No. 790,276. PATENTED MAY 23, 1905.

C. W. BECK.

ACETYLENE GAS GENERATOR.

APPLICATION FILED NOV. 23, 1900.

2 SHEETS—SHEET 1.

Fig. 1.

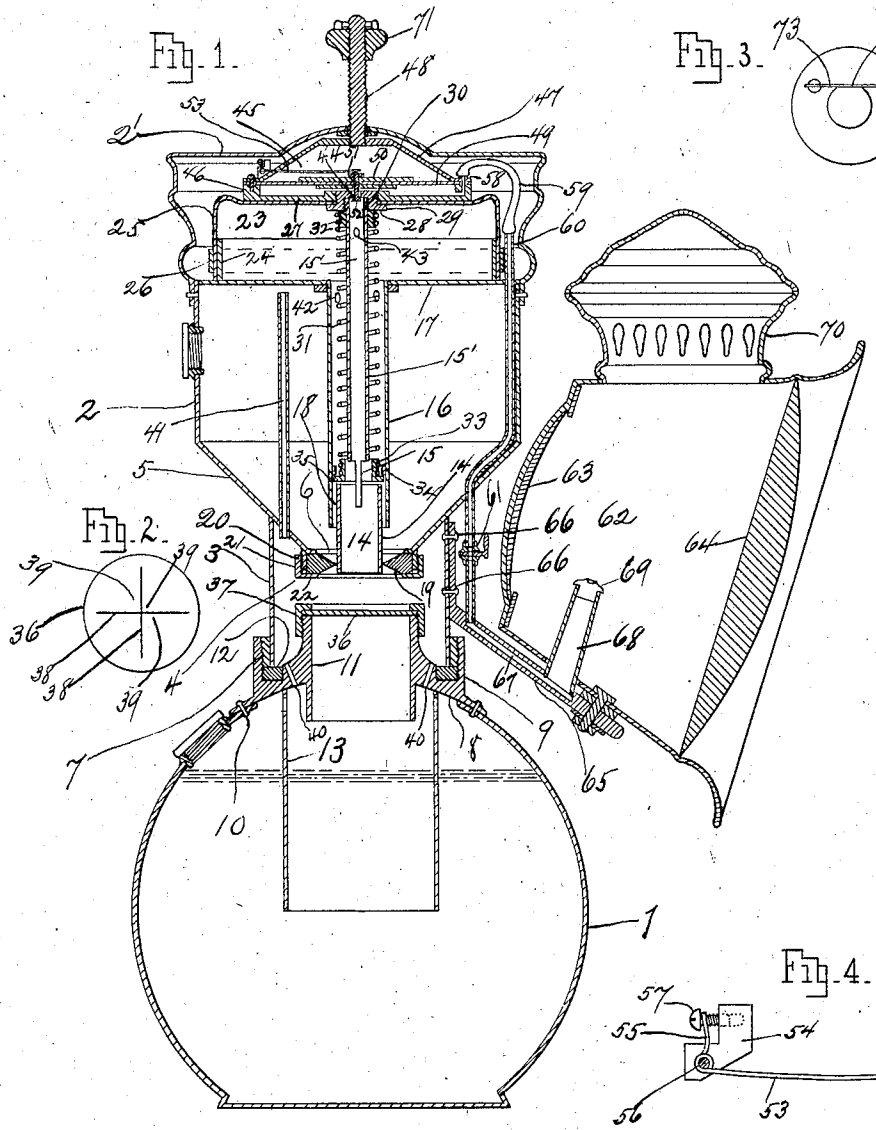


Fig. 3.

Fig. 4.

WITNESSES

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W. W. Harris.

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2 SHEETS—SHEET 2.

Fig. 5.

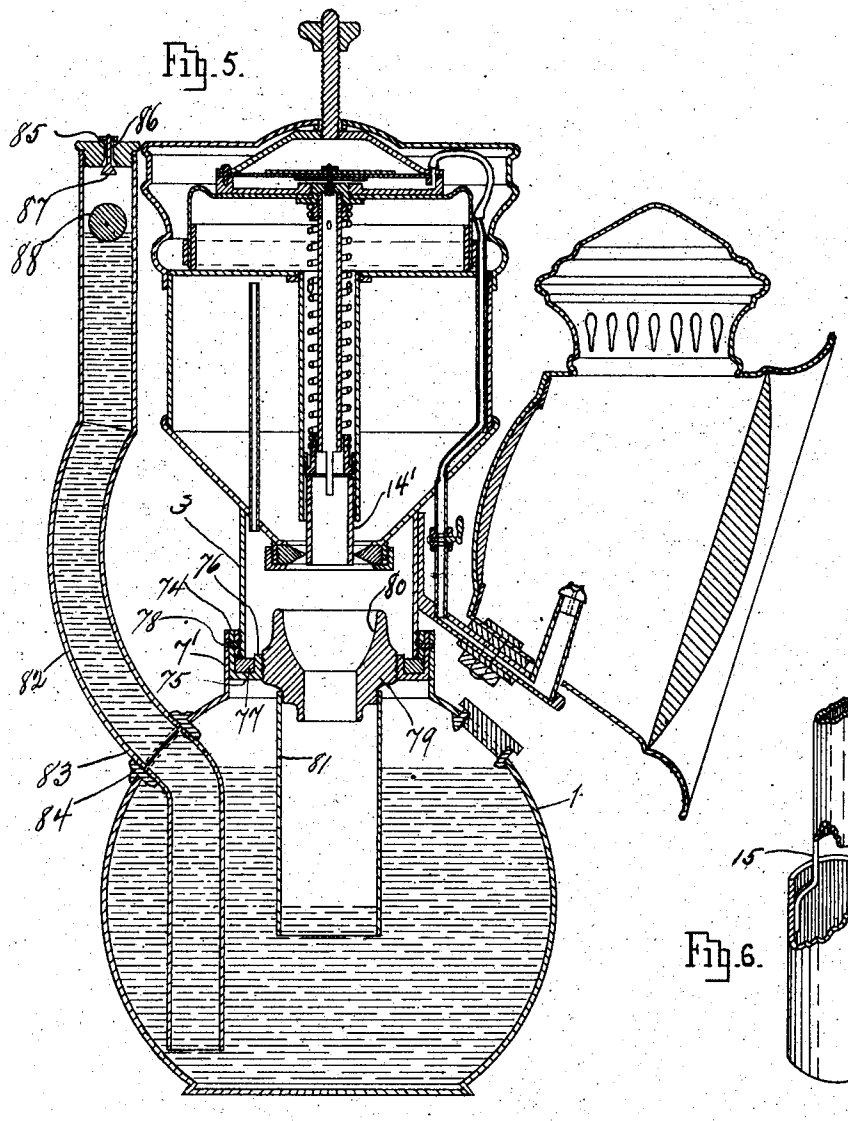


Fig. 6.

WITNESSES

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No. 790,276. Patented May 23, 1905.

UNITED STATES PATENT OFFICE.

CHARLES W. BECK, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO ELECTROLITE GAS LAMP COMPANY, OF NEW YORK, N. Y.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 790,276, dated May 23, 1905.

Application filed November 23, 1900. Serial No. 37,550.

To all whom it may concern:

Be it known that I, CHARLES W. BECK, of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Acetylene-Generators, of which the following is a specification.

This invention relates to improvements in acetylene-generators, and refers more specifically to improvements in that type of generators wherein pulverulent carbid is fed in regulated quantities to a body of water, the rate of feed being automatically governed and determined by the rate of consumption of the gas generated.

Among the salient objects of the invention are to provide a generator which will successfully maintain a proper isolation of the gas-generating elements (except as they are brought together by intentional operation of the feed mechanism) embodied in a construction so compactly arranged that the device is well adapted for embodiment in a portable vehicle-lamp—as, for example, in the velocipede-lamp illustrated herewith; to provide in a construction of the character referred to means for preventing the access of liquid to the operative parts of the feed mechanism under the jolting and jarring to which a lamp of this character is subjected and to likewise prevent to the greatest possible extent the access of vapors to the carbid contained within the carbid-receptacle; to provide a feed mechanism which in operation tends to keep itself clean and free from becoming encrusted with residue; to provide a feed mechanism so protected and inclosed as to its operative parts as to render it extremely free from liability of clogging in operation; to provide improved details in construction and arrangement enabling the several parts to be very compactly associated without detracting from their efficiency of operation; to provide a construction wherein the generating fluid is driven and held away from the feed mechanism by hydrostatic pressure, and in general to provide improvements in the construction and arrangement of the generator of the character referred to.

The invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims, and will be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is an axial sectional view of a generator embodying a preferred construction of my invention. Fig. 2 is a plan view of the diaphragm through which the carbid is fed and which serves as a guard to prevent splashing of liquid upwardly into the feed mechanism. Fig. 3 is a plan view, on an enlarged scale, of the locking mechanism whereby the feed mechanism is locked in closed position. Fig. 4 is an enlarged detail of the reducing-valve spring, showing the latter in side elevation. Fig. 5 is a view, similar to Fig. 1, of a modified embodiment of the invention; and Fig. 6 is a perspective detail view of the feed-plunger and a portion of its operating-stem.

Referring to the drawings, the invention is therein shown as embodied in a portable vehicle-lamp; but it is to be understood that while certain features of the invention are particularly well adapted for a generator of this type, yet many of the features (and, in fact, most of them) are equally well adapted for embodiment in other types of generators.

In said drawings, 1 designates as a whole a lower liquid chamber or font, 2 an elevated carbid-hopper, and 3 a reduced connecting-passage uniting the hopper and associated parts with the upper part of the font or liquid-reservoir, said reduced portion forming a chamber 4, within which are arranged parts of the feed mechanism. The lower body 1 may be of any preferred and suitable construction adapted to contain a suitable supply of liquid into which the pulverulent carbid is dropped by the feed mechanism, and likewise the upper member or hopper 2 may be of any suitable form, provided with a converging or hopper-shaped lower end wall 5, which directs the carbid to the feed-opening 6 in the bottom thereof. In the preferred construction shown herein the cylindric contracted portion 3 is permanently attached to the lower part of the carbid-hopper concen-

trically with the feed-aperture thereof and is detachably connected with the upper portion of the reservoir or generating-chamber conveniently by being provided with an externally-threaded lower end portion 7, which is adapted to engage a correspondingly-threaded tubular portion 9 of a casting 8, forming the uppermost portion of said generating-chamber. Said casting 8, conveniently and as herein shown, is in the form of a cap secured at its periphery to the upper part of the member 1, as indicated at 10, and provided at its center with a tubular extension 11, forming an open passage from the upper part of the generating-chamber to the chamber 4, an annular depression being formed between the outer tubular extension 9 and the inner tubular extension 11, within the lower angle of which is arranged a packing-ring 12, against which the lower end of the threaded part 7 impinges to form a gas-tight joint. Upon the lower side of the cap member 8, concentrically with the central passage therethrough, is mounted a depending tubular guard 13, which extends at its lower end well down within the body of the reservoir, so that its lower end will be at all times below the liquid-level therein.

14 designates as a whole a hollow feed-plunger arranged to reciprocate vertically through the aperture 6 of the hopper, said plunger consisting, as best shown in Fig. 6, of a hollow cylindric or tube-like body open at both ends and united at its upper end with an operating-stem by means of a pair of arms 15 so constructed and arranged as to interfere as little as possible with the entrance of carbid to the upper end of the plunger.

16 designates a cylindric housing or sleeve connected at its upper end with the top wall 17 of the hopper or with other suitable support and arranged to depend thence downwardly, so as to inclose the feed-stem and upper end portion of the feed-plunger when the latter is in elevated position, said housing 16 being made of an internal diameter somewhat greater than the external diameter of the feed-plunger, so as to afford a free working annular space 18 between said parts and terminating at its lower end at a sufficient distance above the lower end of the hopper or feed-aperture to permit the pulverulent carbid to flow freely downwardly past said lower end and through the feed-aperture when the plunger is in lowered position, so as to permit such feeding operation. The feed-plunger 14 is arranged to work through a yielding diaphragm or gasket member 19, consisting of a soft-rubber ring having its inner margin, which rubs against the exterior of the feed-plunger, made relatively thin or brought to a blunt knife-edge, so as to create as little frictional resistance as practicable, and mounted within a cup-shaped casing 20 upon the lower end of the carbid-hopper. In order that the ring may be compressed, so as to reduce the diameter of its opening from time to time as it is worn away by the plunger, the casing 20 is provided with a lower end cap-ring 21, threaded thereon and having a portion 22, which underlies the lower surface of the ring and is adapted to compress the latter within its housing as the ring is screwed farther upon the housing.

The feed-plunger is operated through the medium of an expansible and collapsible gas-holder, (designated as a whole 23 and located in the upper part of the hopper member above the partition 17 therein.) Conveniently and as shown herein said gas-holder comprises an inner rigid ring 24, mounted upon and secured to the partition 17, and a collapsible inverted cup-shaped sheet-rubber member 25, having its lower margin secured to the exterior of the ring 24 by means of an outer clamping-ring 26, such a construction enabling the upper side of the gas holder or bag to descend or to collapse until it rests in contact with the bottom wall of the holder formed by the partition 17. Upon the upper side of the gas-holder is mounted a flat disk or rigid member 27, (forming in the present instance the bottom wall of a reducing-valve,) and with the center of this rigid disk 27 is connected the upper end of the stem of the feed-plunger. This connection is conveniently formed by means of a nut 28, externally threaded to engage a correspondingly-threaded aperture in the lower side of the reducing-valve and provided with a radial flange 29, which serves to clamp the margins of the aperture in the rubber bag, through which said nut is inserted against the superposed disk, so as to form a gas-tight union, said nut being provided with a central aperture threaded to receive the upper end of the feed-plunger stem, as indicated at 30.

The gas-holder is deflated and the connected feed-plunger caused to descend into feeding position by the action of a spring thereon, said spring consisting in the present instance of a coiled contractile spring 31, mounted upon the plunger-stem and having its upper end suitably connected with a nut or ring 32 upon the upper end of said stem and having its lower end connected with a relatively fixed collar 33, mounted in the lower end of the tubular housing 16 and held against upward movement therein by means of a ledge or flange 34 upon the inner wall of the housing, with which a radially-extending portion or flange 35 of said collar engages.

The length of the feed-plunger and its relation to the gas-holder with which it is connected are such that as the upper side of the gas-holder approaches the lower limit of its movement—*i. e.*, when it is nearly deflated—the upper end of the hollow feed-plunger is brought below the lower end of the tubular housing 16 and the carbid flows from the hop-

per into the hollow plunger and through the same.

In order to prevent the water from splashing upward into the feed mechanism, I have devised a yielding diaphragm, which normally forms a complete partition between the generating-chamber and the feed-chamber 4, this diaphragm being arranged to extend across the tubular passage 11. In its preferred construction said diaphragm consists of a sheet or disk 36 of flexible rubber having its periphery secured to the tubular extension 11 by means of a suitable clamping-screw 37 and provided inside of its margins with a plurality of intersecting cuts or slits 38 (two in the present instance) arranged at right angles to each other and forming four flaps or points 39, which owing to natural resiliency of the rubber normally stand in the same plane with each other, and therefore form a closed diaphragm separating the generating-chamber above. This diaphragm is so located with reference to the lower end of the feed-plunger that as the latter approaches its lower limit and reaches a lower point, where the carbid begins to flow into the stem, it engages the rubber diaphragm and forces the flaps 39 downwardly, thereby opening a passage through the diaphragm and permitting the carbid to flow freely into the reservoir. The generation of gas from the pulverulent carbid is almost instantaneous, and the production of gas immediately reinflates the gas-holder, thus withdrawing the feed-plunger, and as the feed-plunger rises the resiliency of the rubber diaphragm causes the flap portions thereof to close, so that the opening through this diaphragm is only momentary and only at such times as carbid is actually descending from the feed-plunger, so that there is practically no opportunity whatever for the water to splash up into the feed mechanism.

In order to provide passage for the gas generated from the generating-chamber, a plurality of apertures 40 are formed through the cap member 8 at points outside of the tubular extension 11, so that the gas may escape without opening the diaphragm. From the chamber 4 the gas is carried up through the hopper and conveniently, by means of a tube 41, extending through the bottom wall of the hopper into said chamber 4, rising at its upper end to a point near the upper wall of the hopper. Within the upper part of the hopper the gas is brought into contact or intimate relation with the extended body of carbid therein and is thus very effectually dried. From the upper part of the hopper the gas passes into the tubular housing 16 through apertures 42 and thence upwardly through said housing into the gas-holder, passing from the latter into the hollow stem 15′ of the feed-plunger through suitable apertures 43 and thence into the reducing-valve through a valve-controlled passage 44, which communicates with the reducing-valve, (designated as a whole 45.) Describing said reducing-valve in detail, its lower disk-shaped bottom wall 27, hereinbefore referred to, is provided with a marginal upstanding rim 46, forming the side walls of the valve, and to the top margin of this upstanding rim is secured a convex top wall 47, provided at its center with a stem 48, which extends out through an unthreaded opening in the top casing 2′ of the generator. Between the periphery of the top wall 47 and the upper margin of the side wall 46 of the valve is secured a flexible diaphragm 49, forming a hermetical partition between that part of the valve-chamber below said diaphragm and the portion above. With the central portion of this diaphragm 49 is connected a rigid body or disk 50, with which is connected a valve-stem 51, extending downwardly through the lower valve-chamber and provided at its lower end with a valve-plug 52, which controls the passage 44 between the hollow valve-stem and the valve-chamber.

53 designates a relatively long plate-spring having its inner end arranged to rest upon the upper side of the valve-diaphragm, so as to exert a downward tension thereon, which tends to open the valve-passage leading thereto and extending outwardly through the inclined top wall of the valve-chamber and connected with an adjusting block or support 54 of peculiar construction, as best indicated in Fig. 4. As shown in Fig. 4, the spring 53 is provided with an arm portion 55, extending substantially at right angles to the main body of the spring and connected with the latter by means of a coil or turn 56, which serves as an eye, whereby the spring is pivotally connected with the support 54 and affords additional resiliency in the spring-body as a whole. The arm portion 55 is engaged with an adjusting-screw 57, threaded into the support 54 at right angles to the arm, so that by turning said screw inwardly or outwardly it will act upon the spring bell-crank fashion to vary the tension upon the valve-diaphragm. The reducing-valve is provided at one side with a suitable nipple 58, communicating with the space below the diaphragm, and with this nipple is connected a flexible rubber tube 59, the opposite end of which connects with the upper end of a pipe 60, which extends downwardly through the hopper adjacent to one of the side walls thereof and thence to a headlight, (designated as a whole 62,) said pipe 60 being provided at a point outside of the hopper with a controlling-cock 61.

The headlight 62 may be of any suitable or preferred construction, that shown herein consisting of an ordinary conical or bell shaped chamber provided at its rear end with a suitable reflector 63 and closed at its outer flaring end by means of a suitable lens 64, said headlight as a whole being conveniently supported from the main generator by means of a

bracket 65, attached to the waist portion 3 thereof, as indicated at 66. The bracket 65 is provided with a gas-passage 67, with one end of which the lower end of the pipe 60 communicates and with the opposite end of which communicates a nozzle 68, extending upwardly within the headlight-chamber and provided with a suitable burner-tip 69. The upper side of the headlight is provided with a suitable hood or chimney 70, which may be of any desired construction.

In order that the feed mechanism may be locked in closed position, so as to prevent the access of carbid to the generating-chamber and at the same time relieve the gas-holder from the tension of the spring thereon, the stem 48 of the reducing-valve is arranged to extend freely through the top of the casing, but is threaded and provided with a lock-nut 71, which may be adjusted downwardly thereon, so as to rest upon the top wall of the upper side of the casing and hold the reducing-valve and connected feed-plunger in their uppermost positions. In order that this adjusting-nut may remain in whatever position of adjustment it is placed upon said threaded stem, the latter is provided at one side with a flattened portion 72, (see Fig. 3,) extending through its length, and across the upper side of the lock-nut is extended a flat spring 73, which engages said flattened portion yieldingly and serves to hold the nut from rotation unless moved positively by the fingers, although permitting it to be turned for adjustment.

The general operation of the generator constructed as herein described has been sufficiently set forth in connection with the description of the mechanism to be clearly understood. It is to be noted, however, that the peculiar manner in which the carbid is controlled and fed from the hopper is not only novel, but a feature of much importance. As the plunger descends, so as to bring its upper end below the end of the housing or sleeve 16, the carbid begins to pour in over the upper edge of the plunger and fall downwardly through the same, and this operation will continue as the plunger descends until sufficient carbid has been dropped through the yielding diaphragm, which at the time the carbid is pouring into the plunger will be forced open, to generate a volume of gas and reinflate the gas-holder, thereby raising the plunger and interrupting the feed. While it is true that the hollow plunger forms no check to prevent the flow of gas (which will obviously be more or less moist) upwardly through the plunger, yet this gas will not reach the body of carbid within the hopper except through the very narrow annular space between the exterior of the plunger and interior of the surrounding sleeve and through the gas-ports 42 above the upper surface of the carbid. As to that portion of the gas which reaches the carbid through the annular space surrounding the plunger, the amount of carbid thus exposed is insignificant, and, furthermore, whatever carbid is thus acted upon will be the very first carbid to be dropped in the next succeeding feeding operation, so that there is no possibility of any considerable body of carbid becoming slaked, so as to prevent its free feeding. Moreover, whatever particles of carbid adhere to the exterior of the plunger by reason of this slight slaking action within this annular space will be immediately rubbed off by the frictional engagement of the rubber ring 19 as the plunger descends, so that the feed mechanism will be kept entirely free, and to all practical intents the gas will be excluded from the hopper, except as it is admitted to the upper part of the hopper intentionally and for the purpose of drying it before it is admitted to the gas-holder. It is to be further noted that the engagement of the upper end of the plunger with the fixed ring or nut 33 serves to positively arrest the upward movement of the plunger before the latter rises far enough to carry its lower end above the rubber diaphragm-ring 19. By reason of the peculiar construction of the hollow plunger it will be seen that a relatively large and free feed-opening is provided for the escape of the carbid when the plunger is lowered, notwithstanding the operative parts of said feed mechanism are relatively small, and this is a feature of the utmost importance in a generator of this character, for the reason that it is extremely difficult to secure uniform feeding of pulverulent carbid unless such free escape be provided.

In Fig. 5 I have shown a modified embodiment of my invention in which the principal parts of the generator are constructed and arranged like that shown in Figs. 1 to 4. In the present instance, however, the generator is so constructed that the pressure of gas supplied to the burner is due to the combined effect of a spring acting upon the gas-holder in the same manner as in the former instance and the hydrostatic pressure of a column of liquid communicating with the reservoir. In the present instance also I have dispensed with the guarding-diaphragm, which serves to prevent the splashing of the liquid upwardly into the feed mechanism in the previously-described device, and have provided a modified construction of parts which coöperate with the gas-pressure to prevent the rise of the liquid to a point where it would be apt to reach the feed mechanism.

Referring to said Fig. 5, like reference-figures are applied to those parts which are constructed substantially identical with those of the first-described generator, the modified features being, however, differently designated. 1 designates as a whole the lower receptacle, constituting the reservoir, which is provided at its upper side with a contracted

tubular or cylindric extension 7′, within which is arranged to fit a sleeve or annulus 74, provided at its lower end with an inturned flange portion 75 and at the inner margin of this portion with a returned or upstanding flange portion 76, the space between the main body of the ring and the returned flange portion 76 forming an annular groove within which is seated a packing-ring 77. The ring or member 74 is secured within the extension 7′ by means of a plurality of through pins or screws 78, and the lower end of the contracted or waist portion 3 of the generator is threaded to fit within said member 74 and to impinge at its lower edge against the packing-ring 77 to form a gas-tight union. The internal side of the flange portion 76 is screw-threaded, and within this is seated a ring-shaped casting 79, having a flaring or bell-shaped upper end 80 of somewhat greater diameter than the feed-plunger 14′, so as to receive the carbid discharged by the latter and direct it all downwardly through said ring or guide. Upon the lower portion of the member 79 is supported a depending tubular extension 81, arranged concentric with the opening through the ring and having its lower open end arranged to terminate a considerable distance below the normal level of liquid within the reservoir. 82 designates a stand-pipe arranged to communicate with the lower portion of the reservoir and rising at its upper end to a point substantially coincident with the height of the generator, this stand-pipe being conveniently supported in suitable upright position by being provided with a bent portion 83, which extends through a supporting-nut 84, seated in the side wall of the generator at such point as to cause the bent portion of the stand-pipe to intersect the side wall of the generator substantially at right angles. The capacity of the stand-pipe is desirably made about equal to the capacity of the space within the reservoir above the normal or working liquid-level therein when the generator has been supplied with a full charge of liquid, so that before generation of gas has commenced and the liquid within reservoir and stand-pipe remains at the same level the liquid will not rise above the mouth of the funnel or guide-ring 79. The upper end of the stand-pipe 82 is closed by a suitable screw-plug 85, through which is formed a vent 86, controlled by an upwardly-closing valve 87, and within the stand-pipe is arranged a float 88, which is adapted to rise into engagement with said valve and closing-vent, so as to prevent the escape of liquid when the internal gas-pressure rises above the pressure exerted by the hydrostatic head due to the difference in height of the stand-pipe and reservoir. The operation of this generator is substantially the same as that previously described, except that in the present generator the pressure of gas generated serves not only to inflate the gas-holder against the tension of the spring acting thereon, but also serves to depress the level of the liquid within the tubular extension 81 and forces the liquid upwardly within the stand-pipe, thereby keeping the level of the liquid within the tubular extension normally at a point near its lower end and far enough away from the feed mechanism to prevent its splashing upwardly against the plunger. The contracted passage through the funnel-shaped guide-ring 79 obviously serves to further prevent the liquid from splashing inwardly into or against the feed mechanism, so that I am enabled to dispense with the yielding diaphragm shown in the form of construction. Whenever the gas-pressure within the generator rises high enough, the float 88 engages and closes the valve in the upper end of the stand-pipe, and thereafter the liquid being prevented from yielding further under the gas-pressure the entire pressure will be transmitted to the expansible gas-holder and the spring controlling the latter.

While I have herein throughout the description referred to that member which controls the flow of carbid from the hopper to the generating-chamber as a feed-plunger, it will be obvious that it constitutes, in effect, a valve member and is thus referred to in the broader claims on this feature. It will be obvious that this feature of the invention in particular is capable of wide application and is not in any sense limited to a generator of the portable type or of the type herein set forth; but, on the contrary, it is capable of adaptation to any generator wherein pulverulent carbid is fed to a saturating-chamber. Likewise that feature of the invention comprising the stand-pipe, whereby hydrostatic pressure is caused to act in conjunction with spring tension against the pressure of the gas generated, is also capable of different adaptations. I do not, therefore, wish to be limited to the details of construction set forth herein, except as the same are made the subject of specific claims.

I claim as my invention—

1. In a carbid-feed acetylene-generator, the combination with a generating-chamber provided with an inlet-passage through which pulverulent carbid is fed intermittently, of a diaphragm-like screen extending across said inlet-passage, provided with a normally closed yieldable opening, and means for positively forcing said passage open during the admission of carbid.

2. In a carbid-feed acetylene-generator, the combination with a generating-chamber provided with an inlet-passage through which pulverulent carbid is fed intermittently, of a resilient screen extending across said inlet-passage, provided with a slit-like opening, and means for positively opening the aperture through said screen during the admission of carbid to the generating-chamber, compris-

ing a rigid member coöperating with the feed mechanism and actuated to engage the diaphragm during the feeding operation.

3. In a carbid-feed acetylene-generator, the combination with a generating-chamber within which gas-generating elements are brought together, of a flexible resilient screen arranged to control the conflux of said elements, provided with a slit-like normally closed opening, and means operating automatically to force the opening of said screen open during determined intervals, substantially as described.

4. In an acetylene-generator, the combination with a generating-chamber, of a sheet-rubber diaphragm, provided with a normally closed opening formed by intersecting slits or cuts, as and for the purpose set forth.

5. In a carbid-feed acetylene-generator, the combination with a lower generating-chamber, an elevated carbid-hopper provided with a discharge-passage leading to the generating-chamber, of a hollow open-ended feed-plunger working through said discharge-passage to control the flow of carbid therethrough, the carbid flowing through the hollow plunger when said plunger is depressed, and a diaphragm-like screen provided with a slit-like normally closed aperture extending across the passage between the hopper and generating-chamber below said hollow feed-plunger, and adapted to be opened by the latter when in lowered position, whereby the carbid will flow from the hopper to the generating-chamber through the hollow plunger, substantially as described.

6. In an acetylene-generator, the combination with lower and upper receptacles, and a contracted or waist member uniting said upper and lower members, of means for detachably uniting said members, comprising a casting, as 8, forming the top portion of said lower member, and provided with the inner and outer tubular or cylindric portions, 9 and 11, the former having screw-threaded engagement with the lower end of the contracted portion uniting said upper and lower members, and the packing-ring, 12, arranged within the annular depression of said casting, substantially as described.

7. In an acetylene-generator, the combination with lower and upper receptacles, and a contracted or waist member uniting said upper and lower members, of means for detachably uniting said members, comprising a casting, as 8, forming the top portion of said lower member, and provided with the inner and outer tubular or cylindric portions, 9 and 11, the former having screw-threaded engagement with the lower end of the contracted portion uniting said upper and lower members, and the packing-ring, 12, arranged within the annular depression of said casting, and the elastic screen, 36, extending across the tubular member, 11, substantially as described.

8. In an acetylene-generator, the combination with a lower saturating-chamber, a carbid-hopper supported above said saturating-chamber and automatically-operating feed mechanism controlling the passage between the carbid-hopper and the saturating-chamber, of a partition extending across the upper portion of said hopper, an expansible and collapsible gas-holder arranged above and in part formed by said partition, a tubular housing supported from the lower side of said partition and extending downwardly within the hopper, an operating-stem connected with the valve member of the feed mechanism and extending up through said tubular housing and through said gas-holder, a reducing-valve mounted upon the upper side of said gas-holder and operatively connected with the upper end of said operating-stem, and a coiled spring arranged concentrically with the operating-stem and acting to deflate the gas-holder, a locking-stem connected with the upper side of said reducing-valve and sliding freely through the top wall of the generator, and a locking-nut upon said locking-stem, substantially as described.

9. In an acetylene-generator, the combination with a generating-chamber adapted to contain liquid within which the carbid is plunged, of a stand-pipe communicating with the liquid-space of said generator and arranged to extend to a height considerably above the top of the generating-chamber, the capacity of said stand-pipe being less than the capacity of the space within the generator above the normal liquid-level therein, substantially as and for the purpose set forth.

10. In an acetylene-generator, the combination with a generating-chamber adapted to contain liquid, of a stand-pipe communicating with the liquid-space of said generating-chamber, provided in its upper portion with a vent, a valve arranged to control said vent, and a float within the stand-pipe adapted to close said valve when the liquid-level rises above a predetermined point, substantially as described.

11. In an acetylene-generator, the combination with a generating-chamber adapted to contain liquid, and provided in its upper portion with a tubular housing forming a well extending downwardly from the carbid-inlet at the upper side of the generator, and having its lower end sealed by the liquid within the generating-chamber, of a stand-pipe communicating with the liquid-space of said generating-chamber, and rising to a substantial height above the generating-chamber whereby the hydrostatic pressure of the liquid within the stand-pipe operates against the gas-pressure generated within said well, substantially as described.

12. In an acetylene-generator, the combination with a lower font or liquid-reservoir constituting a generating-chamber, a hopper sup-

ported above said generating-chamber and an expansible gas-holder in the upper part of said hopper, feed mechanism arranged to control the flow of carbid from the hopper to the generating-chamber and actuated by the inflation and deflation of the gas-holder, a well or tubular housing arranged concentric with the carbid-inlet of the generating-chamber and extending at its lower end below the normal liquid-level within said generating-chamber, a stand-pipe communicating with the lower part of said generating-chamber and rising alongside of the generator to a height substantially above the generating-chamber, a vent in the upper part of said stand-pipe, a float-operated valve controlling said vent, and a spring arranged to act upon the gas-holder to deflate the same, combined and operating substantially as set forth and whereby the combined hydrostatic pressure and spring tension operate against the pressure of gas.

13. In a carbid-feed acetylene-generator, the combination with a generating-chamber provided with an inlet-passage through which carbid is fed, of a diaphragm-like screen extending across said inlet-passage said diaphragm normally preventing the passage of the carbid and means for flexing said diaphragm to permit the passage therethrough of the carbid.

14. In a carbid-feed acetylene-generator, the combination with a generating-chamber provided with an inlet-passage, a diaphragm-like screen extending across said inlet-passage and provided with a normally closed yieldable opening, a tubular feed-valve through which carbid may be fed, and means whereby said valve will forcibly open the passage through the diaphragm during the feeding of carbid.

15. A gas-generator comprising a generating-chamber provided with an inlet-passage, a carbid-holder, a diaphragm-like screen across said inlet-passage, a tubular feed-valve, means operated by changes in gas-pressure for moving said feed-valve to open the diaphragm-like screen.

16. A gas-generator comprising, a carbid-holder provided with a feed-passage, a tubular feed-valve working therethrough, means coöperating with one end of said tubular feed-valve to prevent the passage of carbid therethrough, a generating-chamber provided with an inlet-passage, a diaphragm-like screen arranged across said inlet-passage and provided with a normally closed yieldable opening, said screen being adapted to be opened by the tubular feed-plunger during the feeding of carbid.

17. A gas-generator comprising, a carbid-holder provided with a feed-passage, a tubular valve working through said feed-passage, means coöperating with said valve to control the flow of carbid therethrough, a generating-chamber provided with an inlet through which carbid is fed, a diaphragm-like screen extending across said passage said diaphragm normally preventing the passage of the carbid and adapted to be flexed by the tubular feed-valve during the feeding of carbid.

18. In a carbid-feed acetylene-generator the combination with a generating-chamber provided with an inlet-passage through which carbid is fed, a diaphragm-like screen extending across said passage and provided with a normally closed yieldable opening, and means for positively forcing said passage open during the admission of carbid, and a depending flange within the generating-chamber and extending below the normal water-level therein and forming a protected water-compartment having an open bottom into which the carbid flows through the yieldable diaphragm.

19. A gas-generator, comprising a generating-chamber provided with an inlet through which carbid may be fed, a screen across said opening and normally preventing the upward passage of liquid from the generating-chamber, means for opening said screen during the feeding of carbid, and a depending part extending below the normal level of the water in the generating-chamber, and forming a protected water-compartment into which the carbid flows.

20. A gas-generator comprising, a carbid-holder provided with a discharge-aperture, a valve controlling said aperture, an expansible and collapsible gas-holder, means connecting the feed-valve to the movable wall of said holder, a generating-chamber formed with a carbid-inlet, a screen formed of a plurality of parts normally closing said inlet and arranged to be opened by the feed-valve when the carbid-discharge aperture is open.

21. A gas-generator comprising, a carbid-holder provided with a discharge-aperture, a plunger-valve working in said aperture and controlling the flow of carbid, means operated by gas-pressure for operating said valve, a generating-chamber having a carbid-inlet, a yieldable screen normally closing said inlet and arranged to be opened by the plunger when the carbid-discharge aperture is opened.

22. A gas-generator comprising, a carbid-holder provided with a discharge-aperture, a plunger-valve working in said aperture and controlling the flow of carbid, means operated by gas-pressure for operating said valve, a generating-chamber having a carbid-inlet, a yieldable screen formed of a plurality of parts normally closing said inlet and arranged to be opened by the plunger when the carbid-discharge aperture is opened.

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