

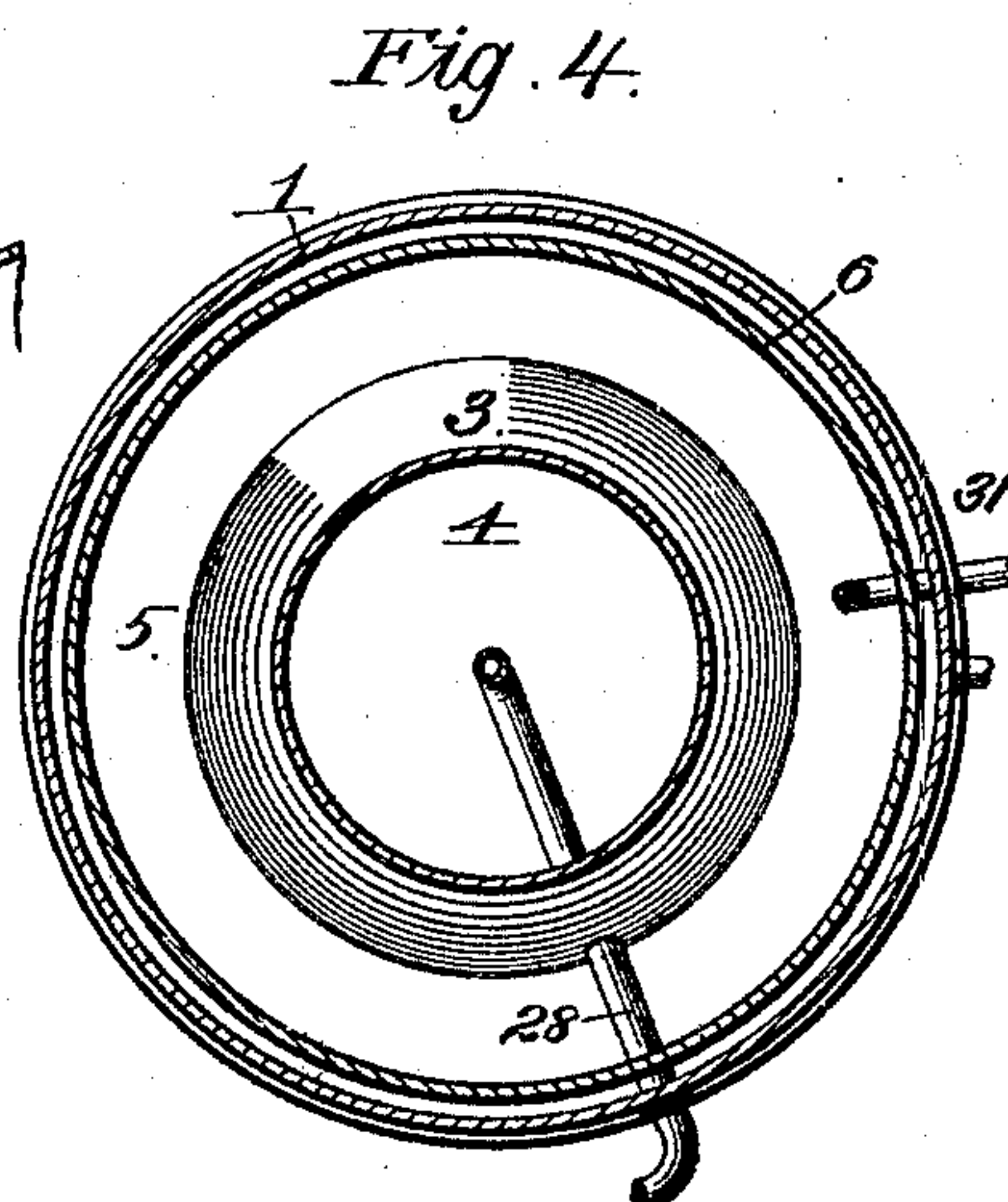
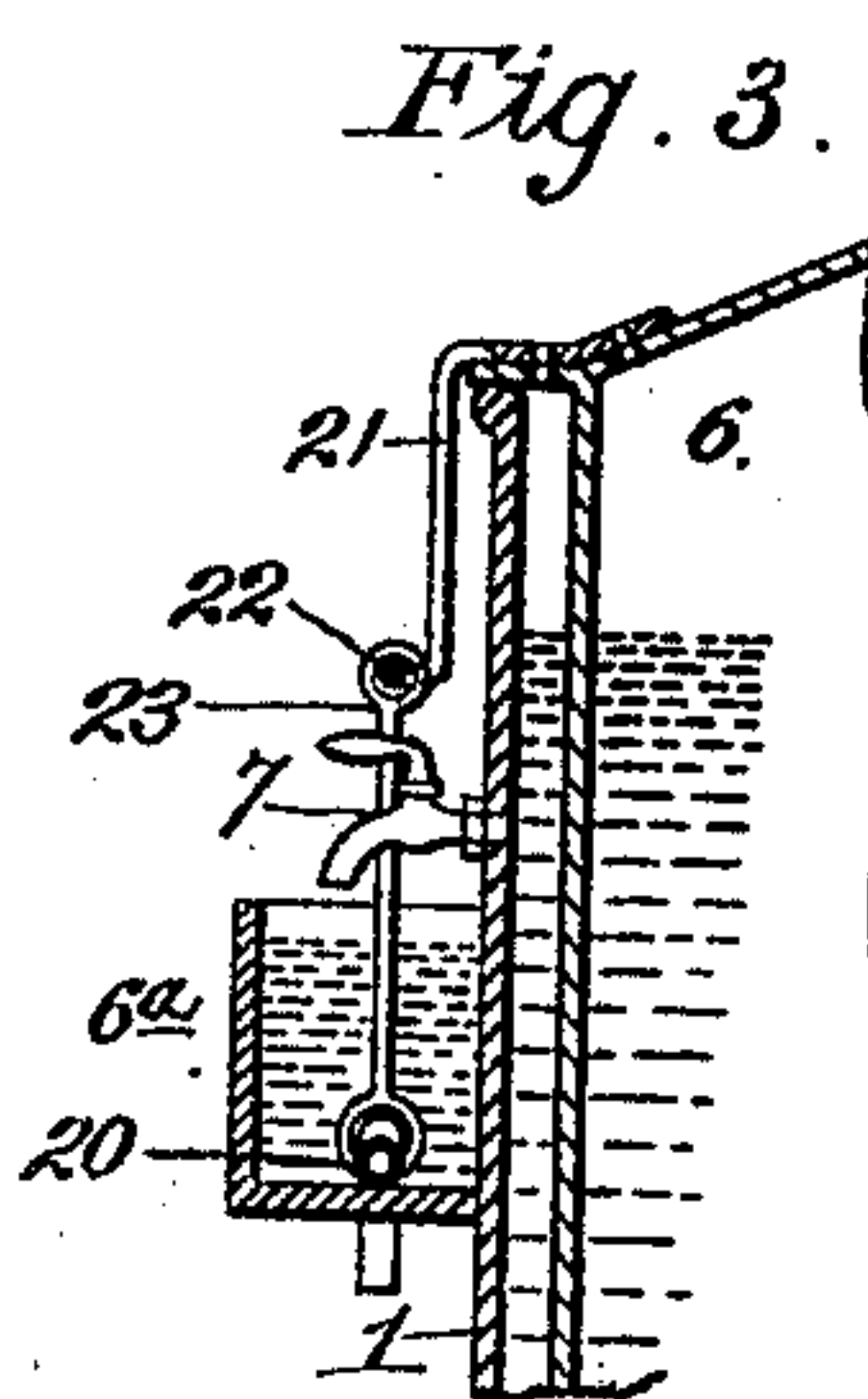
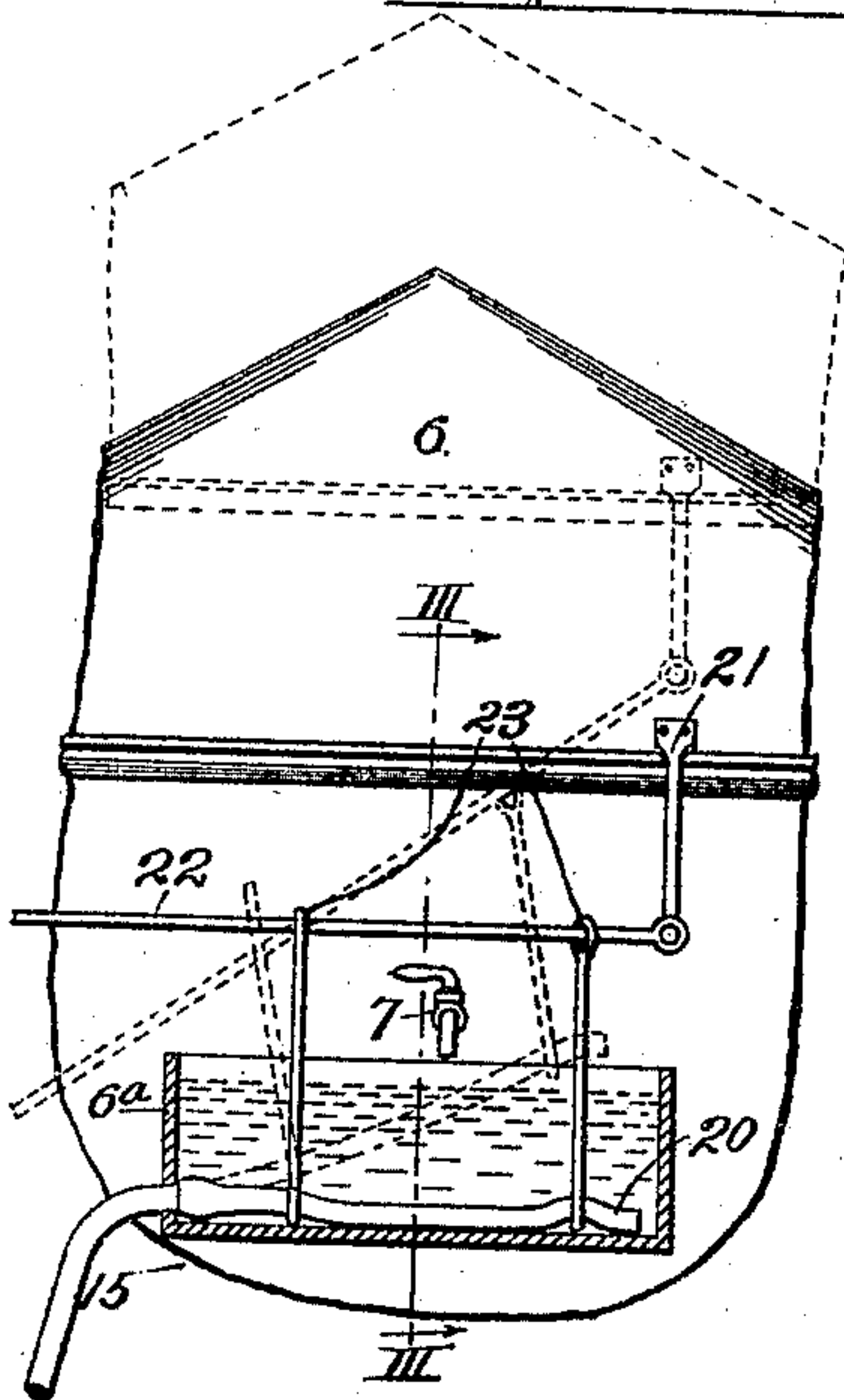
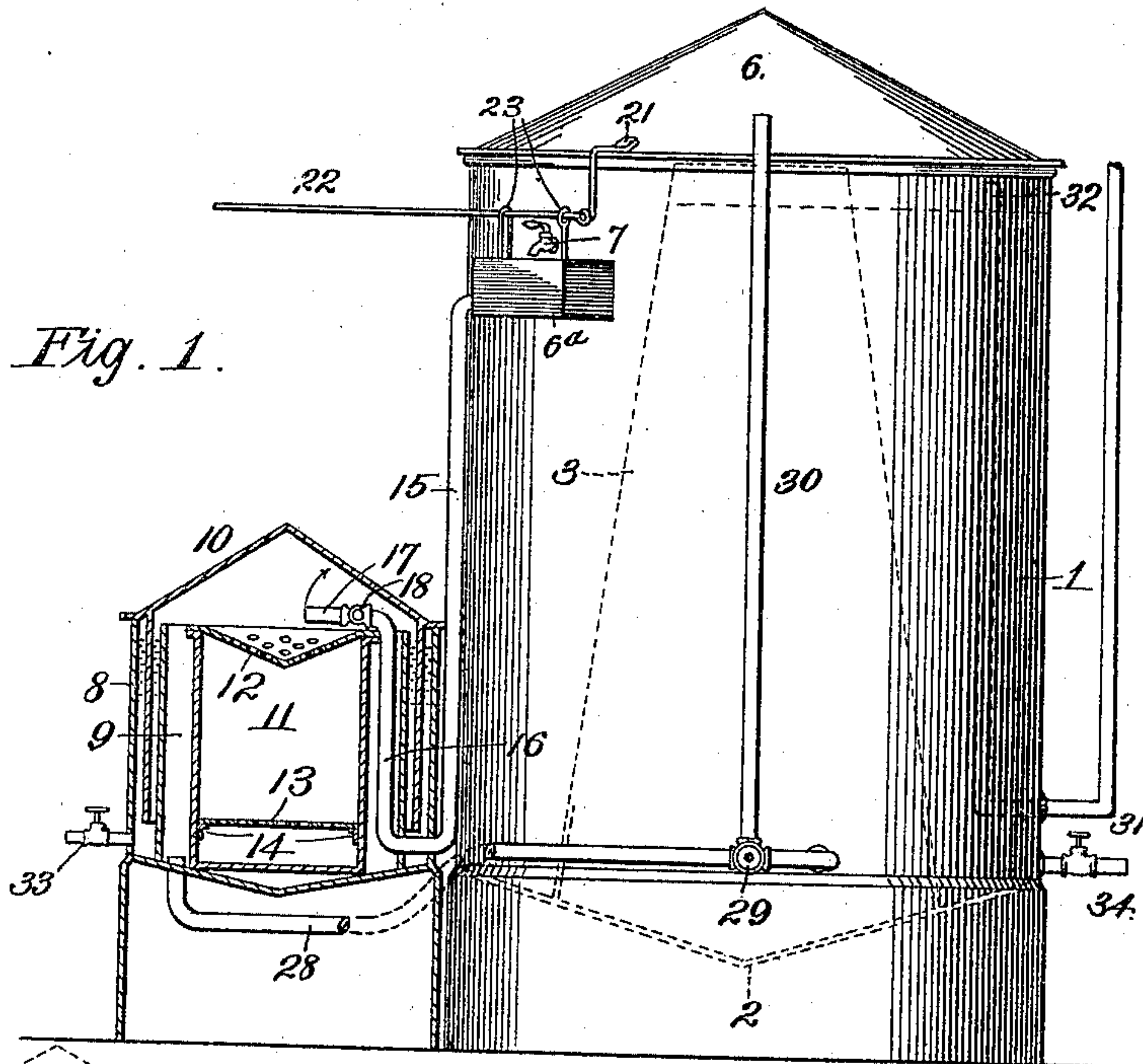
No. 634,879.

Patented Oct. 17, 1899.

L. E. CORWIN.
ACETYLENE GAS MACHINE.

(Application filed Jan. 17, 1899.)

(No Model.)



Witnesses:

C. F. Bartholomees.

M. R. Remley.

Inventor
L. E. Corwin

By Higdon, Fischer & Thorpe
Att'ys.

UNITED STATES PATENT OFFICE.

LEWIS E. CORWIN, OF MELVERN, KANSAS.

ACETYLENE-GAS MACHINE.

SPECIFICATION forming part of Letters Patent No. 634,879, dated October 17, 1899.

Application filed January 17, 1899. Serial No. 702,476. (No model.)

To all whom it may concern:

Be it known that I, LEWIS E. CORWIN, of Melvern, Osage county, Kansas, have invented certain new and useful Improvements in
5 Acetylene-Gas Machines, of which the following is a specification.

My invention relates to gas-machines, and my object is to produce a machine of this character which will automatically cease
10 manufacturing gas as the gas-bell attains a predetermined height, thereby eliminating an element of danger incident to the manufacture of an excessive volume of gas.

With this and other objects in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed, and in order that the invention may be fully understood I will proceed to describe
15 it with reference to the accompanying drawings, in which—

Figure 1 represents an acetylene-gas machine constructed in accordance with my invention, the gas tank and bell being shown
25 in elevation and the generator in vertical section. Fig. 2 is a side view of the upper part of the gas tank and bell with the filler or water-tank broken away to disclose the interior mechanism. Fig. 3 is a vertical section taken
30 on the line III III of Fig. 2. Fig. 4 is a horizontal section of the gas tank and bell.

In the said drawings, where like reference-numerals designate corresponding parts, 1 designates the gas-tank, provided with an inverted conical bottom 2, by preference, and with a hollow frustum 3, resting concentrically upon said bottom and having its upper open end above the water-line of the tank, said frustum dividing the tank into a gas-chamber 4 and a surrounding water-chamber 5.
40

6 designates a gas-bell having its lower end submerged in the water of chamber 5 in the customary manner and adapted to rise and
45 fall accordingly as the volume of gas in the tank increases or diminishes.

6^a designates a relatively small tank secured externally to the gas-tank and adapted to be charged with water when desirable from
50 tank 1 through the faucet 7.

8 designates a generator located at a convenient point and provided with a cylindrical partition 9, rising from its base and parti-

tioning the generator into an inner or gas chamber and an outer or water-seal chamber, 55 (see Fig. 1,) and 10 designates the top or cover of the generator, said top or cover having its lower end always submerged in said water-chamber.

11 designates a carbid cup or basket provided with an inverted conical top or cover 12, perforated around its center, so as to distribute the water evenly over the carbid, (not shown,) which is placed upon the perforated partition 13, resting upon the cleats or supports 14, to the end that a chamber below
60 said partition may be provided to receive the unconsumed water and the ash from the carbid. This water may be drained off through the medium of a valved drain-pipe (not shown) or may be poured out with the ash
70 when the cup or basket is removed from the generator to be cleaned and recharged, the top or cover 12 of course being removable for this purpose.

15 designates a water-supply pipe leading from the tank 6^a preferably to a point near the bottom of the generator, into which it extends horizontally and then upward, as shown at 16, to the top of the carbid-cup, where it
80 is provided with the customary extension 17, pivoted, as at 18, to work vertically (as indicated by the arrow) in order that the cup may without difficulty be placed in or removed from the generator, the extension 17
85 normally overhanging the cup, so as to discharge the water as evenly as possible upon its perforated distributing-cap 12.

The upper end of the pipe 15, located in the tank 6^a, is connected to a valve of any
90 suitable type, having a metallic tube extension hinged thereto; but for convenience of illustration the said tube is illustrated as a flexible valve-tube 20, open when its free end is submerged in the water and closed when
95 said end is lifted by the ascending gas-bell above the level of the water.

21 designates an arm projecting rigidly from the gas-bell, and pivoted thereto so as to work in a vertical plane is a lever 22. This lever
100 extends slidingly through the guide-loops 23, projecting upward from the valve extension-tube near its opposite ends, to the end that the rise of the gas-bell may swing said lever vertically upward, as indicated by dotted
105 lines, Fig. 2, and thereby raise the free end

or mouth of the tube 20 above the water-level and stop the flow of water to the generator. Where a valve having an arm or lever other than a hinged tube is employed, it is obvious
 5 that the relation between this movement and the surface level of the water is immaterial, the rise and fall of the gas-bell within certain limits effecting the opening and closing of the valve, as will be readily understood. In this
 10 action of the gas-bell it is obvious that the increasing distance between the pivotal point 25 of the lever and its point of connection with the arm 21 is accommodated by the sliding of the section 22 through the guide-loops
 15 23 and that as the gas-bell descends and such distance diminishes said member 22 slides back through said loops in the opposite direction. It is also obvious that though the stopping of the flow of water to the generator
 20 stops the manufacture of gas a limited volume of gas, known as "dead" gas, will continue to be made until the carbid becomes thoroughly dry; but this increased volume of gas which goes to the gasometer will raise the
 25 bell thereof but little higher than the point it had attained when the water-supply to the generator was cut off, and as the volume generated is below the capacity of the gasometer it is obvious that the element of danger attendant upon an overproduction of gas is entirely eliminated.

The gas passes from the generator by way of pipe 28 to the interior of the gas-chamber 4, and being surrounded by the water of the
 35 chamber 5 is dried and cooled in a comparatively short time.

The pipe 28 is provided at a suitable point with a cut-off 29 of the usual construction, which allows the excess of gas to escape from
 40 the generator through escape-pipe 30 while the generator is cut off from the gasometer.

31 designates a house-pipe which extends into the gas-tank below the lower edge of the bell when the latter is down and thence extends vertically upward within the bell to a
 45 point above the water-line, as at 32.

33 designates a valve-controlled drain-pipe or faucet to discharge the water from the generator when necessary, and 34 a valve-controlled pipe or faucet to discharge the water
 50 from the gas-tank.

In practical operation supposing the cup to contain carbid and the tank 1 water in the required volume and the gas-bell to be depressed it will be obvious that the free end
 55 or mouth of the valve-tube 20 is submerged in the water of the water-tank 6^a, and that in consequence water is being discharged into the inverted conical top of the cup and is being distributed by the latter evenly on the carbid within the cup, and that the gas thus generated is passing from the generator through the pipe 28 into the cone or frustum shaped shell inside of the tank 1 and by reason
 65 of the surrounding water in said tank is being lowered in temperature and dried as quickly as possible. As the volume of gas

increases the bell 6 rises and finally attains such elevation that the flexible or hinged valve-tube 20 is caused to assume a position
 70 with its mouth or free end above the water-line in the tank 6^a. As this event takes place the water-supply to the generator is cut off, the small volume of gas thereafter generated and passing to the gasometer being technically known as "dead" gas, the manufacture
 75 of such gas continuing until the carbid becomes dry. As the gas is used and the volume within the gasometer is lessened the bell descends gradually until the mouth of the
 80 valve-tube attains such level that the water may flow through it to the generator, when the generation of gas is instantly resumed and the gas-bell rises in consequence. Thus it will be seen that the generation of gas will
 85 be automatic and reliable as long as the gasometer contains water and the generator carbid and that, owing to the peculiar arrangement and relation between the gas-bell and the hinged valve-tube, the volume of gas within the gasometer will at all times be sufficient
 90 to start the "lights" at their full brilliancy or candle-power. When the gas-producing properties of the carbid are exhausted, practically all of the water contained in the tank
 95 6^b will run into the generator without affecting the supply in the tank 1, by which the tank 6^a is recharged when necessary through faucet 7, as hereinbefore explained.

From the above description it will be apparent that I have produced an acetylene-gas machine which embodies the features of
 100 advantage enumerated as desirable in the statement of invention and by which, furthermore, cool dry gas is obtained, and it is
 105 to be understood that I reserve the right to make such changes in the form, proportion, detail construction, and arrangement of the parts as will not be a departure from the spirit and scope of the invention.

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

In an acetylene-gas machine, a tank 1, provided with chambers 4 and 5, a gas-bell, having its lower end submerged in the water in
 115 chamber 5, the water-box 6^a, secured externally to tank 1, the faucet controlling the discharge of water from the tank to the box, the valve-tube hinged in the box, the lever 22 pivotally connected to the gas-bell, the links 23, connecting the pipe and the lever, being slid-
 120 ingly connected to the latter, the generator connected to chamber 4 of the tank, the pipe connecting the generator with the valve-tube
 125 on the water-box, and the house or service pipe connected to the gasometer, substantially as described.

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

LEWIS E. CORWIN.

Witnesses:

J. W. TURNER,

A. A. NUMBERS.