same.

With these various objects in view my invention consists, essentially, of a generating-chamber and a gasometer, said generating-chamber having a coil of pipe therein, which is provided with a T-outlet, the upper end of which is in communication with the gasometer and the lower end depending beneath the surface of the water in the chamber, so that as the gas passes through said coil the moisture is removed therefrom and conducted back to the water in the generating-chamber, while the dry gas enters the gasometer.

The invention consists also in providing an external pipe which enters the generating-chamber and communicates therewith at a point below the surface of the water and

above the end of the T-outlet of the coil, said pipe having a receptacle or casing placed therein at any desired height, according to the amount of pressure desired in the generating-chamber, so that when the pressure exceeds the predetermined amount the water will be forced upward into said casing until the gas is permitted to escape through said pipe and out of the building, and thus an additional device provided for the generator.

The invention consists also in providing a sectional top for the generating-chamber, the outer section having the overflow-tubes secured thereto, so that when said section is removed the tubes are withdrawn, and also in providing improved securing devices for uniting the sections of the top and securing the same to the chamber.

The invention consists also in providing supporting-rods movable in the overflow-tubes, said rods removably supporting the carbide-basket and the catch-pan for receiving the precipitated carbide, which may be withdrawn by removing the inner section of the top for the generating-chamber, said supports being connected with the gasometer, as in my former construction.

The invention consists also in certain other details of construction and novel combinations, all which will be fully described hereinafter and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a perspective view showing the generator and gasometer connected. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a section on line 3 3 of Fig. 2. Fig. 4 is a section on line 4 4 of Fig. 2. Fig. 5 is a detail sectional view of a portion of the meeting edges of the chamber and sectional top, showing one of the securing-bolts for uniting the same. Fig. 6 is a vertical longitudinal section of the generating-chamber. Fig. 7 is a plan view of the inner section of the top. Fig. 8 is a detail view of the upper end of one of the carbide-basket supports, showing the connection of the upper cross-bar thereto and also showing the hand-nut for effecting the movement of the support.

Referring to the accompanying drawings, A is the generating-chamber, constructed, preferably, of metal, as in my former construction, closed at its bottom and provided

at its top with a flange B and the slotted lugs B', in which the swinging securing-bolts B² are pivoted.

The top for the generator consists of the
5 outer section or rim C and the inner section or lid C'. Rim C is provided with the slotted lugs C² around its edge, which are adapted to register with the slotted lugs B' and receive the bolts B² when the latter are swung
10 upwardly, so that when the thumb-nuts B³ are adjusted upon the bolts the rim is clamped tightly upon the upper end of the chamber.

Lid or section C' is united to the rim or section C in a similar manner, the former
15 having the slotted lugs C³ to receive the swinging bolts C⁴, which are pivoted in the slotted lugs C⁵, formed upon the upper edge of the latter.

Overflow-pipes D pass downward through
20 rim C, in which they are secured on opposite sides of its center, said pipes depending beneath the surface of the water in the generator when the latter is half-filled, so that the lower ends of the pipes are sealed.

25 A catch basin or receptacle E is mounted upon the upper ends of the pipes D, with which said pipes communicate through outlets F.

G are rods screw-threaded at their upper
30 ends and movable in the pipes D, said rods being connected at their upper and lower ends, respectively, by the cross-bars H and I. Upon the upper screw-threaded end of each rod is an adjusting hand-nut J, which is
35 adapted to rest upon the upper end of the pipe D. It will be readily understood that as these adjusting-nuts are rotated the rods are raised or lowered. Stop-nuts K upon the rods regulate the adjustment of the nuts J.

40 Projecting upwardly from the center of cross-bar I is a post I', and adapted to be positioned upon the cross-bar I by means of said post is the catch pan or receptacle L, which is provided with the central tube or socket L' to fit over the post. This catch-pan receives
45 the precipitated carbid, which is thus readily removed by withdrawing the pan.

M is a wire basket which contains the carbid, said basket having a cross-bar M' secured to its bottom, which bar is perforated
50 to receive the end of post I'. A flange M² is secured around the upper end of tube or socket L', upon which the basket rests.

N is a cover which entirely surrounds the
55 top and sides of the basket and is of such size as to leave a space between its walls and the walls of said basket. Spring-catches N' are carried by the cover for engaging the projecting ends of cross-bar M' for the purpose
60 of uniting the cover to the basket, so that the latter may be withdrawn from the generating-chamber by the former, which is provided with a handle for that purpose. Said cover is formed with openings N² to permit the gas
65 to escape therefrom.

O is a coiled pipe positioned within the generating-chamber, the upper open end thereof

being adjacent the upper end of the chamber and the lower end communicating with a vertical pipe P, so as to form a T-outlet. The
70 lower end of pipe P depends beneath the surface of the water in the chamber and is thus sealed, while the upper end projects through rim C and is connected with the gasometer. This coil I term the "drying-pipe," as the gas
75 is dried as it passes therethrough. By having a T-outlet for said coil the condensations pass downward through the lower portion thereof to the water in the chamber, while the gas escapes through the upper portion to
80 the gasometer.

The gasometer is of the ordinary construction, consisting of the telescopic tanks Q and R, the lower tank R being filled with water and having the inlet and outlet pipes S and
85 T, respectively, the former being connected with the outlet-pipe of the coil and the latter communicating with the gas-burner, suitable stop-cocks controlling the communications therebetween.

A horizontal arm V is secured to tank Q, and from the extremity of this arm depends a chain W, which is attached to the center of cross-bar H.

X is a safety-pipe which at its lower end
95 extends within the generating-chamber and communicates therewith at a point below the surface of the water and above the lower end of the T-outlet of coil O. Located in this pipe X at any desired height, according to the
100 amount of pressure desired within the generator, is a receptacle Y. When the pressure in the generator exceeds the predetermined amount, the water is forced out through pipe X into receptacle Y, where it spreads out
105 until the water is forced down in the generator sufficiently to permit the excess gas to escape through pipe X, up through the water in receptacle Y, and out of the building. Thus a safety device is arranged in addition
110 to overflow-pipes D, through which the water is forced by any surplus gas and into the catch-pan, said return returning to the chamber when the pressure is removed.

In operation the apparatus is set up as illustrated in Figs. 1 and 2, the carbid-basket being elevated from contact with the water in the generating-chamber. When it is desired to generate the gas, the hand-nuts are revolved until the rods G are lowered sufficiently
120 to bring the carbid in contact with the water, when the gas will be evolved. The gas passes through the coil to the gasometer, the moisture removed therefrom during its passage through the coil passing downward to the water in the chamber. The carbid-basket is lowered the proper distance in the water, which can be seen from glass sights provided for the generator, as will appear from the drawings. When the gasometer is filled with
130 the gas, the upward movement of tank Q will withdraw the carbid-basket from the water through the medium of the connection between the horizontal arm and the basket-sup-

ports, thus automatically stopping the generation of the gas. When the gas is removed from the gasometer, the carbid-basket will again be lowered into the water. The action of the apparatus is thus entirely automatic. Should the outlet-pipe become clogged, the safety devices will operate, as before described, and an explosion be prevented.

By means of the sectional top for the generating-chamber and improved fastening means therefor the former may be quickly removed and either the carbid-basket or the overflow-pipes and basket-supports quickly withdrawn for any purpose, so that access is thus readily obtained to the interior of the generator.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a gas-generator, the combination therewith of a coiled pipe located entirely within the generating-chamber, the upper end of said pipe opening into the gas-space, and the lower end being provided with a T-outlet vertically located, the upper end leading out of the chamber to convey the gas therefrom, and the

lower end being immersed in the water in the chamber whereby water of condensation is discharged from the pipe into the water in the chamber, substantially as described.

2. In a gas-generator, the combination of a chamber, tubes leading therefrom, rods movable in said tubes, a cross-piece connecting said rods, a post carried by said cross-piece, a pan having a socket fitting over said post, a carbid-holder fitting upon said post and resting on the socket, and means for adjusting the rods, substantially as described.

3. In a gas-generator, the combination of a chamber, a sectional top for the same, tubes carried by one of said sections and projecting from the chamber, rods movable in said tubes, a carbid-holder removably supported by said rods and adapted to be withdrawn from the chamber by removing the inner section of the top, and means for adjusting said rods, substantially as described.

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Witnesses:

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