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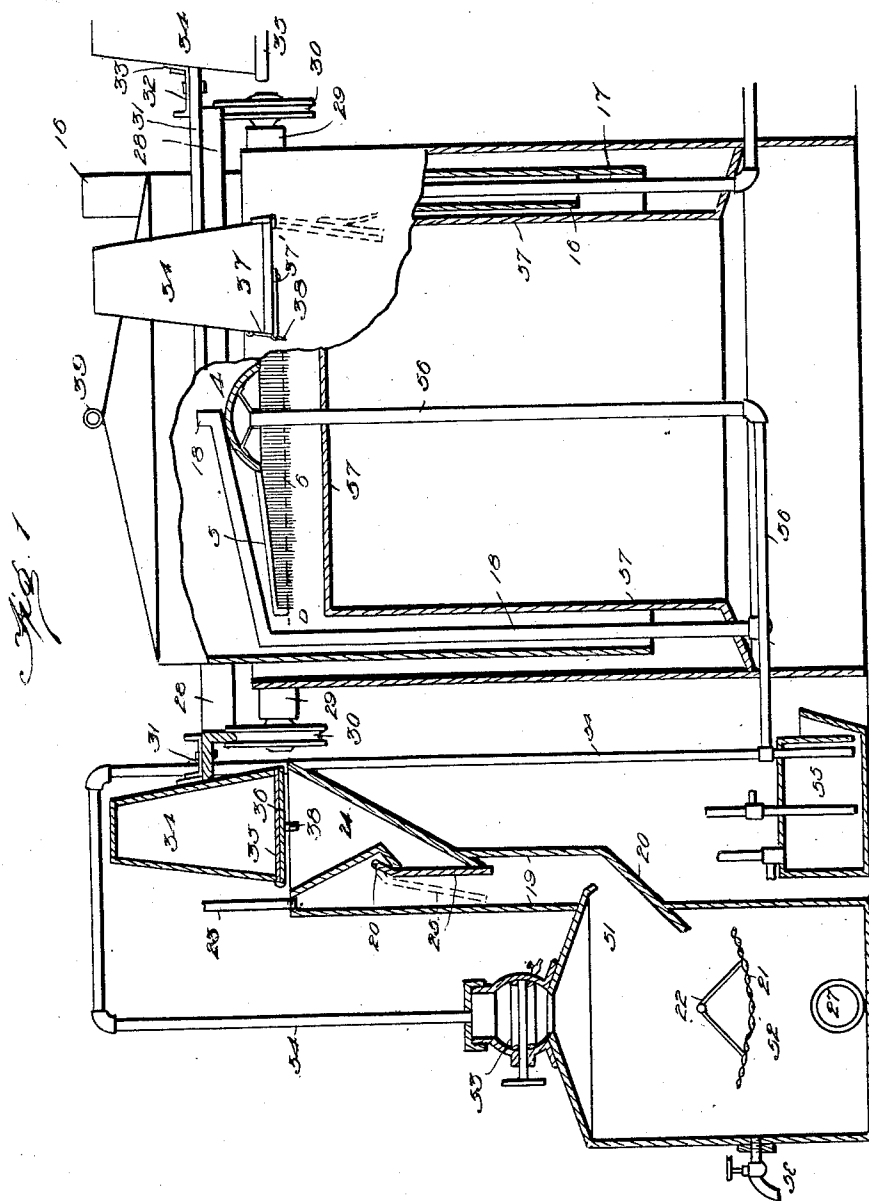
Patented Aug. 6, 1901.

T. B. RIDER.
ACETYLENE GAS GENERATOR.

(Application filed Oct. 23, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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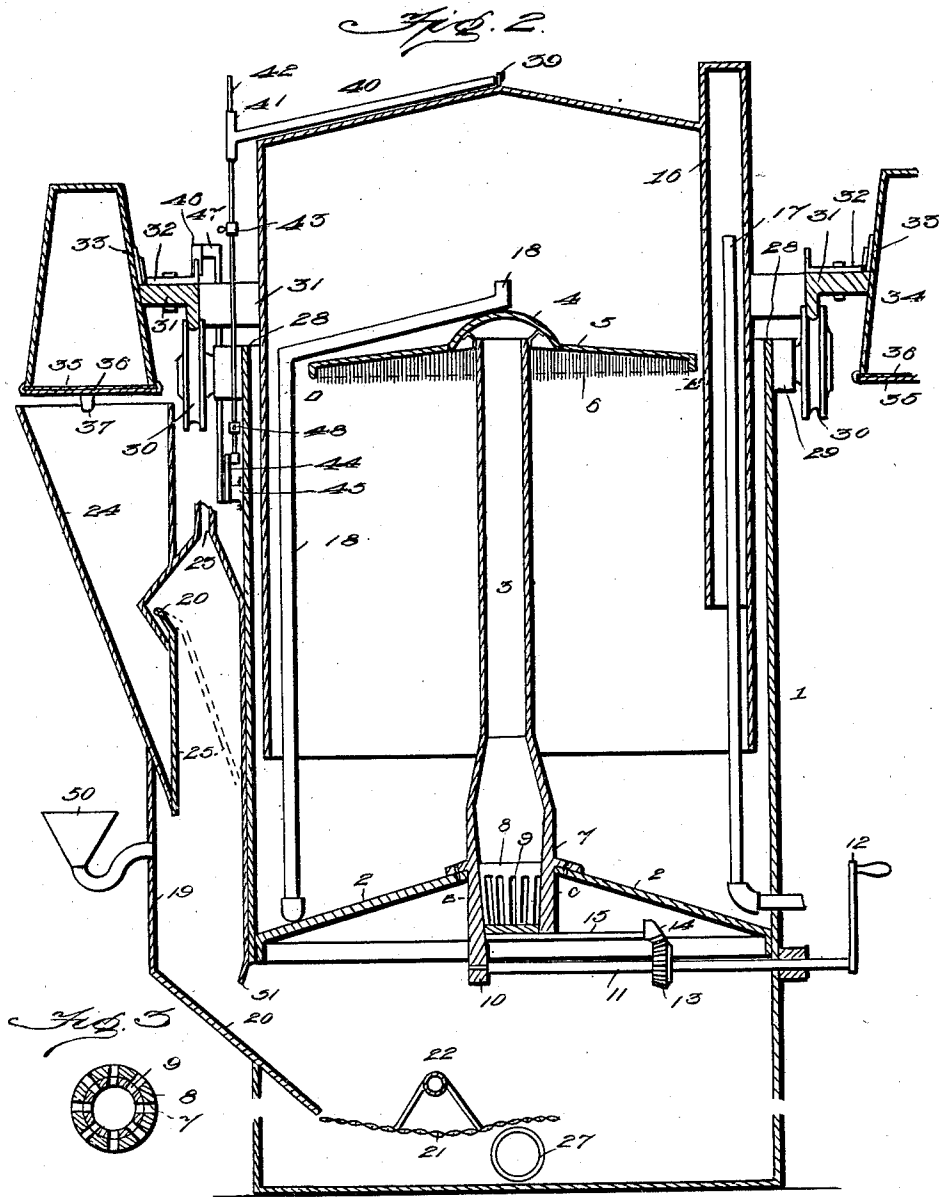
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3 Sheets—Sheet 2.



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Fig. 4.

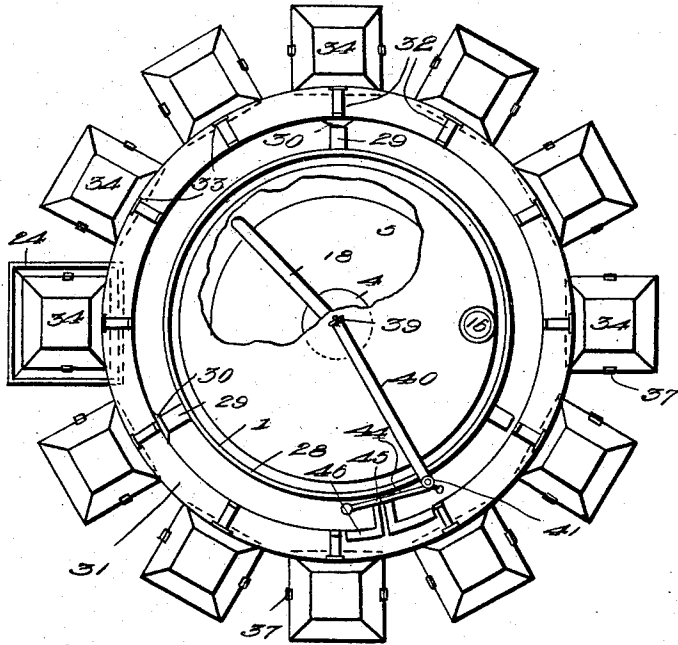


Fig. 5.

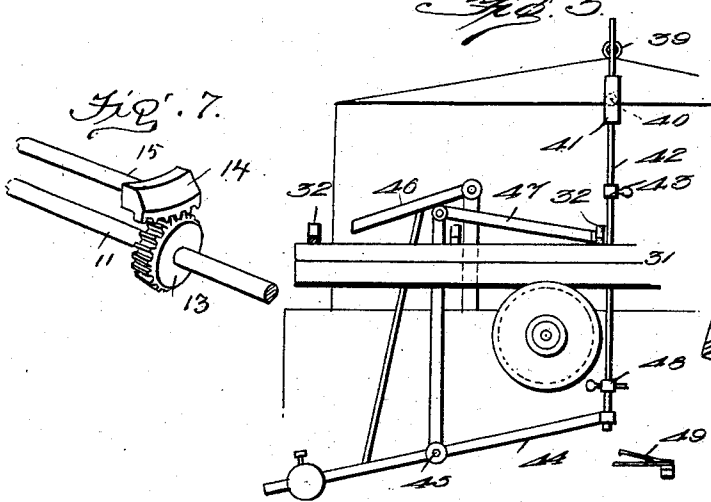


Fig. 6.

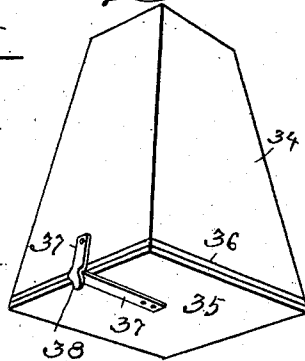
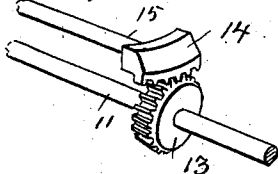


Fig. 7.



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UNITED STATES PATENT OFFICE.

TIMOTHY B. RIDER, OF FITCH BAY, CANADA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 679,862, dated August 6, 1901.

Application filed October 23, 1900. Serial No. 34,094. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY B. RIDER, a subject of the Queen of Great Britain, residing at Fitch Bay, in the Province of Quebec, Canada, have invented new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

This invention relates to new and useful improvements in acetylene-gas generators, and is more particularly an improvement upon Letters Patent granted to David L. Baumgarten May 8, 1900, No. 648,910.

The invention has for its object to provide means of novel construction whereby the carbide may be fed in equal quantities to the generator automatically as soon as the supply of gas within the bell of the gasometer is about exhausted, said feed being operated by the up-and-down movement of the said bell.

A further object is to provide receptacles for the carbide which are provided with hinged air-tight bottoms adapted to open automatically when brought to a fixed position above the hopper of the generator.

Another object is to provide means in the feeding-slide for controlling the escape of gas arising from the first contact with water of the carbide while on its way to the generator.

Another object is to so construct the interior of the generator as to prevent the carbide from mixing with the slaked material upon the bottom of the receptacle until after all the gas has been evolved therefrom.

Another object is to provide a gasometer whereby a minimum amount of water will provide sufficient water seal, and thereby reduce the weight of the apparatus and facilitate its filling.

Another object is to provide an alarm adapted to ring automatically when the bell of the gasometer approaches the downward limit of its movement.

Another object is to provide a device to filter the gas while passing from the generator to the gasometer.

Another object is to provide a device to close all communications between the gasometer and the generator while emptying and refilling the generator and so arranged as to prevent the escape of gas from the gasometer.

Another object is to provide a device, in combination with a check or stop dog, con-

trolling the movement of the carriage carrying the carbide-holders.

These objects are attained by combinations of parts described in the general description.

Rollers are journaled upon the side of the gasometer and support a circular carriage having brackets secured upon the upper surface thereof at regular intervals. Each bracket supports a receptacle of particular construction having a hinged bottom, which is adapted to be opened automatically when the same arrives at a fixed position above the hopper. Said brackets also provide teeth or studs and are arranged upon the carriage at regular intervals, adapted to be contacted by a dog which is pivotally mounted at one end of a bell-crank lever. This lever is pivoted to the body of the machine and is adapted to be swung upon its pivot by the up-and-down movement of the bell of the gasometer. Suitable means are also provided for controlling the movement of the carriage. A hopper is arranged at one side of the gasometer and is provided with a valved outlet opening into the generator, said hopper being adapted to discharge the material admitted thereto upon a screen suitably located at a point therebelow. A tube extends upward from the bottom of the gasometer and is provided at the lower end with a valve of peculiar construction which is opened and closed by means of a crank or other suitable device located upon the outer side wall of the generator. On top of that tube, being in the gasometer, is a filter, catching all dusts that may be carried by the gas.

The invention also consists in the further novel construction and combination of parts, which will be hereinafter fully described, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a side view of a vertical section of a machine embodying my invention and in which form the generator is outside the gasometer. Fig. 2 is a vertical section of a machine embodying my invention, in which form the generator is under the gasometer. Fig. 3 is a horizontal cross-section of valve 8, Fig. 2, at line B C. Fig. 4 is a top view of a machine embodying my invention. Fig. 5 is a detail side view of a portion of the carriage,

showing the operative mechanism. Fig. 6 is a detail view of a carbid-receptacle detached, and Fig. 7 is a similar view of a portion of the valve-operating mechanism.

- 5 Referring to the drawings, in which similar figures refer to similar parts throughout the several views, 1, Figs. 1, 2, and 4, is the wall of the generator and gasometer and is preferably cylindrical, as shown in the drawings.
- 10 A partition 2, Fig. 2, which is inclined upward toward the center, is arranged within the cylindrical casing at a point between the ends thereof, and fitted at the center of this partition is a tube 3, Fig. 2, which extends
- 15 upward to a point above the upper end of the casing and is covered with a cap 4, Figs. 1, 2, and 4, which extends thereover, and the edges of which are a trifle over the surface of the water contained within the gasometer.
- 20 Said cap 4 is surrounded by an elastic fabric, which forms a circular apron 5, floating on the water in the gasometer, the under surface of which apron is villous, provided with suitable fibrous pendants 6, through which
- 25 the gas is forced, and consequently filtered.

The bottom of the tube 3 is enlarged and inclined inwardly at the lower end, the inner inclined surface 7, Figs. 2 and 3, thereof forming a bearing for the valve 8, which is

30 substantially of the form of an inverted frustum of a cone. This valve is provided in the sides thereof with slots 9, which are adapted to register with similar slots formed within the inclined wall 7 of the tube.

- 35 A bracket 10 extends downward from the bottom of the tube 3 and serves as a bearing for the shaft 11, the opposite end of which is journaled within the casing 1 and is provided with a crank 12 or other device, whereby the
- 40 same may be readily revolved. A beveled pinion 13 is mounted upon this shaft 11 and meshes with the teeth formed upon an inclined curved strip 14, which is secured at the outer end of an arm 15, fastened to the bot-
- 45 tom of the valve 8. It will thus be seen that when the shaft 11 is revolved the pinion 13 will cause the strip 14 to swing to one side of the arm 15, carrying the valve therewith and causing the slots thereof to move into or out
- 50 of register with the slots in the tube.

A tube 16 extends downward from the top of the bell of the gasometer, and an exhaust-pipe 17 extends thereinto and is provided with an outlet, which is arranged at

55 any suitable point. A supply-pipe 18 is also arranged within the gasometer and extends from the center of the bell, over the cap 4, above the water-level therein to the point or points of use.

- 60 Formed upon the outer side of the casing at a point above the partition 2 is a preferably rectangular chute 19, the bottom of which is inclined, as at 20, and communicates with the generator at a point near the top thereof.
- 65 The inclined bottom 20 of the chute extends for a suitable distance into the generator and terminates at a point above a wire screen 21,

which is hung from brackets 22, pivoted to the opposite sides of the generator. The chute 19 is provided at its upper end with an

70 outlet 23, which may be connected by a suitable pipe (not shown) to the outside of the building and is adapted to permit of the escape of gas generated within the chute. A

75 hopper 24 is mounted upon the side of the chute 19. A gate 25 is pivoted within the chute 19 at a point 26 above the inlet thereto and extends downward over said inlet and normally closes the same, being held in such

80 position by gravity. A suitable drain 27 is arranged within the bottom of the generator, as shown.

Extending from the sides of the casing 1 of the gasometer, Figs. 1, 2, and 4, at regular intervals and near to the upper edge 28 are studs

85 29, upon which are journaled grooved wheels 30. Mounted upon these wheels is a circular carriage 31, having brackets 32 extending at regular intervals from the upper surface

90 at the inner and outer edge of the rail 31, respectively, the outer end of brackets engaging loops 33, formed upon the inner faces of carbid-receptacles 34. Each receptacle is

95 preferably of the form shown in the drawings and is provided with a bottom 35, having a rim to hold a packing-ring 36, and which bottom is hinged to the side of the receptacle

34 which first arrives at the hopper when the carriage is in operation. This bottom is adapted

100 to be held closed by a catch 37, which is hinged to the side of the receptacle 34 farthest removed from the hinge thereof, said catch

105 engaging in the end of a spring 37', riveted to the bottom 35. The catch is provided with a tongue 38, which extends downward into the path of the hopper.

On top of the gasometer's bell is a ring 39, Figs. 2, 4, and 5, to which is hooked the end of a lever 40. At one end of the lever 40 is

110 a sleeve 41, which slides with the up-and-down movement of the bell along the vertical rod 42. When the bell and the sleeve 41 come down, said sleeve rests upon the adjustable index 43, carries it down with the

115 vertical rod 42 and through the bell-crank lever 44, which is pivoted at 45 on the side of the water-tank, and raises the dog 46 by means of a rod 46', thereby releasing the carriage

120 31. At the same time the bell-crank lever 44 will move the dog 47 forward into contact with the bracket 32 and set the carriage 31 in motion. The retaining-dog 46, which is

125 raised after the dog 47 has moved the carriage partly forward, is pivoted to the water-tank and is so arranged as to normally prevent movement of the carriage in one direction, while the dog 47 prevents movement thereof in the opposite direction.

I preferably provide means for sounding an alarm when the gasometer-bell passes the

130 dumping-mark, the means shown in the drawings comprising an arm 48, adjustably supported on the vertical rod 42, and a pair of contact-springs 49, secured to the water-tank,

but insulated therefrom. These springs form part of an electric circuit, which includes an alarm-bell, (not shown,) and are adapted to be pressed together (to complete the alarm-bell circuit) by the contact therewith of the arm 48.

Operation: Through the funnel 50, Fig. 2, the generator 1 is filled to near the top of said funnel, which will raise the water-level a trifle over the valve 8. The gasometer 1, Figs. 1, 2, and 4, is filled with water to a little below the edge 28, filling the bell to the dotted line D E and plunging in the water the ends of the bristles of the brushy filter 6. Carbide is placed within each of the receptacles 34 and the same closed by forcing the covers until engaged by the catches 37 and then are hung to the outer brackets 32. Carbide is then admitted to the hopper 24, and the weight thereof will force the gate 25 open and permit the material to fall upon the inclined bottom 20 and thence upon the screen 21 within the gasometer. The carbide will first contact with the water, then fall upon the screen 21, and after the same has been completely slaked it will sift through the openings in the screen and fall to the bottom of the generator. The gas generated will rise within the generator. By the flange 51 it will be prevented from going into the chute 19 and will be directed by the inclined partition 2 toward the valve 8. This valve has been previously opened, and as the gas generated will pass through the slots 9 therein and in the wall of the tube and up through said tube into the cap 4 the cap will direct the gas down below the apron 5 and be forced through the filter 6 and then into the bell of the gasometer. The bell will then rise, and should too much gas be generated the surplus will escape through the exhaust-pipe 17. As the gas is drawn away from the bell through the pipe 18 the same will gradually lower and the lever 40 and sleeve 41 will be carried downward therewith. Then the sleeve 41, coming in contact with the index 43, will press down the rod 42, which through the lever 44 will work the dogs 46 first, then 47, and move forward the carriage 31. This carriage will be carried such a distance at each operation of the dog 46 as to bring one of the receptacles 34 to a point above the hopper 24. As the receptacle passes into position over the hopper the tongue 38 of the catch 37 will contact with the edge of said hopper and be forced outward from engagement with the spring 37 of the bottom 35. Said bottom will then promptly swing downward and discharge the contents of the receptacle into the hopper, and the operation of the device will be repeated upon the next operation of the dog 46. As soon as the bell of the gasometer is moved upward by the gas therein the bell-crank lever will swing backward to its normal position and cause the dog 47 to engage with a bracket 32, adjacent to the one last moved forward.

While I have shown the gasometer and

generator formed one above the other within one casing, I do not limit myself to this construction, but, if desired, may arrange the generator at a point without the gasometer. I have shown this construction in Fig. 1. As shown in said figure, the generator 52 is provided with a valve 53 and a tube 54, which extends from the top thereof and which communicates with a washer or trap 55. The hopper, which is substantially such as hereinbefore shown and described, communicates with the generator, and carbide-receptacles are mounted either upon the casing of the gasometer or on the generator and operate in the same manner as before described. The pipe 54 is connected by means of a second pipe 56 with the interior of the gasometer. Said gasometer comprises an inner casing 57, which extends upward into the bell, thereby permitting the use of a minimum amount of water and reducing the weight of the apparatus. All the other parts of said gasometer, Fig. 1, are the same as in Figs. 2, 4, and 5. In the generator 52, Fig. 1, the cut-off valve 53 is to permit the generator to be emptied. A bib-cock 58, Fig. 1, in the side of the generator 52 is to draw off separately from the residuum the upper portion of the water which is supposed to be clean.

Having thus described my invention, what is claimed, and desired to be secured by Letters Patent, is—

1. The combination with a casing having a partition therein forming a generator thereunder and a gasometer thereover; of a bell within the gasometer; a tube extending through the partition into the bell, said tube having slots within the lower end thereof; a slotted valve revoluble within the lower end of the tube; an arm to the valve; a toothed strip thereto; a shaft journaled within the casing; a pinion thereon engaging the strip; and means for revolving the shaft.

2. The combination with a casing having an inclined partition therein forming a generator thereunder and a gasometer thereover; of a bell within the gasometer; a tube extending through the partition and into the bell and having slots within the lower end thereof; a slotted valve within the lower end of the tube; means for turning said valve within the tube and bringing the slots thereof into or out of register with the slots of the tube; a receptacle without the casing and communicating with the generator; an inclined bottom thereto projecting into the generator; a screen suspended within the generator at a point below the inner edge of the inclined bottom; and a hopper communicating with the receptacle.

3. The combination with a casing having an inclined partition therein forming a generator thereunder and a gasometer thereover; of a bell within the gasometer; a tube extending through the partition and into the bell and having slots within the lower end thereof; a slotted valve within the lower end of

the tube; means for turning said valve within the tube and bringing the slots thereof into or out of register with the slots of the tube; a receptacle without the casing and communicating with the generator; an inclined bottom thereto projecting into the generator; a screen suspended within the generator at a point below the inner edge of the inclined bottom; a hopper communicating with the receptacle; a gate hinged above the inlet to the receptacle and normally closing the same; an outlet to the receptacle above the gate and a downwardly-extending flange to the receptacle at the bottom thereof.

4. The combination with a generator and a gasometer having a bell therein; of a hopper; a receptacle connecting said hopper with the interior of the generator; studs projecting from the casing of the gasometer; grooved wheels journaled thereon; a carriage mounted upon the wheels and inclosing the gasometer; brackets upon the carriage; carbid-receptacles detachably secured to the brackets and adapted to automatically discharge their contents into the hopper when registering therewith; a bell-crank lever; a dog pivoted thereto and engaging a bracket; an arm upon the bell adapted to contact with the lever and impart motion to the carriage through the dog; a lever pivoted to the generator and engaging a second bracket of the carriage; and an arm to the bell-crank lever adapted to contact with and release said lever from engagement with the carriage soon after the operation of the bell-crank lever.

5. The combination with a generator and gasometer having a bell therein; of a hopper, a receptacle connecting said hopper with the interior of the gasometer, studs projecting from the casing of the gasometer, grooved wheels journaled thereon, a carriage mounted upon the wheels and inclosing the gasometer; brackets upon the carriage, carbid-recepta-

cles detachably secured to the brackets and adapted to automatically discharge their contents into the hopper when registering therewith, a bell-crank lever, a dog pivoted thereto and engaging a bracket, a second dog operated from the bell-crank lever and adapted to normally prevent forward movement of the carriage, and an arm to the bell of the gasometer adapted to contact with the bell-crank lever and force one of the dogs against a bracket, raise the second dog and move the carriage.

6. The combination with a generator having a bell therein; of a hopper, a receptacle connecting said hopper with the interior of the generator, studs projecting from the casing of the gasometer, grooved wheels thereon, a carriage mounted upon the wheels and inclosing the gasometer, brackets upon the carriage, carbid-receptacles detachably secured to the brackets and adapted to automatically discharge their contents into the hopper when registering therewith, a bell-crank lever, a dog pivoted thereto and engaging the bracket, an arm secured to the bell of the gasometer and adapted to contact with the lever and impart motion to the carriage through the dog, a second dog connected to and operated by the bell-crank lever and adapted to normally prevent the forward movement of the carriage, a bracket to the gasometer, spring-strips mounted thereon and insulated therefrom and from each other, said strips lying in the path of the arm, an alarm, and means for sounding the alarm when the spring-strips are forced into contact with each other by said arm.

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

TIMOTHY B. RIDER.

Witnesses:

ALFRED R. THOMAS,
A. N. THOMASON.