(No Model.) 2 Sheets—Sheet 1.

H. B. CORNISH.

CARBURETER.

No. 575,595. Patented Jan. 19, 1897.

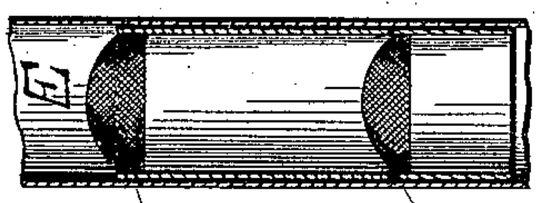

Fig. 1.

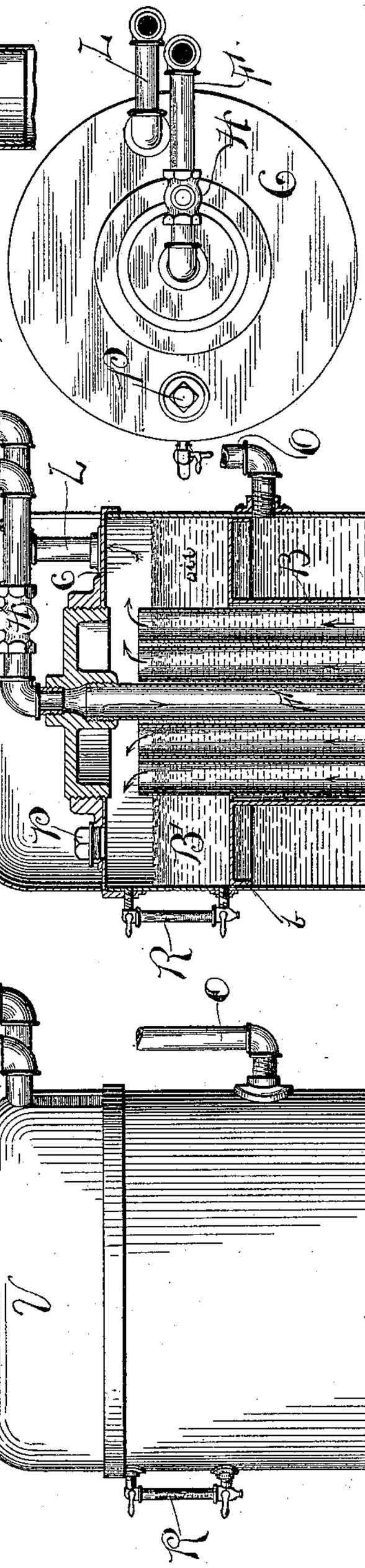

Fig. 2.

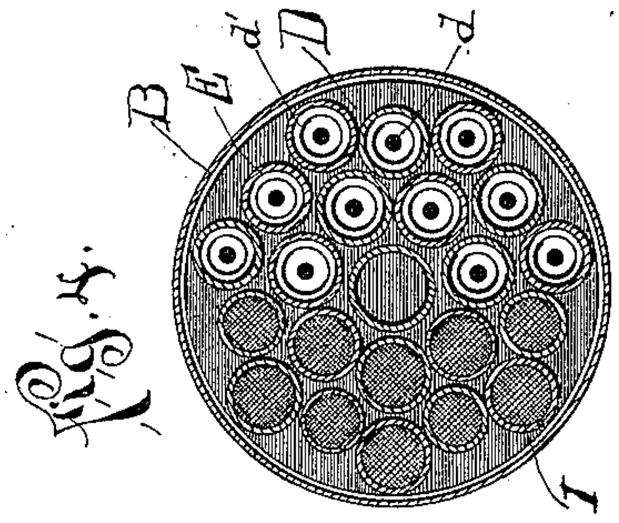

Fig. 3.

Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

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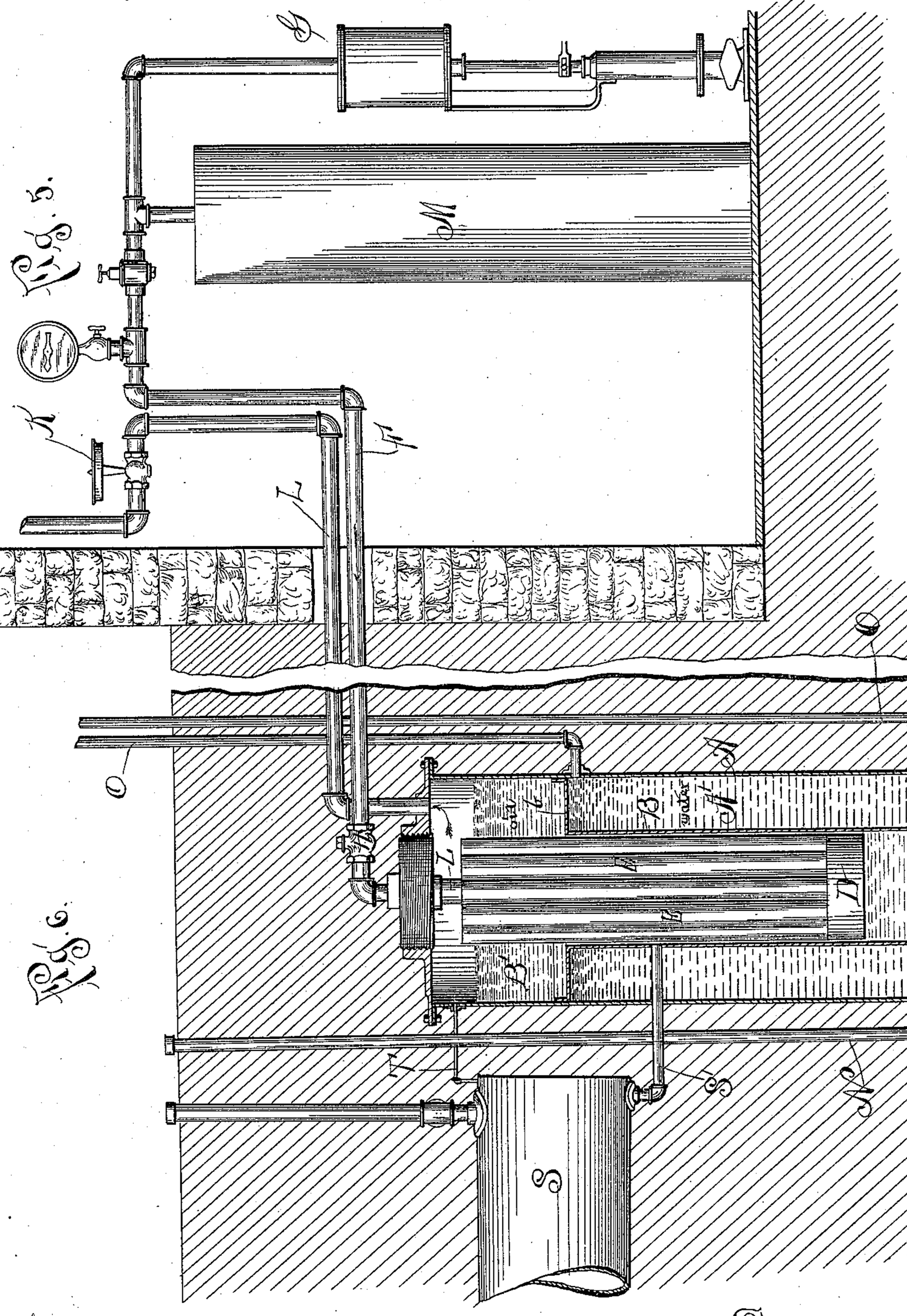

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UNITED STATES PATENT OFFICE.

HARRY B. CORNISH, OF HAMPTON, IOWA, ASSIGNOR OF TWO-THIRDS TO JOHN F. TAAKE AND A. C. HINE, OF WAVERLY, IOWA.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 575,595, dated January 19, 1897.

Application filed February 24, 1896. Serial No. 580,600. (No model.)

To all whom it may concern:

Be it known that I, HARRY B. CORNISH, a citizen of the United States of America, residing at Hampton, county of Franklin, and State of Iowa, have invented certain new and useful Improvements in Carbureters, of which the following is a description.

Referring to the accompanying drawings, wherein like reference-letters indicate like or corresponding parts, Figure 1 is a side elevation of my improved carbureter as designed for portable use. Fig. 2 is a vertical section of the same. Fig. 3 is a top plan with cover removed. Fig. 4 is a horizontal section on line 4 4 of Fig. 2. Fig. 5 is a view of the air pump and tank or reservoir with their connections. Fig. 6 is a side elevation, in partial section, of my improved carbureter as permanently buried in the ground in the usual manner; and Fig. 7 is a view of one of the screens for the cells.

The most serious difficulties met with in the use of carbureters designed for carbureting air by forcing it through a body of gasolene or other liquid hydrocarbons or carburetants are, first, limited capacity and difficulty in increasing it; second, the variable quality of the gas caused by the variable quality of the hydrocarbon, the lighter and more volatile portion first passing off giving a rich gas, while later the heavier and less volatile portion is left, resulting in a poorer gas; third, the closing of the openings in the air-distributer by reason of the frost, caused by the rapid evaporation of the liquid.

The object of my invention is to obviate the objectionable features above named in a simple, efficient, and economical manner.

To this end my invention consists, broadly, in subdividing the current of air into many smaller parts by forcing it into a plurality of vertical cells or tubes which extend from above the upper surface of the fluid to a point near the bottom of the reservoir and are filled from the bottom with fluid up to the level of the fluid within the reservoir.

It also consists in surrounding the receiver containing the multilocular carbureter with a water-jacket, by means of which the cold is absorbed.

It also consists in the novel construction and combination of parts described and shown, and more particularly pointed out in the claims.

In the drawings, A represents a closed drum or vessel, preferably cylindrical in form, and B an annular vessel extending from near the bottom of the vessel A upward, terminating in a flanged head *b* and dividing the vessel A into two parts—A′ for water and B′ for the hydrocarbon fluid and carbureted air.

C is the head of the vessel A and is provided with the necessary openings and connections, as fully explained hereinafter.

D is an inverted cup upon which the cells E E E rest, a perforation *d* extending through the cup into the bottom of each cell. A pipe F, connected with an air-pump G, extends downward and conducts the air to the cup D. A check-valve H prevents any return in the pipe.

Within each cell E, I prefer to arrange one or more screens I, which serve the purpose of still further dividing the current of air into small parts and preventing the passage of large bubbles. The air passing upward through the cells escapes into the space above the liquid and is conducted from thence to any desired point by means of the pipes L. A governor K may be employed, if desired, to regulate the pressure. Means may also be employed to regulate the pressure from the pump.

The mode of operation is as follows: The vessel B is filled with gasolene or other preferred liquid hydrocarbon to a point nearly to the top of the cells E, filling the cells from the bottoms to an equal height. A current of air is then forced through the pipe F, escaping into the extension or cup D. Following the line of least resistance, and by reason of the differences in specific gravity, it passes through the several apertures *d* into the various cells E. Still rising in bubbles it reaches the screens I I and is still further divided, and passing through the liquid in very small parts or bubbles escapes into the space above the liquid rich in carbon, and is thence conducted to any point desired by pipes for that purpose. As the liquid in the cells is consumed the cells are replenished from the bottom from the heavier liquids, there being a

thorough mixture of the lighter fluids by this action, thus preventing the exhaustion of the lighter and more volatile portion first. In this operation I also prefer to fill the space A′ with water for the purpose of absorbing the cold generated by the rapid evaporation of the fluid. In some cases this may not be necessary, and hence I do not wish to limit myself to the use of the water in all cases.

In all cases I prefer to use an air-reservoir M, in which case the air-pump need be operated only at intervals, the stored air under pressure being sufficient to cause the operation as described.

A pipe N may be employed to draw off the residuum after long use and pipes O O′ to fill and draw off or change the water. The reservoir B′ may be charged through the stopped opening P.

In the portable form a gage R may be used to show the quantity of fluid in the vessel, and a removable ornamental top V may be used.

When the carbureter is buried in the ground, substantially the same connections may be employed, except that for convenience they should extend to the surface. In such cases I also prefer to use one or more large storage tanks or reservoirs S, so arranged that the reservoir B′ will be automatically charged as fast as it is exhausted. The pipe S′ conducts the liquid to the carbureter, while a small pipe T, extending from the gas-space in the top of the vessel B′ to the top of the reservoir S, equalizes the pressure and insures a free flow of the fluid into the carbureter.

It is obvious that it does not matter in what manner the air is conducted to the cup D. Hence I do not wish to limit myself to the exact means shown for that purpose, although by clustering the cells or tubes E about the pipe F, Fig. 4, this is done in an exceedingly simple and efficient manner. In the preferred form I also prefer to extend the pipe F downward into the cup, causing a partial convex bottom. The cup is in this form a concave cup with partial convex bottom.

The screens may be easily constructed in the form of thimbles, Fig. 7, and inserted one after the other from the bottom of the tubes, frictional contact being sufficient to hold them in place.

The tubes or cells E may be of any desired number, and are preferably all secured together and loosely rest upon the cup D, collars *d′* extending upward into each to insure their retaining the proper position.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A multilocular carbureter consisting of a reservoir, means for charging the same with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

2. A multilocular carbureter, consisting of a reservoir, means for charging the same with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

3. A multilocular carbureter, consisting of a reservoir, means for charging the same with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with a central air-pipe extending to the cup, means for forcing air through the same, and means for drawing the carbureted air from the space above the liquid.

4. A multilocular carbureter, consisting of a carbureting-reservoir, a storage-tank for the carburetant, and means for automatically charging the carbureting-reservoir from the storage-tank, an inverted-cup-shaped part supported near the bottom of the carbureting-reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

5. A multilocular carbureter, consisting of a carbureting-reservoir, a storage-tank for the carburetant, and means for automatically charging the carbureting-reservoir from the storage-tank, an inverted-cup-shaped part supported near the bottom of the carbureting-reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

6. A multilocular carbureter, consisting of a reservoir surrounded by a water-jacket, means for charging the reservoir with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the

surface of the carburetant, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

7. A multilocular carbureter, consisting of a reservoir surrounded by a water-jacket, means for charging the reservoir with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the space above the liquid.

8. A multilocular carbureter, consisting of a reservoir surrounded by a water-jacket, means for charging the reservoir with a carburetant, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, and one or more apertures through the cup in line with each of the cells, in combination with a central air-pipe extending to the cup, means for forcing air through the same, and means for drawing the carbureted air from the space above the liquid.

9. A multilocular carbureter, consisting of a carbureting-reservoir, surrounded by a water-jacket, a storage-tank for the carburetant, and means for automatically charging the carbureting-reservoir from the storage-tank, an inverted-cup-shaped part supported near the bottom of the carbureting-reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup, and means for drawing the carbureted air from the top of the reservoir.

10. A multilocular carbureter, consisting of a carbureting-reservoir surrounded by a water-jacket, a storage-tank for the carburetant, and means for automatically charging the reservoir from the tank, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with means for conducting air to the cup and means for drawing off the carbureted air from the top of the reservoir.

11. A multilocular carbureter, consisting of a carbureting-reservoir surrounded by a water-jacket, a storage-tank for the carburetant, and means for automatically charging the reservoir from the tank, an inverted-cup-shaped part supported near the bottom of the reservoir, a plurality of substantially vertical cells extending from the cup to a point above the surface of the carburetant, one or more transverse screens in each of the cells, and one or more apertures through the cup in line with each of the cells, in combination with a central air-pipe extending to the cup, means for forcing air through the same, and means for drawing the carbureted air from the top of the reservoir.

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Witnesses:
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