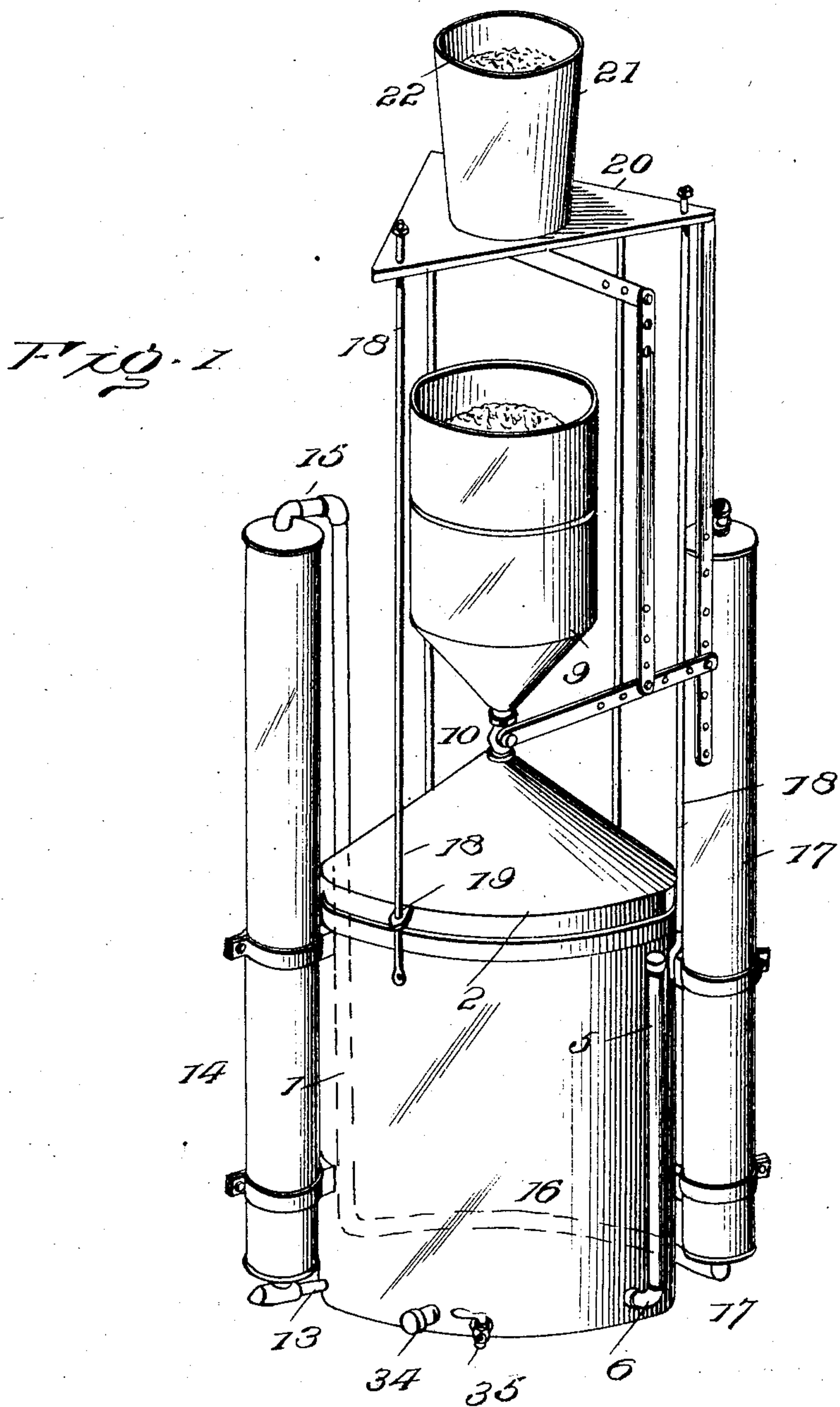


No. 786,330.

PATENTED APR. 4, 1905.

W. A. WALLACE.
ACETYLENE GAS GENERATOR.
APPLICATION FILED AUG. 29, 1904.

3 SHEETS—SHEET 1.



Inventor

W. A. Wallace

Witnesses

W. H. Hudson
W. H. Hudson

By

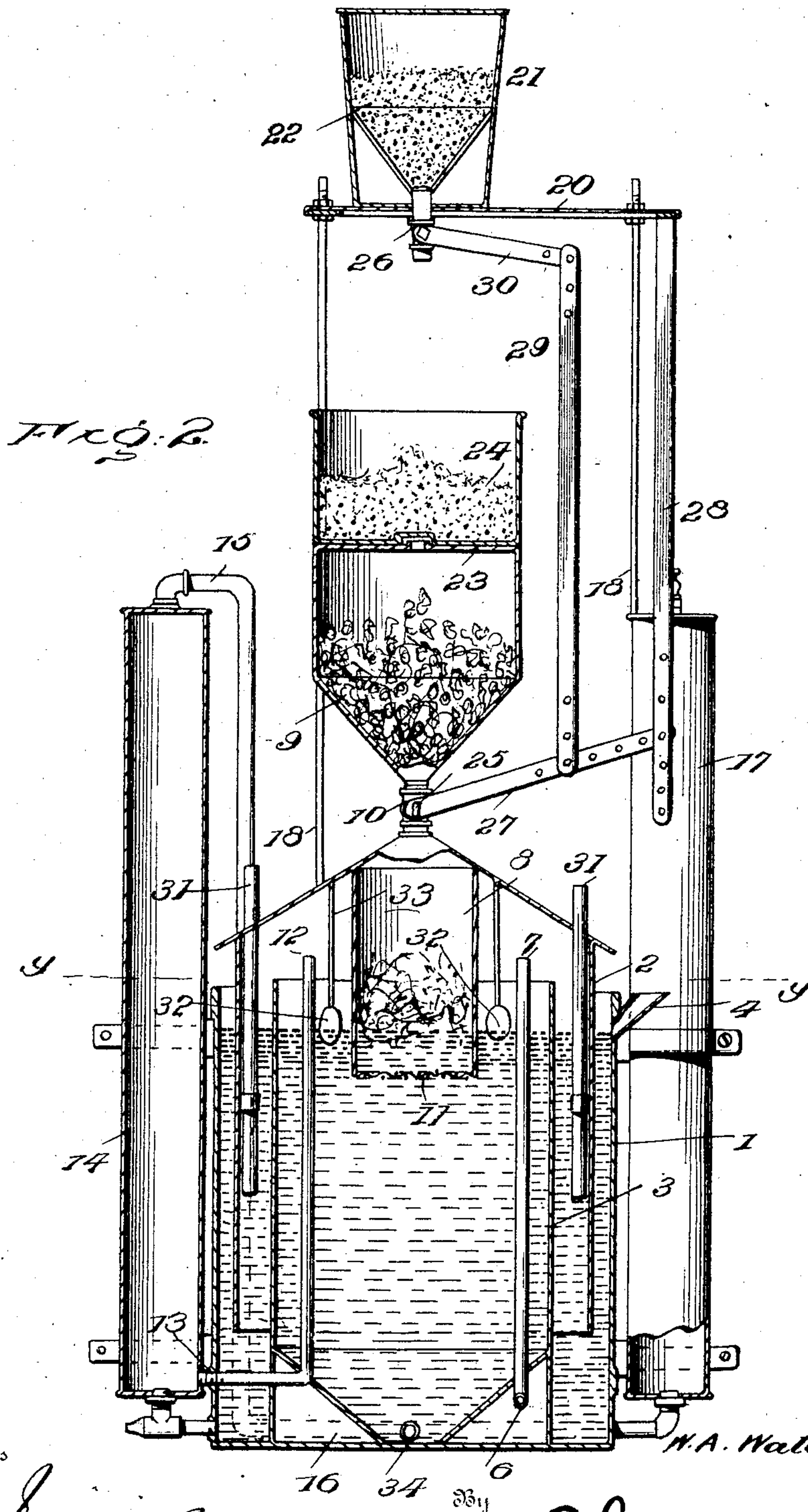
R. H. B. Lacey, Attorney

No. 786,330.

PATENTED APR. 4, 1905.

W. A. WALLACE.
ACETYLENE GAS GENERATOR.
APPLICATION FILED AUG. 29, 1904.

3 SHEETS—SHEET 2.



Inventor

W. A. Wallace

Witnesses

J. H. H. H.
W. A. H. H.

By

R. A. B. Lacey Attorneys

No. 786,330.

PATENTED APR. 4, 1905.

W. A. WALLACE.
ACETYLENE GAS GENERATOR.
APPLICATION FILED AUG. 29, 1904.

3 SHEETS—SHEET 3.

Fig. 3.

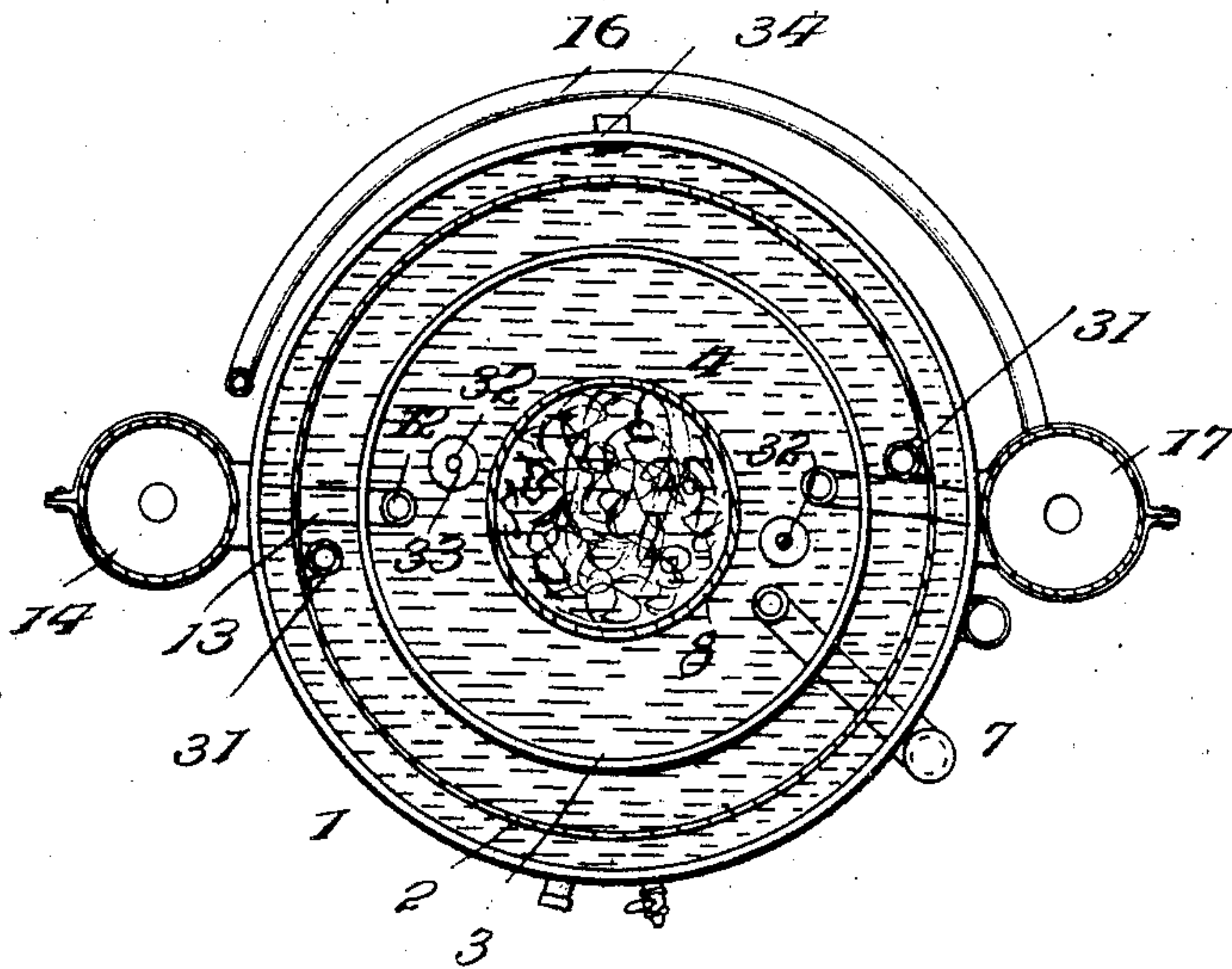
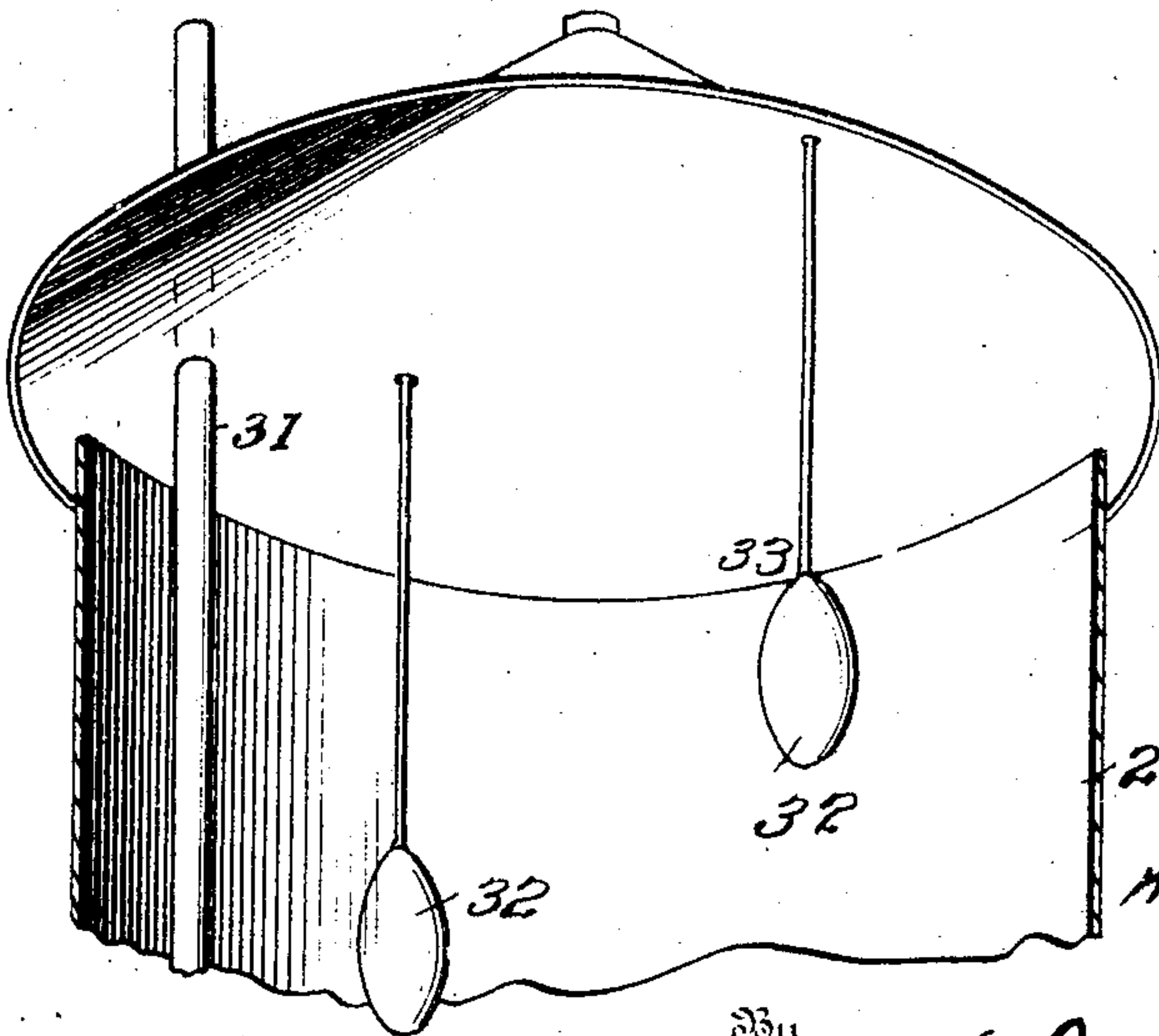


Fig. 4.



Witnesses

W. A. Wallace
W. A. Wallace

By

R. A. B. Lacey Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM A. WALLACE, OF COLLINSVILLE, TEXAS.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 786,330, dated April 4, 1905.

Application filed August 29, 1904. Serial No. 222,634.

To all whom it may concern:

Be it known that I, WILLIAM A. WALLACE, a citizen of the United States, residing at Collinsville, in the county of Grayson and State of Texas, have invented certain new and useful Improvements in Acetylene-Gas Generators, of which the following is a specification.

This invention relates to gas-generating machines of the carbid-feed type and embodying ordinarily a gasometer provided with a bell, a generator, and carbid-feed mechanism for supplying the carbid to the generator.

The invention embodies improvements upon the class of machines of the type above mentioned in which the carbid is supplied to the generator from a holder carried by the gas-bell; and the invention resides in the provision of means for compensating for the weight of the carbid displaced from the holder, so that the resistance of the gas-bell to the pressure within the gasometer will be maintained at an ascertained point under all conditions of service. It is well known that the displacement of the carbid from the holder mounted upon the gas-bell correspondingly decreases the resistance of the bell according to the weight of the carbid fed into the generator, and thus pressure of the gas in the system supplied by the machine will fluctuate according to the decrease of the resistance of the gas-bell owing to displacement at various intervals of time of the carbid from the carbid-holder. In heating and lighting systems, especially, supplied from a gas-machine the fluctuation of the pressure of the gas in the system is disadvantageous for obvious reasons, since the gas cannot be well relied upon; and it is therefore the object of this invention to provide means for maintaining the pressure in such a system equal at all times.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of

the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a gas-generator embodying the invention. Fig. 2 is a vertical sectional view of the invention, bringing out the interior arrangement of parts. Fig. 3 is a horizontal sectional view taken on about the line *yy* of Fig. 2. Fig. 4 is a sectional perspective view of a bell, partially broken away, showing more clearly the mounting of the floats thereon.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference character.

Generally describing the invention, the same consists, essentially, of a gasometer embodying a tank or receptacle 1 and a gas-bell 2 mounted therein. The generator 3 is located within the tank 1 of the gasometer and preferably consists of a suitable receptacle disposed upon the bottom of the tank 1 and located centrally of the latter, said generator 3 being of a diameter quite a little less than that of the gasometer-tank aforesaid. The inlet-pipe 4 extends from the upper portion of the tank 1, and water is admitted through this inlet into the said tank 1, so as to establish a water seal between the bell 2 and the said tank and for other purposes, which will appear hereinafter. The generator 3 consists of a receptacle entirely independent of the gasometer, though situated therein, and water is supplied to the generator by means of a pipe 5, the lower end of which has a horizontal branch 6 extended into the generator 3 through the lower portion of the gasometer. A second branch 7 of the pipe 5 leads vertically from the inner portion of the branch 6, and said branch 7 extends upward, terminating at a point adjacent the upper extremity of the said generator. The generator-receptacle 3 is open at its upper end and is designed to be filled with water to a level of about several inches below the upper extremity thereof. A carbid-receptacle 8 is supplied with carbid from the carbid-holder 9, supported upon the bell 2 in the usual manner. A valved inlet-pipe 10 extends from the lower extremity of the

holder 9, communicating with the receptacle 8, so as to feed the carbid to the latter. The receptacle 8 is provided with a perforated bottom 11, and the carbid when fed into the
 5 receptacle 8 is supported upon the bottom 11, being lowered into the water in the generator 3 in the operation of the machine in the generation of the gas. The gas when generated passes from the gas-space at the upper portion
 10 of the gasometer through a supply-pipe 12, which leads from said space through the lower portion of the generator, having a lateral branch 13 communicating with the lower portion of a purifier 14. The purifier 14 may
 15 be of any suitable type commonly in use and preferably contains cotton and charcoal. An outlet-pipe 15 leads from the upper portion of the purifier 14 and extends downwardly there-through, projecting at an angle at the lower
 20 end, as shown at 16, and having valved connection with the lower portion of a drier 17. The drier 17 also may be of any approved construction and preferably contains sponges or similar material through which the gas must
 25 pass into the system of pipes, from which it is taken off and utilized for lighting, heating, or any other purposes.

The bell 2 is guided in its vertical movement, as regulated by the pressure of gas
 30 within the gasometer, by means of vertical rods 18, which project upwardly from the tank 1 of the gasometer, being attached to the latter in any substantial manner. Guide members 19 are projected from the upper portion
 35 of the bell 2 and are provided with openings receiving the rods 18, being thus enabled to direct the movement of the bell in the operation of the machine. The rods 18 are also utilized to support a platform 20 secured
 40 thereto. Adjacent the upper ends of said rod, upon the platform 20, is disposed a hopper 21. Weight means are preferably utilized to compensate for the displacement of the carbid from the holder 9, and such means consists of
 45 loose material 22, carried within the hopper 21, and this material may be sand, gravel, or the like adapted to be readily fed from the hopper 21. The carbid-holder 9 and receptacle 21 are provided with bottoms inclining
 50 toward a central point, so that the material within this receptacle will readily pass therefrom as governed by proper feeding mechanism. The carbid-holder 9 is closed at its upper portion, as shown at 23, having an inlet-
 55 opening normally closed by a screw cap or lock. The uppermost portion of the holder 9, however, is designed to receive a second receptacle 24, the latter being open at its upper end and nested within the holder 9, as
 60 shown most clearly in Fig. 2 of the drawings. In the operation of the machine it is designed to feed the loose material 22 in the hopper 21 to the receptacle 24, carried by the carbid-holder 9, in order to compensate for the weight
 65 of the carbid which is supplied to the gener-

ator by being displaced from the holder 9. The material 22, further, is fed in exact proportion as regards its weight to the amount of carbid fed from the holder 9 to the carbid-receptacle 8, so that the weight of the bell and
 70 adjacent parts is always the same and the resistance afforded by the bell and such parts to the pressure within the gasometer is equal under all conditions of service. Valves 25 and 26 at the lower portions of the receptacles
 75 9 and 21, respectively, regulate the feed of the material within said receptacles therefrom, and these valves are operated simultaneously by a main valve-lever 27, connected with the valve 25. The lever 27 is connected at one
 80 end with the valve 25, the opposite end being connected with a supporting-bar 28, pivoted to the upper portion of one of the rods 18 adjacent. A bar 29 connects the lever 27 between
 85 the ends of the latter with a secondary lever 30, which lever 30 is connected with the valve 26. Thus in the movement of the bell 2 the valves 26 and 25 will be operated simultaneously to feed the carbid from the holder 9 and the loose
 90 material in the hopper 21 to the receptacle 24. The parts 27, 28, 29, and 30 are adapted for adjustable connection with each other, these parts being provided with a plurality of open-
 95 ings through which the fastening connection may be passed. The adjustability of the parts above mentioned admits of regulation of the feed of the material from the receptacles 21 and 9 in a manner readily apparent. Safety
 100 devices are employed in the event of an overcharge of carbid, and such devices consist of pipes 31 of any desired number rigidly secured to the bell 2 and extending from the interior thereof to a point outside of the same.
 105 The lower ends of the pipes 31 are open and are normally sealed by being received in the water within the gasometer; but when the sudden pressure created by an overcharge of carbid raises the bell 2 to a point above its normal limit of movement the lower extremities of the device 31 will move above the wa-
 110 ter-line in the gasometer and the gas will be permitted to pass from the gas-space of the tank 1 through said pipes 31 and out of the machine, thereby relieving the pressure and avoiding all likelihood of damage usually re-
 115 sultant from an overcharge of carbid. The pipes 31 may lead to any suitable outlet convenient. In order to regulate the movement of the bell 2 in lowering due to decrease of the pressure in the gasometer and to limit
 120 such movement more especially, buoys 32 are rigidly attached to the bell 2 by means of rods 33, said buoys forming floats, which when received by the water in the deflector serve to assist the pressure of the gas within said gas-
 125 ometer in supporting the weight of the bell, the holder 9, and adjacent parts carried thereby. An outlet-pipe 34 leads from the lower extremity of the generator and is designed for use in drawing off any sediment or other for-
 130

5 eign matter which may collect in the base of said generator. Said pipe 34 is closed by a cap or other means. The tank 1 is also provided with a draw-off cock 35, through which the water therein may be thrown off when desired.

The operation of the invention is as follows: A charge of carbid having been received in the receptacle 8, gas is generated by movement of the said receptacle downwardly into the water in the generator 3, and the use of the receptacle 8 is advantageous in that the carbid is thoroughly dissolved and no likelihood of collection of this material in the base of the generator and danger of explosion from this source is incurred. The gas within the gasometer will support the bell 2 at an ascertained height, and when such gas is drawn off through the supply-pipes of the system for lighting or other purposes the pressure in the gasometer is reduced and the bell 2 correspondingly lowers. As the bell lowers the valve-lever 27 opens the valve 25 proportionately, admitting carbid into the receptacle 8, and simultaneously with the operation of the valve 25 the parts 29 and 30 actuate or open the valve 26, admitting sand or loose material into the receptacle 24, the supply of the loose material 22 being proportionate with the amount of carbid fed from the holder 9. The new charge of carbid increases the pressure of gas within the gasometer and the bell 2 rises in the usual manner, such movement operating the valves 25 and 26 to close the same, thus shutting off the feed of the material 22 of the carbid. The loose material 22 fed to the receptacle 24 takes the place as regards the weight thereof of the carbid fed from the holder 9, and thus the weight upon the bell 2 does not vary and the movement of said bell is always steady under the pressure of the gas in the gasometer, so that said bell offers the same resistance to the pressure of the gas in the gasometer to force the gas in the supply system under a pressure equal at all times. The pressure in the system or systems is thus maintained without fluctuation or sudden rise and fall and may be thoroughly relied upon for all purposes.

50 Having thus described the invention, what is claimed as new is—

1. In an acetylene-gas generator, the combination of a gasometer embodying a bell, a carbid-holder carried by the bell, means for feeding the carbid from the holder, weight means mounted independently of the gas-bell for compensating for the weight of the carbid displaced from said holder, and means for

effecting coöperation of the weight means and the bell upon displacement of the carbid. 60

2. In an acetylene-gas generator, the combination of a gasometer embodying a bell, a carbid-holder carried by the bell, means for feeding the carbid from the holder, a hopper mounted independently of the gas-bell, and valve means governing egress of the contents of the hopper and operable by the gas-bell aforesaid. 65

3. In an acetylene-gas generator, the combination of a generator, a gasometer embodying a bell, a carbid-holder carried by the bell, means for feeding the carbid from the holder to the generator, and weight means regulable by the carbid-feed mechanism to compensate for the weight of the carbid displaced from the said holder. 70 75

4. In an acetylene-gas generator, the combination of a generator, a gasometer embodying a bell, a carbid-holder carried by the bell, means for feeding the carbid from the holder to the generator, a hopper mounted independently of the bell to receive loose material, a receptacle supported by the bell, and means for feeding the loose material from the hopper into the receptacle aforesaid. 80 85

5. In an acetylene-gas generator, the combination of a gasometer embodying a bell, a generator, a carbid-holder carried by the bell, a receptacle supported by the carbid-holder, a hopper adapted to receive loose material, valved means governing the egress of the material in the hopper and carbid-holder, and means for simultaneously operating said valve means to effect feeding of the carbid to the generator and feed of the loose material from the hopper to the receptacle supported by the carbid-holder. 90 95

6. In an acetylene-gas generator, the combination of a gasometer embodying a bell, a generator, a carbid-holder carried by the bell, a receptacle supported by the carbid-holder, a hopper adapted to receive loose material, valved means governing the egress of the material in the hopper and carbid-holder, and adjustable means for simultaneously operating said valve means to effect feeding of the carbid to the generator and feed of the loose material from the hopper to the receptacle supported by the carbid-holder. 100 105

In testimony whereof I affix my signature in presence of two witnesses. 110

WILLIAM A. WALLACE. [L. s.]

Witnesses:

J. B. KING,

H. B. DENTON.