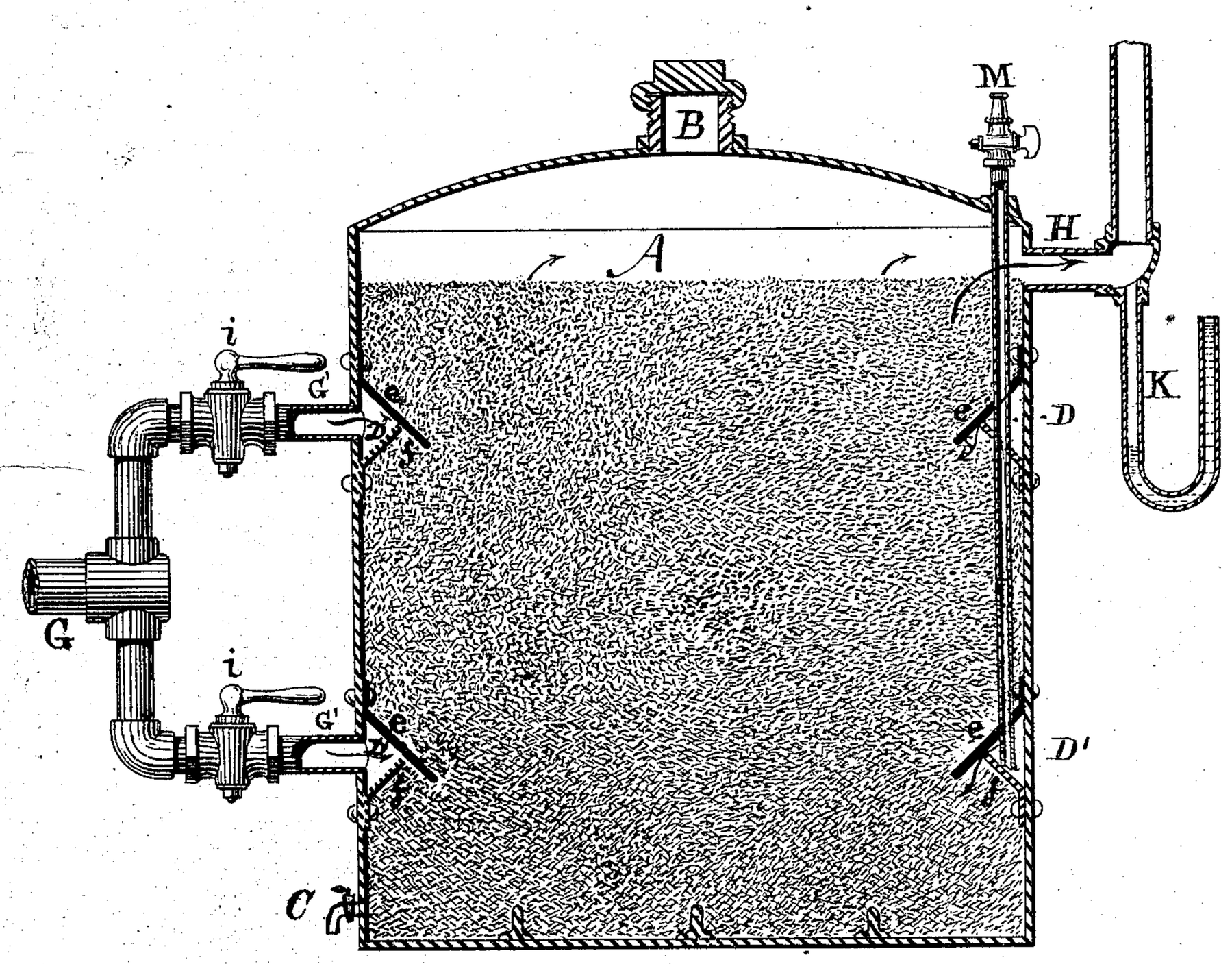
T. J. MARTIN.

Gas Carburetting Machines.

No. 158,802. Patented Jan. 19, 1875.



Witnesses:

W. C. Hall

D. W. Stuart

Inventor:

Thos. J. Martin

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

THOMAS J. MARTIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO DAVID W. STUART, OF SAME PLACE, AND WILLIAM E. PRALL, OF WASHINGTON, D. C.

IMPROVEMENT IN GAS-CARBURETING MACHINES.

Specification forming part of Letters Patent No. **158,802**, dated January 19, 1875; application filed December 4, 1874.

To all whom it may concern:

Be it known that I, THOMAS J. MARTIN, of the city of Philadelphia, in the State of Pennsylvania, have invented a Gas-Carbureting Machine, of which the following is a specification:

The object of my invention is to facilitate the carbureting of common illuminating coal-gas by devices which, without surcharging the gas, shall permit its perfect impregnation with the vapor of a rich liquid hydrocarbon contained in a simple receiver; to facilitate the filling of the receiver to the proper level without excess; and to collect and automatically discharge the moisture of condensation in the eduction-pipe leading from the carbureter.

My said invention consists in distributing the gas within the receiver of the carbureting apparatus by means of two or more annular supply-chambers, formed about the inner wall of the receiver, in such manner as to prevent any clogging of the induction-openings by the pressure of the absorbent material placed in the receiver, and arranged one above the other at proper intervals, and connected with the gas-main or induction-pipe by branch pipes controlled by cocks, so that when the receiver is first charged the gas may be admitted from the uppermost distributing-chamber alone, until the hydrocarbon held by the absorbent material above said distributing-chamber has been fully taken up, whereupon the gas may be admitted from the next lower distributing-chamber, thus avoiding the surcharging of the gas consequent upon its passage through too large a body of the saturated absorbent material, and yet at the same time retaining the advantages attending the use of a large receiver for such material.

In the accompanying drawing, A is a strong receiver, properly constructed of metal or other material, to resist the highest pressure of gas to be used. B is a feed-aperture, closed by a suitable plug or cock. C is a waste-cock, placed at or near the bottom of the receiver. D D′ are distributing-chambers, constructed each of a flaring imperforate flange, *e*, arranged and secured to project downward at an angle from the inner wall or surface of the receiver A, and combined with a second lower perforated flange, *f*, placed beneath it, to project upward from the surface of the receiver at a suitable angle to strike against the edge of said upper imperforate flange, *e*, to which it may be united. Each chamber D D′ encircles the receiver, as illustrated in the drawing. G is the induction, and H the eduction, pipe of the apparatus, for supplying gas to, and delivering it from, the carbureter. The induction-pipe is connected with each of the distributing-chambers D D′ by means of branch pipes G′ G′, each controlled by suitable cocks *i i*. K is a bent tube, one end of which is secured to the lowermost point of the eduction-pipe H of the apparatus, and its other end carried nearly to the level of the first and left open. This bent tube K is made of such length as that, when filled with water, the weight of water in the outer open arm of the tube will suffice to resist the pressure of gas within the pipe H, while at the same time the water collecting in the inner end or arm of the tube will, in seeking its level, escape and be discharged automatically from said open end of the tube. M is a small tube inserted through the top of the receiver A, and which extends downward therein to a point below the top of the lowermost distributing-chamber, D′, of the carbureter. To prevent said lower end from clogging, the tube may be so placed as that it shall terminate within this lowermost chamber, as illustrated in the drawing. The upper outer end of the vent-tube M is closed by a suitable cock or plug.

In the operation of this my improved carbureter the receiver A is first filled with sawdust, or other equivalent absorbent, cellular, or fibrous material. The peculiar formation and arrangement of the annular distributing-chambers D D′ will prevent this absorbent filling from finding its way from the receiver into said chambers. The receiver is then supplied with gasoline or other equivalent rich and light hydrocarbon oil, which is to be poured into the receiver through the feed-aperture B until all escape of air or gas through the vent-tube M (meanwhile left open

for this purpose) ceases, indicating that the liquid has attained the level of the lower end of said tube. This automatic indication of the proper level of the liquid supplied to the carbureter permits it to be filled wholly in the dark with entire exactness, which is a great convenience where the apparatus is placed in cellars and like situations, and obviates the dangerous necessity of using a light. The trap-tube K being now filled with water, the carbureter is ready for use. Gas is admitted first into the uppermost chamber, D, so that it shall pass only through the upper stratum or layer of saturated material; but so soon as it is no longer sufficiently enriched by its admission through this channel, the cock controlling the passage into the next lower chamber, D′, is opened, and thereafter into the next lower one (if there be more than two) as the supply of hydrocarbon is gradually taken up, thus insuring more entire uniformity in the operation of carbureting the gas, from the time the receiver is charged until it is exhausted, than has heretofore been attained without very complicated devices. The gas, entering either chamber D, escapes therefrom under pressure through the perforations in the lower flange, *f*, and is thus evenly distributed into the receiver to permeate the saturated material therein. Passing through this material, the gas becomes charged and enriched by the vapor of the hydrocarbon, and is conducted away through the eduction-pipe H, as described. All excess of moisture in the gas, which may condense in the pipe H, will find its way into the tube K, and be automatically discharged from its open end, an escape of the gas through the same channel being prevented by the superior gravity of the fluid column in the outer arm of the tube.

I claim as my invention—

The receiver A, provided with annular distributing-chambers D D′, arranged about the sides of the receiver at different levels, in combination with the branch pipes G′ G′ of the induction-pipe G, substantially as and for the purpose herein set forth.

THOS. J. MARTIN.

Witnesses:
W. E. PRALL,
D. W. STUART.