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C. L. MOHR.

CARBURETER.

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Fig. 1.

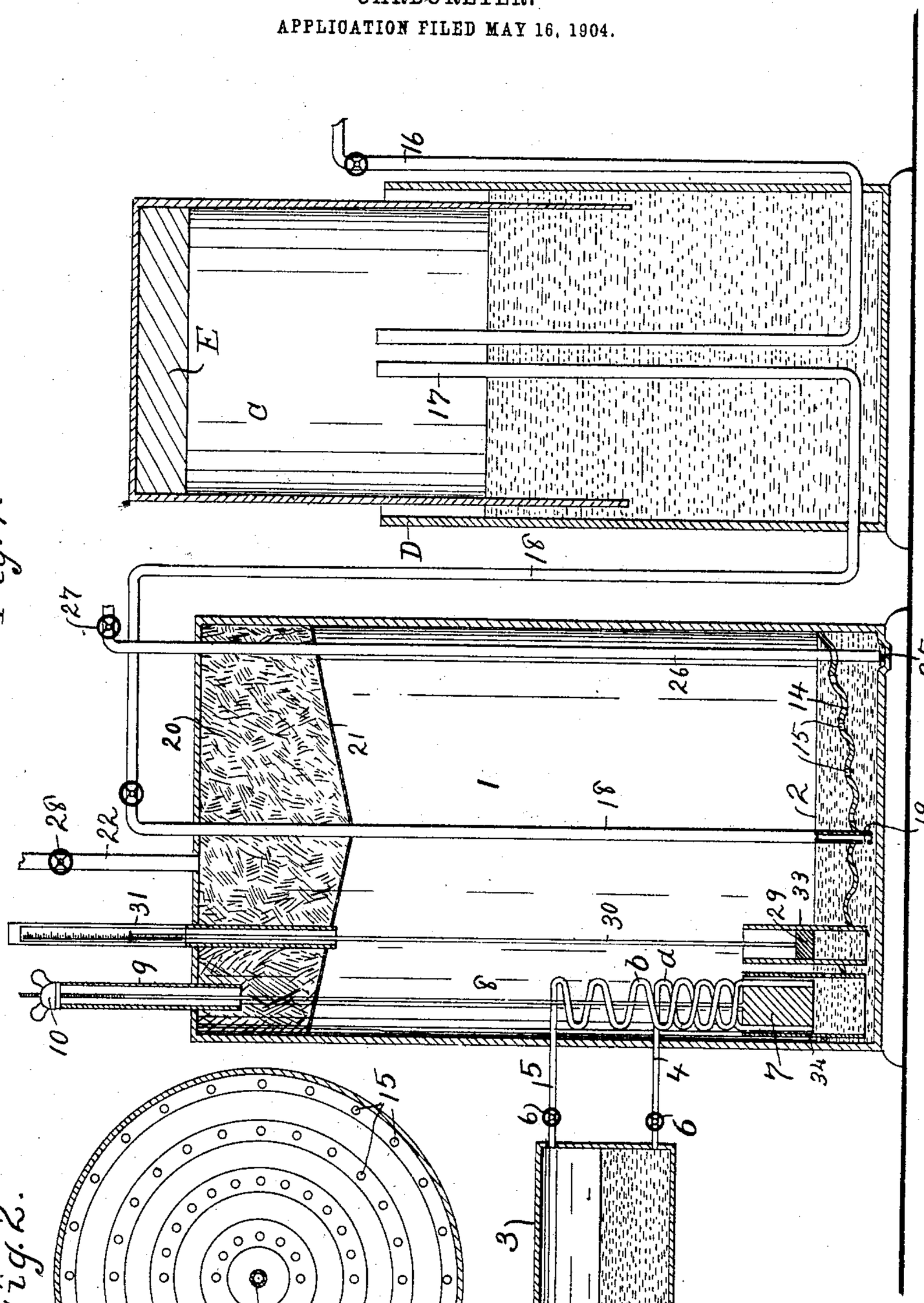

Fig. 2.

WITNESSES:

F. A. Otto

H. J. Taugher

INVENTOR

Charles L. Mohr

BY Erwin & Wheeler

ATTORNEYS.

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No. 782,788. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

CHARLES L. MOHR, OF JANESVILLE, WISCONSIN, ASSIGNOR TO THE NATIONAL LIGHT AND FUEL GAS COMPANY, OF JANESVILLE, WISCONSIN, A CORPORATION OF WISCONSIN.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 782,788, dated February 14, 1905.

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To all whom it may concern:

Be it known that I, CHARLES L. MOHR, a citizen of the United States, residing at Janesville, county of Rock, and State of Wisconsin, have invented new and useful Improvements in Carbureters, of which the following is a specification.

My invention relates to improvements in carbureters.

The object of my invention is to provide means for producing a uniform quality of combustible gas by the evaporation of liquid hydrocarbon, this being accomplished in my construction by providing for an extremely thorough and uniform distribution of air through the carbureting liquid and also by providing accurate means for automatically regulating the depth of the carbureting liquid.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a sectional elevation of my invention. Fig. 2 is a plan view of the air-distributing screen.

Like parts are identified by the same reference characters in both views.

1 is a carbureting-chamber in which a supply of carbureting liquid is maintained at a uniform depth, the upper surface of the liquid being indicated at 2.

3 is a liquid-supply tank located above the level of the liquid in the chamber 1. The liquid is supplied from the tank 3 to the chamber 1 through a pipe 4, which leads downwardly in chamber 1 to the liquid therein, the pipe 4 being connected with the tank 3 near its bottom. A controlling-pipe 5 leads from the upper portion of the tank 3 to the surface of the liquid in chamber 1. When the liquid in the chamber 1 is lowered below the end of this pipe, air or gas is permitted to pass upwardly in the pipe and the upper portion of tank 3, thus permitting liquid from the tank 3 to flow through pipe 4 into chamber 1 until the lower end of the pipe 5 is sealed in the liquid, when the flow of liquid from the tank will be checked by the formation of a partial vacuum in said tank. The pipes 4 and 5 are provided with valves 6 and are coiled, as indicated at *a* and *b*, respectively, the lower ends of the pipes being secured to a block 7, which may be raised or lowered by means of a rod 8, extending through the upper portion of the carbureting-chamber. With this construction the block 7 may be raised or lowered to vary the height of the carbureting liquid in chamber 1, the coils *a* and *b* being adapted to permit the pipes to yield sufficiently for the desired purpose. The pipes may, if desired, be made of yielding material, such as lead. The upper end of the rod is passed through a tubular packing-box 9 and is engaged by an exterior end nut 10, the end of the rod being screw-threaded, so that by turning the nut the block 7 will be raised or lowered, as desired. An air-distributing screen 14 is located underneath the surface of the carbureting liquid in chamber 1. This screen is preferably corrugated annularly and is dished downwardly at the center, the under surface of the screens being convex or conical in general outline.

At one side of the screen series of perforations 15 are provided in the upwardly-projecting corrugations. Air under pressure is delivered to the chamber 1 from a receiver 17 by means of a pipe 18, which preferably enters chamber 1 at the top and which passes downwardly through the center of the screen 14 and delivers the air into the carbureting liquid underneath the screen. The lower end of the pipe 18 is preferably recessed, as shown at 19, on the side opposite the perforations 15, whereby the air is first delivered to the unperforated portions of the corrugated screen and is thus caused to travel annularly in the corrugations until the perforations are reached, when it is permitted to pass upwardly through the liquid to the upper portion of the chamber 1. If desired, however, the perforations 15 may be uniformly distributed in a screen and the air delivered from pipe 18 in all directions underneath the screen; but by providing perforations on one side only and delivering the air to the other side a more complete distribution of air and more intimate contact with the carbureting liquid is secured.

It will be observed that by using a corrugated screen the air is subdivided and pocketed in waves in the several corrugations, while by having the screen dished that portion of the air which reaches the outer corrugations is under a lighter pressure than the air nearest the tube 18, which compensates for the increased distance it must travel. It will also be observed that the air pocketed in the central corrugations must necessarily absorb the heavier portions of the liquid. This air travels more rapidly and under greater pressure than the air in the outer corrugations, and therefore vaporizes the heavier portion of the liquid as well as the more volatile portions which are reached by the outer air-currents. The quality of the liquid is thus kept from deteriorating.

The air-receiver 17 is of ordinary construction, comprising an inverted bell C, adapted to reciprocate in a water-tank D and provided with a weight E, regulating the pressure of the air. Air is supplied to the receiver 17 by means of a supply-pipe 16, leading from an air-pump or any other suitable source of air-supply. (Not shown.)

The chamber 1 is preferably provided with a filter 20 in its upper portion, pulverized charcoal being preferred for this purpose. A screen 21 supports the charcoal in position, and a service-pipe 22 leads through the upper wall of the chamber from the space above the charcoal. It will be observed that the bottom of the chamber 1 is provided with a depression at 25, from which point a pipe 26 extends upwardly through the wall of the chamber 1 and is provided with a valve 27. When it is desired to clean out the liquid from chamber 1, a valve 28 in the service-pipe is closed and valve 27 opened, whereupon the pressure of air and gas in chamber 1 is permitted to increase until the liquid is blown out through the pipe 26. The bell C of receiver 17 may be additionally weighted for this purpose if the pressure is found insufficient to blow out the liquid.

In order that the depth of liquid in chamber 1 may be definitely ascertained at all times, I have provided a float 29, from which an indicating-rod 30 extends upwardly into a tubular sight-glass which projects from the upper wall of the chamber 1 and is provided with gage-marks adapted to indicate the elevation of the float. This float and the block 7 are inclosed in guide-tubes 33 and 34, respectively.

The guide-tube 33 prevents the ebullitions of the carbureting liquid from interfering with the float, while the tube 34 keeps the liquid quiet at the mouths of the tubes 4 and 5, this being essential to an accurate feed of liquid from tank 3.

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

1. In apparatus of the described class, the combination of a carbureting-chamber; a supply-tank located above the bottom of said chamber; pipes leading from the upper and lower portions of the supply-tank respectively to points near the bottom of said chamber; and means for supplying air under pressure and delivering the same at a point lower than the end of the pipe leading from the upper portion of said tank, together with means for raising and lowering the lower end of said last-mentioned pipe.

2. In apparatus of the described class, the combination of a carbureting-chamber; a supply-tank located above the bottom of said chamber; pipes leading from the upper and lower portions of the supply-tank respectively to points near the bottom of said chamber; and means for supplying air under pressure and delivering the same at a point below the end of the pipes leading from the upper portion of said tank, said pipes being coiled within the carbureting-chamber and provided with exterior connections whereby their lower ends may be raised or lowered.

3. In apparatus of the described class, the combination of a carbureting-chamber; a supply-tank located above the bottom of said chamber; pipes leading from the upper and lower portions of the supply-tank respectively to points near the bottom of said chamber; and means for supplying air under pressure and delivering the same at a point below the end of the pipes leading from the upper portion of said tank, together with a shield inclosing the lower ends of said pipes and extending a substantial distance below the surface of the liquid in said chamber.

4. In apparatus of the described class, the combination with a carbureting-chamber, and means for supplying the same with liquid hydrocarbon; of a perforated screen in the lower portion of the carbureting-chamber and an air-supply pipe arranged to deliver air underneath said screen; said screen being inclined upwardly from the point of air delivery and provided with perforations at different radial distances from said point; together with means for maintaining a supply of carbureting liquid at a level in close proximity to the outer edges of the screen.

5. In apparatus of the described class, the combination with a carbureting-chamber, and means for supplying the same with liquid hydrocarbon; of a perforated screen in the lower portion of the carbureting-chamber and an air-supply pipe arranged to deliver air underneath said screen; said screen being inclined upwardly from the point of air delivery and provided with perforations at different radial distances from said point, said screen being also provided with channels adapted to pocket the air in the perforated portions of the screen.

6. In apparatus of the described class, the combination with a carbureting-chamber, and

means for supplying the same with liquid hydrocarbon; of a screen in the lower portion of the chamber depressed in its central portion and having corrugated upwardly-inclined sides; and means for delivering air below the screen at one side of the central portion thereof; said screen being provided with perforations at the other side of its central portion.

7. In apparatus of the described class, the combination with a carbureting-chamber, and means for supplying the same with liquid hydrocarbon; of a perforated screen in the lower portion of the carbureting-chamber and an air-supply pipe arranged to deliver air underneath said screen; said screen being inclined upwardly from the point of air delivery and provided with perforations at different radial distances from said point, together with a float in said chamber; an indicator-rod extending from the float through wall of the chamber; and a shield arranged to protect the float from surface movements of the liquid.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES L. MOHR.

Witnesses:
ARTHUR M. FISHER,
OTTO A. OESTREICH.