(No Model.)

G. R. PROWSE.

OXYGEN GENERATOR AND HOLDER.

No. 530,453. Patented Dec. 4, 1894.

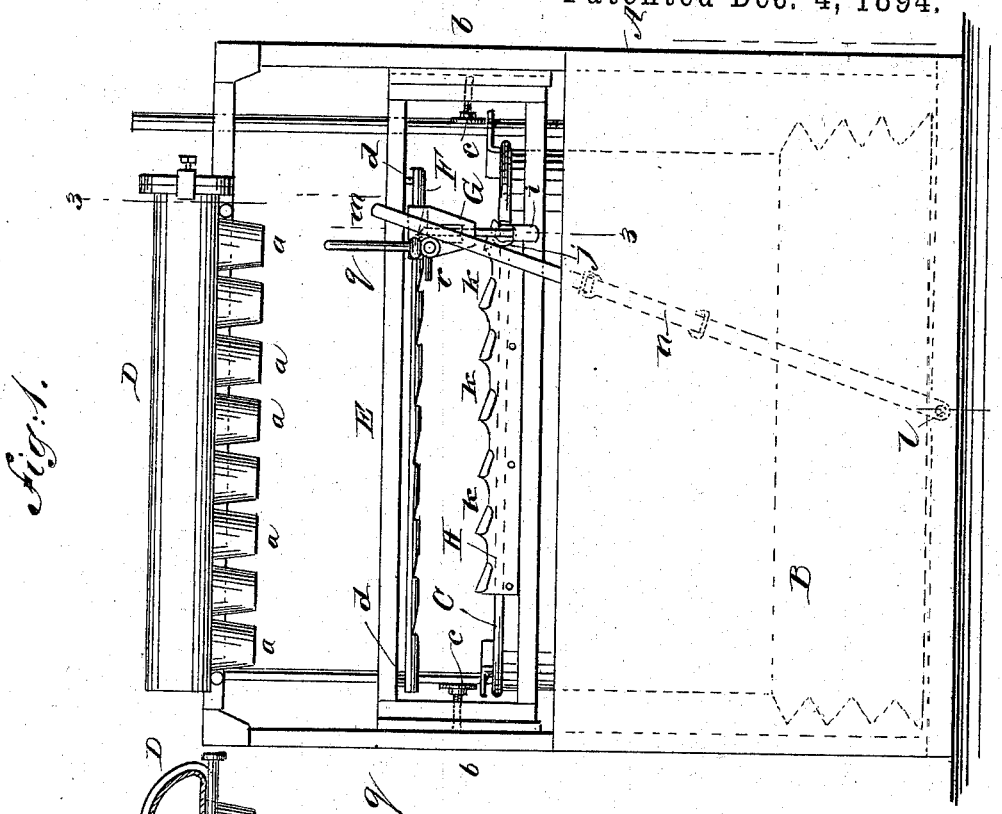

Fig. 1.

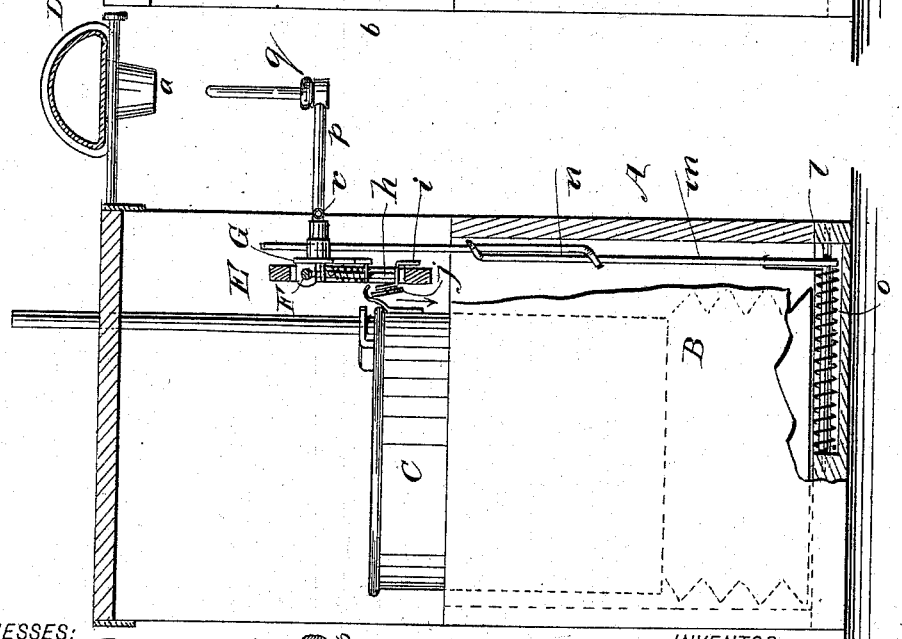

Fig. 2.

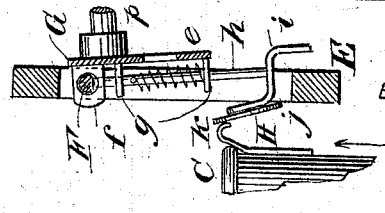

Fig. 3.

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GEORGE ROGER PROWSE, OF MONTREAL, CANADA, ASSIGNOR OF ONE-HALF TO THE FIRM OF T. H. McALLISTER, OF NEW YORK, N. Y.

OXYGEN GENERATOR AND HOLDER.

SPECIFICATION forming part of Letters Patent No. 530,453, dated December 4, 1894.

Application filed February 15, 1894. Serial No. 500,207. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROGER PROWSE, of Montreal, in the Province of Quebec and Dominion of Canada, have invented a new and Improved Gas Generator and Holder, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation of the gas-generating and storing apparatus. Fig. 2 is an end elevation, partly in section, of the same; and Fig. 3 is an enlarged sectional view of the escapement, the section being taken on line 3—3 in Fig. 1.

Similar letters of reference indicate corresponding parts in all the views.

My present invention is an improvement upon the gas-generating and storing apparatus forming a part of the calcium light apparatus, for which Letters Patent of the United States, No. 463,870, were granted to me November 24, 1891.

The object of my invention is to provide a simple and effective automatic device for moving the burner used in generating the oxygen, by a step-by-step movement, bringing the flame on one after another of the pockets of the retort, the operation of the step-by-step movement being controlled by the descent of the top of the gasometer.

My invention consists in a ratchet bar supported at one side of the gasometer casing, a slide placed on the bar and carrying a burner underneath the oxygen-generating retort, a spring-pressed bolt carried by the burner slide, a plate provided with series of inclined hooks attached to the top of the gasometer and adapted to engage the spring-pressed bolt, and an adjustable spring-actuated arm for moving the burner forward by a step-by-step movement as it is released, all as will be hereinafter more fully described.

The casing A contains a gasometer B, formed of a flexible bag attached to a vessel C, which is weighted by water or other heavy substance placed therein, so that the vessel C rises and falls according as the bag B is filled or emptied. At the top of the casing A is supported a gas retort D, having series of pockets *a*, for containing the materials from which oxygen is generated. The device thus described forms no part of my present invention, except in so far as it enters into combination with it, these parts having been shown and described in my former patent to which allusion has been made.

Between the end pieces *b* of the casing A, is placed a frame E, which is clamped to the end pieces by screws *c*. From the upper horizontal bar of the frame E is suspended a ratchet bar F, by studs *d*, and upon the said ratchet bar, which is of circular cross section, is placed a slide G, formed of the plate *e*, the apertured ears *f*, placed on the bar F, and the apertured ears *g*, in which is placed a spring-pressed bolt *h* which engages the notches of the ratchet bar F. To the lower end of the spring-pressed bolt *h* is attached a plate *i*, which is offset or bent, one end extending downwardly over the outer surface of the lower bar of the frame E, the other end extending upwardly in an inclined position, and carrying a roller *j*.

To the vessel C adjoining the frame E, is attached a plate H, the upper edge of which is provided with ears *k* which are curved outwardly and downwardly, forming a series of inclined planes for engaging the roller *j*. In the bottom of the casing A is journaled a shaft *l*, to which is attached an arm *m*, provided with a slip joint *n* by means of which the length of the arm may be lessened to facilitate packing. Upon the shaft *l* is placed a spiral spring o, one end of which is attached to the casing, the other end being secured to the arm *m*.

To the slide G is attached a horizontal tube *p*, supporting at its outer end a burner *q*. The inner end of the tube is provided with a nipple *r*, for receiving the rubber tube which supplies the vapor or gas burned by the burner *q*. The arm *m* extends upwardly past the slide G, and presses against the tube *p*.

The flame from the burner *q* strikes the first of the pockets *a* and generates oxygen which is conveyed to the bag B, and as the vessel C rises, the first of the ears *k* on the plate H passes the inclined roller *j*, and in so doing tilts the slide G slightly, and the ratchet bar F. As the curved ear *k* passes the roller *j*, the burner *q* and tube *p* fall back into their original positions, the drop being limited by

the engagement of the lower end of the bent plate *i* with the lower bar of the frame E. The inclined curved portion of the ear *k* being now above the roller *j*, as the supply of gas from the first pocket *a* fails and the gas is used from the gasometer, the vessel C descends, bringing the curved-over inclined portion of the ear *k* into engagement with the roller *j*, thus pulling down the spring-pressed bolt *h*, disengaging it from the notch in the bar F, when the spring operated arm *m* carries the slide G forward and the spring-pressed bolt engages the second tooth of the ratchet bar. This operation brings the burner *q* under the second pocket of the retort, when the operation just described is repeated, and so on as long as the apparatus is in use, or until the last pocket is reached, thus maintaining automatically and continuously a supply of oxygen which is used in connection with the vapor of ether for producing calcium light.

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

1. The combination, with a gas generator, and a gasometer connected thereto, of a movable burner, and an operative connection between the burner and the movable part of the gasometer to move the burner forward by a step-by-step motion, substantially as specified.

2. The combination, with a gas generator, and a gasometer connected thereto, of a burner having guided movement longitudinally of the gas generator, a spring arranged to press the burner forward, and a releasing mechanism operatively connected to the gasometer, substantially as described.

3. The combination, with a gas generator, and a gasometer connected thereto, of a movable slide adapted to carry a burner, and an operative connection between said slide and the gasometer to move the slide forward when the contents of the gasometer decrease, substantially as described.

4. The combination, with a gas generator, and a gasometer connected thereto, of a movable slide adapted to carry a burner, a spring for pressing the slide forward, and a releasing mechanism operatively connected to the gasometer, substantially as described.

5. The combination of the ratchet bar, the spring pressed slide thereon, said slide being adapted to carry a burner, the spring pressed bolt held on the slide and adapted to engage the ratchet bar, and the gasometer provided with projections adapted to engage the said bolt to withdraw it from engagement with the ratchet bar, substantially as specified.

6. The combination of an oxygen generating retort, a burner and movable spring-pressed slide for carrying the same, and releasing mechanism operated by the gasometer, substantially as specified.

7. The combination of the ratchet bar F, the spring-pressed slide G placed thereon, the burner *q* carried by the slide, the spring-pressed bolt *h* engaging the ratchet bar and provided with the roller *j*, and the plate H provided with the hooked ears *k*, substantially as specified.

8. The combination of the retort D, provided with pockets *a*, the ratchet bar F, the slide G placed thereon and provided with the spring-pressed bolt *h* for engaging the ratchet bar, the roller *j* carried by the bolt, the plate H carried by the gasometer top and provided with curved ears *k* for engaging the roller of the bolt, the burner *q* carried by the slide G, and the spring-actuated bar *m*, for moving the burner-carrying slide, substantially as specified.

GEORGE ROGER PROWSE.

Witnesses:
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