J. M. PALMER.

CARBURETER.

No. 189,645. Patented April 17, 1877.

Fig.1.

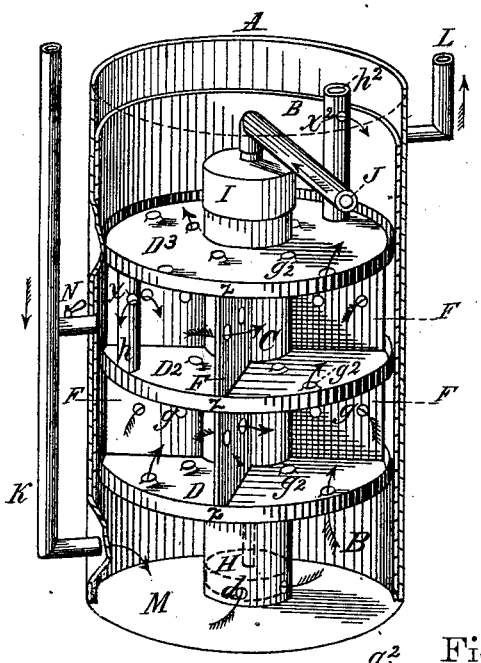


Fig.2.

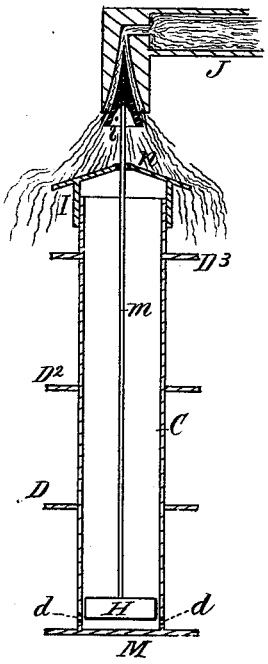
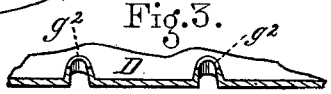


Fig.3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES M. PALMER, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE G. SHAW, OF BIDDEFORD, MAINE.

IMPROVEMENT IN CARBURETERS.

Specification forming part of Letters Patent No. **189,645**, dated April 17, 1877; application filed February 22, 1877.

To all whom it may concern:

Be it known that I, JAMES M. PALMER, of Cambridge, in the county of Middlesex, State of Massachusetts, have invented certain new and useful Improvements in Carbureters, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is an isometrical projection, exhibiting the machine with its top and a portion of the body or casing removed. Fig. 2 is a vertical longitudinal section, showing the automatic valve mechanism; and Fig. 3, a sectional view, showing the guards.

Like letters of reference indicate corresponding parts in the different figures of the drawing.

My invention relates to means for increasing the illuminating properties of ordinary carbureted-hydrogen or "city gas;" and consists in a machine or apparatus, having a novel construction and arrangement of parts, designed for containing a liquid hydrocarbon partially suspended by absorbents, and through which the gas is passed on its way to the burner, as hereinafter more fully set forth and claimed, by which a more effective device of this character is produced than has heretofore been employed.

In the drawing, A represents the body or casing of the machine, and M the bottom, the top not being shown. The body is cylindrical in form, and provided with an induction-pipe, K, and an eduction-pipe, L, through which the gas from the meter enters, and is discharged.

A series of shelves or disks, D D^2 D^3, are arranged horizontally within the body A, being supported by the standard C, which passes vertically through the centers of the same, and rests on the bottom M. These disks are provided at their peripheries with raised flanges *z*, and with a series of holes or perforations, g^2, and between the disks, arranged radially around the standard C, are vertical partitions F, provided with the openings *g*. A vertically-arranged pipe, *h*, provided with the lateral aperture *x* near its upper end, opens downwardly through the disk D^3, (but not upwardly through the disk D^3,) connecting the space between the disks D and D^2 with that between D^2 and D^3.

A similar pipe (not shown) connects the space between the bottom M and disk D with that between the disks D and D^2, the pipe h^2 connecting the space between D^2 and D^3 with the space between the disk D^3 and corner or top of the machine (not shown) in the same manner.

A lining, B, composed of felt or similar fibrous material extending downwardly to the bottom M is disposed within the body A, and may be attached thereto; or it may be supported by the flanges *z* of the disks, or in any other convenient manner, proper openings being left through it opposite the pipes K L for the passage of the gas.

Around the perforations g^2 on the upper side of the disk D there are raised guards, as best seen in the enlarged sectional view, Fig. 3. When the disk is composed of soft brass or copper, and the perforations are made by punching from the under side of the same, these guards will be formed by the act of punching; but when the metal of which the disk is composed is not of the proper nature for this, then the guards are added after the perforations are formed, it being understood that each of the disks is provided with perforations, and each of the perforations with guards of the same description.

The standard C is hollow, forming a tube or well-room, within which the float H, carrying the valve-rod *m*, works vertically. This rod passes through a hole in the apex of the inclined or conical cap I, and supports on its upper end the valve *i*. This valve is in form a long tapering cone, and enters a corresponding taper or tunnel-shaped aperture in the downwardly-projecting mouth of the supply-pipe J, the valve having a conical aperture in its lower end, into which the valve stem or rod *m* enters loosely, not being attached to the valve, although it may be so attached, if preferred.

In the use of my improvement, the disks

D D^2 D^3 are covered with sawdust, cotton-waste, or some similar absorbent, being filled to the top of the flanges *z*, and covering the guards around the perforations g^2 to quite a depth. The lining B having been properly arranged, the standard C, with its disks, is then lowered into the casing A, and the valve *i* and pipe *j* adjusted, after which the cover or top of the machine (not shown) is hermetically sealed to the casing. The float H being on the bottom M and the valve *i* open, the liquid hydrocarbon or gasoline with which the machine is charged is now let in through the supply-pipe J from a tank containing the same, located in any convenient position, either within or without the building in which the machine is used.

As the liquid enters it is deflected by the conical valve *i*, falling in a spray, *n*, upon the inclined roof of the cap I, and thence upon the absorbent on the disk D^3. After the absorbent on this disk has become thoroughly saturated the liquid will gather on the disk until it rises to the top of the guards around the perforations g^2, when it will flow over the guards and down through the perforations to the next disk below, which will become filled in like manner and overflow to the next.

When all the disks are filled the lower one, D, will overflow onto the bottom M until the liquid has risen to a sufficient height to pass through the holes *d* in the standard C, and cause the float H to rise, which will close the valve *i* and stop the inflow of the liquid.

If, now, gas is let in through the pipe K, it will pass over the liquid on the bottom M, through the holes g^2 and absorbent on the disks, and thence through the eduction-pipe L to the burner. As the liquid evaporates and is taken up by the gas on its passage through the machine the float H will fall, opening the valve *i*, thereby letting in a fresh supply of the liquid to take the place of that used, thus automatically feeding the machine.

The object of the partitions F is to divide the spaces between the disks into sections, and thereby prevent in a great measure the accidental displacement of the absorbent on the disks.

The object of the vertical pipes *h* h^2 is to insure a passage for the gas from the lower to the upper part of the machine in case the perforations g^2 by any means become entirely stopped or clogged up, in which case the gas passes from one of the vertical pipes to the other through the openings *g*.

The object of the guards around the perforations g^2 is to retain a small quantity of the liquid on each of the disks to be gradually taken up by the absorbent, thus providing a greater evaporating-surface for the liquid.

A branch or auxiliary induction-pipe, N, is provided, so that in case the pipe *h* and perforations in the disks D D^2 should all become choked, the gas may be let in above the disk D^2. This pipe may be so arranged as to discharge above the disk D^3, if preferred, and thus provide against all contingencies, being closed by a stop-cock when not in use.

The body A may be so constructed that the supply-tank for the liquid can be located in the space above the disk D^3, and filled through the top or cover of the machine by proper appliances for that purpose, if preferred. The disks and standard may also be so constructed and arranged as to be detachable from each other for greater convenience, if desired.

It will be obvious that the lining B takes up the liquid by capillary attraction, carrying it from the bottom M to the chamber or space above the disk D^3, thus greatly increasing the evaporating capacity of the machine; also, that the flanges or rims *z* are considerably higher than the tops of the guards around the perforations g^2, causing the gas on its passage through said perforations to necessarily pass through the absorbent material on each disk B.

I am aware that carbureters having horizontal disks with overflows, induction and eduction pipes for the passage of the gas, hollow central tube having a float, valve-rod, and conical valve, in connection with a supply-pipe for charging the machine with hydrocarbon or gasoline, is old, and such I do not desire to claim, broadly, as my invention; but,

Having thus explained my improvement, what I claim is—

The combination, with the case A, provided with induction-pipe K, eduction-pipe L, hollow standard C, having conical cap I, float H, valve-rod *m*, conical valve *i*, supply-pipe J, having a conical aperture, of the horizontally and removably arranged disks D D^2 D^3, radial and perforated vertical partitions F, and pipes *h* h^2, having lateral apertures *x* and x^2, the several parts constructed, arranged, and operating in the manner substantially as and for the purpose specified.

JAMES M. PALMER.

Witnesses:
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