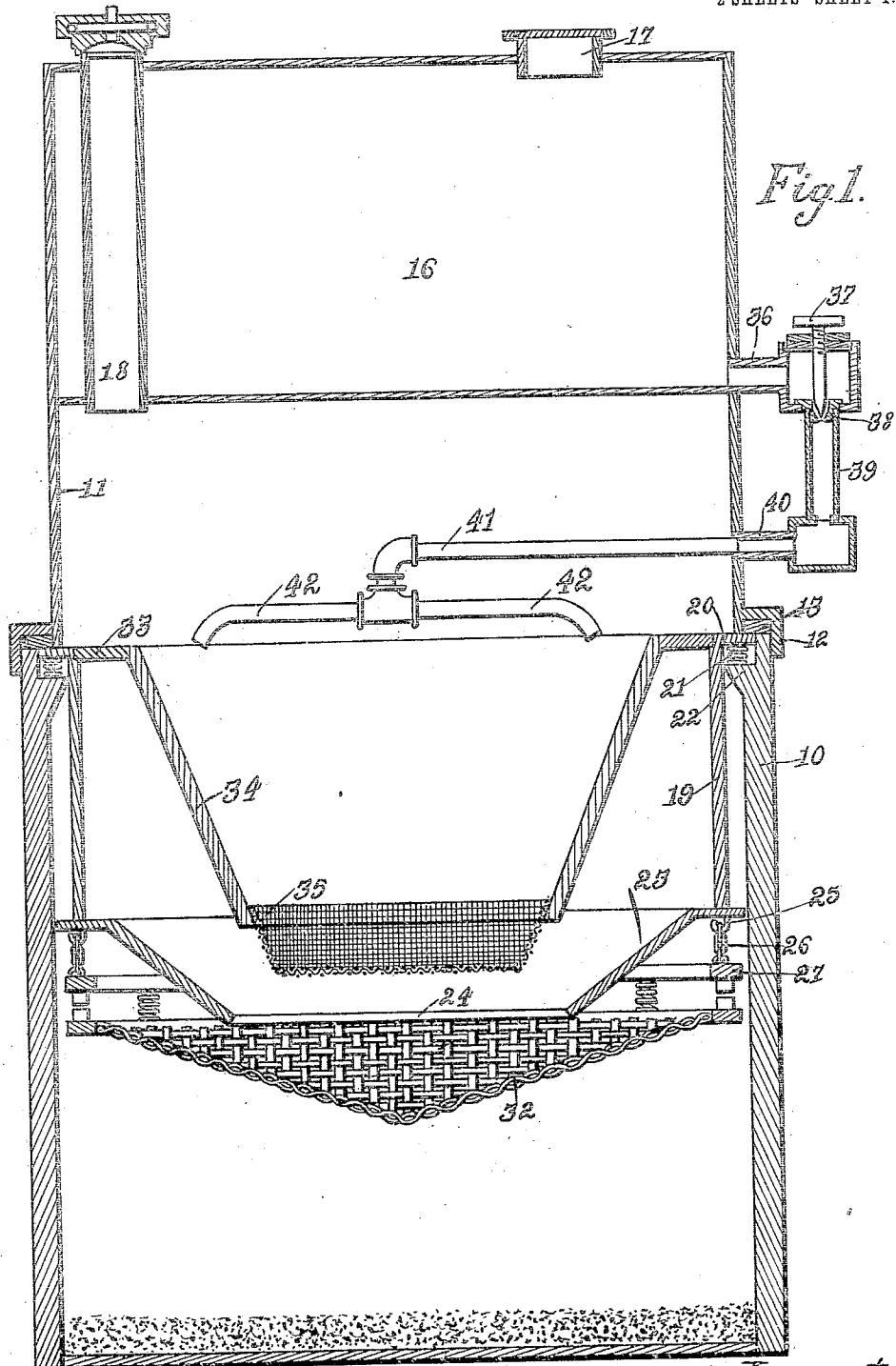


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ACETYLENE GAS GENERATOR.
APPLICATION FILED JULY 3, 1909.

953,839.

Patented Apr. 5, 1910.

2 SHEETS—SHEET 1.



Witnesses.
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A. E. Haguel.

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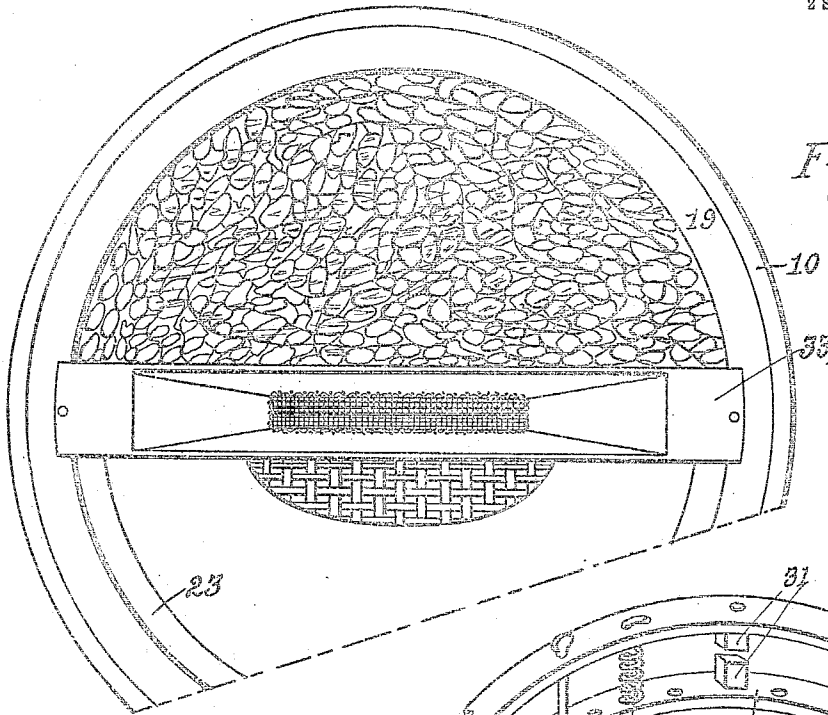


Fig. 2.

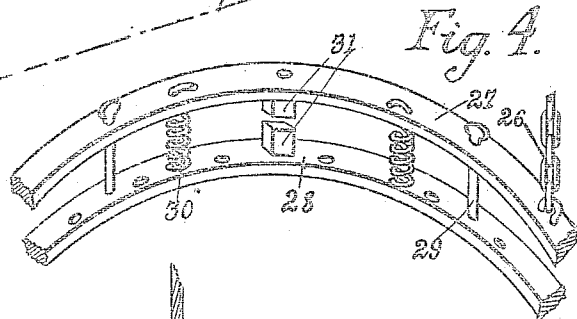


Fig. 4.

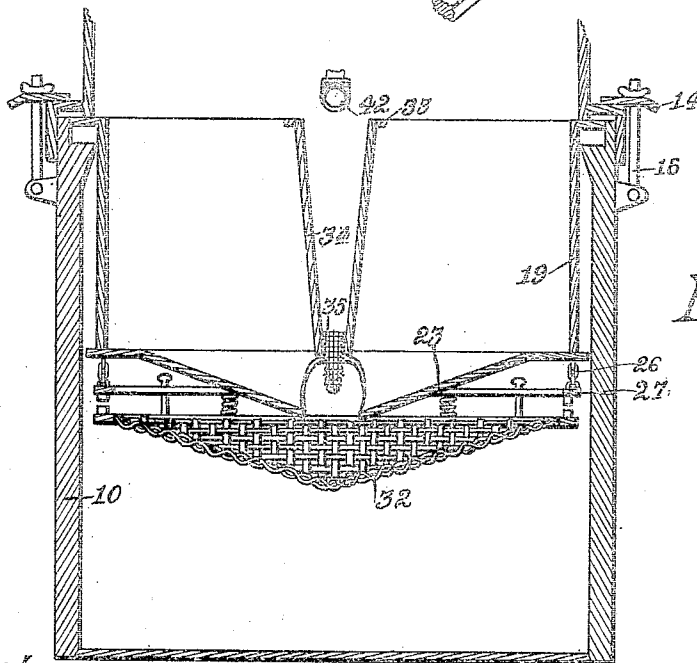


Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE E. JOHNSON, OF DES MOINES, IOWA.

ACETYLENE-GAS GENERATOR.

953,839.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed July 3, 1909. Serial No. 505,920.

To all whom it may concern:

Be it known that I, GEORGE E. JOHNSON, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Acetylene-Gas Generator, of which the following is a specification.

The objects of my invention are to provide an acetylene gas generator of simple, durable, and inexpensive construction, in which the amount of water delivered from the water tank to the generating chamber may be viewed by means of a sight feed device, so that the operator may readily, quickly and easily adjust the flow to suit the requirements of the device.

A further object is to provide improved means for automatically separating the ashes from the calcium carbide and for preventing the dust arising from the calcium carbide from entering the water supply pipe to thereby avoid the possibility of having said supply pipe clogged by means of said dust.

My invention consists in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a vertical, central sectional view of a generator embodying my invention. Fig. 2 shows a top or plan view of the generating chamber of the device, one side of which is filled with calcium carbide and the other side empty. Fig. 3 shows a vertical, central, sectional view of the generating chamber, taken on a line at right-angles to that of Fig. 1; and Fig. 4 shows a detail, perspective view illustrating the grate screen supporting rings.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate the cylindrical body of the generating chamber, and 11 to indicate the cylindrical body of the water and gas chamber, which latter is provided with a flange 12 to overlap the top of the generating chamber and to receive a strip of packing material 13 for forming a tight joint. This flange 12 is preferably provided with lugs 14 to receive pivoted bolts 15 which are connected

with the generating chamber for detachably and adjustably connecting the gas and water chamber with the generating chamber. In the top of the gas and water chamber is a water compartment 16 which may be filled through the opening 17, and extended through the water chamber is a gas supply pipe 18. These parts just described are of ordinary construction and of themselves form no part of my present invention, but are illustrated and described herein for the purpose of showing the arrangement and combination of the other parts therewith.

Mounted within the generating chamber is a cylinder 19 having an outwardly extended flange 20 at its top, designed to rest upon cushioning springs 21 which are supported on shoulders 22 on the generating chamber to permit said cylinder to have a slight up and down movement relative to the generating chamber. Secured to the bottom of the cylinder 19 is a disk-shaped bottom 23 for the cylinder, inclined downwardly and inwardly and having a substantially oval opening 24 at its central portion. The cylinder 19 and the disk-shaped bottom 23 form the chamber for receiving and holding calcium carbide.

Fixed to the under surface of the bottom 23 is a series of hooks 25, to which the chains 26 are attached. These chains are designed to support a ring 27 which is of a diameter slightly less than the interior of the generating chamber, and it is so mounted upon the chains that when the generator is shaken, the sides of the ring will strike against the adjacent side of the generating chamber. This ring 27 is arranged to support a second similar ring 28 below it. This is done by means of a series of bolts 29 passed through both rings. The lower ring is yieldingly held upwardly toward the upper ring by means of a series of contractible coil springs 30 attached to both rings, and the movement of these rings toward each other is limited by means of a series of blocks 31 attached to both rings in position to engage each other. Fixed to the lower ring 28 is a screen grate 32, inclined downwardly and inwardly at its central portion, the arrangement and combination of the said parts being such that carbide contained within the carbide chamber will pass downwardly through the

opening 24 upon the central portion of the screen grate, and the bottom 23 will prevent any of said carbid from flowing outwardly over the edges of the screen grate, the opening 24 in the bottom 23 being arranged at or near the same horizontal plane as the top of the screen grate, as clearly shown in Fig. 1. In practical operation with this part of the device, and assuming that the device is carried by an automobile or moving vehicle, obviously, the device will be subject to considerable shaking. This will result in the upper ring 27 frequently striking upon the sides of the generating chamber, and the lower ring being supported on the springs will also move up and down, thus causing the blocks 31 to strike together, so that the screen grate will be subjected to a series of shocks and jars that will cause the ashes thereon to sift through the grate screen. In some instances, the motion given to the device by the moving vehicle to which it is attached will cause the grate to move only in a horizontal direction, and hence, it is important that the rings are so arranged that they will strike upon the sides of the generating chamber; and at other times, the motion given to the screen is up and down, and when this occurs, the rings will strike together and thus sift ashes through the screen grate. The bolts 29 limit the movement of the rings away from each other, and the blocks 31 limit the movement toward each other.

The water for use in generating gas is delivered in the manner hereinafter described to a point above the central portion of the grate, and I have provided means whereby the dust and fine particles of carbid arising from the grate and the generating chamber will be prevented from entering the water supply pipe and the gas chamber as follows: Mounted upon the upper portion of the cylinder 19 is an oblong plate 33 having formed therein an oblong opening at its top, the sides of said opening being inclined downwardly and toward the center of the grate, said sides being indicated by the numeral 34. In the lower ends of said sides, I have mounted a fine screen 35 through which water may freely flow, but which will prevent the passage of dust and fine particles of carbid. This screen is arranged a short distance above the center of the opening 24 in the bottom 23. By having the screen 35 made substantially oblong in shape, I provide a comparatively large surface over which water is distributed to come in contact with the carbid within the generating chamber.

The means for supplying water to the generating chamber comprises a pipe 36 extending outwardly beyond the walls of the water and gas chamber at the bottom of the

water chamber. Mounted in the outer end of this pipe 36 is a needle valve 37 and a valve seat 38. Said pipe 36 communicates below the valve seat with a glass tube 39, which in turn communicates with a pipe 40 leading to the interior of the gas and water chamber below the water tank. This pipe 40 communicates with a pipe 41 which is provided with two branches 42 arranged with discharge openings above the end portions of the opening in the plate 33. By this arrangement, it is obvious that all of the water that is delivered into the generating chamber must pass around the needle valve and through the glass tube 39, which, being on the exterior of the device, may be readily and easily seen by the operator. In practical use with this portion of the device, the operator is enabled to very quickly adjust the generator for producing gas in proper quantities, it being understood in this connection that in order to start the generation of gas in sufficient quantities, it is desirable to have a comparatively large amount of water delivered to the generating chamber in a short time; and after the generation has started, then the water should be delivered in measured quantities sufficient to maintain the generation at the proper point.

In my improved device, the operator may, when starting the generation of the gas, first open the needle valve comparatively wide and thus permit water in large quantities to flow into the generating chamber until the generation of gas commences. Then he may readjust the needle valve until the water drops through the glass tube in the quantity desirable for maintaining the generation of gas in the proper amount. Any time that the operator finds that the water is not being delivered in proper quantity a re-adjustment may be very quickly and easily made.

I claim as my invention:

1. In an acetylene gas generator, the combination of a receptacle, a cylinder mounted within the receptacle, a bottom for said cylinder inclined downwardly and toward its center and having an opening in its central portion, a ring, chains connecting said ring with the bottom of said cylinder, a screen grate carried by said ring, said parts being so arranged that when the receptacle is shaken, the sides of the ring may strike upon the sides of the receptacle to sift material through the screen grate.

2. In a device of the class described, the combination of a receptacle, a cylinder within the receptacle, a bottom for the cylinder inclined downwardly and toward its center and having an opening in its central portion, hooks carried by said bottom, chains connected with said hooks, a ring supported by said chains, a second ring below the first, headed bolts extended through said rings

to limit their movement away from each other, blocks connected with said rings to engage each other and limit the movement of the rings toward each other, contractible
5 springs connected with the rings to normally hold them toward each other, and a screen grate secured to the lower ring, said parts being so arranged that the rings may strike against the sides of the said receptacle.

Des Moines, Iowa, June 16, 1909.

GEORGE E. JOHNSON.

Witnesses:

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NELLIE M. TAYLOR.