No. 648,910. Patented May 8, 1900.

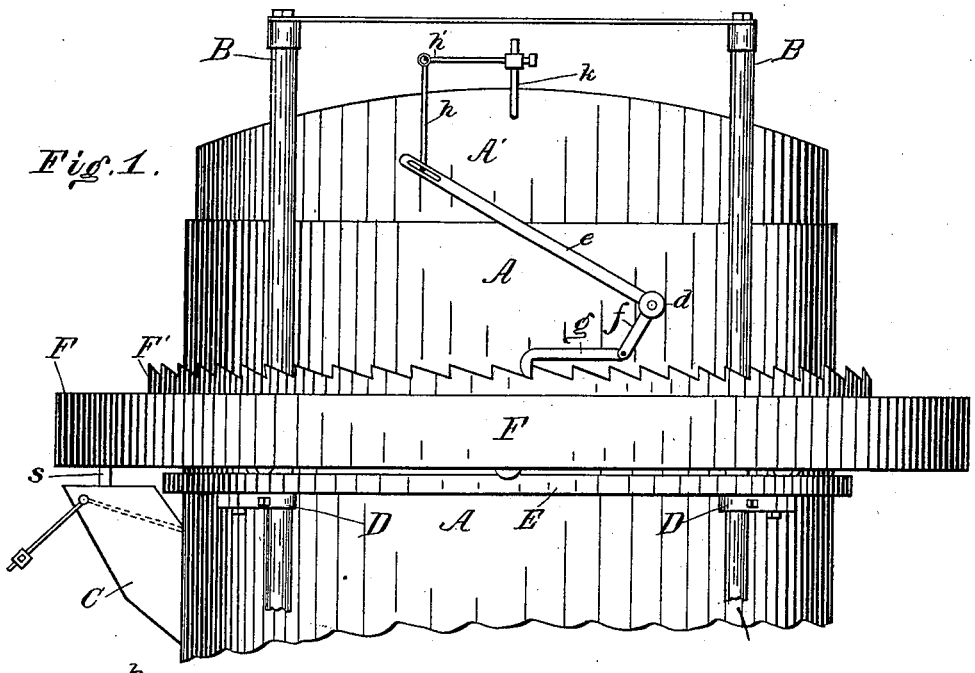
D. L. BAUMGARTEN.

ACETYLENE GAS GENERATOR.

(Application filed Mar. 7, 1898.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.



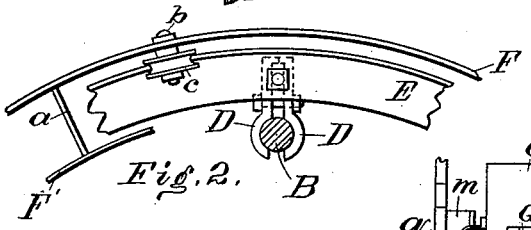


Fig. 2.

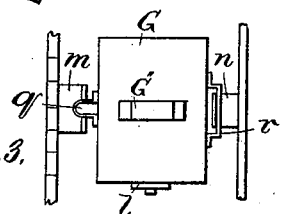


Fig. 3.

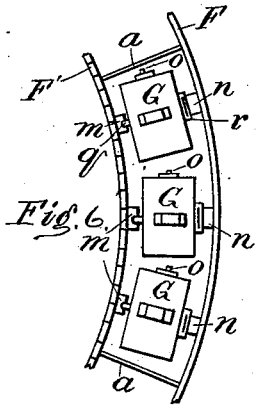


Fig. 6.

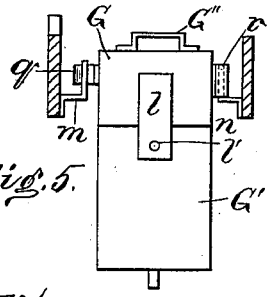


Fig. 5.

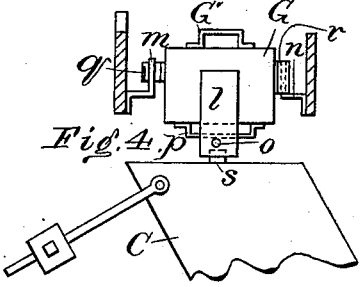


Fig. 4.

Witnesses
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No. 648,910. Patented May 8, 1900.

D. L. BAUMGARTEN.

ACETYLENE GAS GENERATOR.

(Application filed Mar. 7, 1898.)

(No Model.) 4 Sheets—Sheet 2.

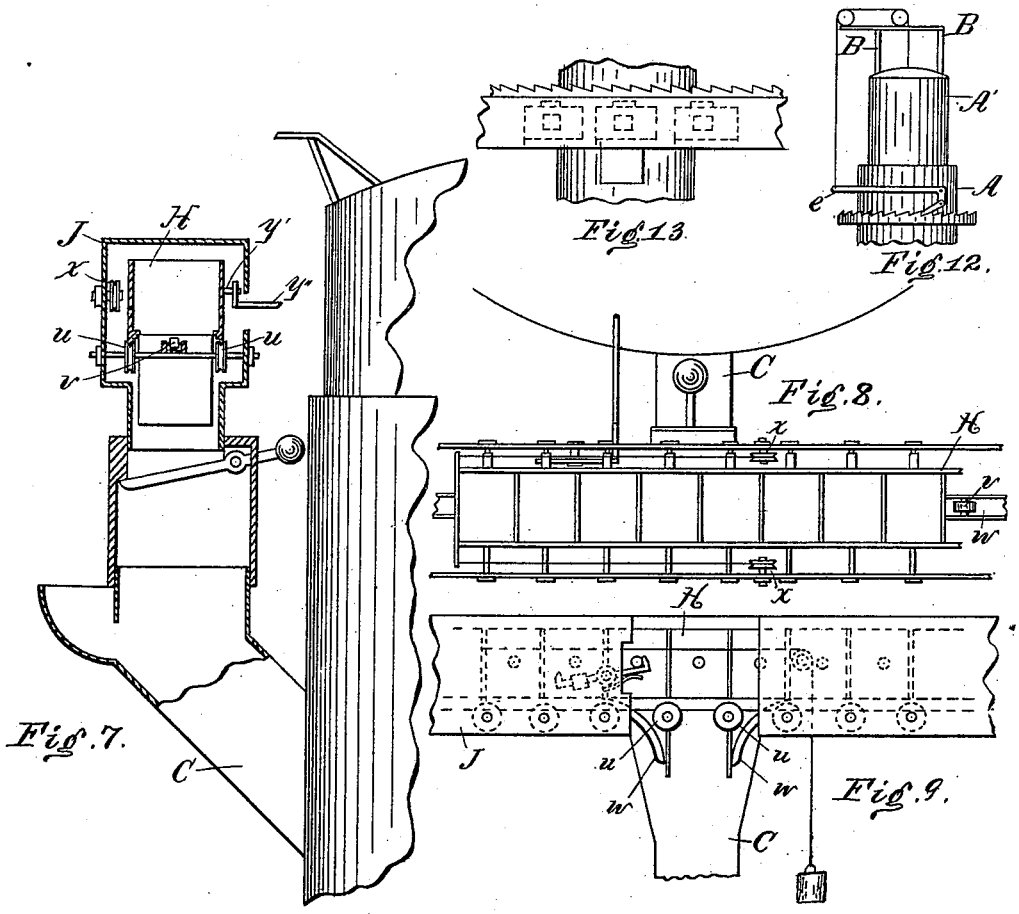

Fig. 7.

Fig. 13.

Fig. 12.

Fig. 8.

Fig. 9.

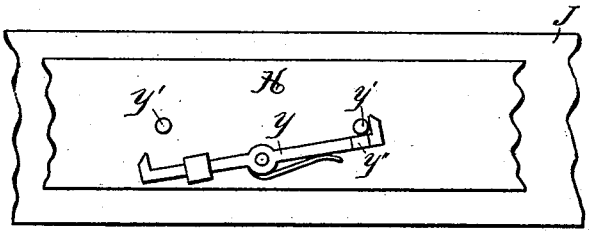

Fig. 11.

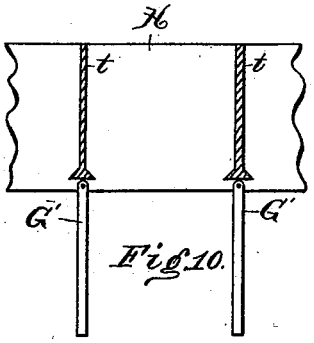

Fig. 10.

Witnesses.
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No. 648,910. Patented May 8, 1900.

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ACETYLENE GAS GENERATOR.

(Application filed Mar. 7, 1898.)

(No Model.) 4 Sheets—Sheet 3.

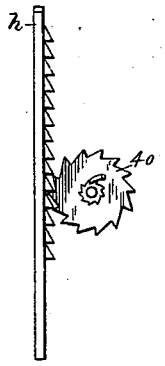

Fig. 15.

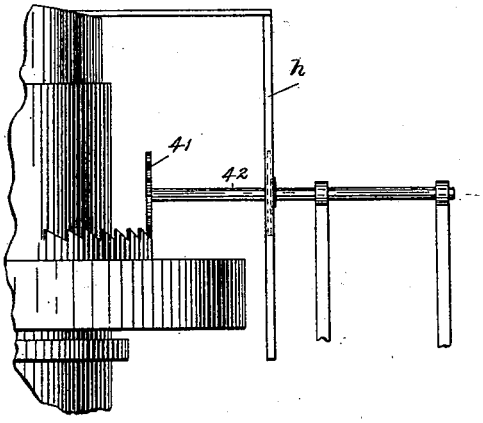

Fig. 14.

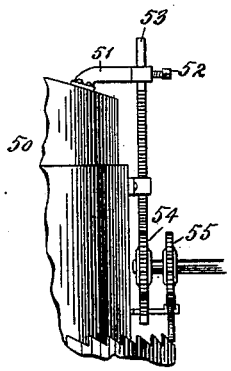

Fig. 17.

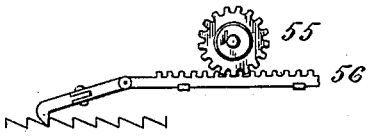

Fig. 18.

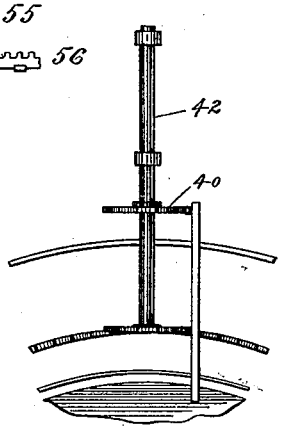

Fig. 16.

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No. 648,910. Patented May 8, 1900.

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ACETYLENE GAS GENERATOR.

(No Model.) (Application filed Mar. 7, 1898.)

4 Sheets—Sheet 4.

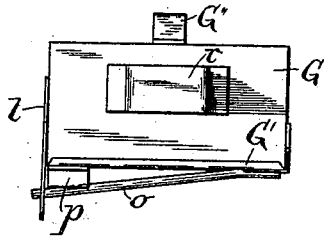

Fig. 19.

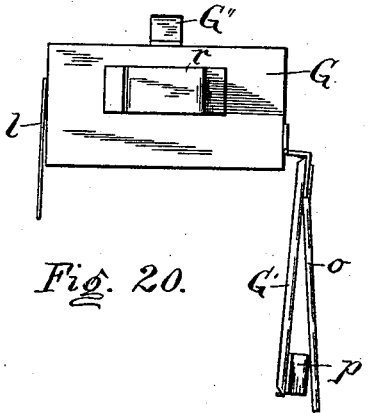

Fig. 20.

Witnesses.
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by Cushman Shute
Attorney.

UNITED STATES PATENT OFFICE.

DAVID L. BAUMGARTEN, OF CINCINNATI, OHIO, ASSIGNOR TO THE SUN-LIGHT GAS COMPANY, OF OHIO.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 648,910, dated May 8, 1900.

Application filed March 7, 1898. Serial No. 672,924. (No model.)

To all whom it may concern:

Be it known that I, DAVID L. BAUMGARTEN, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to improvements in acetylene-gas generators; and it consists in certain modifications and improvements upon what is termed the "feeding" or "supply" mechanism described in my application, Serial No. 661,593, filed December 13, 1897, as will be more fully hereinafter set forth and described.

In the drawings, Figure 1 is a side elevation of a section of a gas-generator with one of my improved supply or feed devices. Fig. 2 is a top plan of the feed device shown in Fig. 1 in section. Fig. 3 is a top view of my improved supply receptacle or box seated in place on the feed carriage or device. Fig. 4 is a side view of one of the supply-receptacles in position over the chute or hopper. Fig. 5 is a side view of same with the bottom released and dropped. Fig. 6 is a top view of the feed device shown in Fig. 1 with the supply-receptacles in place. Fig. 7 is a vertical section of another form of feed device and also of the chute and hopper-box with its balance-valve. Fig. 8 is a top view of the feed device shown in Fig. 7. Fig. 9 is a side view of same. Fig. 10 is a side view of a section of the supply-receptacle shown in Fig. 7 and two of its hinged bottoms dropped. Fig. 11 is a side view of one form of the locking mechanism for the feed device. Fig. 12 is a side elevation of a gas-generator, showing still another form of the propelling mechanism. Fig. 13 is a side elevation in detail showing in dotted lines my improved supply-receptacles as applied to another form of feed mechanism from that shown in Fig. 1. Fig. 14 shows still another form of propelling mechanism, and Fig. 15 is a detail view of same. Fig. 16 is a top view of the construction shown in Fig. 14. Fig. 17 shows another form of propelling mechanism, and Fig. 18 is a detail view of same. Fig. 19 is a side view of a carbid-receptacle with the bottom closed. Fig. 20 is a similar view of a carbid-receptacle with the bottom dropped down.

My improvements have been especially designed to be applied to that form of generator set forth and described in my application above referred to, and my present application has to be with the improved feed mechanisms, several forms of which are herein set forth, which may be termed a "circular" feed and a "straight-away" feed, and also relates to an improved receptacle to be used in connection with these forms of feed, all of which will be more fully hereinafter set forth, the first part of my specification having reference to the circular form shown in Fig. 1.

A is the generator.

A′ is the gasometer, which fits within the generator, the whole of which is supported by the uprights or standards B B.

C is the chute, which enters the generator at the proper point, this chute being supplied with the proper balance-valve.

Clamped to the standards B B by bolts are projections or supports D D, preferably in the manner shown in Fig. 2. Resting on these supports D D and properly secured thereto by bolts or otherwise is a flanged ring or collar E, which surrounds the generator, the upright portion or flange of the ring forming a track or runway.

F F′ are bands also preferably made of sheet metal of different diameters, the one within the other. These bands are held together by partitions *a*, placed at suitable intervals. Secured to the band F in any convenient manner are small pins *b*, on which are mounted wheels *c*, which run on the track E, a sufficient number of them being used to support the bands F F′. The band F′ is notched on its upper edge, as clearly shown in Fig. 1. Supported on a pin extending out from the generator A is a collar *d*, which has integrally formed therewith, on opposite sides and extending at right angles to the axis of the collar *d*, arms *e f*, forming what may be termed a "bell-crank." The portion *f* of the bell-crank has pivotally connected to it a dog or pawl *g*, the end of which rests in the notches of the band F′. The other arm *e* of the bell-

crank is preferably formed with a slot in which a pin on the rod h takes. This rod h is shown as riveted to a rod or bar h', though it might be made in one piece and bent at a right angle. This bar h' is provided with a collar at its end, which is fitted over an extension or arm k, which extends out from and is secured to the gasometer, the bar h' being securely held on the extension k by thumb-screw or in any convenient way. It will thus be seen that as the gasometer rises as the supply of gas therein increases the extension k on the gasometer pushes the angled arm h h' upward and lifts the end e of the bell-crank by reason of the pin on the arm h sliding in the slot, thus rocking the bell-crank, by which the dog or hook g is slid over the inclined surface of the next succeeding tooth and drops into the next notch. Then as the gasometer falls, by reason of the diminishing supply of gas therein, the bell-crank is rocked in the opposite direction and the dog g is pulled forward, which having entered the next succeeding notch revolves the bands F F' a distance corresponding to the size of the teeth.

Secured on the adjacent sides of the bands F and F' are racks m n, preferably made of a blank of sheet metal, the rack m being slit in its center, as can clearly be seen in Fig. 3. To be placed between these bands F F' and on the racks m n I have devised rectangular boxes G, which are of a size sufficient to hold the requisite quantity of carbid which is to be fed into the generator through the chute C. These boxes or receptacles G are made of any light but sufficiently-strong material with handles G'' and have their bottoms G' hinged at one side. Fastened on the opposite end of the box is a strip l, which extends slightly below the bottom of the box and has a small opening l' therein. Secured on the bottom is a pin o, which normally passes through the opening l' in the strip l, thus holding the bottom shut. In order to more securely close the box and hold the bottom tightly in place, I provide a spring p on the bottom, Fig. 4, which lies between the bottom and the pin o, pressing against the pin and securely holding the bottom in place. This spring consists, as shown in the drawings, of a strip of sheet metal bent at its ends and these ends riveted to the bottom of the bucket G. The pin O is fastened at one end to the bottom between this spring p and the hinge. It extends below the spring p toward and slightly beyond the other end of the bottom. When the bucket is closed, this pin engages in a hole in the vertical flat spring L, and consequently presses upward against the spring p, pressing the bottom more firmly in its place with an elastic pressure accommodating itself to changed conditions. On one side of the box I provide an extension q, which fits into the slot in the rack m, while on the opposite side of the box is provided a hanger r, which catches over the rack n. It will thus be seen that the boxes can only be put in place in one way, and thus no mistake can be made in hanging the box in the carriage F F', the importance of which will readily be understood from the following description of the operation of the carriage or feed mechanism.

Attached to the chute C, on the side from which the boxes or receptacles are revolved and brought over the chute is a tripping-pin s, which extends up far enough to come in contact with the spring-catch l on the box G. It is of course understood that the catch l is on the opposite side of the box from the bottom hinge, and is so placed in the carriage F F' that when the tripping-pin s is in contact with the catch l the entire box is over the chute C'. As the carriage is revolved by reason of the action of the gasometer, which operates the dog g, the tripping-pin s will disengage the spring-catch l and release the pin o, when, by reason of the weight of the contents in the box G, the bottom will drop and empty the contents into the chute C, and so on with each succeeding box until they have all been emptied, when they are again refilled and hung in the carriage to again be emptied in the same manner.

In place of the operating rods or arms h h' and extension k (shown in Fig. 1) a device similar to that shown in Fig. 12 may be used, in which a cord or chain may be attached to the gasometer at any proper point, which cord operates over pulleys mounted on a cross-piece attached to the standards B B and is attached to the long arm e of the bell-crank, which, by reason of its weight, will drop down as the gasometer rises, thus rocking the bell-crank, and slide the dog backward to engage in the next notch. Then as the gasometer descends, by reason of a weight or the diminishing supply of gas, the cord or chain will rock the bell-crank in the opposite direction and the dog will revolve or push the carriage.

In place of the boxes heretofore described a large receptacle may be used, this receptacle H being partitioned off into suitable compartments, as illustrated in Figs. 8, 9, and 10, constituting virtually a series of boxes. This receptacle H has partitions t t, producing compartments of a desired size, in which the carbid of calcium is placed. The bottoms G' of these compartments are hinged at one end by what may be called a "back-flap hinge," which is placed immediately underneath the partition, which partition is preferably made at the bottom in the peculiarly-spread manner as seen in Fig. 10, in order that the ends of the bottom may fit up snug against them. When using this form of receptacle, it is necessary to provide some means for holding the bottoms in place, for which purpose I have devised the construction shown in Figs. 7, 8, and 9, in which the receptacle or carriage H is run either on a series of pulleys u, which are supported in the casing or housing J in any suitable manner, or this receptacle H may be provided

with wheels at suitable intervals to run on tracks, as will be readily understood. Beneath the center of the carriage H is a track *w*, supporting small rollers *v*, which fit up closely to the bottoms G′ and hold them closed. At a point immediately over the chute C this track *w* is broken away and bent downward, as shown in Fig. 9, thus taking away the support for the bottoms G′ and permitting them to drop and empty the contents of the compartment into the chute C. The dropped bottom as the carriage is moved onward will strike the downwardly-bent end of the track *w*, and by reason of its being on a back-flap hinge is flapped up in the opsite direction and out of the way, permitting the carriage to move onward. The broken-away portion of the track is of such size as to permit the next succeeding bottom to drop as that compartment is brought over the chute C, and not be interfered with by the preceding bottom being flapped backward.

In Fig. 7 I have shown another method of operating the carriage from that heretofore described. In this construction the carriage is provided with weights attached to cords or chains running over pulleys *x x*, which pulleys are placed at a proper point near the chute C, so that the pulling strain on the carriage will bring the end of the carriage, with the last box or compartment, over the chute C. In order to lock the carriage and restrain its forward tendency, I provide at a proper point on the housing or support J a rocking dog *y*, which is normally held in contact with pins *y′*, extending out from the side of the carriage H at proper intervals, by spring or weight. This rocking dog has extension *y″* extending out through an opening in the housing, as seen in Fig. 7, which is to be depressed by an arm or lug attached to the gasometer, so that as the gasometer descends this arm will strike the extension *y″* and rock the dog *y*, releasing the carriage, which is under tension by reason of the weights, permitting it to move forward, while the opposite end of the dog *y* will rise and engage with the second succeeding pin and prevent the carriage from moving too far. The moment the gasometer rises and releases the dog *y* it will return to its normal position, as shown in Fig. 11, by reason of the spring or weight.

In Fig. 14 I show another form of propelling mechanism, in which the arm *h* is notched or toothed, as seen in Fig. 15. Secured to a rod or axle, which axle is supported in any convenient manner, are toothed wheels 40 and 41, the wheel 40 coming in contact with the teeth on the rod *h*, thus revolving the axle or shaft 42, which in turn will revolve the wheel or toothed disk 41, which meshes with the notched band F′ of the carriage, thus operating same. The rod *h* is only supplied with teeth a certain distance from the top, so that it will not operate on the disk or wheels 40, and thus operate the carriage, until the gasometer has reached a predetermined point in its descent, bringing a conveyer over the chute C. The pinion 40 is provided with a pawl and ratchet at its center, (marked 45.) This pawl and ratchet is of the familiar form, the pawl being pivoted to the pinion near its center and the ratchet to the revolving shaft 42, the pinion being mounted loosely on the shaft, so that as the pinion is turned one way it will carry with it the shaft which revolves the pinion 41, which in turn meshes with the teeth on the carrier and propels the same. When the supply of gas thus generated causes the gasometer to rise, and with it the shaft *h*, the pinion 40 will revolve freely on its axis, leaving the shaft 42, with the pinion 41, stationary, ready to be revolved again upon the downward movement of the shaft *h*, and again propel forward the carriage as before.

Figs. 17 and 18 are different elevations of a modified form of pawl and ratchet for operating the feed. In said Fig. 50 is the upper portion of the gasometer, which is moved up or down by the increase or diminution of the supply of gas. 51 is a horizontal lug or extension provided with a set-screw 52 and a vertical opening, through which passes the movable bar 53. This bar 53 is provided with teeth which mesh with a pinion 54 and revolve the same. On the same shaft with the pinion 54 is a similar pinion 55. Beneath this pinion 55, sliding in horizontal ways, is a sliding carriage 56. This carriage 56 is provided with teeth which mesh with the teeth of the pinion 55, so that as the pinion 55 is revolved the carriage 56 is moved forward or back. Pivoted to one end of this carriage 56 is a pawl 57. This pawl 57 engages with the teeth on the carrier or feed-conveyer F′. As the sliding carriage 56, with the pawl 57, is moved forward by the downward movement of the shaft 53 the feed-carriage is propelled forward. When the supply of carbid thus admitted to the generator has generated gas sufficient to raise the gasometer 50, and with it the shaft 53, the pinions 54 and 55 are revolved the other way and the sliding carriage 56 and the pawl 57 are drawn back. The pawl 57 being pivoted lifts and slides over the teeth on the conveyer F′.

I have thus described several forms of feed devices, and it will of course readily be understood that the various engaging and operating mechanisms, with the boxes or carriage as described, may be applied to either a straight-away or circular feed.

I have shown a weight and pulley as the means for propelling one form of conveyer. Of course any power may be used which will supply a constant force always in condition to take effect when the movement of the gasometer releases the catch which holds the conveyer stationary when the further supply of feed is not required, and in this form I do not limit myself to the weight and pulley.

Having thus described my invention, what

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

1. In connection with an acetylene-gas generator, an automatic feeding device consisting of two circular rings, the one within the other, surrounding and supported by, the generator-tank, said rings having projections adapted to engage with eyes upon opposite sides of each of a series of carbid-carriers, one of said rings having teeth adapted to be engaged by a pawl operated by the gasometer, whereby said carbid-carriers are moved forward, said carbid-carriers having hinged bottoms and spring-catches, in combination with a hopper provided with a projection, adapted to strike said spring-catch, whereby said hinged bottom is caused to drop and discharge the contents of each of said carbid-holders when they have reached a certain predetermined point, substantially as and for the purpose described.

2. In connection with an acetylene-gas generator, an automatic feeding device consisting of two circular rings, the one within the other, surrounding and supported by, the generator-tank, said rings having projections adapted to engage with eyes upon opposite sides of each of a series of carbid-carriers, in such a way that said carbid-carriers can only be put in place in one position, one of said rings having teeth adapted to be engaged by a pawl controlled by the quantity of gas in the gasometer, whereby said carbid-carriers are moved forward, said carbid-carriers having hinged bottoms and spring-catches in combination with a hopper and a projection for releasing said spring-catches when said carbid-carriers have reached a certain predetermined point, substantially as and for the purpose described.

3. In a feeding device for automatically supplying an acetylene-gas generator, a movable conveyer surrounding and supported by, the generator-tank and propelled forward by a pawl operated by a bell-crank, said bell-crank being governed by the supply of gas in the gasometer, said movable conveyer consisting of rings, the one within the other, having projections adapted to engage with eyes upon opposite sides of each of a series of carbid-carriers, said carbid-carriers having hinged bottoms and spring-catches, said spring-catches being released at a predetermined point by a projection upon the hopper, whereby the bottom of said carbid-carrier is caused to drop and discharge the contents of said carbid-carrier, substantially as and for the purpose described.

4. In an automatic feeding device for an acetylene-gas generator, a series of compartments having hinged bottoms provided with pins extending along the outer or under side of the bottom and to a short distance beyond its swinging edge to engage with a catch on a vertical spring-plate, in combination with two rings, the one within the other, surrounding and carried by, the generator-tank, projections upon said rings adapted to engage eyes on said carbid-carriers, whereby said carriers are supported, and a fixed arm intended to strike the spring-catch and cause the hinged bottom to fall and discharge the contents of said carbid-carrier, when it has reached a certain predetermined point, with a pawl governed by the gas in the gasometer, adapted to engage with teeth in one of said rings and move said carbid-carriers forward, substantially as and for the purpose described.

5. In an automatic feeding device for an acetylene-gas generator, a series of carriers having hinged bottoms provided with a pin or latch extending longitudinally across the bottom, and a sufficient distance beyond to engage the spring-catch when the bottom is closed, a spring extending transversely across the bottom between said bottom and the pin or latch, in combination with a support for said carriers operated by a pawl, consisting of two rings having projections adapted to engage eyes on said carriers, in such a way that the carriers can be put in place in only one position, substantially as and for the purpose described.

6. In an automatic feeding device for an acetylene-gas generator, two rings surrounding and supported by the generator-tank, said rings having projections adapted to engage eyes upon a series of carbid-carriers, a pawl adapted to engage teeth upon one of said rings, thus propelling forward the carbid-carrier, said carbid-carrier having hinged bottoms and spring-catches adapted to be released at a certain point by a fixed projection upon the hopper, in combination with an inclined plane or rail arranged to lift the bottoms as the conveyer moves on, substantially as and for the purpose described.

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