

No. 606,673.

Patented July 5, 1898.

T. E. LEWIS.
ACETYLENE GAS GENERATOR.

(Application filed Nov. 8, 1897.)

(No Model.)

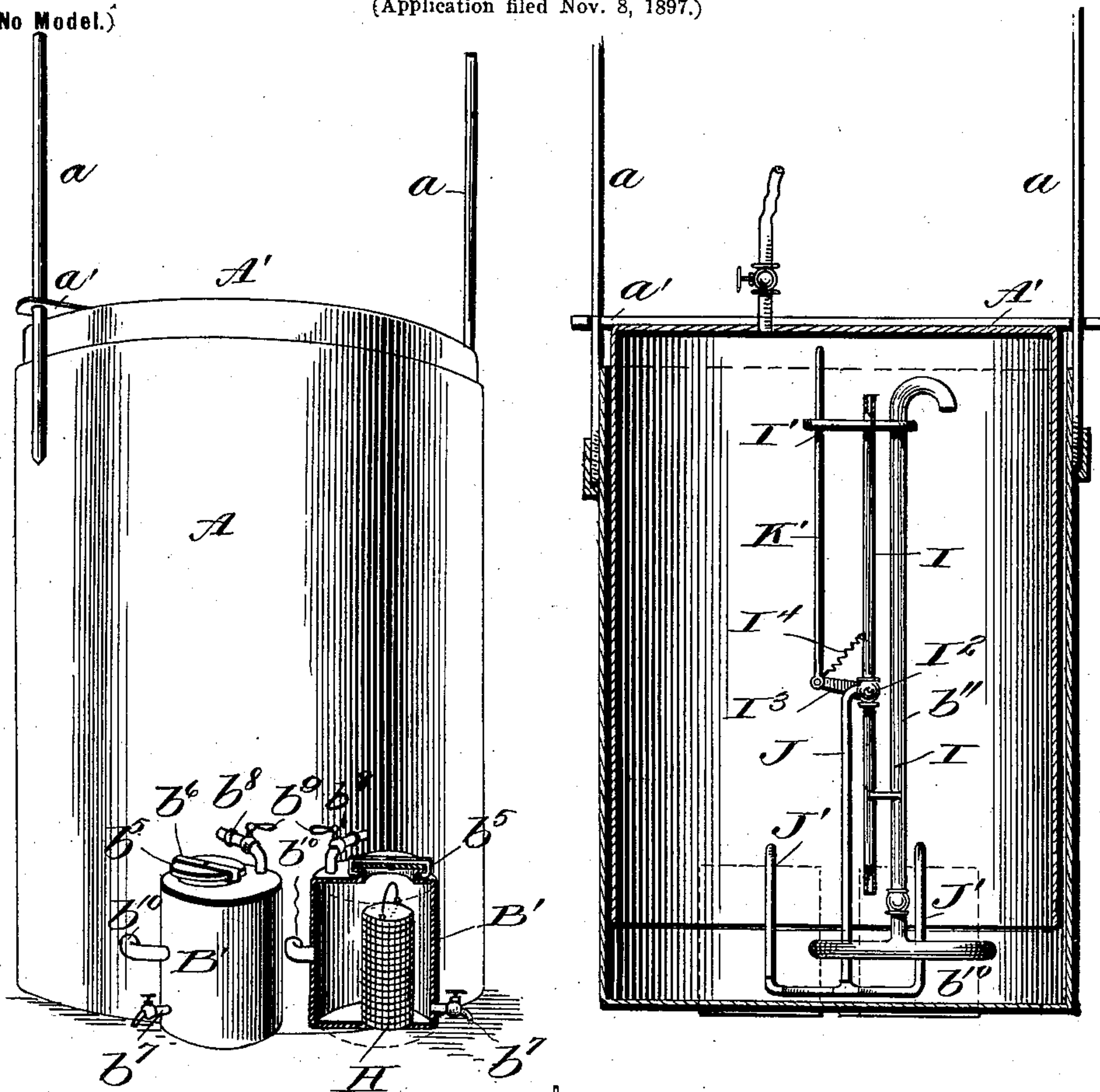


Fig. 1.

Fig. 2.

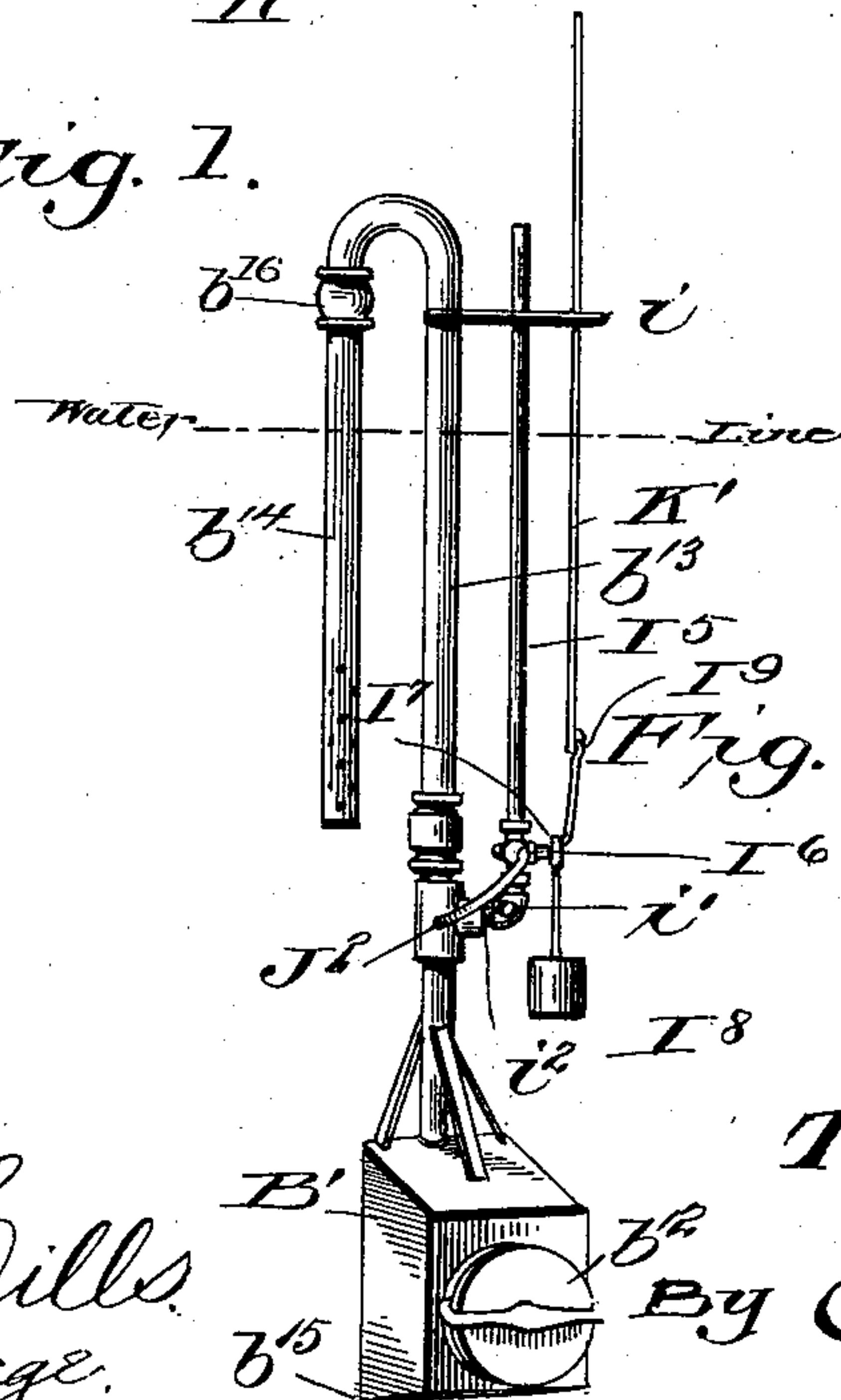


Fig. 3.

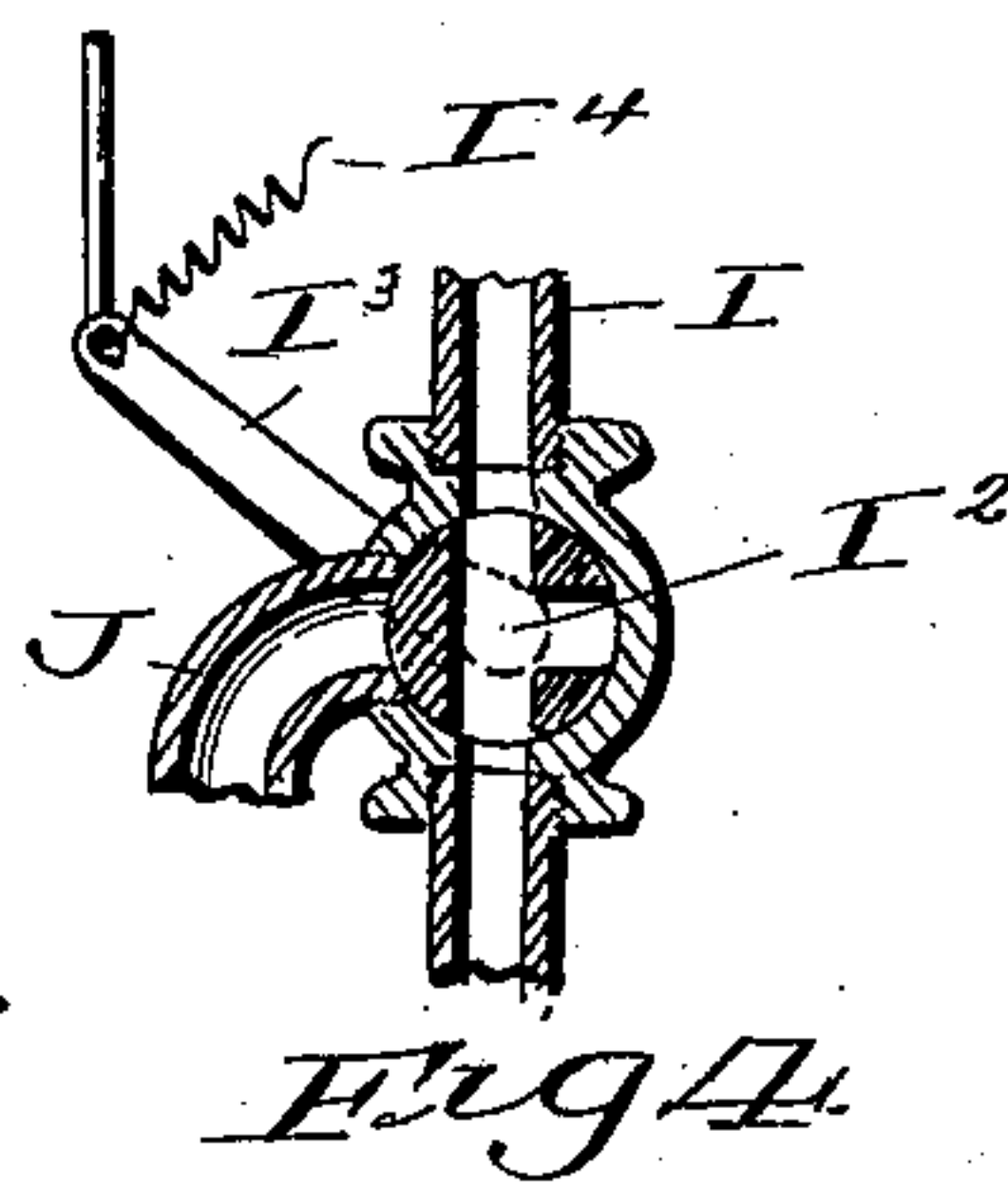


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 606,673, dated July 5, 1898.

Application filed November 8, 1897. Serial No. 657,867. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. LEWIS, a citizen of the United States, residing at Dublin, in the county of Erath, State of Texas, have invented certain new and useful Improvements in Gas-Generating Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a gas-generating apparatus, and has for its object to produce an improved construction of gas-generating apparatus by means of which gas may be automatically produced from calcium carbide or other suitable substance as required for use in the apparatus.

Other and further objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective of a gas-generating apparatus with one of the carbide-boxes in section. Fig. 2 is a vertical section through the gas-holder. Fig. 3 is modified form of generating apparatus adapted to be located within the gas-holder, and Fig. 4 is a detail section through the stand-pipe and valve therein.

Like letters of reference indicate like parts throughout the several figures of the drawings.

For the purpose of locating the automatic apparatus for the generation of gas in such a position that it will not be affected by a low temperature I have illustrated a form wherein the apparatus for admitting water to the carbide-boxes is located within the gas tank or receptacle, and in Fig. 3 a modified form in which the automatic apparatus and carbide-box are all contained within the tank or receptacle. In the former instance the tank A and dome A' are substantially of the usual structure, as shown in Fig. 1, the movement of the dome being guided by means of upright rods *a* and guide-plate *a'*. The carbide-boxes B' are located outside of the tank and are provided with suitable covers *b*⁵, secured in position by a bail or bayonet-joint *b*⁶. Within the receptacles a reticulated carbide-basket H is located, which may be removed for recharging or refilling by removal of the

cover *b*⁵. The receptacles are further provided with a draw-off cock *b*⁷ at the lower portion and at the upper part thereof with a pipe *b*⁸, provided with a suitable stop-cock or valve *b*⁹, by which the liquid may be admitted to the receptacle from the automatic apparatus contained within the tank, and by the operation of the cocks or valves either receptacle may be used. The gas connection *b*¹⁰ extends from each receptacle into the interior of the tank, and thence upward by a pipe *b*¹¹ to a point above the water-level within the tank.

The apparatus illustrated for the automatic admission of liquid to the carbide-boxes consists of a vertically-extending stand-pipe I, open at both its upper and lower end and suitably supported from the gas-pipe *b*¹¹ by means of laterally-extending brackets I'. The pipe I is provided at substantially midway of its length with a suitable cock or valve I², provided with an operating-lever I³, which is normally held in an elevated position by means of a spring I⁴ or any equivalent device. Communicating with one of the ports of this cock is a downwardly-extending water-pipe J, provided at its lower portion with branches J', which extend upward and communicate with the pipes *b*⁸, leading into the carbide-boxes. An operating-rod K' is pivotally connected to the operating-lever I³ and extends upward through the guide-bracket I', so as to be engaged and operated by the dome A' as the same descends. When the operating-lever I³ is drawn to its upward position by the spring J⁴, the water within the tank will flow upward in the pipe I until it reaches substantially the level of the water within the tank. At this time the port in the cock I² is out of communication with the pipe J and water is contained within the pipe I, the amount of which will be regulated by the diameter or capacity of said pipe. When the dome A' descends in its movement, the valve-rod K' is depressed and the cock I² thus rotated, so that the ports therein communicate with the upper portion of the pipe I and with the pipe J, while communication is shut off from the lower portion of the pipe I. Thus it will be seen that the water contained in the upper portion of the pipe I will flow downward through the pipe J and the branches J' thereof into the carbide-re-

ceptacles. The charge of water is thus automatically delivered into the receptacles for the generation of gas at the time when the gas-pressure in the tank has become so reduced that the dome thereof descends to engage the rod K'. The cock I² may be a two-way valve or have any desired arrangement of ports to accomplish the foregoing operation.

In the modification of my invention shown in Fig. 3 both the water-admitting apparatus and the carbid-box B' are located within the tank, and the cover b¹² of the box will extend through a suitable aperture in the tank, so that the box may be surrounded by water and charged from the exterior of the tank as the box rests upon the inner edge b¹⁵. In this structure the upwardly-extending gas-pipe b¹³ is provided with a perforated depending portion b¹⁴, adapted to deliver the gas below the water-level within the tank, and with a check-valve b¹⁶. The stand-pipe I⁵ is open at both ends and suitably supported by a laterally-extending bracket i, while the lower portion of the pipe communicates by an opening i' with the water within the tank. The lower portion of the stand-pipe does not communicate with the gas-pipe b¹³, but is merely supported therefrom by a coupling-joint i². The pipe I⁵ is provided at its lower portion with a suitable cock or two-way valve I⁶, similar to the valve I², adapted to be operated by an operating-lever I⁷, one arm of which is provided with a weight I⁸ and the other arm I⁹ pivotally connected with the operating-rod K', which is adapted to be engaged and moved by the cover of the tank. Communicating with the casing of the cock I⁶ is a branch pipe J², communicating with the gas-pipe b¹³, which permits the water to flow from the pipe I⁵ into the receptacle through the gas-pipe when the rod K' has been depressed by the movement of the dome or cover. As soon as the pressure of the dome is removed from the rod K' the weight I⁸ will operate to shift the cock, so as to establish communication between the upper and lower portions of the pipe I⁵, and thus permit the water to enter said pipe through the opening i'. It will be understood that this cock is shifted when the rod is depressed, so as to close the communication with the lower part of the pipe I⁵ and establish communication with the branch pipe J². The general operation of the parts is similar to that just described in connection with Figs. 1 and 2.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is--

1. The combination with a gas-tank provided with a dome, of a generating-receptacle, a gas-pipe extending therefrom into the tank, a water-pipe communicating with said generating-chamber, a stand-pipe having open ends and communicating with the water contained in said tank, a valve located in said stand-pipe and provided with ports to permit the entrance of water therein from the lower portion of said tank when the dome is elevated, and connecting devices adapted in the descending movement of the dome to shift said valve to discharge water into the water-pipe communicating with said generating-chamber; substantially as specified.

2. The combination with a tank and the movable dome thereof, of a generating-chamber, a gas-pipe extending therefrom into said tank, a stand-pipe open at its opposite ends and communicating with the water in said tank at its lower end, a two-way valve located on said stand-pipe and provided with an operating-lever, a pipe extending from said valve and communicating with said chamber, and an operating-rod normally supported by said stand-pipe and held in an elevated position to be actuated in the movement of the dome to shift said valve and permit the escape of water from the stand-pipe into the pipe communicating with the generating-chamber; substantially as specified.

3. The combination with a tank and the movable dome thereof, of a generating-chamber, a gas-pipe extending therefrom into said tank and provided with a check-valve, a stand-pipe supported from said gas-pipe and open at its opposite ends, a two-way valve located on said stand-pipe and provided with an operating-lever, a water-pipe extending from said valve and discharging into said gas-pipe below said check-valve, a reciprocating operating-rod carried by the end of said valve-lever, and means carried by said valve and its lever to normally maintain the latter in an elevated position; substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

T. E. LEWIS.

Witnesses:

D. H. HURD,
J. B. RANDLE.