No. 816,776. PATENTED APR. 3, 1906.

O. M. BRAUER.

ACETYLENE GAS GENERATOR.

APPLICATION FILED JULY 19, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

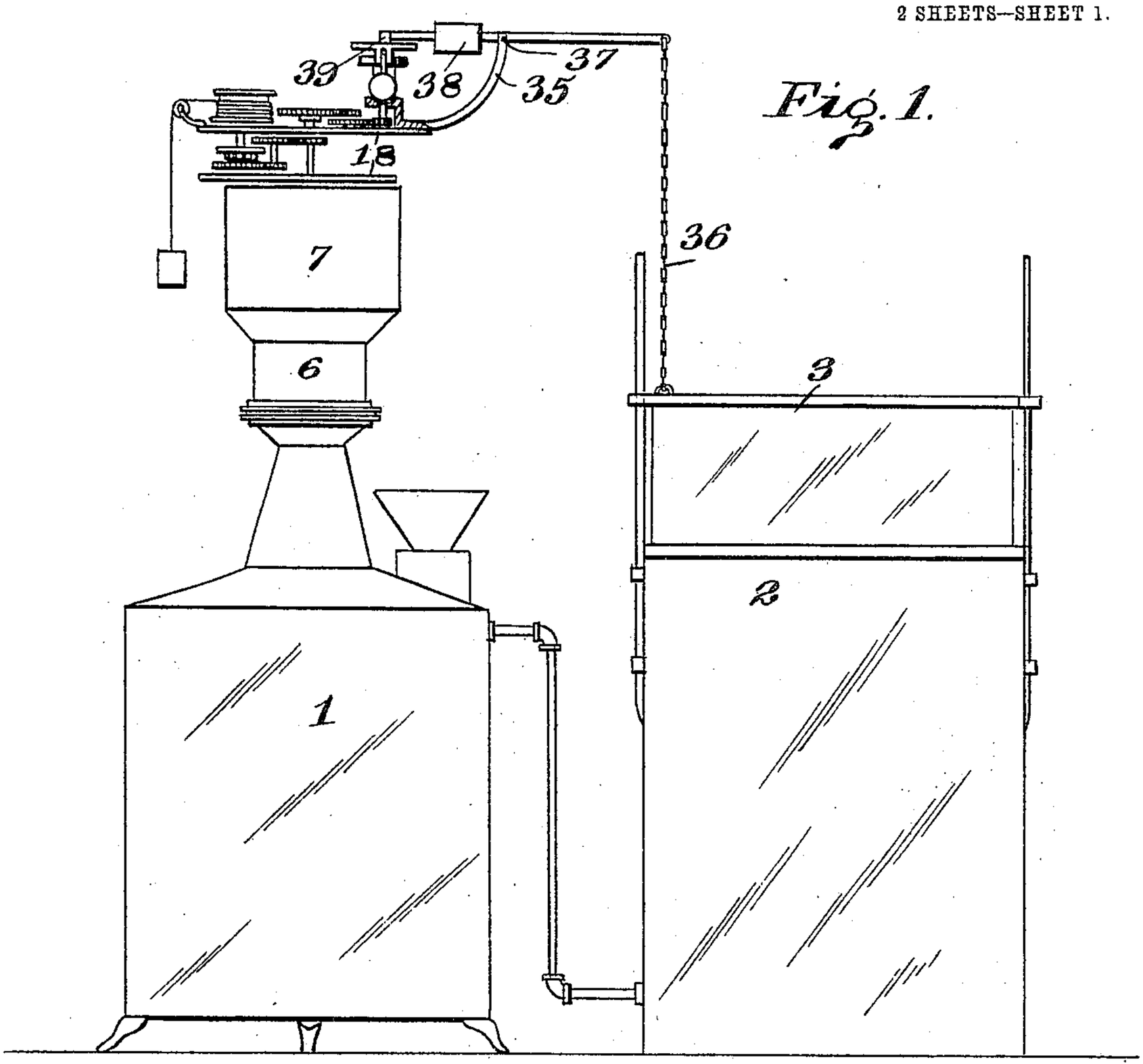
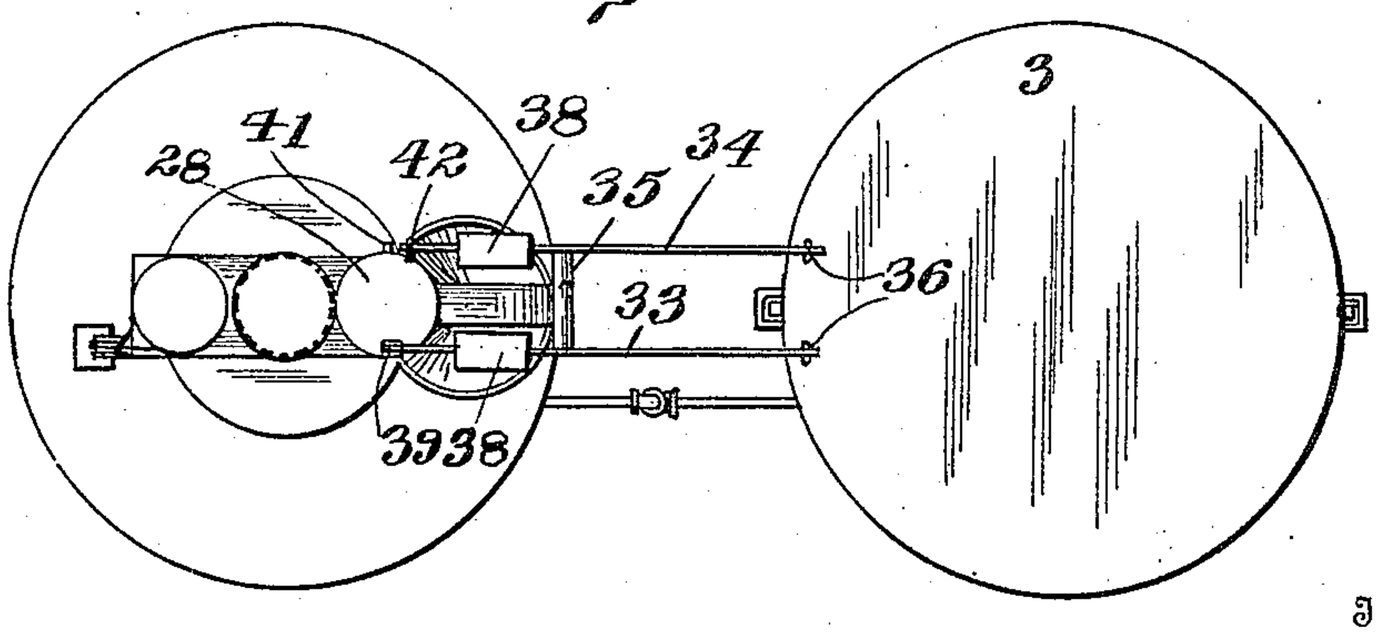


Fig. 2.



Witnesses

W. N. Woodson.

Inventor

Otto M. Brauer

By Thos. A. Lacey, Attorneys

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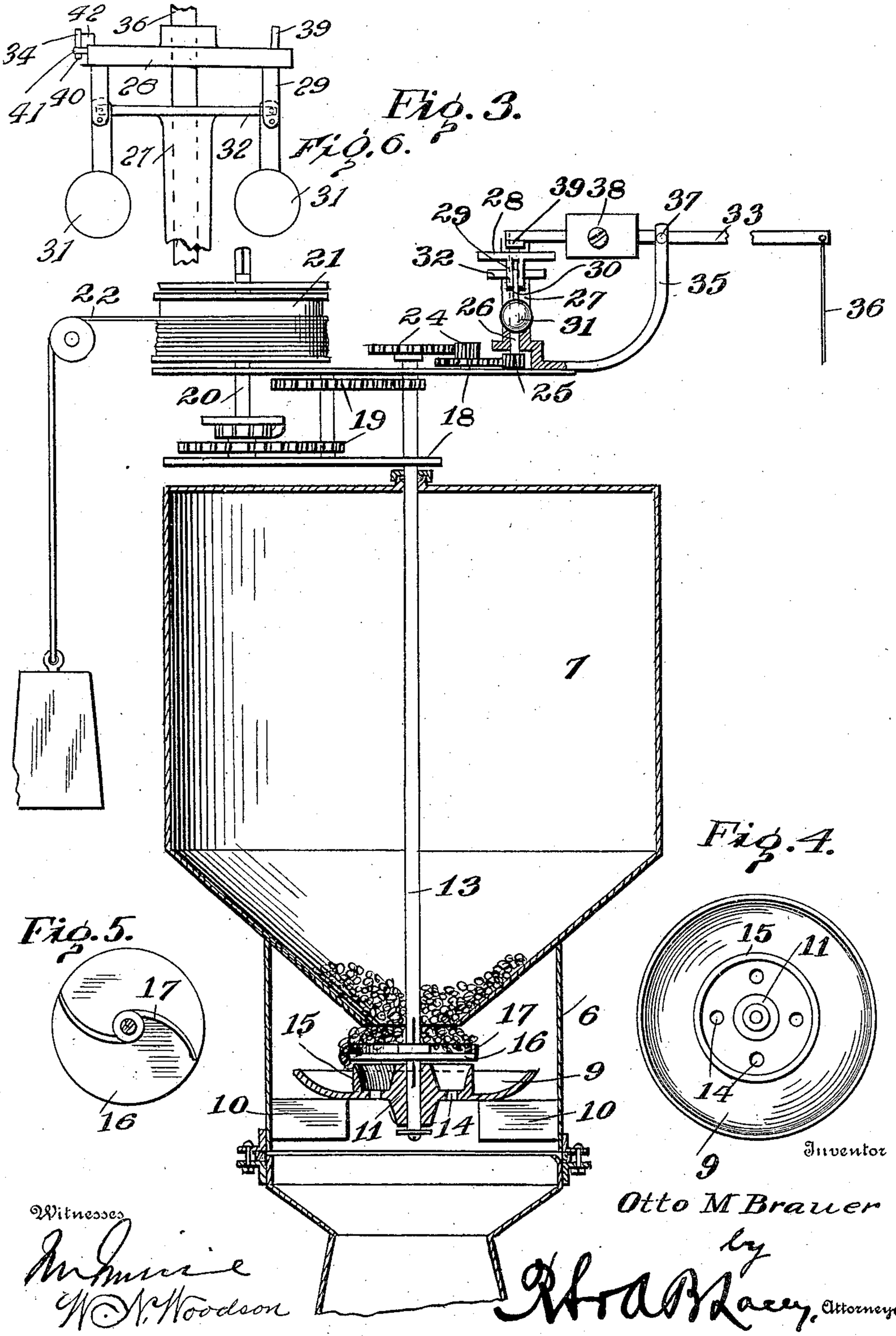

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

OTTO M. BRAUER, OF MARSHALLTOWN, IOWA.

ACETYLENE-GAS GENERATOR.

No. 816,776. Specification of Letters Patent. Patented April 3, 1906.

Application filed July 19, 1905. Serial No. 270,341.

To all whom it may concern:

Be it known that I, OTTO M. BRAUER, a citizen of the United States, residing at Marshalltown, in the county of Marshall and State of Iowa, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

This invention involves an improved construction of acetylene-gas generator of the type set forth in my pending application for patent, filed February 28, 1905, Serial No. 247,760.

The essential features of the invention reside particularly in the special means employed for feeding carbid from a suitable carbid-holder to the generator and in the peculiar regulating mechanism used for governing the action of the feeding device or means aforesaid.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a view in elevation of an acetylene-gas generator embodying the essential features of the invention. Fig. 2 is a top plan view. Fig. 3 is a vertical section showing the upper portion of the generator broken away and clearly bringing out the construction of the carbid-holder, feeding device, and regulating means therefor. Fig. 4 is a plan view of the feed-pan. Fig. 5 is a plan view of the disk which is arranged above the feed-pan, the feeding-blades being shown in proper relation thereto.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

A gas-generating machine such as embodied in the application before mentioned comprises mainly the generator 1, connected with the gasometer 2, the latter having the usual gas-bell 3. The gas-bell 3 coacts with the regulating means for the carbid-feeding device in a manner which will be hereinafter set forth more clearly, and the generator 1 has secured to its upper portion the carbid-holder 7, a shell 6 connecting said holder 7 with the generator 1. The lower end of the receptacle or holder is reduced and provided with a feed-opening 8, through which the carbid passes as it is fed to the generator 1. Arranged beneath the opening 8 in the holder 7 is a feed-pan 9, adapted to receive the carbid thereon, said pan being supported by suitable braces 10, fixed to the sides of the shell 6. The pan 9 is of peculiar form, being provided centrally thereof with an enlargement 11, apertured to form a bearing 12 for the lower extremity of the motor-shaft 13, mounted in the holder 7. The pan 9 is formed with a plurality of openings 14 in the central portion thereof, and projecting upwardly from the central portion of the pan and surrounding the openings 14 is an annular flange 15, formed at its upper portion with a knife-edge, preferably. Just above the pan 9 and the flange 15 thereof is disposed a disk 16, adapted to rotate with the shaft 13, being carried by the latter, and this disk has its under side in contact or nearly in contact with the upper knife-edge of the flange 15, the disk 16 being of approximately the same diameter as the space surrounded by the flange 15. A plurality of blades 17 extend from the shaft 13 and may be attached to the upper side of the disk 16. The blades 17 curve, preferably, and are designed to throw the carbid outwardly from the disk 16 onto the pan 9 as the shaft 13 is rotated in the operation of feeding the carbid to the generator.

The construction of the feeding means included in the parts 9, 15, 16, and 17 is such as to secure a gradual feeding of the carbid in small quantities to the generator 1 below, the above being advantageous in preserving a uniformity of pressure and secure pure and cool generation of the gas. Further, the formation of the flange 15 is such as to allow any fine particles of carbid that work to the central portion of the pan 9 between the disk 16 and the said flange to drop to the generator 1 through the openings 14. No fine particles of carbid will lodge between the parts 16 and 15 and prevent proper operation of these parts.

The shaft 13 is preferably operated by means of a weighted motor, the actuation of which is governed by variation of the pressure in the gasometer 2. For the above purpose a suitable frame 18 is secured to the receptacle or holder 7, at the top thereof, and has mounted therein a train of gearing (indicated at 19) by which the motor-shaft 13 is connected with a shaft 20, rotatable with a drum 21 carried thereby. The drum 21 has a cord or connection 22 wrapped thereabout

and attached thereto at one end, the opposite end of the cord passing over a pulley and carrying a weight 23. The weight 23 on the principle of a weighted motor tends to normally rotate the drum 21, and by so doing normally tends to communicate motion to the shaft 13, connected to the shaft 20 by the train of gearing 19, before mentioned. The shaft 13 is not only connected with the drum 21, as above described, but is connected by a suitable gear 24 with a gear 25 upon the lower extremity of another shaft 26. The shaft 26 is mounted in a tubular standard 27, attached to the top of the holder 7 adjacent the frame 18, and said shaft 26 has a disk 28, secured to the upper portion thereof. Lugs 29 project downwardly from the under side of the disk 28, and governor-levers 30 are pivoted between their ends to the lower end portions of said lugs 29. The lower extremities of the levers 30 are weighted by means of balls 31, and the upper ends of said levers are adapted to engage frictionally with an annular projection or enlargement 32 at the upper extremity of the standard 27. The disk 28 is rotatable with the shaft 26, as before premised, and means is provided to coact with the disk 28 to secure differential movement of the latter, as well as to positively lock the same from movement to break its rotative continuity. The means above mentioned consists, primarily, of two levers 33 and 34, pivoted to a curved arm 35, which projects upwardly from the holder 7 and which is preferably formed integrally with the standard 27. One end of each lever 33 and 34 is connected by a connection 36, such as a chain or the like, with the upper portion of the bell 3, so that the movement of the bell will impart movement to the levers on variation of the pressure in the gasometer 2. The levers 33 and 34 are fulcrumed at a point between the ends thereof, as shown at 37, to the upper end of the arm 35, and a weight 38, carried by each lever at the end portion adjacent the disk 28, normally tends to cause the levers to coact with the disk in governing the movement thereof. The inner end of the lever 33 has a yielding pressure member 39 supported thereby, and this pressure member may consist of a spring-actuated friction-sleeve, an end of which is adapted to engage with the upper side of the disk 28, so as to retard the movement of the disk in securing differential rotative continuity thereof. The end of the lever 34 adjacent the end of the lever 33, carrying the member 39, is formed with a downwardly-projecting lug 40, adapted to engage a lug or projection 41, extending from the peripheral portion of the disk 28. A lug 42, projecting laterally from the lever 34 near the lug 40, is adapted to engage the upper side of the disk 28 to limit the downward movement of the lever 34.

It will be seen that when the pressure in the gasometer 2 decreases sufficiently to cause the bell 3 to lower from its normal position said bell will pull downwardly upon the levers 33 and 34, because of the provision of the connections 36. The members 39 and 40 will be thrown out of coöperation with the disk 28, and the shaft 26 will then be free to rotate under the actuation of the motor operably connected therewith. The rotation of the shaft 26 necessitates rotation of the shaft 13, by which the feeding device in the holder 7 is actuated. As the shaft 13 rotates the disk 16 turns as well as the blades 17, and the above effects a gradual feeding of the carbid in minute quantities to the generator 1. The supply of carbid to the generator causes generation of gas and increases the pressure in the gasometer 2 in an obvious manner, effecting upward movement of the bell 3. The movement of the shaft 26, and the speed of the motor in fact, is governed by the levers 30, which are rotatably supported on the disk 28, which rotates with said shaft 26. As the disk 28 rotates the centrifugal movement of the levers 30 under the action of the weights 31 will cause the upper ends of the levers 30 to engage with the periphery of the extension or projection 32 and will retard the speed of the motor in a manner which will be evident. The above is advantageous, as it regulates the action of the motor to a certain extent to secure an even feeding of the carbid from the holder 7. The bell 3 when it moves upwardly relieves the pull upon the connections 36, and the weights 38 on the levers 33 and 34 tend to move the ends of these levers adjacent the disk 38 downwardly toward said disk. Such movement of the levers 33 and 34 causes the member 39 to come into contact with the upper side of the disk 28, and the pressure of said member 39 retards the movement of the disk 28, the shaft 26, and the shaft 13, according to the degree of pressure of said member 39, which is dependent upon the degree of variation of pressure in the gasometer 2. The member 39 in its coöperation with the disk 28 is thus adapted to secure a differential rotative continuity of the motor-shaft 13. When the increase in pressure in the gasometer 2 has been sufficient to raise the bell 3 to an extent admitting of downward movement of the end of the lever 34 sufficient to permit the lug 40 to come into contact with the projection 41, the interlocking connection thus established between the parts 34 and 28 will lock the latter from rotation in an obvious way.

Having thus described the invention, what is claimed as new is—

1. In an acetylene-gas generator, carbid-feed mechanism including a motor-shaft, a motor for actuating the shaft, and means operable by variation in volume of the gas gen-

erated and embodying separate lever mechanisms for positively locking the motor-shaft from movement to cut off feeding of the carbid, and for securing differential speed thereof to cause feeding of carbid proportionate with variation in the volume of gas.

2. In an acetylene-gas generator, carbid-feed mechanism, a motor-shaft for operating the carbid-feed mechanism, a motor for actuating said shaft, a disk operably connected with the motor-shaft for rotation thereby, and means consisting of levers operable by variation in volume of the gas generated for governing the operation of the motor-shaft, one of said levers coacting with the disk aforesaid to secure differential speed of the motor-shaft, and cause feeding of carbid proportionate with variation in the volume of gas, the other lever coacting with said disk to lock the shaft from movement to cut off feeding of the carbid.

3. In an acetylene-gas generator, carbid-feed mechanism, a motor-shaft for operating the carbid-feed mechanism, a motor for actuating said shaft, a disk operably connected with the motor-shaft for rotation therewith, and means consisting of levers operable by variation in volume of the gas generated for governing the operation of the motor-shaft, one of said levers having a yielding pressure device adapted to engage with the disk aforesaid, and cause feeding of carbid proportionate with variation in the volume of gas, and the other of said levers being adapted to interlock with said disk to cut off feeding of the carbid, for the purpose specified.

4. In an acetylene-gas generator, carbid-feed mechanism, a motor-shaft for operating the carbid-feed mechanism, a motor for actuating said shaft, a disk operably connected with the motor-shaft for rotation therewith, means consisting of levers operable by variation in volume of the gas generated for governing the operation of the motor-shaft, one of said levers coacting with the disk aforesaid to secure differential speed of the motor-shaft, and cause feeding of carbid proportionate with variation in the volume of gas, the other lever coacting with said disk to lock the shaft from movement to cut off feeding of the carbid, and means normally tending to cause the levers to coact with the disk.

5. In an acetylene-gas generator, carbid-feed mechanism, a motor-shaft for operating the carbid-feed mechanism, a motor for actuating said shaft, a disk operably connected with the motor-shaft for rotation therewith, means consisting of levers operable by variation in volume of the gas generated for governing the operation of the motor-shaft, one of said levers coacting with the disk aforesaid to secure differential speed of the motor-shaft, and cause feeding of carbid proportionate with variation in the volume of gas, the other lever coacting with said disk to lock the shaft from movement to cut off feeding of the carbid, and means comprising weights carried by the levers normally tending to cause the same to coact with the disk.

6. In an acetylene-gas generator, the combination of a generator, a carbid-holder, a feeding device for governing the feed of carbid from the holder to the generator comprising a feed-pan adapted to receive carbid from the holder, said pan being provided with centrally-arranged apertures, a flange projecting upwardly from the pan and surrounding the apertured portion thereof, a disk operating above the flange and apertured portion of the pan, feeding-blades above said disk, and a motor-shaft connected with the disk and blades to effect rotation thereof.

7. In an acetylene-gas generator, the combination of a generator, a carbid-holder, a carbid-feeding device for governing the feed of carbid from the holder to the generator consisting of a feed-pan at the outlet of the carbid-holder, said pan being centrally apertured and centrally enlarged to form a bearing, a flange extending upwardly from the pan and surrounding the apertured portion thereof, the upper portion of said flange being formed with a knife-edge, a motor-shaft for operating in the carbid-holder and having its lower end mounted in the bearing of the feed-pan, a disk mounted on the motor-shaft and arranged above the apertured annular flange portion thereof, and blades rotatable by the motor-shaft and arranged above the disk, the disk being of a diameter substantially the same as the annular flange aforesaid.

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

OTTO M. BRAUER. [L. S.]

Witnesses:

JAS. S. HASKELL,

N. L. PECKHAM.