No. 720,485. PATENTED FEB. 10, 1903.

C. ROBINSON.

CARBURETER.

APPLICATION FILED MAY 20, 1902.

NO MODEL.

Fig. 1.

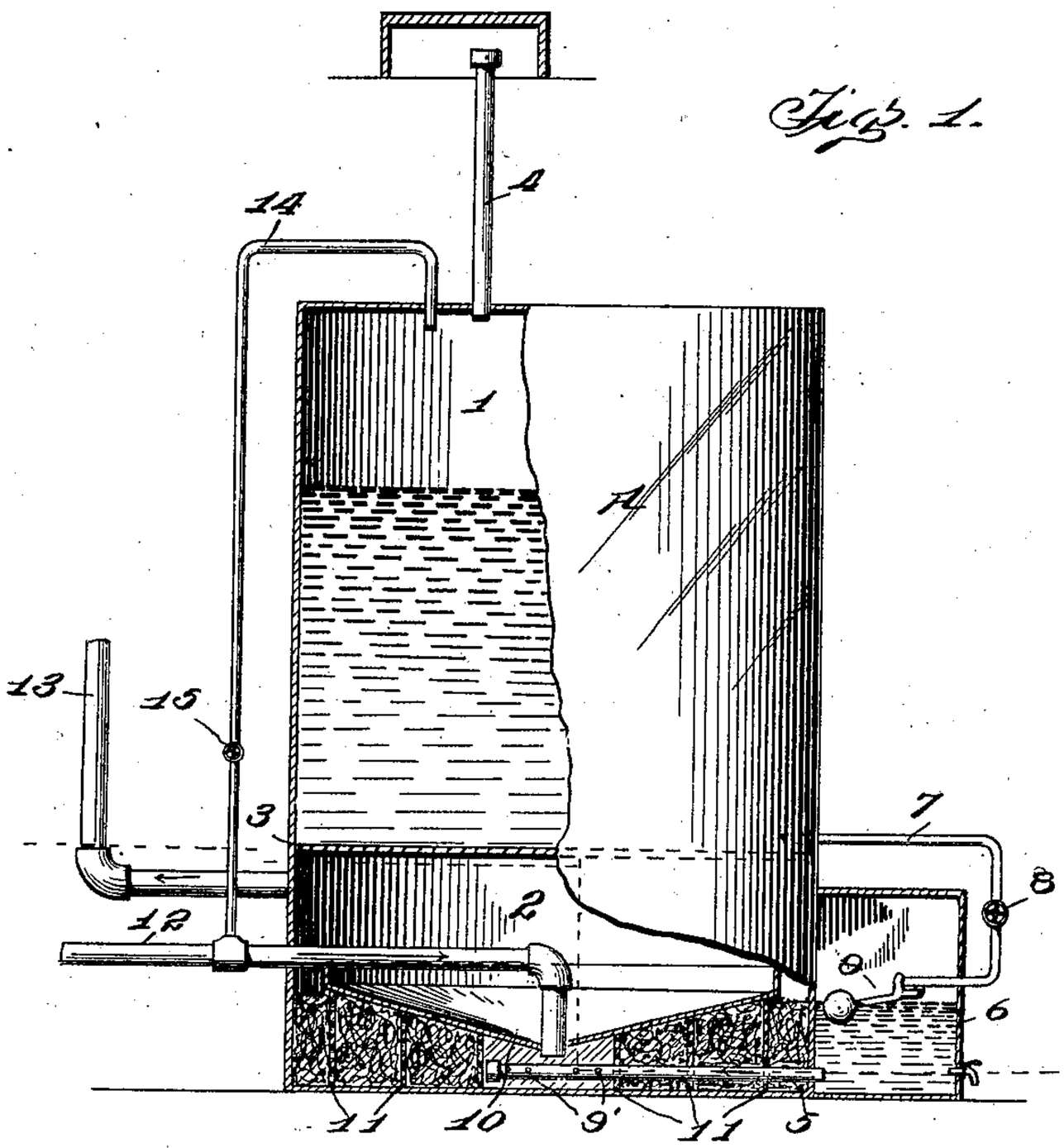
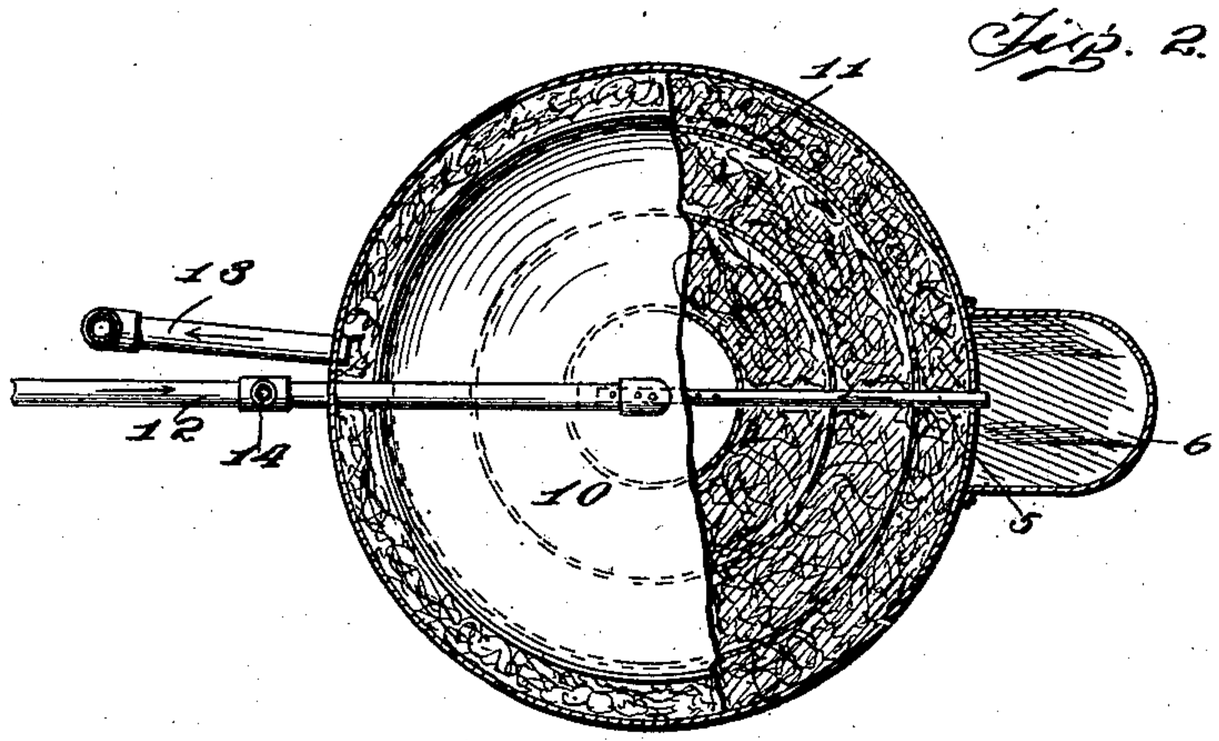


Fig. 2.



Witnesses

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CLARK ROBINSON, OF HARTLEY, IOWA.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 720,485, dated February 10, 1903.

Application filed May 20, 1902. Serial No. 108,238. (No model.)

To all whom it may concern:

Be it known that I, CLARK ROBINSON, a citizen of the United States, residing at Hartley, in the county of O'Brien and State of Iowa, have invented certain new and useful Improvements in Curbureters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain new and useful improvements in the construction of carbureters for the manufacture of illuminating-gas.

The invention contemplates the production of a device which shall be capable of producing an intimate commingling and mixing of the elements forming the gas and at the same time shall be so designed and constructed that great simplicity and durability shall be attained.

It is also the intention of the invention to have the parts so positioned and correlated that a structure of great compactness shall be formed, thus providing for economy in the use of space.

To the attainment of the hereinabove-mentioned objects and others of a like nature the invention consists of a main tank having suitable delivery and feed conduits or pipes leading to and from the same, said tank being divided into two compartments—an upper or hydrocarbon-liquid-storage chamber and a lower or carbureting-chamber.

It further consists in means for delivering and regulating the supply of liquid from the storage to the carbureting tank and devices in the carbureting tank or chamber for thoroughly and intimately mixing the elements and means therein for refining the resultant gas.

It further consists in the peculiar construction, combination, and arrangement of parts, as will be hereinafter described, illustrated, and set forth.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

It will of course be understood that the invention is susceptible to various changes in the form, proportion, and minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and a disclosure of the invention and adaptation thereof is shown in the accompanying drawings, wherein—

Figure 1 is a side sectional elevation of a carbureter embodying my improvements. Fig. 2 is a top plan view of the interior of the carbureting-chamber, showing the arrangement of the circular plates and the interposed absorbent material.

Referring now to the drawings and in particular to Fig. 1 thereof, A designates a tank of any desired form of construction adapted to be divided into two compartments 1 and 2 by means of the horizontally-arranged partition 3, the upper chamber thus formed being designed for the storage of the hydrocarbon liquid and the lower compartment being adapted to contain the carbureting devices proper. Any suitable means for filling the storage-tank may be employed—as, for instance, an induction-pipe, as at 4, arranged at the top of the tank. Arranged contiguous to the tank A and communicating with the chamber 2 thereof, by means of a suitable duct or pipe 5, is the oil-supply chamber 6. This chamber is supplied with the liquid from the storage-compartment by means of the pipe 7, the flow of the liquid being controlled by a valve or cock, as at 8. The usual float-valve, as at 9, is arranged at the end of the pipe 7 within the chamber 6.

Oil on being introduced into the chamber 6 from the compartment 1 passes through the pipe 5 and flows out through perforations or apertures 9′ therein into the chamber 2. It will be observed that the pipe 5 is located quite close to the bottom of the said tank. A circular diaphragm or plate, of slightly less diameter in cross-section than the chamber, is mounted in said chamber in such manner that a small space is left between the edge of the said diaphragm and the interior wall of the tank. The diaphragm, which is designated by the numeral 10, is somewhat conical in shape and is mounted in the chamber 2 approximately centrally between the plate 3 and the bottom of said tank. A series of vertical perforated plates, as at 11, decreasing in size as they approach the center of the tank, are arranged beneath the diaphragm

and are held in place by being secured to the diaphragm and the bottom of the tank. Between these plates is a packing of some suitable absorbent material—excelsior, for instance—a space being left between the walls of the smallest plate at the center near the apex of the cone for the purpose of allowing the oil to flow from the pipe 5 unimpeded. A pipe or supply-conduit 12 leads from a suitable source of air-supply, (not shown,) which air is introduced under pressure through the agency of any suitable pumping mechanism into the chamber 2 at the center thereof, the said pipe 12 passing through the apex of the cone-like diaphragm. A second pipe 13 leads out from the said carbureting tank or chamber to the source of consumption of the gas. The ordinary pressure-equalizing means, as the pipe 14, communicating with the storage-tank from the air-pipe 12, is also employed, and the air therein is controlled by the usual valve 15.

The operation of my improved device will be readily apparent from the above description, taken in connection with the drawings. The hydrocarbon liquid having been introduced into the storage-tank through the pipe 4 passes through the duct 7 into the tank 6 and from there through the perforations 9′ in the pipe 5 into the carbureting-tank 2 beneath the diaphragm 10. Here it is discharged into the space formed by the smallest circular plate and flowing through the perforations in the several circular plates after having been mixed with the air introduced into the chamber through the pipe 12. The absorbent material, such as excelsior, through which the now commingled elements pass thoroughly strains and refines the mixture, and it passes upward through the space between the edge of the plate or diaphragm and the wall of the tank. It is then conducted to the point of use by means of the pipe 13.

It will be observed that this device is exceedingly simple and at the same time obtains a compactness of form not found in the devices now in use. The advantages of the arrangement of the diaphragm and the circular perforated plates will be obvious. The gas is thus caused to be mixed thoroughly and intimately. There are also numerous other advantages incident to my improved carbureter, but they are so apparent that it is unnecessary to dwell upon the same here.

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

1. In a device of the class described, the combination of a suitable tank or vessel containing a liquid-storage chamber and a carbureting-chamber, means for introducing a liquid into said storage-chamber, a supplemental tank or chamber arranged contiguous to the first-mentioned tank or vessel and adapted to have communication with the chambers formed therein, an inverted, conical diaphragm arranged in the carbureting-chamber, a pipe communicating with the supplemental tank and adapted to discharge under the diaphragm, an air-supply conduit discharging at the apex of the aforesaid conical diaphragm into the hydrocarbon liquid, and a carbureted-air outlet, substantially as described.

2. In a device of the class described, the combination of a suitable tank, containing a liquid-storage chamber and a carbureting-chamber, a supplemental tank arranged contiguous to the first-mentioned tank, means for conveying and controlling the flow of liquid from the storage-chamber into the supplemental tank, an inverted conical diaphragm arranged in the carbureting-chamber, and a perforated conduit in said carbureting-chamber and communicating with the supplemental tank for permitting the liquid to flow from the said last-mentioned tank into the carbureting-chamber, substantially as set forth.

3. In a device of the class described, the combination of a suitable tank containing a liquid-storage chamber and a carbureting-chamber, a supplemental tank arranged contiguous to the first-mentioned tank or vessel, means for conveying and controlling the flow of liquid from the storage-chamber into the supplemental chamber, a diaphragm arranged centrally, horizontally of the carbureting-chamber, a perforated conduit in said carbureting-chamber and communicating with the supplemental tank for permitting the liquid to flow from the said last-mentioned tank into the carbureting-chamber, a series of vertically-arranged perforated plates interposed between the aforesaid diaphragm and the bottom of the carbureting-chamber, and a packing of absorbent material between said plates, substantially as described.

4. In a device of the class described, the combination of a suitable vessel containing a liquid-storage chamber and a carbureting-chamber, a supplemental tank arranged contiguous to the first-mentioned vessel, means for conveying the liquid from the storage-chamber to the supplemental tank, means for directing and controlling the flow of liquid from the supplemental tank into the carbureting-chamber, a diaphragm in said carbureting-tank, a series of circular, vertically-arranged perforated plates interposed between the diaphragm and the bottom of the carbureting-chamber, a packing of absorbent material between the perforated plates, and suitable air-inlet and carbureted-air outlet conduits, substantially as described.

5. In a carbureter of the class described, the combination, with a suitable chamber having a carbureted-air outlet, of an inverted conical diaphragm of less diameter in cross-section than the interior wall of said chamber, arranged horizontally therein, a series of circular, vertically-arranged, perforated plates interposed between the aforesaid diaphragm and the bottom of the chamber, and a packing of absorbent material arranged between

a portion of the series of perforated plates, substantially as set forth.

6. In a carbureter of the class described, the combination, with a suitable chamber having a suitable air-inlet and carbureted-air outlet, of a conical diaphragm arranged horizontally therein, its apex extending downwardly, a series of vertically-arranged, circular perforated plates interposed between the diaphragm and the bottom of the chamber, the plates decreasing in height as they approach the apex of the conical diaphragm, a packing of absorbent material placed in the spaces formed by the plates, the space or chamber formed by the last or smallest plate of the series being left without packing, an air-supply pipe extending through the diaphragm into this chamber, and an oil-supply pipe discharging into said space or chamber, substantially as set forth.

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

CLARK ROBINSON.

Witnesses:
W. P. BRIGGS,
HOLGER JOHNSON.