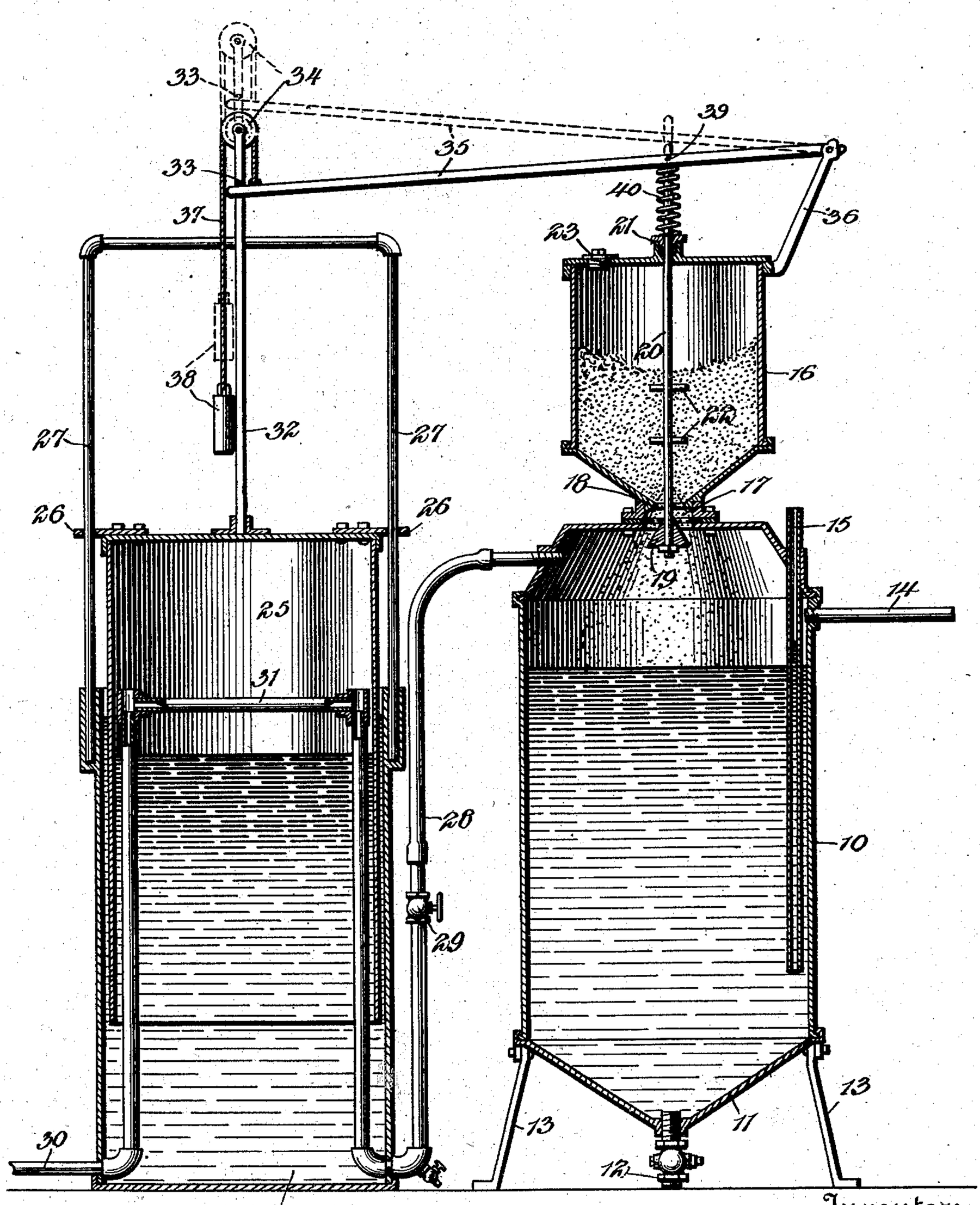
No. 712,474. Patented Nov. 4, 1902.

# D. BARNARD.

## ACETYLENE GAS GENERATOR.

(Application filed Feb. 19, 1902.)

(No Model.)

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# UNITED STATES PATENT OFFICE.

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## ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 712,474, dated November 4, 1902.

Application filed February 19, 1902. Serial No. 94,776. (No model.)

*To all whom it may concern:*

Be it known that I, DAVIS BARNARD, a citizen of the United States, residing at Bakersfield, in the county of Kern and State of California, have invented a new and useful Gas Apparatus, of which the following is a specification.

The present invention relates to gas apparatus, particularly that type employed in the manufacture of acetylene gas from calcium carbid.

The prime object of this invention is to provide a simple and consequently inexpensive structure which is entirely automatic and safe in action.

More particularly, one of the important features resides in the carbid-feeding mechanism and the operating means therefor, said mechanism and means being constructed and arranged so that in case of extraordinary movements resulting from abnormal pressure or other cause the operating mechanism will be protected from injuries, while the carbid-feeding will be cut off and the generation of gas stopped.

It is thought that the single view herewith presented, which is a longitudinal section through the apparatus, will be sufficient for one skilled in the art to readily understand the structure.

The generating-chamber 10, which may be of any desirable material, is preferably cylindrical in form, having a hopper-bottom 11, provided with a discharge 12, said chamber being supported upon suitable feet 13. A water-supply pipe 14 is connected to the upper portion of the chamber, and a safety open-ended blow-off pipe 15 extends through the top of said chamber and well below the water-line. Supported upon the upper end of the generating-chamber is the carbid-reservoir 16, having communication with said chamber through a passage-way 17, the upper end of which is formed into a suitable valve-seat 18. Controlling this communication is a downwardly-opening plug-valve 19, having a vertical stem 20, that extends entirely through the carbid-reservoir and passing through a suitable stuffing-box 21 in the top of the same has its upper end projecting a considerable distance above said top. The valve-stem is preferably provided with radial stirring-fingers 22, which are designed to operate upon the carbid and prevent its caking in the reservoir. The said reservoir is furthermore provided with a suitable filling-opening closed by a screw-plug 23.

The gasometer is of substantially the usual construction, comprising a water receptacle or tank 24, in which is mounted a vertically-movable gas-bell 25, said bell having outstanding ears 26, which are slidably mounted upon a suitable guide-frame 27, secured to the water-tank. From the upper end of the generator a conducting-pipe 28 leads through the bottom of the water-tank and extends above the level of the water therein. A globe or other valve 29 is placed in said pipe to control the passage-way therethrough. A gas-supply pipe 30, leading from the upper portion of the gasometer, passes through the lower portion of the water-tank and is connected to the main, as will be readily understood. The upper ends of these pipes are preferably braced by a cross-pipe 31, connecting the same.

The mechanism for operating the valve 19 is as follows: A standard 32 is secured to the upper end of the bell and projects well above the guide-frame 27, said standard being provided near its upper end with a stop-pin 33 and carrying at its upper end a pulley 34. An actuating-lever 35 is pivoted at one end to a bracket 36, secured to the carbid-reservoir, and its other end normally engages the under side of the stop-pin 33, being held in this position by a cord or cable 37, secured to the free end of the lever and passing over the pulley 34, the opposite end of said cord carrying a weight 38. The valve-stem 20 is secured to the actuating-lever by means of a pin 39, and a coiled return-spring 40 surrounds the projecting end of the valve-stem and is interposed between the top of the carbid-reservoir and the lever.

The operation of the apparatus is substantially as follows: Assuming the bell 25 lowered, it will be evident that the actuating-lever will be likewise lowered, thus opening the valve and permitting the carbid to pass into the generating-chamber. The carbid combining with the water therein will generate the gas, which, passing through the conduct-

ing-pipe 28, will enter the gasometer, and the pressure occasioned thereby will cause the gas-bell to rise. The weight 38 and the return-spring 40 being sufficient to maintain the lever 35 against the stop-pin, it will be evident that when the gasometer rises the lever will also rise and the valve be consequently seated, thereby closing the communication between the carbid-reservoir and the generating-chamber and cutting off the feed of the carbid. Now in case the gas-bell should still continue to rise, either because an excessive amount of gas was generated or from any other reason, it would in no wise affect the valve or the actuating-lever, as the cord would simply run over the pulley. Thus any danger of injury to the valve or the operating mechanism is avoided. In case, however, an accident should happen to the connection between the lever and the standard 32—as, for instance, the cord 37 should break—the return-spring 40 will be sufficient to hold the valve closed, and thus danger from this cause is eliminated. It will therefore be seen that the apparatus as presented accomplishes all the objects pointed out in the preliminary portion of the specification, and it is to be understood that the invention is not limited to the particular construction shown, and changes in the size, shape, and many details of construction may be made without departing from the invention.

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

1. In gas apparatus, the combination with a gasometer having a movable bell, of an upright stem arranged centrally upon the top of, and projecting above the bell, said stem having an offset stop, a generating-chamber, carbid-feeding mechanism, and operating means for the feeding mechanism, said means including a lever bearing against the stop, a pulley mounted upon the stem above the stop, a flexible cord or cable secured to the lever and passing over the pulley, and a weight attached to the free end of the cord or cable.

2. In gas apparatus, the combination with a gasometer having a movable member, said member being provided with an upright stem having an offset stop intermediate its ends, of a generating-chamber, a carbid-reservoir having communication with the generating-chamber, a valve controlling the communication and provided with a stem that projects above the reservoir, a lever pivoted at one end and attached at an intermediate point to the valve-stem, the free end of said lever bearing against the stop, a pulley journaled upon the stem above the stop, a flexible cord or cable secured to the free end of the lever and passing over the pulley, and a weight attached to the free end of the cord or cable.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DAVIS BARNARD.

Witnesses:
SAML. N. REED,
W. D. YOUNG.