

A. Barbarin.

Carburetting App.

Patented Oct 5. 1869.

No 95412-

Fig 1.

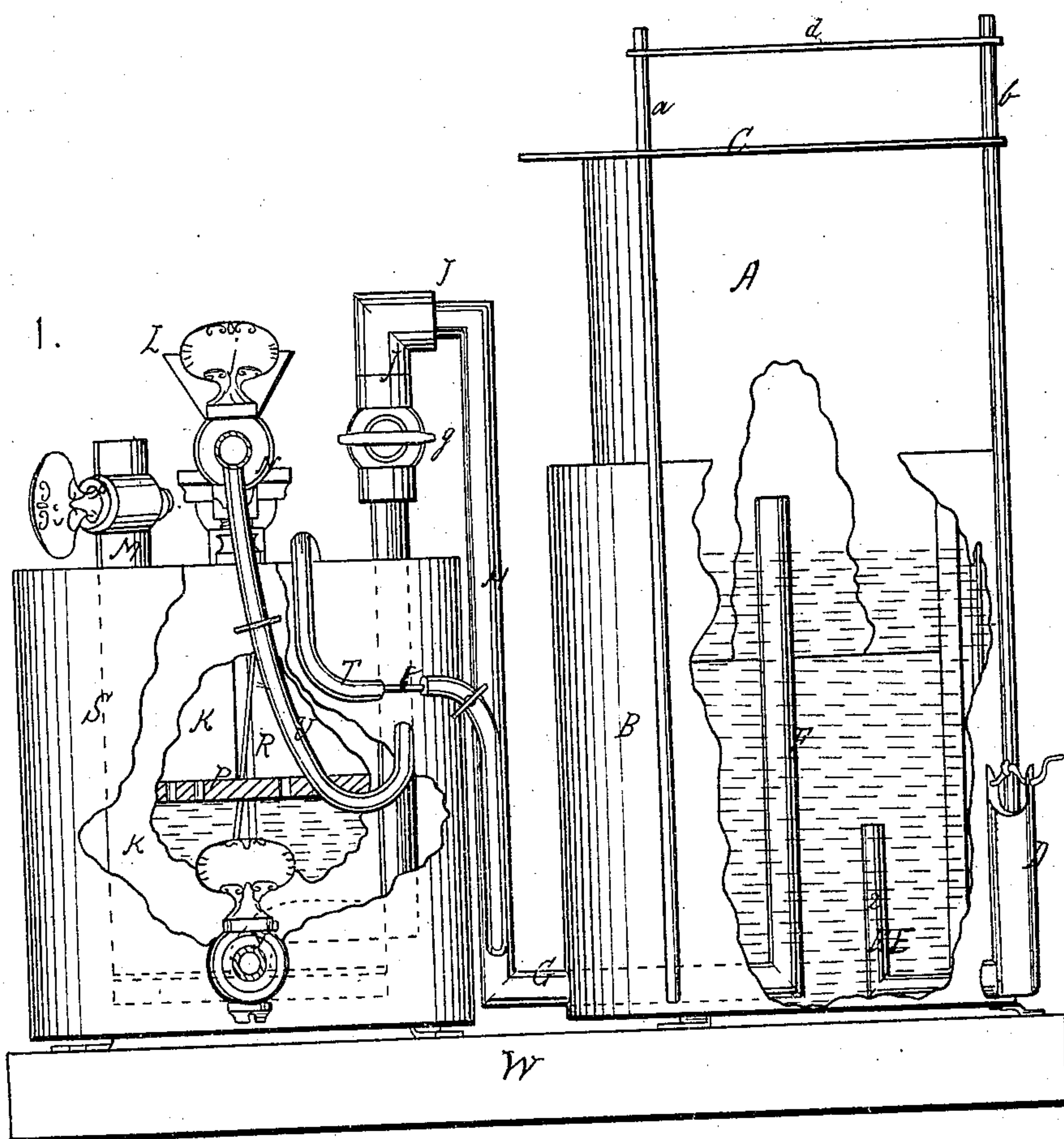
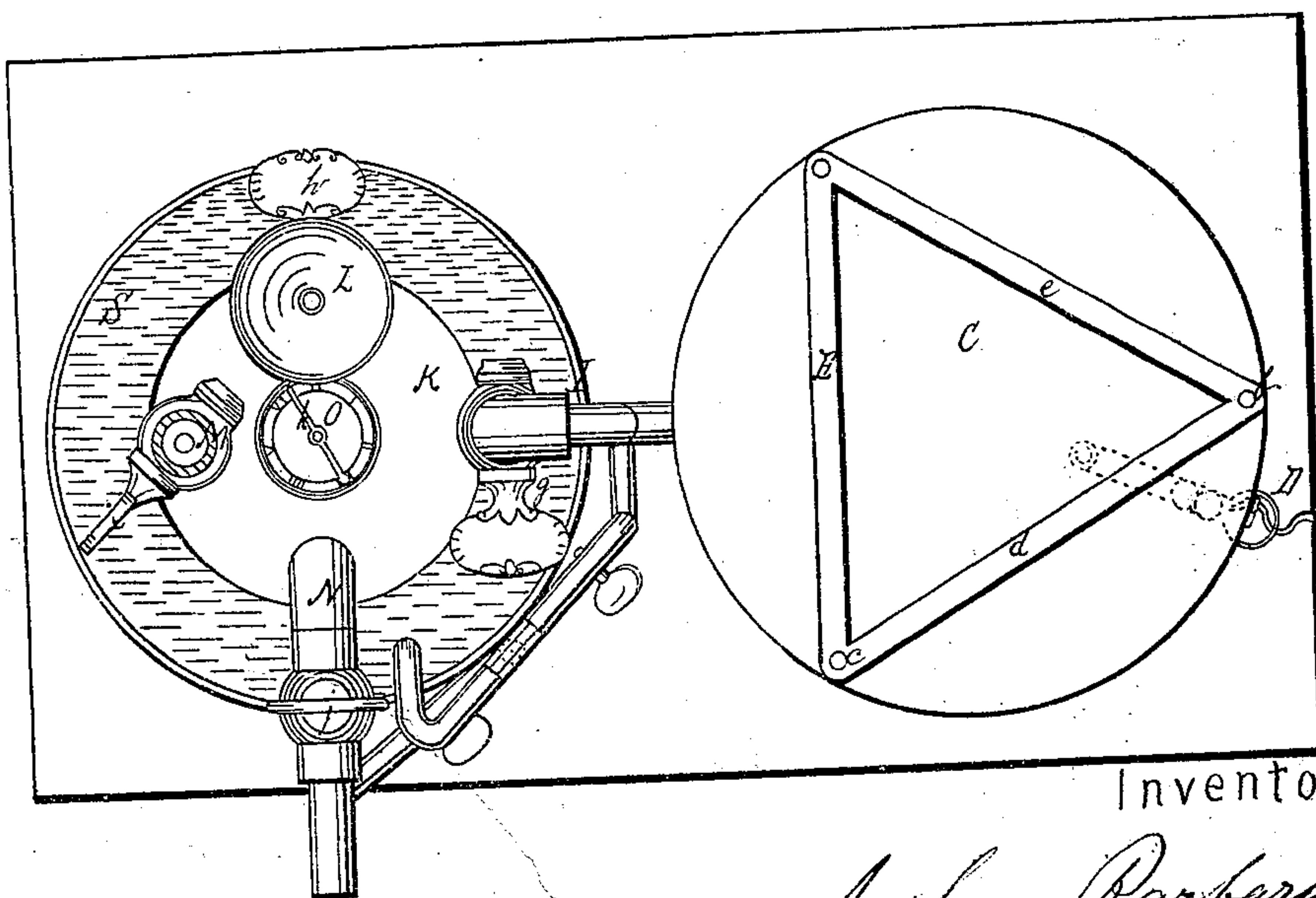


Fig. 2.



witnesses.

A. C. Dupas

Paul Ducat

Inventor.

Arthur Barbarin

United States Patent Office.

ARTHUR BARBARIN, OF NEW ORLEANS, LOUISIANA.

Letters Patent No. 95,412, dated October 5, 1869.

IMPROVED APPARATUS FOR CARBURETTING AIR AND GAS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ARTHUR BARBARIN, of the city of New Orleans, State of Louisiana, have invented a certain new, useful, and effective Mode of Indicating the Rise and Fall of Hydrocarbon in a Carburetter, and of Carburetting Atmospheric Air (or Gas;) and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, on which—

Figure 1 is a side elevation, with parts of the apparatus broken away, to show the interior arrangements, and

Figure 2, a plan or top view.

The object of my invention consists of a simple and effective mode of indicating the rise and fall of the carburetting-fluid contained in a carburetter, and in perfecting the process of practically carburetting atmospheric air (or gas) at all seasons of the year, and under all conditions of the surrounding air; but my invention will be better understood by referring to the annexed drawings, forming part of this specification, whereon the same letters indicate the same parts at both figures.

A is an air (or gas) receiver and holder, that is placed within a water-tank, B, and sustained by guide-rods *a b c*, that pass through the projecting rim of its cover C, as shown.

The rods *a b c* are secured on the outside of the tank B in any proper way, and by any proper means, and held in parallel relation to each other by braces *d e f*.

An ordinary air-pump, D, is connected with the tank B, in such a manner that the end of its eduction-pipe will lead into a pipe, E, which has a horizontal section, 1, and a vertical section, 2, rising about the height of the pump, and in the interior of the tank, so that the air forced through the same will ascend into the receiver A, wherein it is retained by the water in the tank, which should always occupy the same height up to the point indicated by the short horizontal lines that are shown, through the broken part of the tank, at fig. 1.

I do not know that there is any novelty in the part of the machine I have just described, since it is substantially similar to an ordinary gasometer, and I have referred to it chiefly because it seemed to me proper, and, in some sort, necessary, to describe the whole machine, in order the more clearly to explain those parts which are of my own invention, and demonstrate their merit.

In the centre of the water-tank B, a vertical section of another pipe, F, is sustained by a horizontal

section, G, which passes through the wall of the tank, as shown.

The open upper extremity of section F extends high enough to be always above the water in the tank, but yet not quite high enough to reach the top of the tank, substantially as seen at fig. 1.

A few inches outside the tank, the section G connects with another perpendicular section, H, which, in its turn, connects, by a short horizontal elbow-joint, I, with a pipe, J, (in which there is a stop-cock, *g*,) that extends nearly down to the bottom of the carburetter K, as shown by dotted lines, where it enters in the same, and extends to the centre thereof, where it turns down, and passes through a perforated diaphragm, and terminates just below the same, the said diaphragm being attached to the carburetter near its lower end, and serving the purpose of a distributor of the air which escapes below it throughout all parts of the hydrocarbon, as long as a supply of the same is furnished to the carburetter.

The carburetter K is perfectly air-tight everywhere, but is provided with two (2) eduction-pipes, M N, and a short pipe, with funnel L, through which the hydrocarbon is poured into it, which said pipes are provided with stop-cocks *h i j*.

The pipe M affords an escape for the air, when the hydrocarbon is poured in the carburetter, while the pipe N leads to the burners.

From practical experiments, I have found that a carburetter should be constructed with a large instead of a small diameter, (in proportion, of course, to the number of burners to be supplied with gas,) so as always to present a large horizontal surface of hydrocarbon, while the vertical column of the same may vary in height from two to ten inches above the diaphragm; and, when placed under the conditions hereinafter described, a perfect carburation of the air (or gas) takes place under all conditions of the surrounding air.

On the top of the carburetter K, on a hollow standard, I fix a recipient, with a glass top, for a dial-indicator, O, which is numbered, near its margin, after the manner of the dial of a watch or clock.

Through this hollow standard passes a vertical rod, R, which rests in a socket that is fixed on the bottom of the carburetter, in such a way as to be rotated in the easiest possible manner, which rod has a needle-termination, that passes through the dial O, above a shoulder, on which the dial rests, to which an indicator or hand, *k*, is secured, in such a manner, that when the hydrocarbon is one inch deep, the float P, resting thereon, will, by its action on the rod R, cause the indicator-hand *k* to point to the figure or number

1, when it is two (2) inches deep, to the figure or number 2, and so on up to the highest point to which it is ever desirable to fill the carburetter.

The rod R is turned, and, by turning, moves the indicating-hand, by reason of the fact that it is provided with one (1) or more projecting spiral threads, *l*, or grooves, in lieu thereof, that take into corresponding grooves or threads, as the case may be, that are cut in the aperture in the centre of the float P, through which said rod passes or projects therefrom, which are so calculated as to cause the rod to be rotated just sufficiently to move the indicator-hand from one mark on the dial to another, whenever the float is raised or lowered one inch in the carburetter, by the rising or the falling of the hydrocarbon to that extent.

The float is prevented from turning, while readily rising and falling with the hydrocarbon, by means of a sufficient number of vertical guide-rods, that pass through holes near its circumference.

The float can be made of any suitable size or shape, with or without perforations through it to let the gas escape; but, when the carburetter is to be used on a locomotive, or on board of a steamer, where the carburetting-fluid contained therein may be violently shaken or agitated, it is preferable that the float should be perforated with holes, and very nearly cover the hydrocarbon, leaving only just space enough between its circumference and the sides of the carburetter K to permit the free passage of the carburetted air (or gas) into the upper part of the carburetter, and to prevent the hydrocarbon from being too suddenly or violently agitated or shaken while the car or steamer is in motion.

The carburetter, as will be seen by the drawings, is enclosed in an open vessel, S, which latter is larger than the former, to afford a sufficiently large space between the walls of the two to receive a sufficiently large quantity of water, or other suitable stationary liquid or semi-liquid packing, with the view to the maintenance of a uniform temperature in the hydrocarbon, irrespective of the temperature of the external air, while a continuous current or currents of the same from an air-holder or other source is caused to pass through said hydrocarbon, to be carburetted as fast as gas is needed to supply the burners in actual use, through their respective conduits, connected to said carburetter.

Instead of a liquid, or of a semi-liquid packing, I may use as a substitute for the same, in a wet or dry state, and at low temperature, so as to surround the carburetter and its contents in the vessel S, any sand, ashes, saw or cork-dusts, any metallic filings, shavings, lumps, or powders, any charcoal or coke in powder or lumps, or any mineral powders or lumps, or earthy, vegetable, or animal substances, or their equivalent, mixed or unmixed, and capable of producing the same effect; and, instead of surrounding the carburetter with any of the above-named substances, or their equivalent, and then exposing the whole to the surrounding air, I may, if I deem it proper, sink the carburetter and its contents, without the tank S, in a well containing water or other liquid or semi-liquid; or I may place it directly in the earth to any suitable depth, and then cover its surface with any suitable material, so as to have but the indicating-hand, and the pipes M N, and funnel L exposed to the surrounding air; or I may place the carburetter and its contents in the water-tank of a railroad-locomotive, when the same is to be employed for generating gas for the head-light of the locomotive, and for other cars connected to said locomotive; and, instead of placing the carburetter in the water-tank of a railroad-locomotive, I may place the same in the vessel S, containing any of the substances before described,

and then locate the whole upon the small platform of the cow-catcher, immediately in front of the locomotive, and protect the same in such a manner that no obstruction on the road, caught and raised by the cow-catcher, can injure the carburetter or appurtenances.

When the medium for maintaining a uniform temperature in the hydrocarbon is water or other liquid, such as a solution of glycerine and water, and the vessel S and the carburetter are exposed to the cold temperature of the external air, I may, if I deem it necessary, maintain the proper temperature in the hydrocarbon by means of air brought from the main pipe through a branch-pipe, T, which, at a proper point, has a section of small divisional pipes, as shown at *t*, wherein, by the application of heat from a burner at the end of a pipe, U, leading from pipe N, or from any other source, I heat said air, and then convey it, by making a proper flexure in said pipe, over the top of the outer vessel S, and down into the liquid contained in the said space, and by which the hydrocarbon is surrounded.

The water or other liquid is thus heated, and kept at the proper temperature, whenever the exigencies of the occasion require it to be done.

The water or other liquid may be drawn from vessel S by a suitable pipe, in which a suitable stop-cock is fitted, as shown at Y; and a similar appliance may be made to the carburetter, to draw the hydrocarbon out of the same, when necessary.

When made to be portable, the whole apparatus may be securely attached on a platform or board, W, in the same compact manner shown on the drawing; otherwise it may be placed anywhere that convenience may dictate.

Should it be necessary to indicate the rise or fall of the liquid on the side of the carburetter, instead of its top, small bevel-wheels, with a proper axis, can be arranged, in connection with the rod R, to secure that object.

I am aware that Alonzo C. Rand has obtained a patent, No. 62,364, for placing a carburetter, surrounded by water, in the earth; but this he only claims when the carburetter, so surrounded, is placed within a gasometer, to receive a temporary current or currents of air, or merely that quantity of air which is necessary to vaporize a sufficient volume of hydrocarbon to fill the gasometer with gas, which operation is very short, and ceases whenever the gasometer is filled. Thus it will be seen, that while Mr. Rand's process is to manufacture gas beforehand, and to store the same, in any quantity, in gasometers, for future use, (which is far from being a safe process for domestic and other uses,) mine is the reverse; that is to say, I make no gas unless it be for immediate want, and the quantity generated then is in proportion to the number of burners in actual use. In other words, the passage of the continuous current or currents of air through the hydrocarbon by my process is never permitted until gas is needed; and it is only when a carburetter is placed in the conditions that I have before described that such a process is practical at all seasons of the year, and under all conditions of the surrounding air.

I am aware that W. H. Covell has obtained a patent, No. 91,213, for restoring the latent heat to a carburetting-fluid, but this is only by means of a stream of water, operating substantially as described.

I am also aware that other parties have employed heated sand, and other similar heated substances, as the means of raising the temperature of the air conveyed through a carburetter, or of raising the temperature of the hydrocarbon in the carburetter. These I do not claim herein; but after having described my invention,

What I do claim, and desire to secure by Letters Patent, is—

1. The rod R, when constructed, arranged, and operating substantially as herein described, for the purposes set forth.

2. The pipes H and T, in combination with each other, and with a receiver, A, and a tank, B, and a carburetter, K; that is enveloped by a vessel, S, when the parts are constructed, arranged, and operate sub-

stantially as herein described, for the purpose set forth.

3. The above combination, in combination with the rod R and its indicating-appliances, substantially as and for the purpose set forth.

ARTHUR BARBARIN.

Witnesses:

A. E. DUPAS,
PAUL DUCATEL.