

No. 673,799.

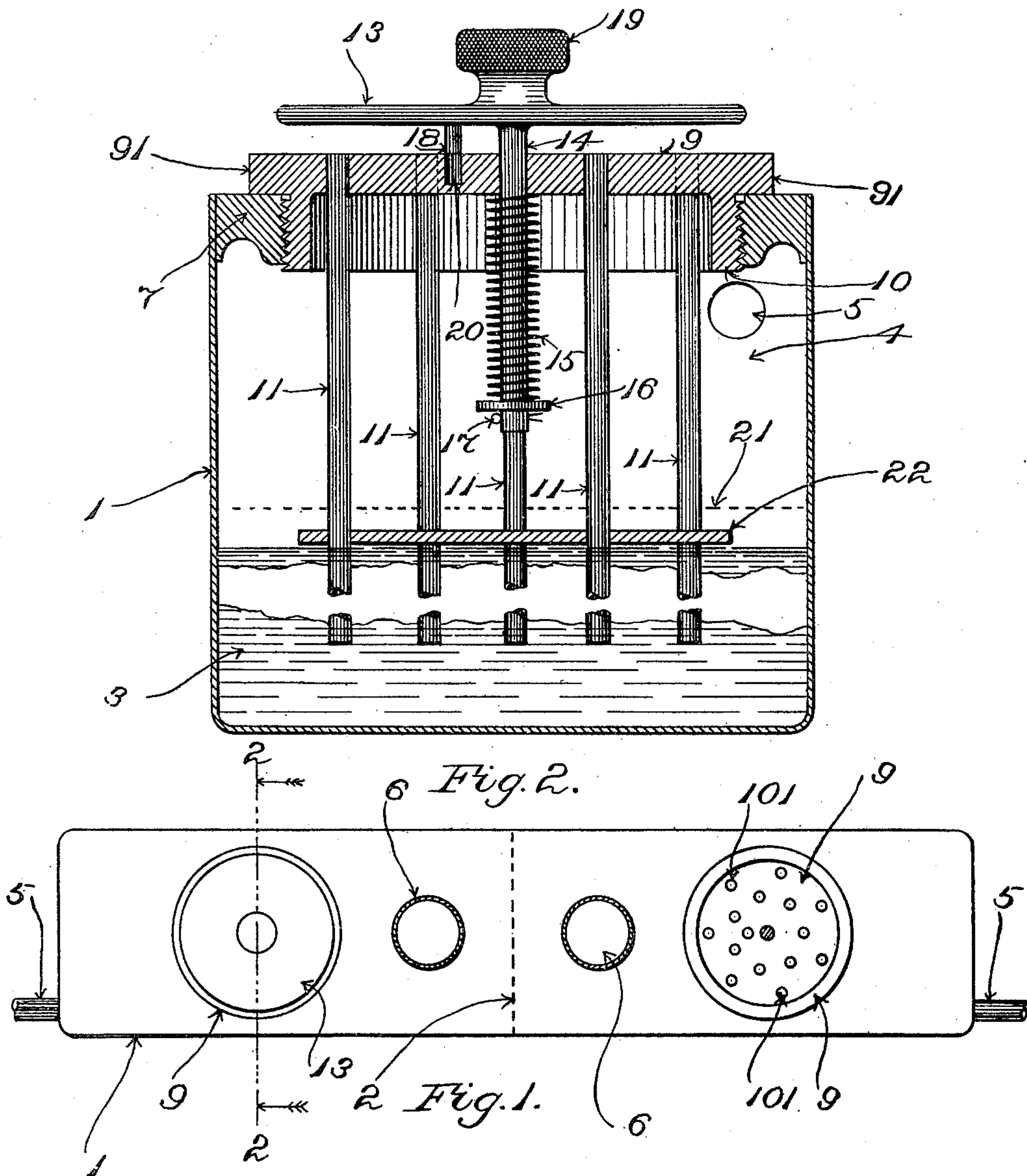
Patented May 7, 1901.

G. L. REENSTIERNA.

CARBURETER.

(Application filed July 16, 1900.)

(No Model.)



Witnesses:

Oscar F. Gill  
Maude B. Bagley

Inventor:

Gustaf L. Reenstierna  
by Mackay Calver & Randall  
Attorneys.



# UNITED STATES PATENT OFFICE.

GUSTAF L. REENSTIERNA, OF WINCHESTER, MASSACHUSETTS.

## CARBURETER.

SPECIFICATION forming part of Letters Patent No. 673,799, dated May 7, 1901.

Application filed July 16, 1900. Serial No. 23,717. (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 Gasolene Vapor, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has relation to the apparatus which is employed for the purpose of producing a combustible mixture of air and gasolene or the like liquid for use more especially as an explosive fuel in gasolene-engines.

The aims of the invention are to provide improved means for causing atmospheric air to make intimate contact with the supply of liquid gasolene and for insuring that the air shall become uniformly and completely charged with the gasolene; also, to provide a simple and convenient closure device for the air-inlets, enabling the entire series thereof to be opened in unison to permit inflow of air when the apparatus is required to supply vapor and also enabling the entire series of inlets to be closed in unison when the necessity for further supply of vapor ceases for the time being.

I have shown my invention in the accompanying drawings, in which—

Figure 1 is a view in plan of a gasolene-receptacle having my invention applied thereto. Fig. 2 is a view in vertical section on the plane indicated by the dotted line 2 2 in Fig. 1, looking in the direction indicated by the arrows at the ends of such line.

Having reference to the drawings, the receptacle for gasolene is shown at 1. It is represented as divided into two compartments by means of a vertical partition 2. (Indicated by a dotted line in Fig. 1.) In use the receptacle is more or less completely filled with gasolene or the like fluid, the latter being intended to be represented at 3, Fig. 2. The upper portion 4 of each compartment of the receptacle, above the liquid-level, constitutes a vapor-space which in the use of the apparatus becomes filled with a heavily-charged vapor produced by causing atmospheric air from the exterior of the receptacle to come into intimate contact with the supply of liquid gasolene 3. From the vapor-space 4 a

feed-pipe 5 leads to the gasolene-engine or other place of consumption for the vapor.

The supply of liquid gasolene is introduced into the chambers of the receptacle through openings which are closed by removable caps or the like, as at 6 6, Fig. 1.

In the top 7 of the receptacle a circular hole is formed for each chamber and at each of said holes the top is screw-threaded interiorly. (See Fig. 2.) A head 9 is provided in connection with each hole, the said head having a downwardly-extending exteriorly-threaded flange 10. The said flange is screwed into the hole until the rim 91 on the head bears against the upper surface of the top 7. Through the central portion of the said head 9 is formed a number of holes, as at 101 101, &c., Fig. 1. In the said holes are secured the upper ends of the series of small air-supplying tubes 11 11, Fig. 2. The lower ends of these tubes project down below the liquid-level within the receptacle, and when the suction of the piston of the engine draws out a portion of the vapor occupying the vapor-space 4 fresh air is caused by atmospheric pressure to pass downward through the pipes 11 11 and rise in widely-distributed small bubbles through the liquid gasolene.

In connection with the head 9 I provide the disk-like cover 13, the said cover being adapted to close the upper ends of all the tubes 11 11. In Fig. 1 one cover is shown in position, the cover which belongs at the right-hand side of the said figure being removed in order to show the arrangement of the series of tubes 11 11. The said cover 13 has a central spindle 14, extending down through a central hole in the head 9, to guide the cover in its vertical movement. The gravity of the cover may be depended upon to keep it in place; but preferably I employ a spring 15 upon said spindle, compressed between the under side of the head 9 and a washer 16 on the lower end of the spindle, the said washer being held in place by a split pin 17. For the purpose of holding the cover elevated during the use of the engine, so as to uncover the upper ends of the tubes 11 11, &c., and allow air to enter freely into said tubes, a pin 18 projects downwardly from the cover 13 and is adapted to bear upon the top of the head. When it is desired to close the said



upper ends of the series of tubes 11 11; &c., the cover is rotated by means of one's thumb and finger applied to the milled central boss 19 of the same, so as to carry the pin 18  
 5 around into position to enter a hole 20, that is formed in the central part of the head 9. This cover enables the entire series of air-tubes 11 11 for each chamber of the receptacle to be closed or unclosed in unison. One  
 10 or more diaphragms of wire-netting, as at 21, Fig. 2, may be employed in practice within each chamber of the receptacle in order to strip from the vapor any excess of gasoline in liquid form carried up by the ascending  
 15 vapor. The air-tubes 11 11 admit the entering air in small streams at a number of places, so that the air is admitted in only a small quantity at a given place, and thus is completely brought into contact with the  
 20 liquid gasoline, the loading or charging of the air with gasoline to form the required vapor being thereby more effectually accomplished than would be the case if the air were allowed to flow in through one or more large  
 25 passage-ways. This mode of producing the vapor obviates tendency to oversaturation of the air with liquid, only so much gasoline being taken up by the air as the latter can carry.  
 30 It is contemplated that the receptacle to which my invention is applied shall be employed in connection with a moving vehicle of the self-propelled class. For the purpose of preventing excessive agitation of the liquid contents of the receptacle, as well as  
 35 bracing the inner ends of the air-tubes 11 11, so as to stiffen and steady the same, I apply a plate 22, Fig. 2, to the said air-tubes adjacent the usual top level of the liquid gasoline.

40 I claim as my invention—

1. The improved vapor-producing apparatus comprising the receptacle for liquid

gasoline, or the like, having the vapor-space and a feed-pipe for vapor leading from said vapor-space, the series of small air-supply  
 45 tubes conducting air in small streams into the liquid gasoline, and the gravitating or spring-actuated cover applied to the outer ends of the series of tubes and serving to cover or uncover the entire series at one time, 50 substantially as described.

2. The improved vapor-producing apparatus comprising the receptacle for liquid gasoline, or the like, having the vapor-space, and a feed-pipe for vapor leading from said  
 55 vapor-space, a series of small air-tubes conducting air in small streams into the liquid gasoline, and the gravitating or spring-actuated cover applied to the outer ends of the series of tubes and serving to cover or un- 60 cover the entire series at one time, the said cover having the pin 18 entering in a given position of the cover a hole provided for its reception, the said pin acting in another position of the cover to hold the latter elevated, 65 substantially as described.

3. The improved vapor-producing apparatus comprising the receptacle for liquid gasoline having the vapor-space and a feed-pipe for vapor leading from said vapor-space, 70 the series of small air-supply tubes conducting air in small streams into the liquid gasoline, the cover applied to the outer ends of the series of tubes, and the plate 22 applied to the inner portions of the said air-tubes 75 adjacent the usual top level of the liquid contents of the receptacle, substantially as described.

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

GUSTAF L. REENSTIERNA.

Witnesses:

CHAS. F. RANDALL,  
 WILLIAM A. COPELAND.