No. 671,693. Patented Apr. 9, 1901.

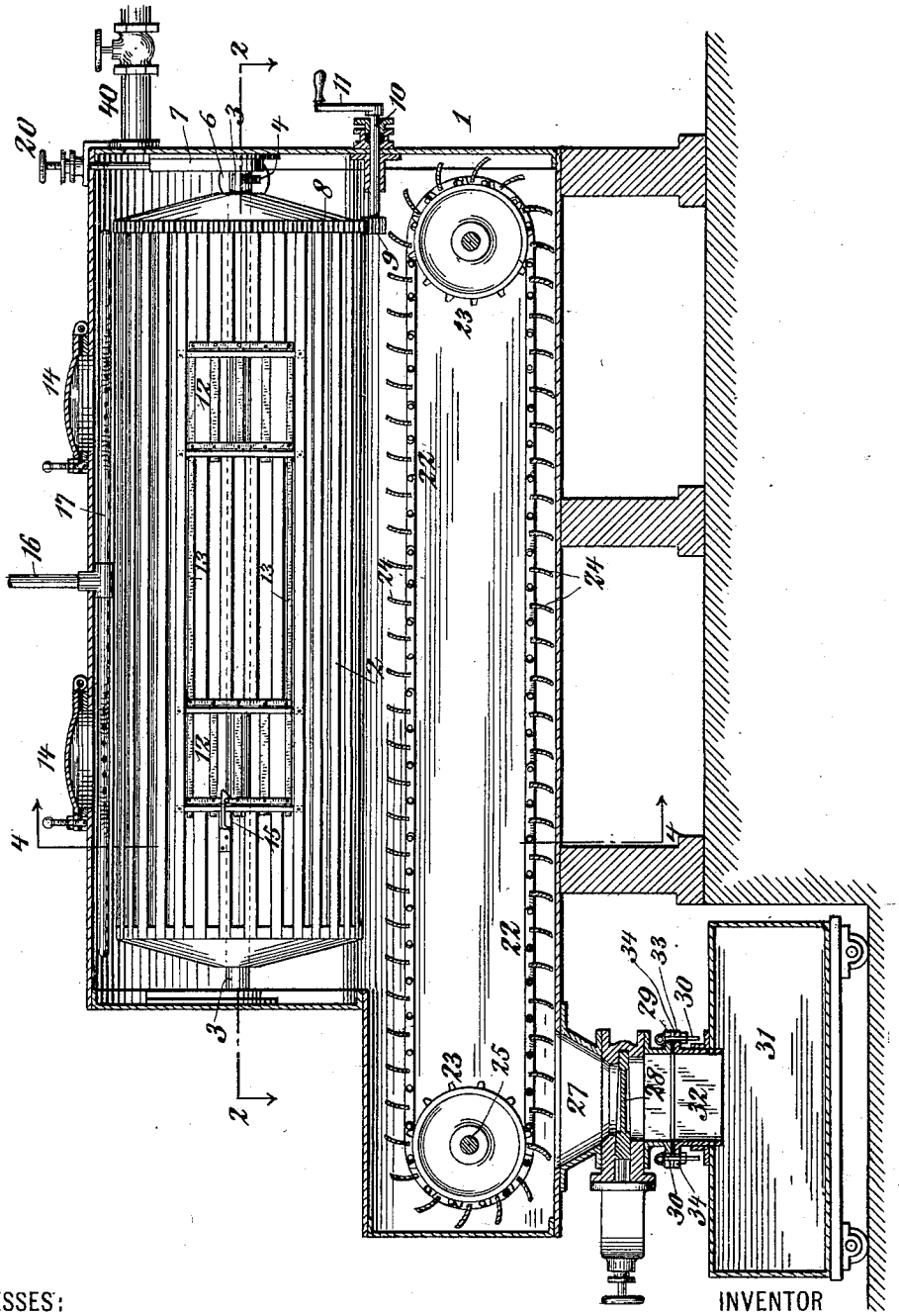
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ACETYLENE GAS GENERATING APPARATUS.

(Application filed June 12, 1897.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



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ACETYLENE GAS GENERATING APPARATUS.

(No Model.) (Application filed June 12, 1897.) 3 Sheets—Sheet 2.

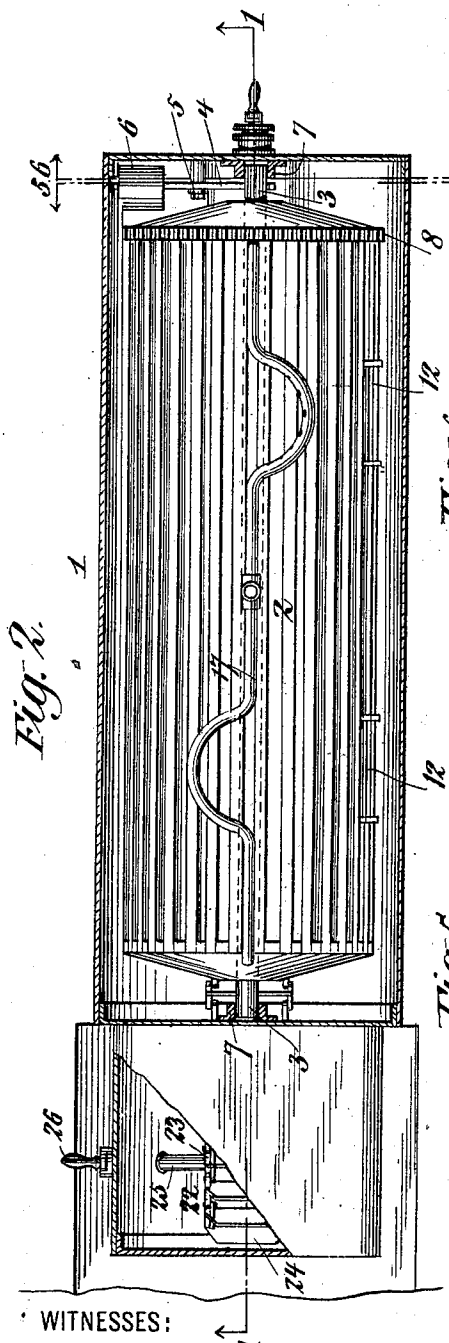


Fig. 2.

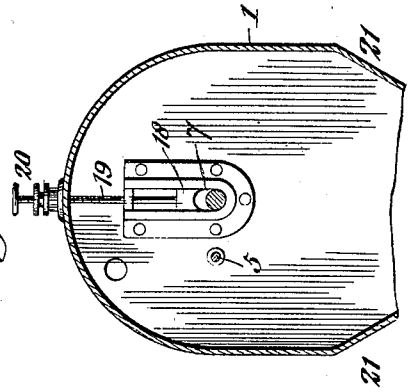


Fig. 6.

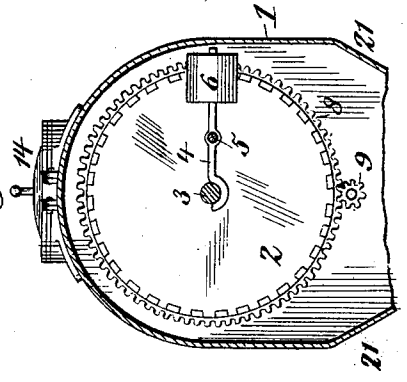


Fig. 5.

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(Application filed June 12, 1897.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 4.

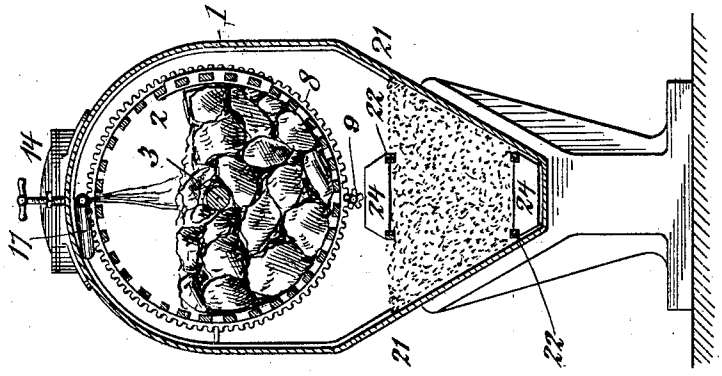
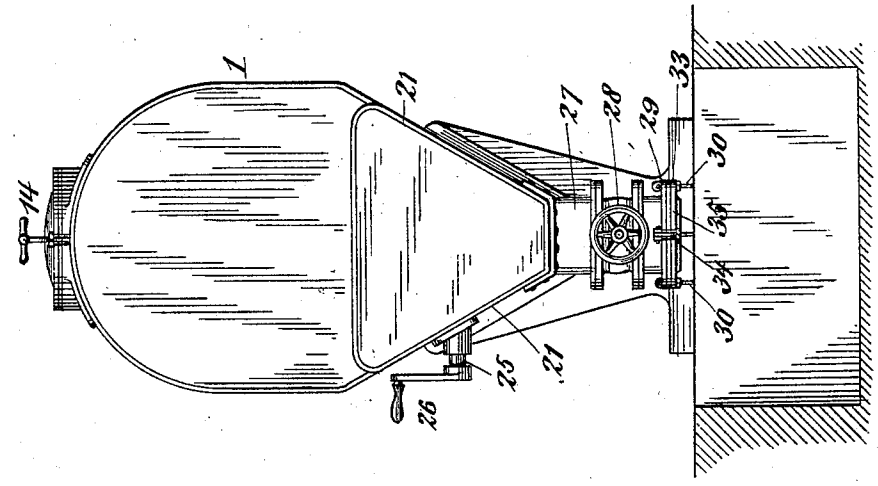


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD N. DICKERSON, OF NEW YORK, N. Y.

ACETYLENE-GAS-GENERATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 671,693, dated April 9, 1901.

Application filed June 12, 1897. Serial No. 640,473. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. DICKERSON, residing in the city, county, and State of New York, have invented a new and useful Improvement in Acetylene-Gas-Generating Apparatus, of which the following is a specification.

In the generation of acetylene gas it is desirable that the calcium carbid shall be supported within a generating vessel in which the gas is generated in such manner that it may be operated so as to constantly present new surfaces to the action of the water as the carbid is decomposed and the generation of gas goes on. Also it is important that the refuse resulting from the decomposition of the calcium carbid may be withdrawn from the generating-receptacle without the necessity of opening the generating-receptacle to the atmosphere. For the accomplishment of these objects the present invention is designed, and besides provides a form of apparatus in which the progress of the decomposition of the calcium carbid is indicated upon the outside of the apparatus.

In the drawings I have illustrated an apparatus embodying my invention, in which—

Figure 1 is a central vertical longitudinal section. Fig. 2 is a section along line 2 2 of Fig. 1, certain parts being shown in full and others broken away. Fig. 3 is an end view looking in the direction of the arrow of Fig. 1. Fig. 4 is a section along line 4 4 of Fig. 1. Fig. 5 is a section along line 5 5 of Fig. 2 looking in the direction of the arrow. Fig. 6 is a section along line 6 6 of Fig. 2 looking in the direction of the arrow.

Like figures of reference refer to like parts throughout the several views of the drawings.

Referring to the drawings in detail, 1 designates the generating vessel. In the upper portion of this generating vessel is a revoluble cage 2, designed to hold the charge of calcium carbid. This cage is mounted on a shaft 3, whose ends are supported on a lever 4, pivoted on stud 5, secured to the end of the vessel 1. A weight 6 is secured to the lever 4 for the purpose of overcoming the gravitation of a predetermined minimum of calcium carbid. The end of the shaft 3 fits in and slides in ways 7. One end of the carbid-cage is provided with a gear 8, designed to mesh with a pinion 9, carried on a shaft 10, journaled in suitable bosses mounted on the vessel 1. The shaft 10 is provided at its outer end with a crank 11. For the purpose of supplying the cage 2 with its supply of calcium carbid I have shown two gates 12, which are connected together by rods 13, so as to slide back and forth to open and close the carbid-cage, these gates being placed upon the cage so as to register with manholes 14 on the upper surface of the carbid-receptacle. Any desired means of fastening the gates may be availed of, the device shown in the drawings consisting of a spring-catch 15.

Water is supplied to the calcium carbid contained in the cage 2 by means of a supply-pipe 16 and a spray-pipe 17, communicating therewith.

Assuming that the cage 2 is filled with calcium carbid, water is sprayed upon the carbid through the pipe 17, whereupon ensues the generation of acetylene gas. The cage is rotated at intervals by means of the crank 11, so as to present new surfaces of calcium carbid to the action of the water, this rotation also discharging the refuse lime into the lower portion of the receptacle. When by reason of the decomposition of the carbid the contents of the cage fall below a predetermined minimum, the weight 6 raises the cage, so that the gear 8 comes out of mesh with the pinion 9, which being felt by the operator indicates that the contents of the cage must be replenished. For the purpose of again revolving the cage the gear 8 is brought into engagement with the pinion 9 by means of a block 18 on the end of a screw-rod 19, which is provided with an operating-wheel 20. Gas escapes by pipe 40.

Preferably the lower portion of the vessel 1 is provided with converging sides 21. Intermediate of these converging sides is placed a discharge device consisting of a chain 22, passing over the sprockets 23, said chain being provided with buckets 24. The shaft 25 of one of the sprocket-wheels projects on the outside of the vessel and is provided with a crank 26, by means of which the discharge device is operated.

27 designates a chute provided with a gate-

valve 28. The lower portion of the chute is provided with a flange 29, provided with hinged bolts 30.

31 designates a receptacle provided with a neck 32, adapted to register with the lower portion of the chute 27, said neck being provided with a flange 33, having slots 34, which are adapted to be engaged by the bolts 30, whereby a tight connection is obtained.

During the operation of the generating vessel the lower end of the chute 27 is provided with a cap 35, (shown in Fig. 3,) and when the refuse from the decomposition of the calcium carbid has accumulated in the lower portion of the vessel the cap is removed and the receptacle 31 placed in position, as shown in Fig. 1. The gate-valve 28 is opened and the discharge device set in operation to discharge the refuse material down the chute 27 into the receptacle 31. When the receptacle 31 is filled, the gate-valve is closed and the receptacle drawn away, emptied, and then replaced in position, this operation being repeated until the whole of the refuse has been discharged. The endless bucket conveyer 22 performs the double function of withdrawing the deposited refuse in the bottom of the chamber and also of agitating any refuse which may be in the path of the returning sprocket-chain, thus causing it to fall into the bottom of the receptacle for withdrawal.

What I claim as new is—

1. The combination of a vessel, a receptacle for carbid mounted therein, a counterbalance to said receptacle, means for supplying fluid to the carbid contained in said receptacle, means for rotating the receptacle, and means controlled by the decomposition of the carbid for disengaging the receptacle from its means of rotation, substantially as specified.

2. The combination of a vessel, a receptacle for carbid mounted therein, a counterbalance to said receptacle, means for supplying fluid to the carbid contained in said receptacle, means for rotating the receptacle, means controlled by the decomposition of the carbid for disengaging the receptacle from its means of rotation, and means for reëngaging the carbid-receptacle with its means of rotation, substantially as specified.

3. The combination of a vessel, a receptacle for carbid mounted therein, a counterbalance to said receptacle, means for supplying fluid to the carbid contained in said receptacle, means for rotating the receptacle, means controlled by the decomposition of the carbid for disengaging the receptacle from its means of rotation, and an endless conveyer for discharging the refuse, substantially as specified.

4. The combination of a vessel, a receptacle for carbid mounted therein, a counterbalance to said receptacle, means for supplying fluid to the carbid contained in said receptacle, means for rotating the receptacle, means controlled by the decomposition of the carbid for disengaging the receptacle from its means of rotation, means for reëngaging the carbid-receptacle with its means of rotation, and an endless conveyer for discharging the refuse, substantially as specified.

5. The combination of a vessel, a receptacle for carbid mounted therein, a counterbalance to said receptacle, means for supplying fluid to the carbid contained in said receptacle, means for rotating the receptacle, means controlled by the decomposition of the carbid for disengaging the receptacle from its means of rotation, means for reëngaging the carbid-receptacle with its means of rotation, an endless conveyer for discharging the refuse, and a valve-controlled chute, substantially as specified.

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

E. N. DICKERSON.

Witnesses:
H. COUTANT,
W. LAIRD GOLDSBOROUGH.