

No. 724,374.

PATENTED MAR. 31, 1903.

F. M. ASHLEY.
ACETYLENE GAS GENERATOR.
APPLICATION FILED MAY 25, 1899.

NO MODEL.

Fig. 1.

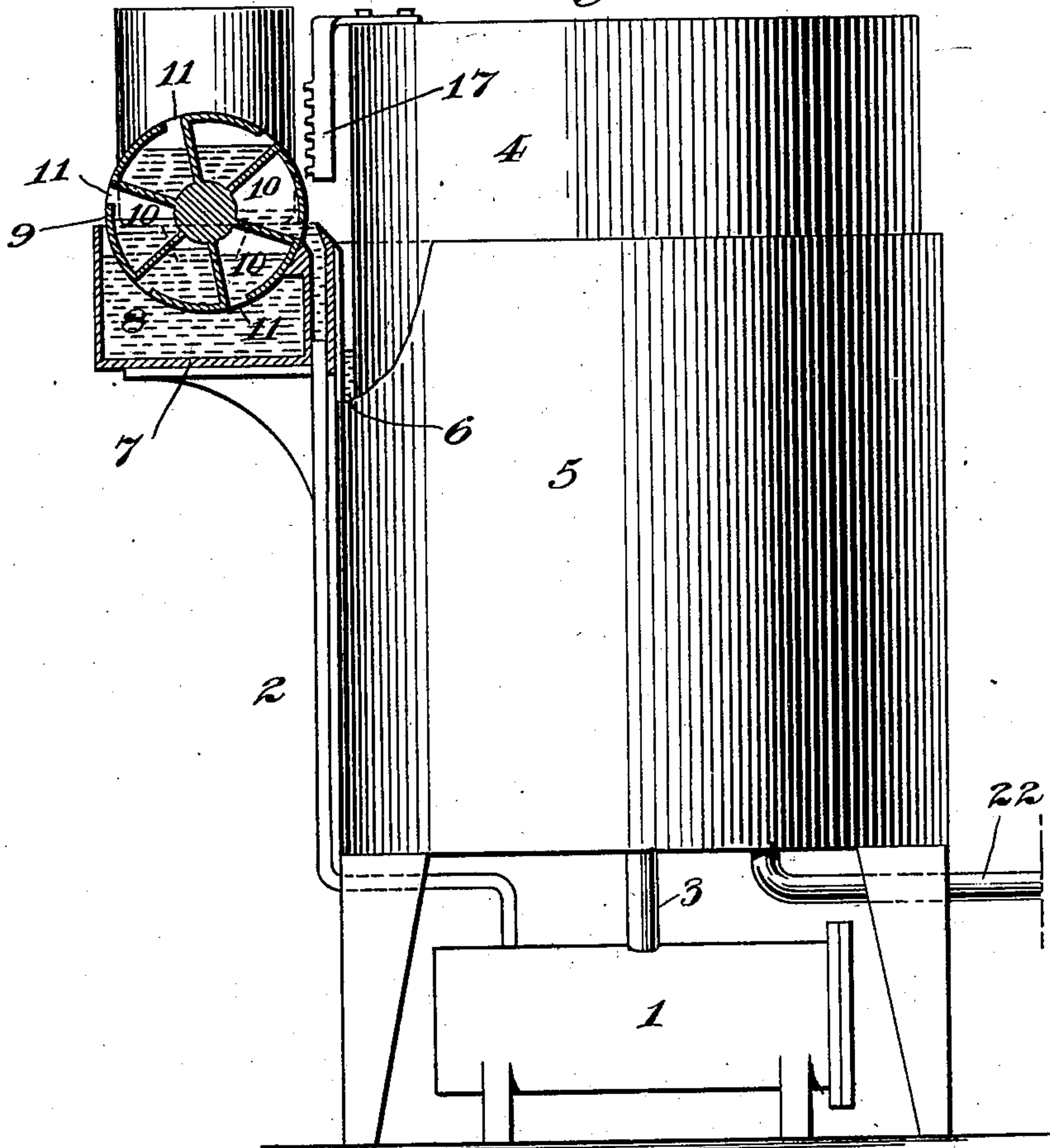


Fig. 2.

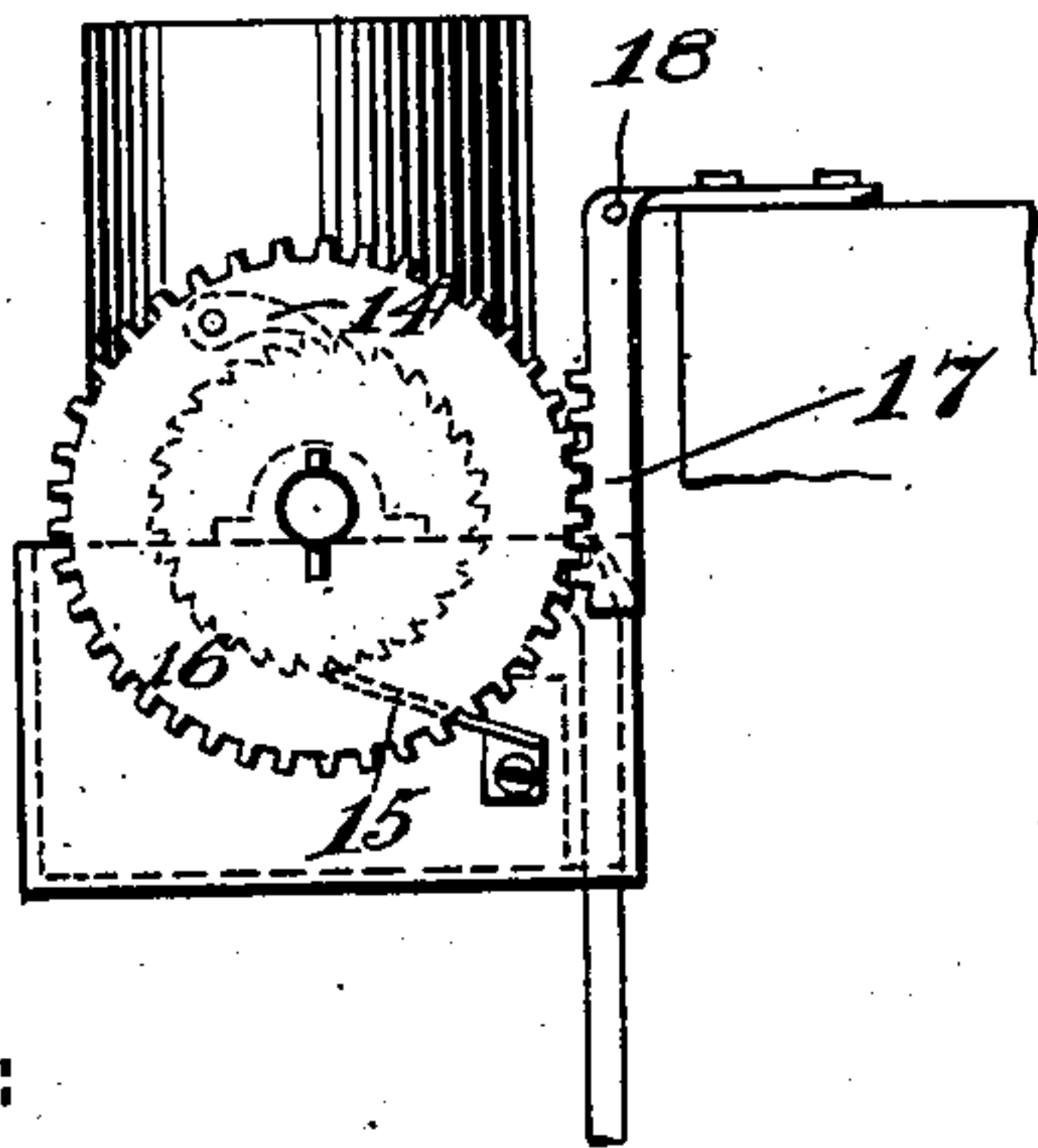
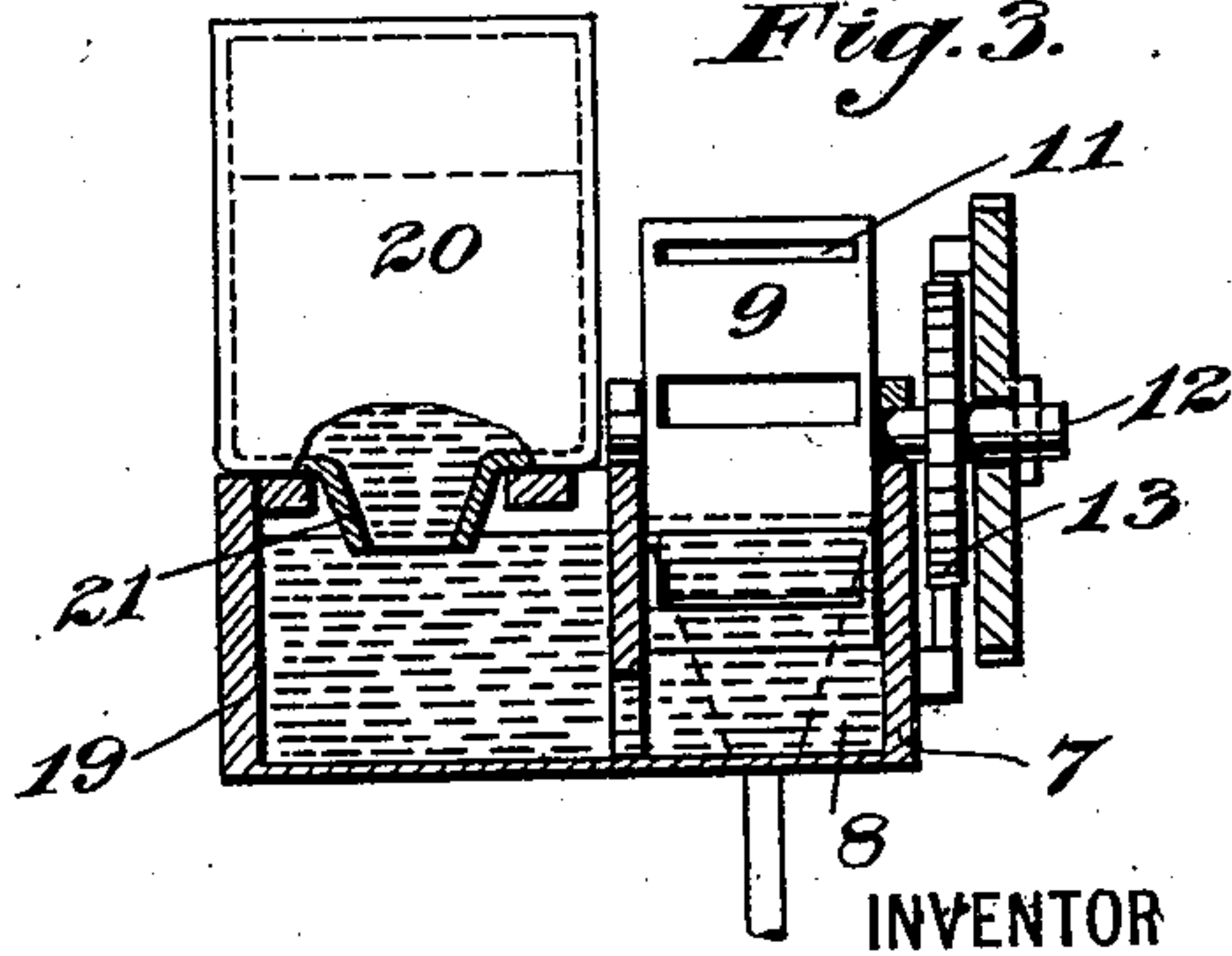


Fig. 3.



WITNESSES:

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ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 724,374, dated March 31, 1903.

Application filed May 25, 1899. Serial No. 718,233. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. ASHLEY, a citizen of the United States, residing at New York city, in the county of Kings and State
5 of New York, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a full, clear, and exact specification.

This invention relates to acetylene-gas generators, and has particular reference to the method of feeding the water to the carbid in the generating-chamber.

The object of the invention is to provide efficient and accurate means for regulating
15 the flow of water proportionate to the amount of gas generated.

The invention comprehends various features of advantage, which will be more particularly referred to hereinafter and pointed
20 out in the claims.

I have illustrated one form which the invention may take in the accompanying drawings, in which—

Figure 1 is a side view, partly in section,
25 of an acetylene-gas machine and feeding mechanism embodying my invention. Fig. 2 is a detail side view of a portion of the feeding mechanism; and Fig. 3 is an end view, partly in section, of a portion of the feeding
30 mechanism.

Referring more particularly to the drawings, 1 represents a suitable generating-chamber, in which is placed the calcium carbid or other material from which the gas is to be
35 evolved. The generating-chamber may be of any suitable construction.

2 is a supply-pipe communicating with the generating-chamber 1, through which pipe the water or other fluid is led into the chamber 1, where it comes in contact with the carbid.

3 is a passage leading from the generating-chamber into the gasometer 4, the latter being of any suitable construction. In this in-
45 stance the gasometer is shown as comprising an inverted tank 4, resting in the casing 5, and a body of water or other material 6 being located in the casing 5 in order to form a seal between the interior of the gasometer
50 4 and the outside atmosphere. Obviously when gas is generated in the generating-chamber 1 it will rise through the passage 3 into

the gasometer 4 and raise the latter. When the pressure in the gasometer 4 is diminished, the gasometer will fall.

The construction thus far described is com-
55 mon to a large number of acetylene-gas-generating machines, and I therefore desire it to be understood that any of the well-known parts thus far enumerated may be utilized in
60 the construction of my apparatus.

Adjacent to the gasometer is located a tank 7, adapted to be filled with water 8 or other suitable decomposing fluid, and mounted in suitable bearings upon the tank 7 is a wheel 9,
65 containing a plurality of buckets 10 10 10, &c., each of said buckets having an opening 11 in its top or other suitable place. The wheel 9 is so mounted that its axis will be at or near the level of the water or in such other posi-
70 tion that in revolving the buckets will successively come in contact with and be filled by the water. The pipe 2 extends to a point adjacent to the tank 7, where each of the openings as the wheel 9 is revolved will suc-
75 cessively discharge into the pipe 2. Upon the shaft 12, upon which the wheel 9 is mounted, is fixed a ratchet-wheel 13, with which pawls 14 and 15 are adapted to mesh and prevent
80 backward movement of the wheel. Upon the shaft 12 is also fixed a ratchet-wheel 16, the teeth of which are adapted to be caught by a rack 17, carried by the tank 4. The rack 17 should be pivoted to the tank 4
85 at a point 18, as illustrated in the drawings, or should be otherwise so arranged that the upward movement of the tank will not throw the rack 17 into engagement with the teeth
90 of the wheel 16, and thus cause the wheel 9 to revolve, but so that the downward movement of the tank 4 will throw the rack 17 into engagement with the teeth of the wheel 16, and cause the wheel to revolve a distance pro-
95 portionate to the fall of the gasometer. The tank 7 may be filled with water in any suitable way; but I prefer the arrangements shown in the drawings, in which 19 is a tank communicating with the tank 7 and adapted to support an inverted tank 20, having a con-
100 tracted opening 21, which projects downward into the tank 19. With this construction tank 20 may be filled with the water and placed in communication with the tank 19, as illustrated in Fig. 3 of the drawings. The water

will then pass into the tank 19 until its level in the latter tank rises to the contracted opening 21, where it will form a seal to prevent further flow of water. As the water in tank 19 is exhausted it will be fed from the tank 21.

The operation of the feeding mechanism will be substantially as follows: Assuming that a sufficient quantity of water has been introduced into the generating-chamber 10 which contains the carbid to generate enough gas to raise the gasometer to the height it will have at the desired pressure of the gas, the gasometer will remain at this height as long as the pressure therein is constant. When 15 gas has been drawn from the gasometer by a suitable means—such, for instance, as through the pipe 22—the gasometer 4 will drop, and in dropping the rack 17 will engage the teeth of the ratchet-wheel 16 and turn the latter, thus 20 turning the wheel 9 and buckets 10 toward the opening into pipe 2 and emptying a portion of the contents of one of the buckets into the pipe 2, through which it passes into the generator-chamber and evolves more gas, this action raising the gasometer to its normal level. 25 It will be observed that the quantity of gas generated may be in a large degree controlled by the quantity of fluid carried in each individual bucket 10 of the wheel 9, and the quantity of the contents of these buckets may be 30 controlled by the level of the fluid in the tank 7. This level may in turn be controlled by the length of the contracted opening 21 of the inverted tank 20. It will also be seen that 35 the entire contents of one bucket will be discharged into the gas-generating chamber before any of the contents of the next succeeding bucket can be emptied. This feature is of considerable importance in that only a certain determined quantity of water will be introduced into the generating-chamber at a time, and inasmuch as the quantity of gas which will be generated by this determined 45 quantity of water can be accurately determined in advance an element of safety is assured in the operation of the machine, because when the entire contents of one bucket is dumped into the generating-chamber only a certain known quantity of gas will be generated. 50

Having thus described my invention, I declare that what I claim as new, and desire to secure by Letters Patent, is—

1. In an acetylene-gas generator, the combination of a generating-chamber, a gasometer with movable top, a tank containing water, a bucket mounted in said tank, adapted to receive water therefrom, to revolve therein, and to discharge said water into an open-

ing, a pipe leading from said opening to the generating-chamber, means for actuating said bucket as the top of the gasometer falls, means for preventing the backward rotation of said bucket, and means for maintaining the water at an approximately constant height 65 in the tank, substantially as described.

2. In an acetylene-gas generator, the combination of a generating-chamber, a gasometer with a movable top, a wheel containing a plurality of radial buckets, each of said buckets having an opening substantially at the circumference of the wheel, a tank containing water surrounding the lower part of said wheel, a pipe, into which said buckets will discharge, leading from said tank to the generating-chamber, a ratchet-wheel carried by said bucket-wheel and an arm carried on the top of the gasometer, said arm adapted to engage said ratchet-wheel when said gasometer falls, whereby said bucket-wheel is given a forward movement and the contents of the buckets is emptied into the pipe leading to the generating-chamber, substantially as described. 75

3. In an acetylene-gas generator, the combination of a generating-chamber, a gasometer, and a tank containing water, said tank being divided into two communicating compartments, a revolving bucket adapted to receive water from one of said compartments and to discharge the same into the opening, a pipe leading from said opening to the generating-chamber, means for actuating said bucket by the movement of the gasometer, and an inverted tank having a contracted neck which extends below the level of the fluid in said other compartment, substantially as described. 85

4. In an acetylene-gas generator, the combination of a generating-chamber, a gasometer, a tank containing water, said tank being divided into two compartments, an inverted tank adapted to rest upon said first-named tank and having a contracted neck projecting into one of said compartments to substantially the desired level of water in said compartment, a revolving bucket partially submerged in the water in the other compartment, said bucket having an opening in its periphery, and a pipe adapted to register with said opening and leading to said generating-chamber, substantially as described. 100

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

FRANK M. ASHLEY.

Witnesses:

PHILIP H. BUCKLER,
ALEX. FERGUSON.