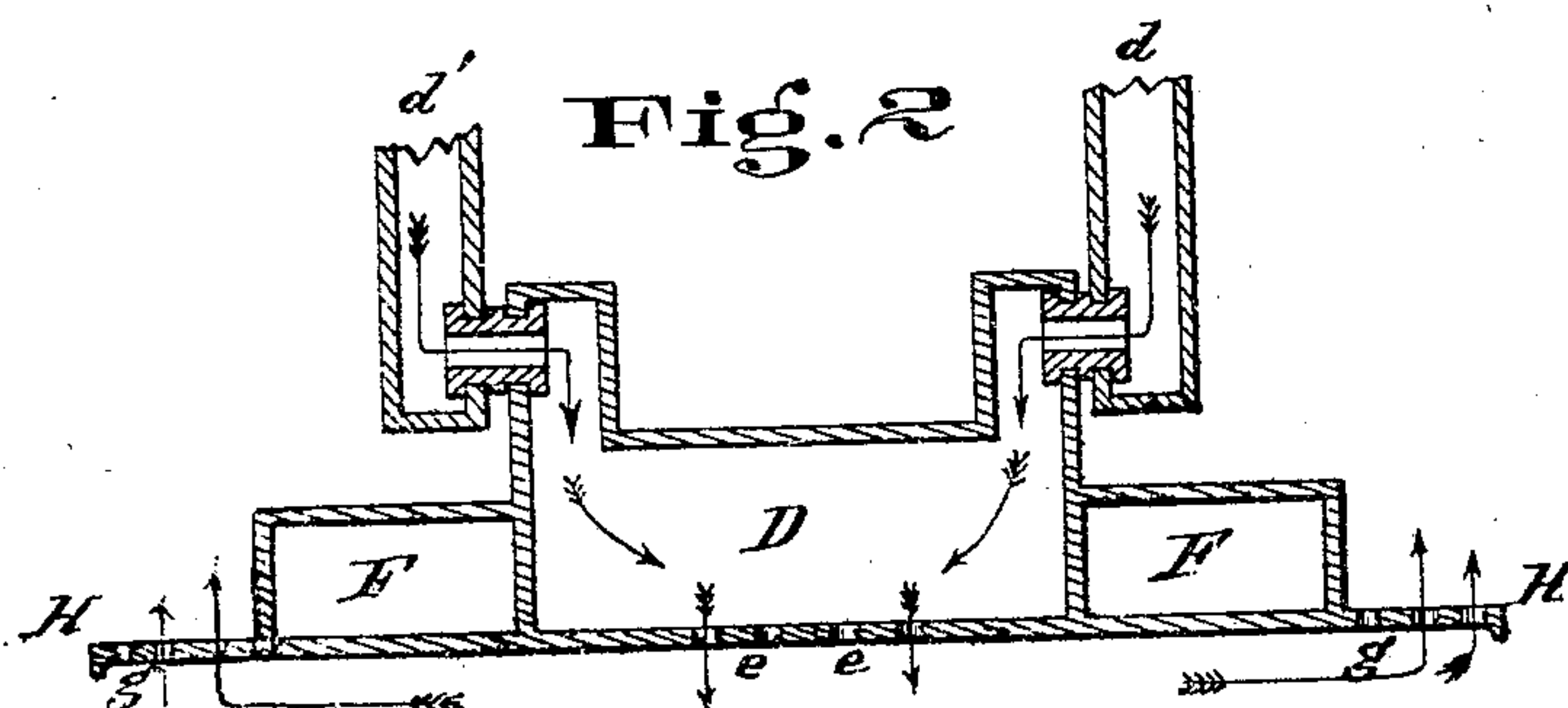
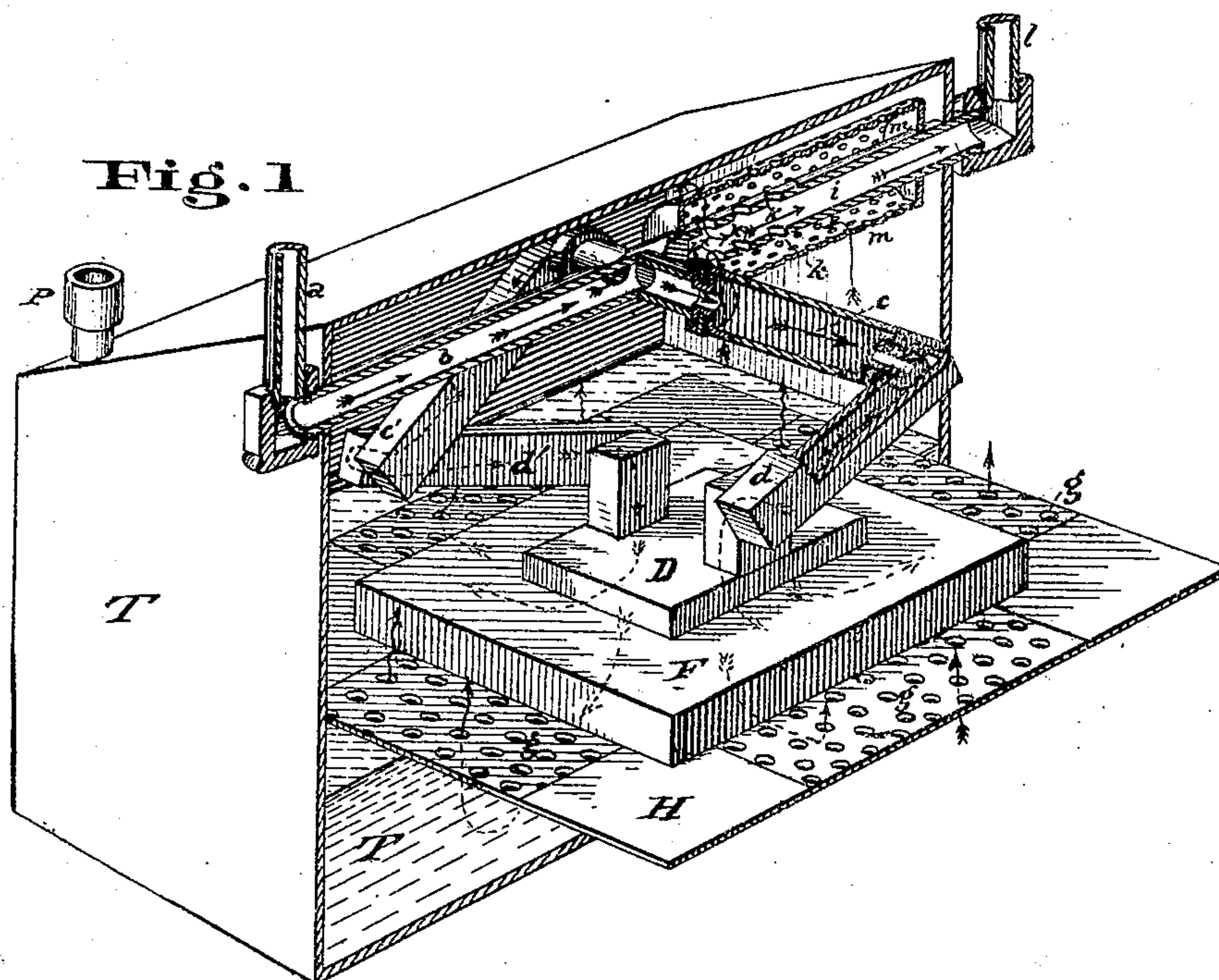


J. MUSGRAVE.  
Carburetors.

No. 144,858.

Patented Nov. 25, 1873.



**Attest**  
Charles E. Smith.  
Jeremiah F. Twohiz.

**Inventor**  
James Musgrave  
by Fisher & Duncan  
Attorneys in fact.



# UNITED STATES PATENT OFFICE.

JAMES MUSGRAVE, OF CINCINNATI, OHIO.

## IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **144,858**, dated November 25, 1873; application filed October 2, 1873.

*To all whom it may concern:*

Be it known that I, JAMES MUSGRAVE, of Cincinnati, county of Hamilton and State of Ohio, have invented an Improvement in Gas-Generators, of which the following is a specification:

My invention relates to that class of gas-generators in which illuminating-gas may be manufactured by means of impregnating air with the vapor of naphtha or gasoline.

The generator which I have invented has this advantage over those which have preceded it, that it is simple in construction, dispensing, as it does, with canvas or other porous material requiring to be renewed, and with all internal machinery liable to get out of order.

In the drawings, Figure 1 represents an inside view of my improved generator, with sectional views of the pipes through which the air enters and the gas escapes. Fig. 2 is a sectional drawing of the float and chamber, hereinafter to be described.

In operation, air is forced into the pipe *a* by means of any suitable device. (Not represented in the drawing.) The air passes down, through *a*, *b*, *c*, *c'*, *d*, and *d'*, into the mixing-chamber D, which floats on the surface of the gasoline, with which the tank T is partly filled. In the bottom of this chamber are a number of openings, *e e*, through which the air is forced. Having no other means of escape, the air passes along in bubbles between the surface of the gasoline and the extended bottom of the chamber D, with its float attachment F, until it reaches the perforations *g g* in the projecting flange H, through which it escapes into the body of the tank above the gasoline. The air first comes in contact with the gasoline vapor in the mixing-chamber D, and there becomes partially impregnated with the same; and as it passes in bubbles over the gasoline, underneath the float, as described, it takes up still more vapor, so that by the time it reaches the perforations *g g* it is thoroughly impregnated. This saturated air, which is ready, or nearly ready, for use as illuminating-gas, collects, as described, in the upper part of the tank T, from which it passes into the pipe *i* through the openings *k k*, and from *i* is conveyed, through *l* and other pipes, as occasion requires, to the place where it is to be consumed.

In order to reach the openings *k k*, the gas is obliged to enter a drum, *m*, which encircles the pipe *i*, through a multitude of perforations in the side or sides of the drum. This serves to regulate or steady the flow of gas from the tank, and also to condense and remove from the gas superfluous gasoline vapor, if in the process of manufacture the air has become too thoroughly saturated. The chamber D does not communicate in any way with the interior of F, that being a hermetically-sealed air-chamber fastened around D in order to float it. Around this air-chamber extends the horizontal flange H, provided with perforations, as shown and described, the object being to secure more perfect impregnation of the air by keeping it longer in contact with the gasoline before escaping into the body of the tank T. This mixing-chamber, sealed air-receptacle, and perforated flange, constructed as herein described, or in an equivalent manner, constitute together the float, which is the principal feature of my invention. In order that this float may freely rise and fall with the varying depth of gasoline in the tank, the pipes *c* and *d* are secured to it, to each other, and to the stationary pipe *b* by means of flexible screw-joints, which are hollow to admit of the free passage of air through the pipes, as described. The pipes *c'* and *d'* are jointed in the same manner. The two elbows formed, respectively, by the pipes *c* and *d*, and by the pipes *c'* and *d'*, project in opposite directions. The two sets of pipes thus balance each other, and the equilibrium of the float is preserved as it rises and falls.

The pipes *a* and *i*, although they may, as represented, be continuous, are not intended to communicate with each other, except by the circuitous route already described, and indicated by the arrows in the drawings. All parts of the gas-generator herein described are or may be made of metal.

The cistern or tank T, one-half of which is shown in Fig. 1, is intended to be air-tight; and, as in common use it is buried in the ground for the sake of protection from sudden changes of temperature, it should be made of some substance which will not readily corrode or decay in the presence of moisture. It may be of any desired size, and of any shape con-

sistent with the accomplishment of the end for which it is designed, as herein described.

P is the pipe through which the naphtha or gasoline is poured into the tank. Its lower extremity is near the bottom of the tank, and should remain constantly beneath the surface of the gasoline therein; and the pipe should be of such a length that, when the tank is buried, its upper extremity may be within easy reach.

I claim as my invention—

1. A mixing-chamber, D, and float F, in combination with a perforated flange, H, substantially as and for the purpose specified.

2. In combination with the mixing-chamber D, float F, and perforated disk H, pipes con-

structed with flexible screw-joints, for the purpose of admitting air to the chamber D when the same is at different elevations, and so arranged as to balance each other, so that the float, as it rises and falls, may constantly maintain a horizontal position, even with the surface of the liquid, substantially as herein specified.

3. In combination with the exit-pipe *i*, the perforated drum *m*, or its equivalent, for the purpose specified.

JAMES MUSGRAVE.

Witnesses:

CHARLES H. SMITH,  
JEREMIAH F. TWOHIG.