No. 698,425. Patented Apr. 22, 1902.

A. YANCEY.

ACETYLENE GAS GENERATOR.

(Application filed Feb. 6, 1901.)

(No Model.)

Fig. 1.

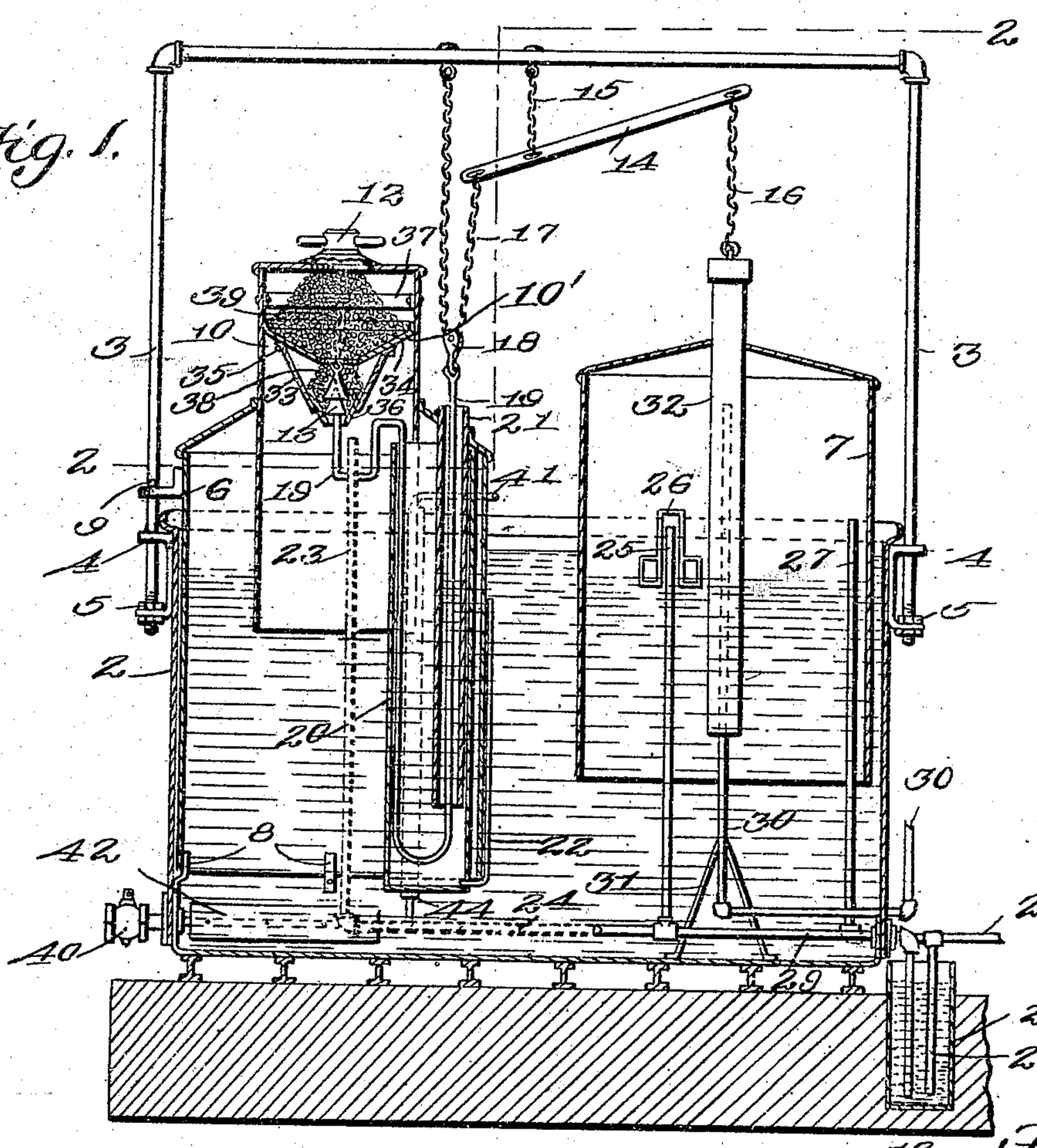


Fig. 3.

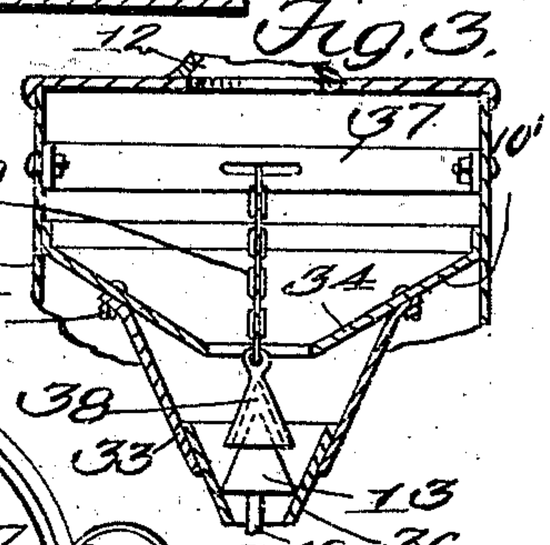
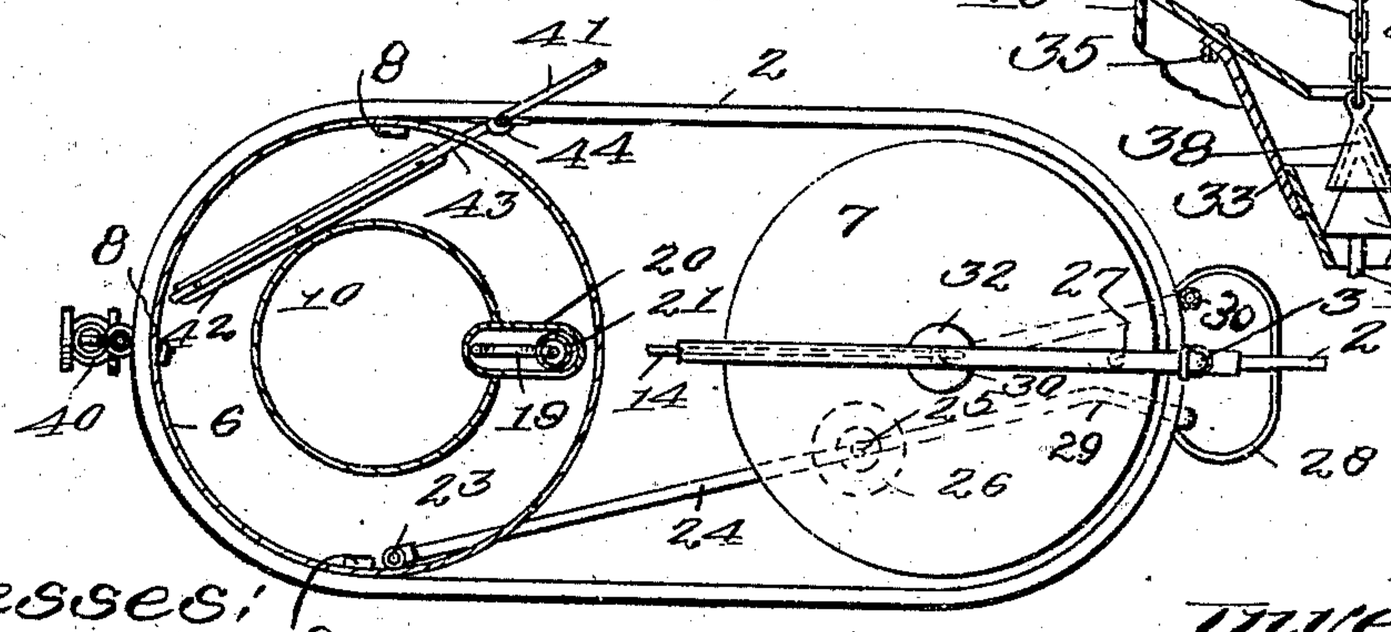


Fig. 2.



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UNITED STATES PATENT OFFICE.

ARTHUR YANCEY, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO THE YANCEY GENERATOR CO., OF NEW ORLEANS, LOUISIANA.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 698,425, dated April 22, 1902.

Application filed February 6, 1901. Serial No. 46,217. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR YANCEY, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Acetylene-Gas Machine, of which the following is a specification.

My invention relates to improvements in acetylene-gas generators in which the gas is made by the automatic feeding of carbid or other gas-producing substance into water; and the objects of my improvements are, first, to provide a more sensitive mechanism for feeding the carbid so that the force required to operate it shall cause a minimum variation in the pressure on the lights and at the same time said mechanism is strong and durable, and, second, to prevent the arching of particles of carbid in the hopper. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a sectional side elevation of an acetylene-gas-generating apparatus involving my improvements, and Fig. 2 is a partial sectional plan view of the same, the section being taken in the line 2 2, Fig. 1. Fig. 3 is a sectional detail of the carbid-holder and parts inclosed thereby.

Similar letters and figures refer to both illustrations.

The water-tank 2 forms a support for the frame 3, of substantially inverted-U-shaped form, the legs of which pass through the arms of brackets, as 4, suitably fastened upon the outside of the tank, near the upper edge thereof, and said legs are threaded at their lower ends to receive holding and check nuts, as 5, located, respectively, at opposite sides of the lower arms of the brackets and by which vertical adjustment of said frame may be secured.

The tank 2 receives the inverted vessels or receptacles 6 and 7, the one, 6, forming a generator and the other serving as a gasometer to receive the gas generated within the receptacle 6. Said receptacle 6 is supported at its lower end by clips, as 8, suitably secured within the tank 2, and is held against upward displacement by a pin, as 9, on the left leg of the frame 3.

A carbid bell-shaped casing, as 10, is provided, it being of substantially cylindrical form and inclosed in part by the generator 6, and said casing has a removable cap, as 12, by which carbid can be introduced into a hopper, as 10′, inclosed by said cylindrical casing.

The supply of the carbid is governed by a feed-controlling device, as 13, hereinafter more particularly described, and operatively connected with the gasometer 7 by suitable mechanism, one form of which will now be set forth.

A lever, as 14, is suspended by means of a chain or like flexible connection 15 from the transverse portion of the frame 3, the right end of the lever being connected, as by means of the chain 16, with the upper end of the rising and falling gasometer, while a chain, as 17, is connected with the opposite end of said lever and also with the transverse portion of the frame 3, the chain hanging down below the lever and passing partially around the lower portion of the pulley 18 at the upper end of the U-shaped rod 19, the left branch of which is somewhat bent at the upper end thereof and is united to the cone 13.

The rod 19 is inclosed for the major part of its length in the jacket 20, closed at its lower end and suitably fixed in place, while the right branch of said rod passes through the tube 21, passing through the top of the generator 6 and housed in part by the jacket 20. A small pipe, as 22, is tapped into or otherwise connected to the jacket 20, near the bottom thereof, the upper end of said pipe being below the level of the water in the tank 2, so that the pipe serves to conduct clear water into the jacket 20 and seals the tube 21 against the escape of gas from the generator.

The fall of carbid from the hopper into the generator 6 forms a gas, which is conveyed from the generator by a system of pipes, as 23, 24, and 25, the first and last-mentioned pipes being vertically disposed and being situated in the generator and gasometer, respectively, and the upper open ends thereof being located above the water-level. The upper end of the pipe 25 is covered by a floating hood, as 26, which prevents the return of

gas from the gasometer to the generator when the cap 12 is taken off to charge the hopper 10'.

The gas flows from the gasometer through the service-pipe 27, which has a depending branch 27', which is immersed in water in the drip-receptacle 28. The pipe 24 has an angular extension 29, the right downturned end of which is also immersed in such water.

A pipe, as 30, passes through the center of the gasometer and is held in place by a spider-like frame, as 31, on the bottom of the tank 2, and this pipe is telescoped by a pipe, as 32, passing through the top of the gasometer and serving the double purpose of a guide for the gasometer and as a blow-off, for when the lower end of the pipe 32 is raised above the water-line the gas can escape to atmosphere through said pipe 32, it being seen that the pipe 30 passes through the tank 2 and its projecting end being upwardly disposed.

The hopper 10' is furnished with superposed inclined bottoms, as 33 and 34, the lower and more acute of which is bolted or otherwise detachably fastened to the lower face of the upper one, as at 35. The lower bottom receives a conical member, as 36, formed of some hard durable metal and constituting a seat for the feed-controlling device 13. This conical member can be easily slipped out of place, and for this purpose it is of a cross-sectional shape agreeing with that of the lower bottom 33, its mouth or lower end being somewhat smaller than that of the bottom 34.

The feed-controlling device 13 at the upper end of the rod 19 is of conical form and when it is in its lowest or normal position, as indicated, it closes the hopper 10' against the escape of carbid and when elevated permits the fall of carbid from the bottom 33.

A bar, as 37, extends across the hopper, near the top thereof, and a cone, as 38, is flexibly suspended, as by means of the chain 39, from said bar, said cone being situated above the cone 13 and its apex being substantially level with the mouth of the bottom 34, while its base is below said mouth.

As the supply of gas in the gasometer is reduced the latter rises, and as it does so the rod 19, through the intermediate connections, is thrust upwardly, causing the feed-controlling device or cone 13 to move in a corresponding direction, and as it does so it strikes the cone 38, which serves as an agitating device to agitate the carbid, and as this operation takes place the mass is freely loosened and flows downward and falls from the floor or bottom 33 into the water in the receptacle or generator 6, and if an arch should be present the same would be instantly destroyed by the action of the cone or feed-agitating device 38 striking the same, the cone being always maintained in position to be engaged by the cone 13, by reason of its flexible suspension. As the feed-controlling device is retracted the cone 38 at once returns to its primary position. As the material is broken up some of it moves laterally and enters the space between the bottoms 33 and 34, so as not to choke up the hopper.

The casing 10 extends below the level of the water in the generator 6, so that when the cap 12 is removed to charge the apparatus and the generator-pressure is reduced a minimum loss of gas follows.

The residuum is withdrawn by a large cock, as 40, and if it be deposited thick and heavy on the bottom of the tank 2 may be agitated by a mixer consisting in the present case of a handle 41 and blade 42, bolted to the rod 43, projecting inward from said handle, bent as shown and turning in the bearing 44, secured within the tank 2.

The invention may be modified within the scope of the appended claims.

Having described the invention, I claim—

1. In an acetylene-gas generator, the combination of a tank, a generator and a gasometer in communication with each other and both located in said tank, a carbid-hopper, a feed-controlling device for the hopper, a jacket in said generator, connections between the feed-controlling device and the gasometer inclosed in part by said jacket, a tube in the jacket extending through the generator and also adapted to receive a part of said connections, and a pipe connected with said jacket and having its inlet in said tank.

2. In an acetylene-gas generator, a tank, a generator and a gasometer in communication with each other and both located in said tank, a carbid-hopper, a feed-controlling device for the hopper, a jacket in said generator, connections between the feed-controlling device and the gasometer, including a substantially U-shaped rod inclosed in part by said jacket, a tube in the jacket, projecting through the generator and inclosing a part of said rod and a pipe connected with said jacket and having its inlet in said tank.

3. In an acetylene-gas generator, a tank, a generator and a gasometer in communication with each other and located in said tank, a carbid-hopper, a feed-controlling device for the hopper, a jacket in the generator, a lever connected with the gasometer, a flexible connection united to the lever and framework respectively, a U-shaped rod inclosed in part by said jacket, a tube in the jacket to receive a branch of said rod and passing through the generator, a pulley connected to said rod and receiving said flexible connection, and means to convey water into said jacket.

4. In an acetylene-gas apparatus, a carbid-containing hopper having a plurality of superposed conical bottoms of decreasing obtuseness toward the lower one a conical member inclosed by the lower bottom, a flexibly-suspended cone in said hopper, a second cone for operating the flexibly-suspended cone, and means for actuating said second cone.

5. In an acetylene-gas apparatus, a carbid-containing hopper having a plurality of superposed conical bottoms of decreasing ob-

tuseness toward the lower one, a conical member inclosed by the lower bottom, a flexibly-suspended cone in said hopper, a second cone for operating the flexibly-suspended cone, a movable gasometer, a generator to which said hopper is connected and in communication with said gasometer, and operative connections between said second cone and the gasometer.

6. In an acetylene-gas apparatus, a hopper having a plurality of angularly-disposed and detachably connected, superposed bottoms, a conical reinforcing-piece in the lower bottom, a cone flexibly supported in said hopper, a second cone arranged below and adapted to engage the first cone, and means for operating said second cone.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR YANCEY.

Witnesses:
J. B. ABRAHAM,
CHARLES ROSEN.