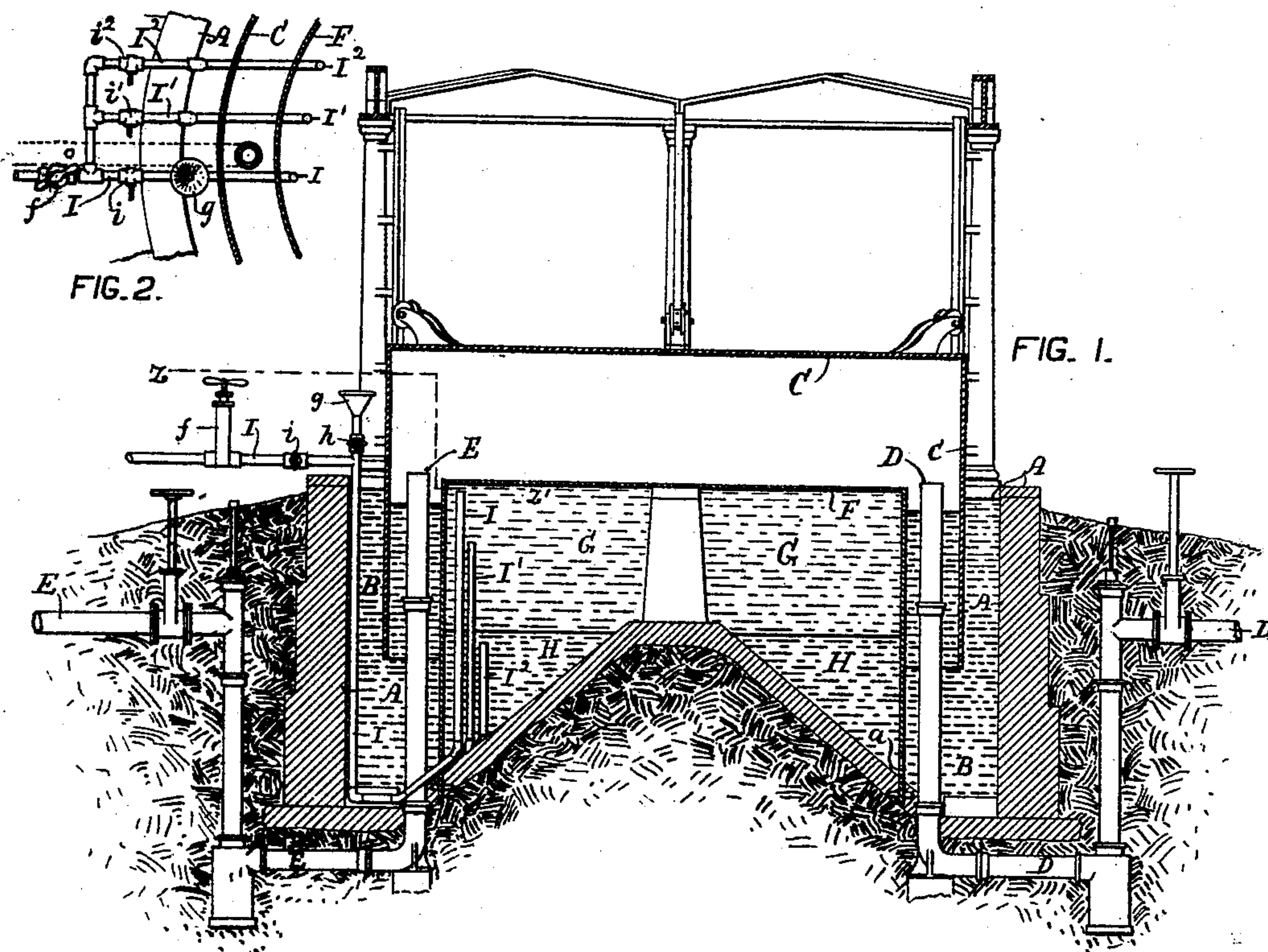


(No Model.)

F. A. SABBATON.  
GASOMETER.

No. 452,616.

Patented May 19, 1891.



WITNESSES: { George L. Cox  
Austin F. Park

INVENTOR:  
Frederick A. Sabbaton.



# UNITED STATES PATENT OFFICE.

FREDERICK A. SABBATON, OF TROY, NEW YORK.

## GASOMETER.

SPECIFICATION forming part of Letters Patent No. 452,616, dated May 19, 1891.

Application filed May 27, 1886. Serial No. 203,367. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK A. SABBATON, a citizen of the United States, residing in the city of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Gasometers for Storing Gases and Hydrocarbon Liquids, of which the following is a specification, reference being had to the accompanying drawings.

My present invention relates to improvements in such apparatus as are commonly used in works for producing and storing large quantities of illuminating-gases for cities and villages; and the general object of my improvement is to provide such gasometers with means for temporarily storing in safety large and various quantities of naphtha, benzine, gasoline, or other hydrocarbon liquids which are lighter than water without materially lessening the capacity of the gasometers for storing gases and without exposing the liquid hydrocarbons to the gases in the gasometers.

In the aforesaid drawings, Figure 1 represents a central vertical section and elevation of a gasometer of a kind in common use in works for producing and storing illuminating-gas and furnished with one form of my invention, and Fig. 2 is a plan of a part of the same below the line  $z z$  in Fig. 1.

Similar parts are marked by like letters in the different figures.

A is the gasometer-tank containing water B, and C is the gas-holder having its open lower end in and sealed by the water in the tank and mounted so as to move upward and downward as the gas is introduced into and withdrawn from the holder.

D is a pipe or conduit furnished with means, as usual, for introducing carbureted gas into the gas-holder, and E is a pipe or conduit through which the gas can be withdrawn from the holder; but the gas may be introduced into the gas-holder and withdrawn therefrom through one and the same pipe or conduit D or E when furnished with suitable valves and connections, the same as in some well-known gas-works.

F is a reservoir for the hydrocarbon liquid, and is closed at its bottom sides and top, is in the tank A and within the circuit of and cov-

ered by the gas-holder C, and is directly surrounded and supported laterally on its outer surface by the water B in the tank. This reservoir F is shown as having in its upper portion a body of hydrocarbon liquid G, floating upon water H in the lower part of the reservoir.

To approximately equalize the liquid pressure against the inner and outer lateral surfaces of the reservoir F and to keep or retain the hydrocarbon liquid or its upper portion in the upper part of that reservoir, whether much or little or whatever quantity of the hydrocarbon liquid shall be in the reservoir, I furnish the latter with any suitable known passage or passages through which water will freely pass from the outer water-tank A into the lower part of the closed stationary reservoir F, and from the lower part of interior of that reservoir into said water-tank. For this purpose Fig. 1 shows in the lower part of the lateral casing of the reservoir F an aperture or passage  $a$ , through which water will freely pass from the tank A into the reservoir F whenever the hydrocarbon liquid is being withdrawn from the reservoir, and the water will pass from the reservoir through the opening  $a$  into the tank whenever hydrocarbon liquid is being introduced into the reservoir, so that thereby the reservoir F is at all times automatically kept filled or nearly filled by the water and the hydrocarbon liquid floating on the water.

By having the passage  $a$  for the water to pass through from the tank A into the reservoir F, and from that reservoir into the tank A, the under surface of the hydrocarbon liquid in the reservoir is exposed to the same body of water to which the under side of the gas in the holder C is exposed.

I is a pipe or conduit open to and extending from the upper part of the interior of the closed reservoir F downward and outward below the lowest limit of movement of the gas-holder C, and to outside of the gas-holder and water-tank A, so that through the pipe I hydrocarbon liquid can be introduced directly into and withdrawn from the upper part of the interior of said closed reservoir, while the water can simultaneously pass to and fro through the aforesaid open passage, as  $a$ , Fig.



1, between the lower part of the interior of the reservoir F and the outer tank. Fresh water might be introduced through the pipe I into the upper part of the reservoir F, where-  
 5 upon the water would descend through the hydrocarbon liquid in that reservoir and simultaneously force out an equal quantity of water from the lower part of said reservoir into the surrounding tank. To facilitate the  
 10 introduction of hydrocarbon liquid into the upper part of the chamber F and the withdrawal of the liquid hydrocarbon therefrom through the pipe or conduit I, the latter may be furnished with a pump *f*, elevated funnel  
 15 *g*, and stop-valves *h* and *i*.

To provide means for approximately ascertaining at any time the quantity and position of the hydrocarbon liquid G and of the surface of the water II in the reservoir, I have  
 20 two, three, or more pipes, as I I' I<sup>2</sup>, extending from outside the gasometer into the reservoir, with their inner ends fixed at certain different heights in the reservoir, as indicated in Fig. 1, and furnish each pipe with a stop-valve,  
 25 as *i* i' i<sup>2</sup>, and with a connection with one pump *f*, as in Fig. 2, so that thereby whatever liquid or fluid in the reservoir F shall cover the open end of any one of those pipes can be drawn out through that pipe by the pump  
 30 connected therewith.

By having the closed stationary reservoir F in the water in the tank A and within the circuit of and covered by the gas-holder C in that tank and furnished with an open passage, as  
 35 *a*, Fig. 1, for water between said tank and the lower part of the interior of said closed reservoir and with a pipe, as I, extending from the upper part of the interior of said closed reservoir to outside of the said gas-holder and  
 40 water-tank, as above described, the hydrocarbon liquid can be readily introduced into and

withdrawn from said closed reservoir, however high or low may be the gas-holder, and the hydrocarbon liquid in said closed reservoir is at all times thoroughly protected from ex- 45  
 posure to the weather by the gas-holder C and the body of water which seals the gas-holder and immediately surrounds said reservoir in the tank, and that same body of water extends within said closed reservoir 50  
 and thereby equalizes the fluid-pressure against the opposite outer and inner lateral and top surfaces of said closed reservoir at all times, whether much, little, or no hydrocarbon liquid is in that reservoir, and whether 55  
 the hydrocarbon liquid is or is not being introduced into or withdrawn therefrom.

I claim as my invention—

The combination, with the outer tank containing water, the gas-holder sealed by the 60  
 water in said tank and movable upward and downward therein, and means for introducing gas into and discharging it from said gas-holder, of the stationary closed reservoir for hydrocarbon liquid immediately sur- 65  
 rounded by the water in said tank and within the circuit of and covered by said gas-holder, and having an open passage for water between said outer tank and the lower part of the interior of said stationary closed reser- 70  
 voir, and a conduit for hydrocarbon liquid extending from the upper part of the interior of said stationary closed reservoir to outside of the said gas-holder and outer tank, substantially as described. 75

In testimony whereof I hereunto set my hand, in the presence of two subscribing witnesses, this 27th day of May, 1886.

FREDERICK A. SABBATON.

Witnesses:

GEORGE G. COX,  
 AUSTIN F. PARK.