No. 662,304. Patented Nov. 20, 1900.

G. L. REENSTIERNA.

CARBURETER.

(Application filed Feb. 28, 1900.)

(No Model.)

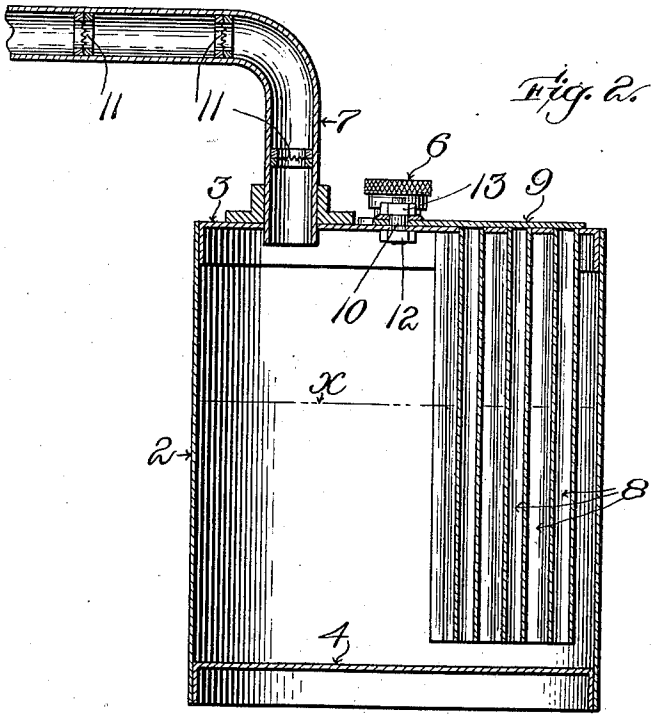


Fig. 2.

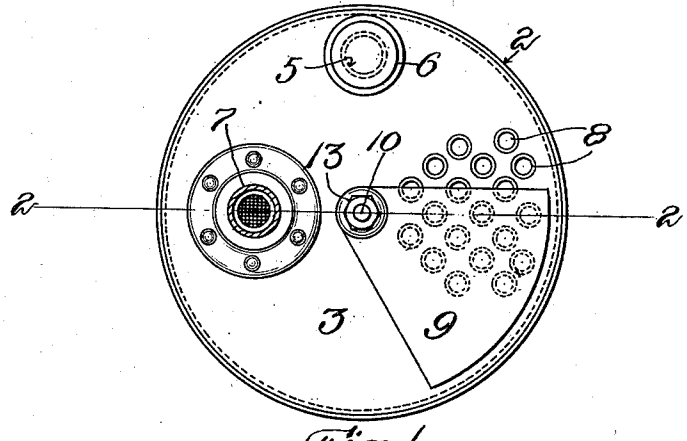


Fig. 1.

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UNITED STATES PATENT OFFICE.

GUSTAF L. REENSTIERNA, OF WINCHESTER, MASSACHUSETTS.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 662,304, dated November 20, 1900.

Application filed February 28, 1900. Serial No. 6,802. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF L. REENSTIERNA, a citizen of the United States, residing at Winchester, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Apparatus for Producing and Supplying a Mixture of Gasolene-Vapor and Air, of which the following is a specification, reference being had therein to the accompanying drawings.

In the use of gasolene in explosive-engines or the like it is necessary for the best results that the gasolene in the form of vapor be thoroughly intermixed with air in definite proportions. To accomplish this object, it has hitherto been deemed necessary, so far as known to me, to provide intermediate the gasolene-reservoir and the explosion-chamber of the engine or other place in which the mixture of gasolene-vapor and air was to be used more or less complicated means or apparatus by which the liquid gasolene should be taken from the supply-receptacle in definite quantities, should be properly mixed with a definite quantity of air, and supplied at the point at which it is to be used, the air being mixed with the gasolene-vapor either before the latter reaches the explosion chamber or point at which it is to be used or simultaneously therewith. This apparatus is more or less complicated and is liable to get out of order and to fail to perform its proper function.

My invention has for its object to provide a simple apparatus which shall not only act as a reservoir for the supply of gasolene, but which shall also perform the function of thoroughly mixing in definite proportions the gasolene-vapor and air, holding this mixture and supplying it, as required, for use.

To this end my invention consists in an apparatus of the character hereinafter fully set forth in the following description, and the novel features of which are pointed out and clearly defined in the claims at the close of this specification.

An apparatus embodying my invention in the best form now known to me is shown in the accompanying drawings, which form a part hereof, and in which—

Figure 1 is a plan view, and Fig. 2 a section on line 2 2 of Fig. 1.

Referring to the drawings, 2 is a reservoir or receptacle which may be constructed in any well-known manner and of any desired shape and which is designed to receive and hold a supply of gasolene. 3 and 4 designate the heads or upper and lower ends, respectively, of the said reservoir.

5 is an opening through which gasolene may be admitted into the receptacle 2, said opening being provided with a removable cap 6, by means of which it may be closed when desired.

7 is an outlet-pipe leading from the upper portion of the reservoir 2 at a point above the liquid gasolene contained in said reservoir to the place (not shown) at which the mixture of gasolene-vapor and air is to be used. The quantity of gasolene supplied to the reservoir at any one time must not be sufficient to completely fill the latter, since the end of the outlet-pipe 7, which opens into the reservoir, must at all times be above the level of the liquid gasolene. In Fig. 2 of the drawings the preferred level of the liquid gasolene is indicated by the line X. The space within the reservoir above the level of the liquid gasolene forms a chamber in which the gasolene-vapor and air are mixed and also in which the supply of the mixture is contained until it is drawn off, as required, through the outlet-pipe 7. The outlet-pipe 7 is provided with partitions 11, preferably made of woven wire-netting of such a mesh as will permit the ready passage of the mixed gasolene-vapor and air through the outlet-pipe 7, while preventing the passage of a flame backwardly through the pipe into the reservoir. For greater safety these partitions are repeated, as shown at intervals in the pipe 7.

For the purpose of supplying a proper and definite amount of air to form the proper mixture in the space above the level of the liquid gasolene within the reservoir 2 I provide a suitable air-inlet, which is preferably formed of a number of relatively small pipes 8. The upper ends of these pipes are secured in openings made in the head 3 of the reservoir, and the said pipes thus open direct into the outer air. The pipes extend downward preferably to a point near the bottom of the reservoir, as shown, and open at their lower ends into the

mass of liquid gasolene. If now a suction be created in the outlet-pipe 7, a certain quantity of gasolene-vapor mixed with air will be withdrawn from the space above the gasolene in the reservoir, tending to form a vacuum therein and air will rush in through the pipes 8, passing out of the lower end thereof into the liquid gasolene and rising into the space above the latter, and this will occur at each withdrawal of the mixed gasolene-vapor and air through the pipe 7, as will be clear. If now the quantity of air admitted through the inlet-pipe 8 is properly regulated, the supply of mixed gasolene-vapor and air in the upper part of the reservoir 2 will contain definite and predetermined proportions of the said gasolene-vapor and air.

For the purpose of regulating the supply of air I provide a damper 9, which is pivoted upon a stud 10, set in the head 3 and secured by means of a nut 12 on the lower end thereof. The damper 9 is of such a shape and size as to cover when in its closed position the mouths or openings of the inlet-pipes 8. By setting this damper so as to uncover or partially uncover the openings to certain of the pipes 8, while closing or partially closing the openings to others, it will be clear that the amount of air admitted to the reservoir may be regulated with sufficient accuracy. A suitable device (not shown) may be employed to secure the damper 9 in any given position, or this object may be effected by screwing down the nut 13 on the upper end of the stud 10, which nut also serves to hold the damper in place on the said stud.

As will be clear, the joints where the outlet-pipe 7 and inlet-pipes 8 enter the head 3, as also the closure device for closing the opening 5, require to be sufficiently tight to prevent the escape of gasolene-vapor.

If desired, check-valves may be employed in the inlet-pipes 8, which while freely admitting the passage of air into the reservoir will prevent the passage of liquid gasolene or gasolene-vapor through the pipes 8 in the opposite direction.

I do not desire to limit myself to the shape of apparatus shown, or to the precise details of construction thereof, or to the use of the apparatus in connection with a gasolene-engine or any specific device in the operation of which gasolene-vapor mixed with air is employed.

It will further be obvious that my apparatus will operate equally well in the production of a mixture of air with the vapor of other volatile oils, as well as gasolene, when such a mixture is desired.

I claim as my invention—

1. In combination, the reservoir having an outlet-pipe in connection therewith, a plurality of air-inlet pipes discharging into the lower part of said reservoir, and a single damper coöperating with said air-inlet pipes to open or close a varying number of such inlet-pipes, substantially as described.

2. In an apparatus for producing and holding a mixture of gasolene-vapor and air, the combination of a reservoir, an outlet-pipe from the upper portion thereof having one or more partitions therein formed from wire-netting, a plurality of air-inlet pipes discharging into the lower part of said reservoir and a single damper coöperating with said air-inlet pipes to open or close a varying number of such inlet-pipes, substantially as described.

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

GUSTAF L. REENSTIERNA.

Witnesses:
WILLIAM A. COPELAND,
ALICE H. MORRISON.