

No. 662,504.

Patented Nov. 27, 1900.

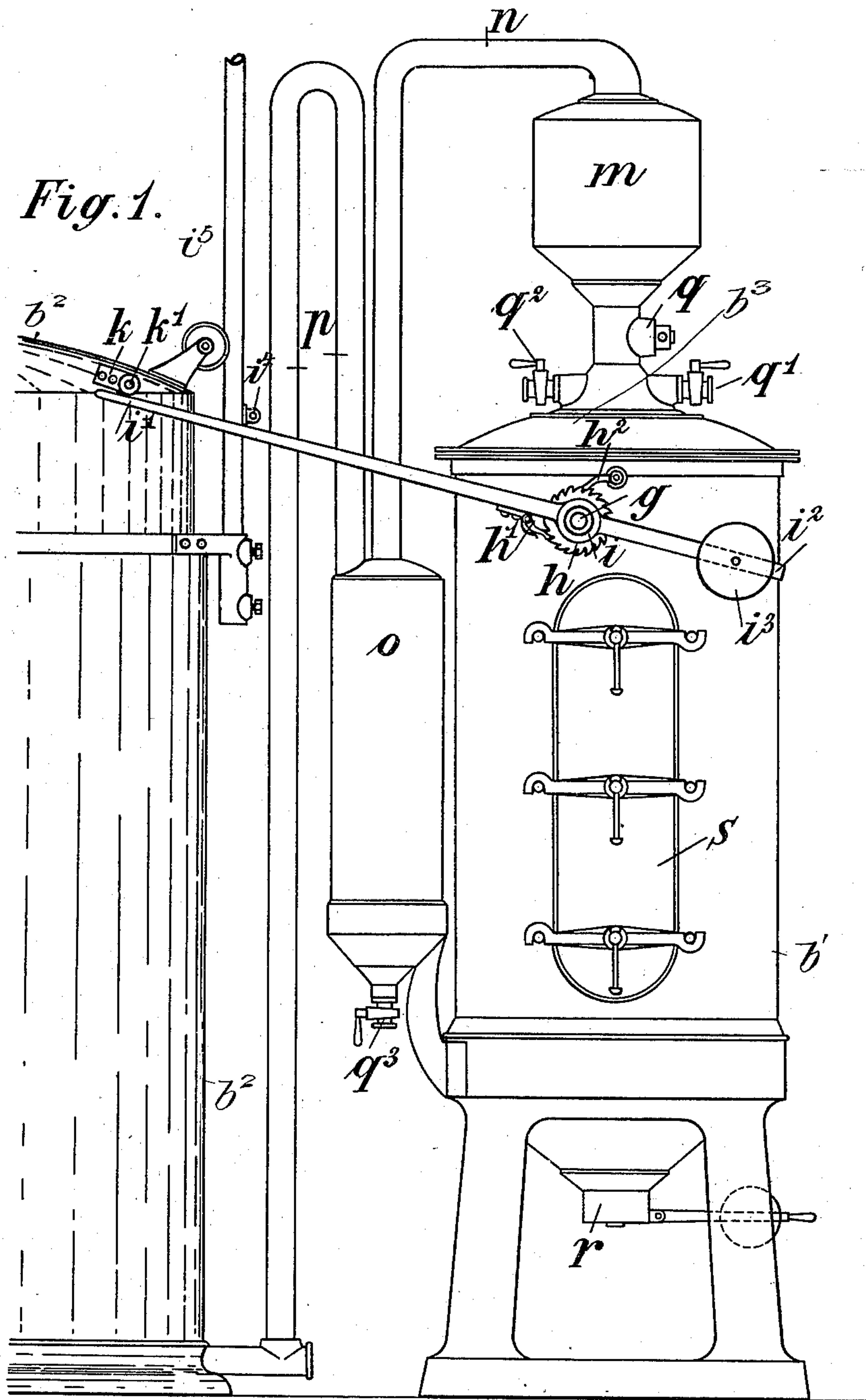
P. SCHRECK.

ACETYLENE GAS GENERATOR.

(Application filed Nov. 6, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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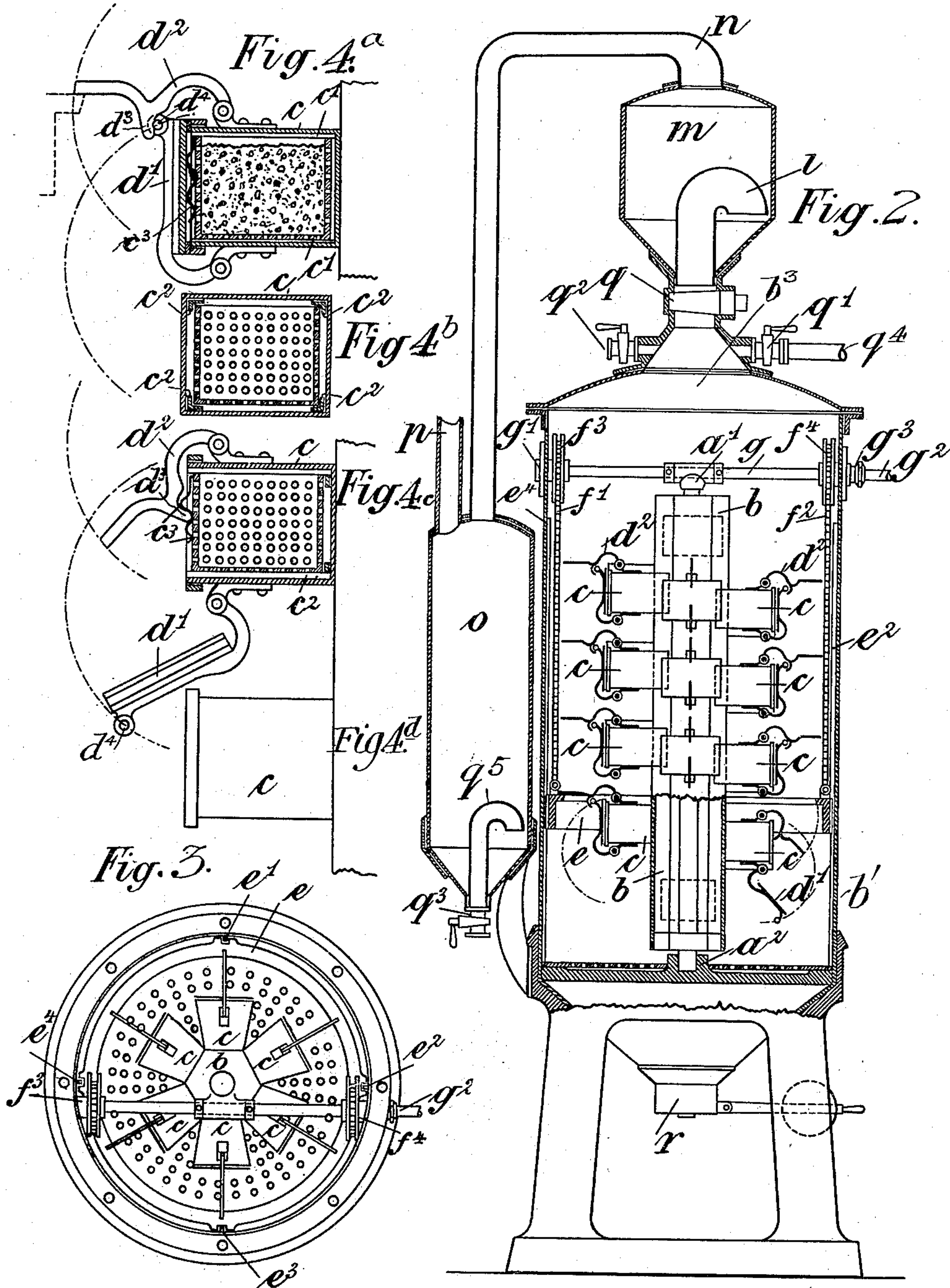
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Witnesses:
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UNITED STATES PATENT OFFICE.

PHILIPP SCHRECK, OF VERSOIX, SWITZERLAND.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 662,504, dated November 27, 1900.

Application filed November 6, 1899. Serial No. 735,979. (No model.)

To all whom it may concern:

Be it known that I, PHILIPP SCHRECK, a citizen of the Republic of Switzerland, residing at Versoix, canton of Geneva, Republic of Switzerland, (whose post-office address is Villa Palmyra, Versoix, canton of Geneva, Republic of Switzerland,) have invented new and useful Improvements in Acetylene-Gas Generators, (for which I have made application for patents in Switzerland, dated September 27, 1899; in Austria, dated October 11, 1899; in Germany, dated October 11, 1899; in Italy, dated October 11, 1899; in Belgium, dated October 13, 1899; in Sweden, dated October 14, 1899; in France, dated October 14, 1899; in Hungary, dated October 14, 1899, and in England, No. 20,622, dated October 14, 1899,) of which the following is a specification.

My invention relates to an improved construction of acetylene-gas generators wherein the gas is generated under water each time the gas-pressure decreases in the gas-holder by opening automatically chambers charged with carbid, whereby gas is produced practically free from air, the attention required minimized, and the charging simplified and reduced to as long intervals as possible. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the gas-holder and gas-generator vessel; Fig. 2, a sectional elevation of the gas-generator vessel, and Fig. 3 a plan with top removed. Fig. 4^a is a longitudinal section of a chamber charged and closed; Fig. 4^b, a cross-section of a chamber with empty charge-receptacle; Fig. 4^c, a longitudinal section of an empty chamber and charge-receptacle with fastener open, and Fig. 4^d a side view of a chamber without fastener.

Similar letters refer to similar parts throughout the several views.

In carrying out my invention I employ in the middle of the gas-generator vessel *b'*, Fig. 2, a drum *b*, vertically mounted in bearings *a'* *a''* and furnished externally with chambers *c*, arranged in screw form, the front ends of these chambers being closable by drop-doors *d'*, hinged thereto and locked against a suitable packing by levers *d''*, pivoted to the top of the said chambers. Each door-lever *d''*

projects radially and has in or about the middle a nose *d'''*, adapted to press against a stud *d''* on the said door when the latter is closed, and thus lock it. In the gas-generator vessel *b'* is also employed around the said chambers a ring *e*, vertically guided by the rails *e'* *e''* *e'''* *e''''* and suspended from chains *f'* *f''*, fastened to and winding upon the chain-pulleys *f'''* *f''''*, secured upon the shaft *g*. The shaft end *g'* is mounted in the wall of the gas-generator vessel *b'*, while the other end *g''* passes through a stuffing-box *g'''* out of the vessel. Upon the shaft end *g''* is secured a ratchet-wheel *h*, and upon its boss a double-armed lever *i*, adapted to rock thereon. To the lever-arm *i'* is pivoted a feed-pawl *h'* in gear with the said ratchet-wheel, and upon the said generator vessel a back pawl *h''*. Adjacent to the lever-arm *i'* a gas-holder *b''* is employed, the movable part of which has at its top a bracket *k*, furnished with a stud *k'*, adapted to contact with and depress the lever-arm *i'* when the said movable gas-holder part is nearing its lowest position, and thereby cause the pawl *h'* on the lever *i* to impart motion to the ratchet-wheel *h*, and thus to the shaft *g*.

The lever-arm *i''* is furnished with a weight *i'''*, rendered adjustable thereon and adapted to raise the lever-arm *i'* against a stop *i''''* on the rail *i'''''*, secured to the top of the stationary part and guiding the movable part of the gas-holder *b''*.

The lid *b'''* of the gas-generator vessel *b'* is furnished with a gooseneck *l*, which communicates with a receiver *m*, the top of which is furnished with a pipe *n*, leading to a cylinder *o*, situated at a lower level than the said receiver. From the top of the cylinder *o* another pipe *p* leads to the bottom of the stationary part of the gas-holder *b''*. The pipe connection *l n o p*, which leads indirectly from the gas-generator *b'* to the gas-holder *b''*, can be cut off by means of the main cock *q*. Two cocks *q'* *q''* are also employed on the lid *b'''* of the gas-generator vessel *b'* and one, *q'''*, at the bottom of the cylinder *o*, the cock *q'* being connected to a water-inlet pipe *q''''*.

The lower end of the gas-generator vessel *b'* is formed conical and provided with a discharge-valve *r*, such as are used in existing gas-generators, while the side of the genera-

tor vessel is formed with a manhole *s*, which facilitates the charging of the said carbid-chambers.

For the purpose of introducing the carbid into the chambers *c* receptacles *c'* are provided, open at the top, perforated at the sides, and less in diameter than the said chambers and so arranged on angle-irons *c²* that they do not come in direct contact with the walls of the chamber *c*. The receptacles *c'* are furnished opposite the hinged doors *d'* with springs *c³*, which throw the same open when released from the pressure of the door-locking lever *d²*.

The working of the apparatus is as follows: After having removed the manhole-lid the chambers *c* are charged with carbid one after the other by turning the drum *b* and each time bringing one of the said chambers in front of the manhole. Each of the chambers charged is then closed by its hinged door, and after the charge has been completed the manhole is also closed. Water is then admitted into the generator vessel through the pipe *q⁴* (which can be cut off by the cock *q'*) until it covers the uppermost of the said chambers. The lever *i* is then actuated by hand, which causes the shaft *g*, and with it the chain-pulleys *f³* *f⁴*, to turn and by winding up the chain *f' f²* the ring *e* to rise. The said lever is actuated until the said ring contacts with and opens the door-locking lever of the first chamber, whereupon the door flies open and gives the water access to the carbid. At this moment the generation of gas commences. The gas-holder then rises and lifts its stud *k'* off of the lever-arm *i'*. The gas generated passes from the generator vessel through the gooseneck *l* into the receiver *m*, wherein the water which has followed the gas separates and settles. The cylinder *o* serves also as a separating vessel. When the gas-holder, due to the decreased pressure therein, has descended to the position of the lever *i*, (shown in the drawings,) the stud *k'* presses upon the lever end *i'*, and the latter causes the ratchet-wheel *h* to be turned forward one tooth. This turn causes the chains to be wound onto the chain-pulleys *f³* *f⁴*, the ring *e* to rise proportionately, and by removing the fastener of the door of the second chamber to open the same, after which the generation of gas repeats itself. The chambers *c* are arranged in screw form on the drum *b* in order to economize space and so as to be able to open the doors thereof one by one at intervals determined by the rise and fall of the gas-holder *b²*. The relative positions at the moment at which the fastener begins to open through contact with the upper edge of the ring *e* are shown in Fig. 4^a of the drawings. The cock *q²* serves for the admittance of air into the gas-generator vessel for the purpose of emptying it of water through the valve *r*, while the

cock *q³* serves for partially emptying the cylinder *o*.

To the cock *q³* is attached a gooseneck *q⁵*, which reaches into the cylinder *o* and serves to prevent the exit of gas when opening the cock *q³*, as its orifice always remains under water.

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

1. In an acetylene-gas generator, in combination, the generator vessel *b'* having in its side a manhole, the drum *b* inside the said generator vessel, provided externally with carbid-chambers *c* arranged in screw form, the said chambered drum being rotatable in a horizontal plane to permit of being charged through the said manhole, all substantially as and for the purpose set forth.

2. In an acetylene-gas generator, in combination, the generator vessel *b'*, containing a vertical drum *b* having fixed thereto externally carbid-chambers *c* arranged in screw form, a drop-door *d'* and a nosed lever *d²* pivoted to the outer end of each of the said chambers, the ring *e* suspended around the said drum, the said nosed levers projecting from the said chambers and being adapted to lock the said doors and the said ring to contact with and lift the said levers, and allow the said doors to drop and discharge the said carbid-chambers one by one, all substantially as and for the purpose set forth.

3. In an acetylene-gas generator, in combination, a generator vessel *b'* containing a vertical drum *b* having externally carbid-chambers *c* arranged in screw form and the outer ends of which are furnished with drop-doors *d'* locked by levers *d²* projecting from the said chambers, a ring *e* around the said chambers, adapted to rise and lift the said door-levers and thereby cause the doors to open one by one, a shaft *g* mounted crosswise in and having one end projecting through the said vessel, pulleys *f³* *f⁴* secured to the inner portion of the said shaft, from which the said ring is suspended by chains *f'* *f²*, a ratchet-wheel secured to the outer end of the said shaft and a double-armed weighted lever *i*, *i²*, *i³* loosely mounted thereon carrying a feed-pawl *h'* in gear with the said ratchet-wheel, adapted to intermittently turn the said shaft and thereby raise the said ring and a gas-holder *b²* adjacent to the lever-arm *i* the movable part of which carries a stud *k'* adapted to contact with and depress the said arm, when required to impart motion to the shaft *g*, all substantially as and for the purpose set forth.

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

PHILIPP SCHRECK.

Witnesses:

EMIL PETERHAUS,
FEDERICO BURCKLEN.