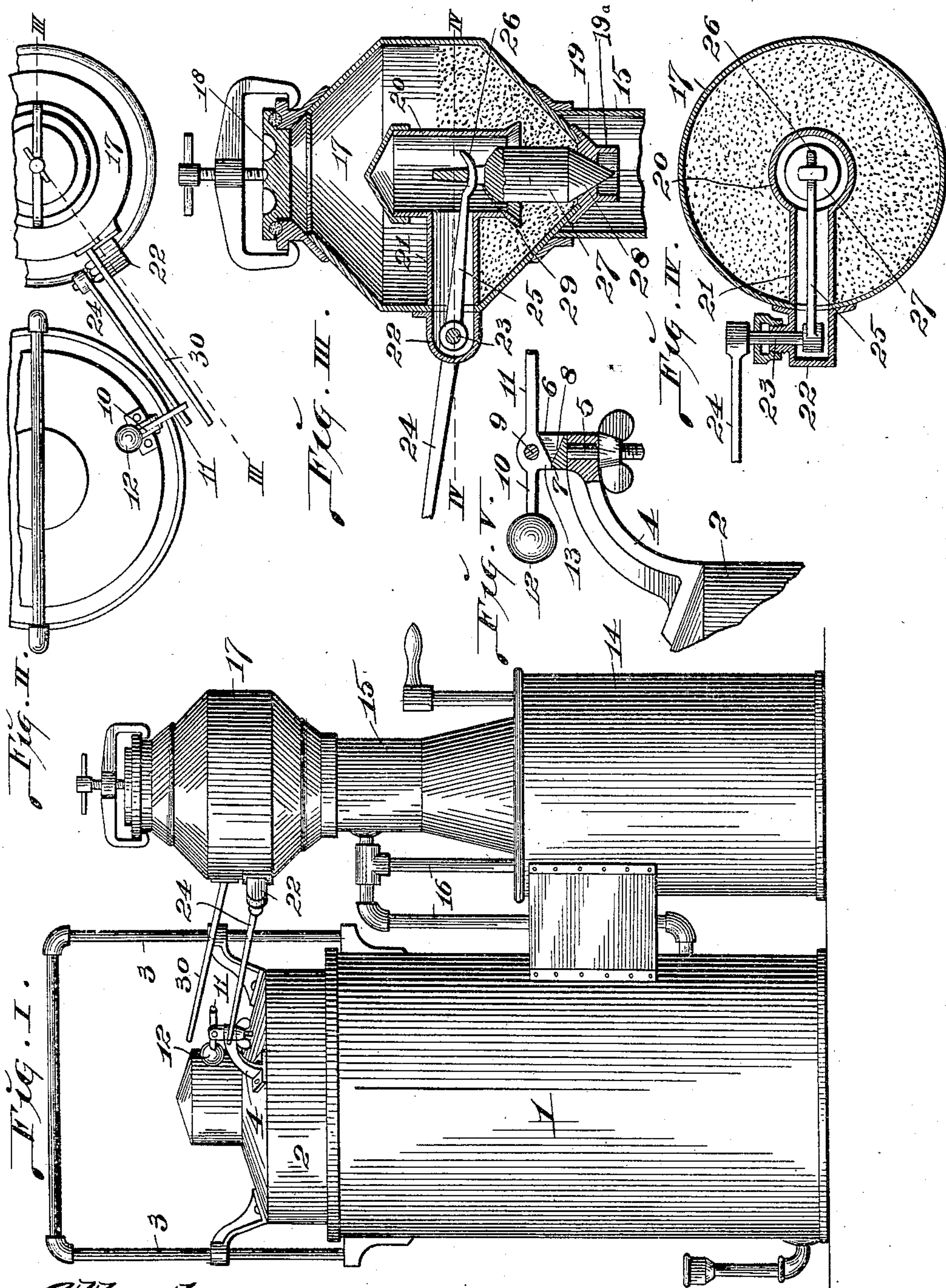


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PATENTED JUNE 4, 1907.

A. C. EINSTEIN.  
ACETYLENE GAS GENERATING APPARATUS.  
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# UNITED STATES PATENT OFFICE.

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## ACETYLENE-GAS-GENERATING APPARATUS.

No. 855,843.

Specification of Letters Patent.

Patented June 4, 1907.

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*To all whom it may concern:*

Be it known that I, ALFRED C. EINSTEIN, a citizen of the United States, residing in the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Acetylene-Gas-Generating Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

My invention relates to that character of acetylene gas generators in which the carbid is fed into the generating chamber, the feed being controlled by a valve that is actuated through the medium of the gasometer bell of the generating apparatus.

My invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I is a side elevation of my apparatus. Fig. II is a top or plan view of my apparatus with parts broken away. Fig. III is an enlarged vertical section taken on line III—III, Fig. II, through the carbid hopper and the mechanism therein. Fig. IV is a horizontal section taken on line IV—IV, Fig. III. Fig. V is an enlarged view of the dog by which the carbid feed valve lever is actuated, and a lift for said dog.

1 designates the gasometer tank of my apparatus and 2 the bell situated in said tank. The bell 2 rides vertically within the tank 1 and it is guided by sliding engagement with vertical guide rods 3.

4 is a bracket mounted on the gasometer bell and in this bracket is seated a vertical stem 5 that bears at its upper end a bifurcated head 6. At the base of the bifurcation in said head is a shoulder 7 that is situated at the upper end of an incline 8. In the head 6 is seated a pivot pin 9 and mounted on said pin is a dog 10, a finger arm 11 of which extends in one direction from the pivot pin and a weight arm 12 of which extends in the opposite direction. At the under side of the dog is a boss 13 that is adapted to engage the shoulder 7 of the stem head 6.

14 designates a generator tank that is surmounted by a neck 15 and connected to the gasometer tank 1 by pipes 16.

17 is a carbid hopper surmounting the generator tank neck and the inlet into which is closed by a cover 18.

19 is an apertured outlet member posi-

tioned beneath the hopper 17 and provided with a valve seat in the aperture therein. Depending from the outlet member is an annular rim 19<sup>a</sup>.

20 is a hood centrally situated in the hopper 17 at an elevation above the lower end of said hopper and directly surmounting the outlet member 19. This hood is supported by a tubular arm 21 secured to the wall of the carbid hopper. Exterior of the carbid hopper is a bracket 22 in which is mounted a rock shaft 23. Fixed to the outer end of said rock shaft is a lever 24 that extends into the path of travel of the finger arm 11 of the dog 10, so as to be engaged by said finger arm upon the descent of the gasometer bell 2. Fixed to the rock shaft 23 within the tubular arm 21, is a valve lifting arm 25 that extends into the hood 20 and is preferably provided with a downwardly and upwardly curved free end 26.

27 is a heavy gravity valve that is loosely hung upon the valve lifting arm 25, and is provided with a tapering lower end 28, that, when the valve is in its lowered position, rests upon the seat in the outlet member 19. The upper end or stem of the valve 27 is provided with an aperture 29 considerably larger than the free end of the valve lifting arm 25, so that said valve is free to play with a swinging motion with respect to said arm while supported thereby.

30 is a guard arm carried by the carbid hopper and projecting outwardly therefrom above the rocker lever 24 to prevent said lever being struck by any falling object or prevent anything being set upon said lever to thereby unseat the carbid feed valve to occasion flow of carbid from the hopper to the generating tank.

In the practical use of my apparatus, the operation is as follows: The carbid to be fed to the generator 14 is placed in the hopper 17, from which it is fed to the generator tank when the gravity valve 27 is lifted from its seat in the outlet member 19. In the service of the apparatus when the supply of gas in the gasometer delivered thereto from the generator tank becomes depleted, the gasometer bell descends and in so doing the finger arm 11 of the dog 10 is carried into engagement with the lever 24 and depresses said lever thereby rocking the valve lifting arm 25 upwardly and lifting the gravity



valve 27 from its seat. An additional supply of carbid is thereby delivered to the generator tank for renewed generation of gas to replenish the supply in the gasometer. It will be seen that when the finger arm 11 is in engagement with the rocker lever to depress it, its movement out of a horizontal position to maintain engagement with the lever is prevented by the engagement of the boss 13 against the shoulder 7 in the stem head 6. As soon as the supply of gas in the gasometer has been replenished, the bell 2 moves upwardly and the gravity valve 27 is free to descend to seat in the hopper outlet member 19. By reason of this valve being very heavy and being loosely suspended from the lifting arm 25, it is free to move downwardly in the body of carbid in the hopper 17 and readily works its way through the carbid by pressing the surrounding particles of carbid out of its way so that it may reach its seat quickly and efficiently close the aperture in the outlet member to stop the flow of carbid there-through. This arrangement is important over valves that are operated mechanically to seat them, and in the use of which particles of carbid frequently lodge between the valve and its seat, thereby preventing positive seating of the valve and rendering it possible for the carbid to continue at least a slight flow into the generating tank. It will be seen that the valve may swing laterally in any direction by reason of its being hung solely from above so that its lower end is free and that therefore when carbid descends from the hopper 17 to the outlet leading therefrom it may crowd the valve to one side to expose the outlet for its free egress and descent into the generator chamber. It is quite apparent that this action could not be present were the valve held in any way at the lower end to prevent its swinging sideways or supported and actuated from its lower side which would also prevent the sideways motion. A further and very important feature in connection with my valve suspended from above only so as to permit lateral or sidewise motion thereof, is that of providing for the feeding of granular carbid of any grade, irrespective of whether it be pulverized, grain or lump, as it is obvious that where the finer grades of material are used they may flow past the valve from any point and that material in lump form may easily press the valve to one side and pass it to reach the outlet from the carbid hopper.

The annular rim 19<sup>a</sup> depending from the outlet member 19 serves as a shield to inclose the space immediately beneath the outlet aperture in said member and provides a dead

air space within said rim. It will be understood that owing to the carbid hopper being closed at its upper end there can be no circulation from the generator chamber to said hopper. As a consequence the shielding annular rim 19<sup>a</sup> excludes the entrance of moisture from the generator chamber into the dead air space within said rim and prevents such moisture from gaining access to the lower end of the valve 27. The result is that the valve always remains perfectly dry and is not subject to the adherence of carbid thereto as it would be if moisture from the generating chamber had access thereto to moisten the otherwise dry carbid.

It will be observed that there is a difference in the paths of travel of the rocker lever 24 and the dog finger 11 which both swing in arcs of circles, and therefore as the gasometer bell descends if the supply of carbid in the hopper 17 is exhausted the continued downward movement of the gasometer bell, owing to non-support by gas beneath it, will cause the dog finger to travel to the end of the rocker lever and pass it, thereby becoming freed from said lever instead of rendering it necessary for the lever to support the weight of the bell. It will also be seen that when the gasometer bell is elevated from its lower limit of travel the dog 10 will pass the rocker lever 24 readily when the finger 11 strikes the under side of said lever and throws the weighted arm 12 of the dog upwardly and after the dog has passed the lever the weighted arm will act to return the dog to its normal position.

I claim as my invention:

In an acetylene gas apparatus, the combination of a generator tank, a carbid hopper having an outlet at its lower end, a freely suspended gravity valve located above said outlet for controlling the flow of carbid there-through and having an apertured stem at its upper end, a hood of greater diameter than the valve and surrounding the upper end of the valve and free of connection therewith, a tubular arm secured to the hopper and integral with said hood, a valve lifting arm extending through said tubular arm and having a free end fitting loosely in the aperture of the valve stem, a lever having connection with said lifting arm and extending outside of the hopper, a gas bell, and a dog carried by said bell and adapted to engage the free end of the lever to lift said valve.

ALFRED C. EINSTEIN.

In presence of—

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