No. 854,246. PATENTED MAY 21, 1907.

J. W. SMITH.

CARBURETER.

APPLICATION FILED APR. 26, 1906.

Fig. 1.

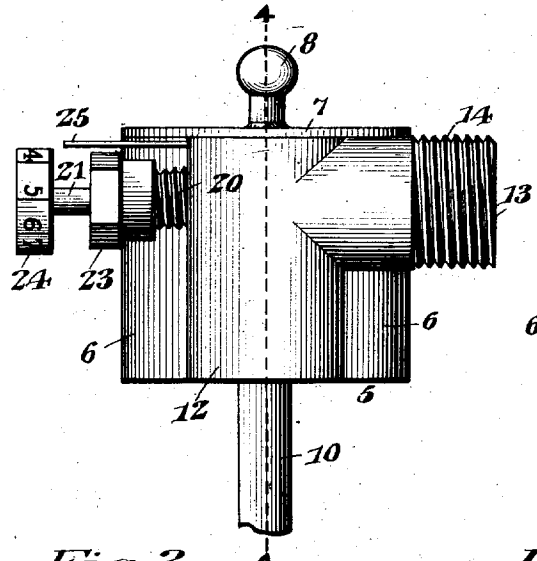


Fig. 2.

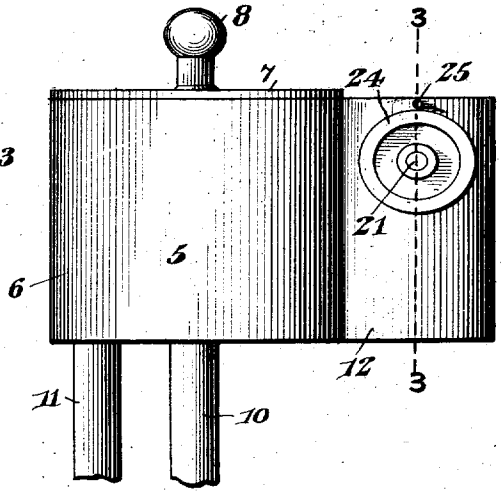


Fig. 3.

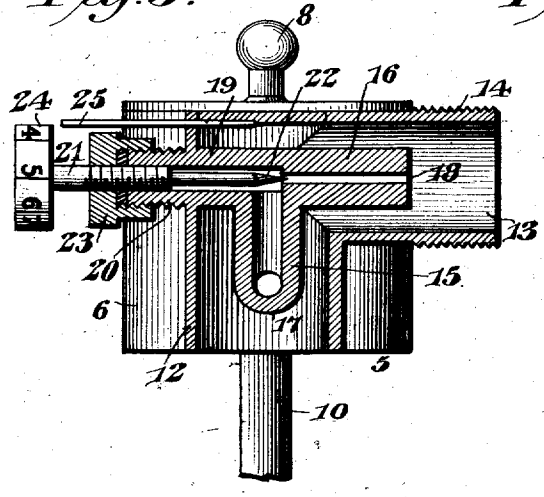
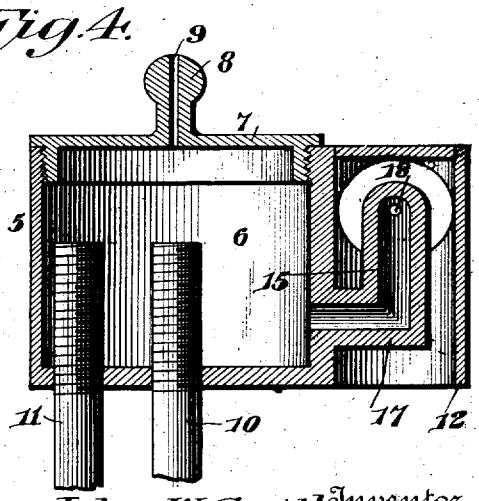


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN W. SMITH, OF AURORA, IOWA, ASSIGNOR TO AURORA MANUFACTURING COMPANY, OF AURORA, ILLINOIS, A CORPORATION OF ILLINOIS.

CARBURETER.

No. 854,246. Specification of Letters Patent. Patented May 21, 1907.

Application filed April 26, 1906. Serial No. 313,820.

To all whom it may concern:

Be it known that I, JOHN W. SMITH, a citizen of the United States, residing at Aurora, in the county of Buchanan and State of Iowa, have invented a new and useful Carbureter, of which the following is a specification.

This invention relates to improvements in means for vaporizing hydrocarbon oils, such as gasolene, prior to the delivery thereof into an explosive engine.

The principal object is to provide an exceedingly simple and novel structure of the above character that is effective in operation, is economical and not wasteful, can be readily manufactured, is composed of a comparatively small number of parts, and is so constructed that it is not liable to become deranged or inoperative.

In the accompanying drawings:—Figure 1 is a side elevation of the preferred embodiment of the invention. Fig. 2 is a similar view taken at right angles to Fig. 1. Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 2. Fig. 4 is a vertical sectional view on the line 4—4 of Fig. 1.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, a body 5 is employed that is in the form of a single casting, said body having a hydrocarbon reservoir 6, and an air conduit located alongside the same. The reservoir 6 is provided with a removable cap 7, preferably threaded thereon, and having a nipple 8 provided with a vent 9. A pipe 10, leading from any suitable source of hydrocarbon supply, extends through the bottom of the reservoir, and projects upwardly within the same, and an overflow pipe 11 also communicates with the interior of the reservoir above the bottom thereof.

The air conduit above mentioned is in the form of an elbow, having an upright inlet arm 12, and a horizontally disposed arm 13, the latter projecting beyond one side of the reservoir, and being threaded as shown at 14, whereby it may be readily attached to an engine. A substantially T-shaped hydrocarbon conducting pipe is located centrally and longitudinally within the air conduit, said pipe comprising an elbow formed of angularly disposed arms 15 and 16, the former being located within the arm 12 of the air conduit, and having an offset lower end 17 communicating with the lower portion of the hydrocarbon reservoir, as shown in Fig. 4. The other arm 16 is horizontally disposed, and terminates in a discharge nozzle 18, disposed centrally within the horizontal arm 13 of the air conduit. The conducting pipe furthermore has a rearwardly extending branch 19, disposed in line with the horizontal arm 16, and extending through the rear upright wall of the air conduit, forming an exterior nipple 20, which is threaded. A needle valve 21 is screwed into the branch 19, and has a tapered inner end 22 that is adjustable into and out of the passageway through the horizontal arm 16 to control the flow of hydrocarbon therethrough. A packing gland 23 is screwed on to the nipple 20, and surrounds the valve stem. Said valve stem is provided at its rear end with a thumb wheel 24, preferably having a scale and indicating marks thereon, the indicating marks coöperating with a pointer 25, secured to the air conduit.

It will be observed that the upright arm 15 has a bore of considerable diameter, and much larger than that of the horizontal arm 18. This is important, as it permits the free upright movement of the hydrocarbon to the horizontal arm, and avoids the resistance that would occur if a small upright bore were employed similar to that necessarily formed in the nozzle.

In use, the hydrocarbon, such as gasolene, is supplied to the reservoir 6, through the pipe 10, and the overflow returns through the pipe 11. The level of the liquid within the reservoir is thus constant, and is slightly below the horizontal passageway in the arm 16 of the hydrocarbon conducting pipe. If now the needle valve 21 is opened, it will be apparent that on each suction of the engine, the air will be drawn through the air conduit, and as a result a partial vacuum being formed in the upper portion of the hydrocarbon conducting pipe, the hydrocarbon will be elevated therein and projected from the nozzle 18, mixing with the inrushing air and being vaporized. The richness of the mixture can be readily regulated by turning the needle valve, as will be evident. It has been found that this structure is very effective, and is not wasteful, there being no drip or loss of hydrocarbon. Moreover, it will be apparent that the device is exceedingly simple, and can be cheaply manufactured.

From the foregoing, it is thought that the construction, operation and many advan-

tages of the herein described invention, will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a carbureter, the combination with a hydrocarbon reservoir, of an air conduit comprising an elbow having an upright inlet arm, and a substantially horizontal discharge outlet arm for attachment to an engine, a hydrocarbon conducting pipe comprising an upright arm located centrally within the upright arm of the conduit and connected at its lower end to the reservoir, and a substantially horizontal arm located centrally within the horizontal arm of the conduit and terminating therein in a discharge nozzle, the bore of the upright hydrocarbon conducting pipe arm being of greater diameter than that of the horizontal arm to permit the free flow of hydrocarbon from the reservoir to said horizontal arm, and a valve controlling the passage of hydrocarbon through said horizontal arm.

2. In a carbureter, the combination with a hydrocarbon reservoir, of an air conduit located alongside the same and comprising a substantially upright arm having an open lower end, and a substantially horizontal discharge outlet arm, a substantially T-shaped hydrocarbon conducting pipe having a substantially upright arm located within the upright arm of the air conduit and having an offset lower end connected to the lower portion of the reservoir, a substantially horizontal cross arm located at the upper end of the upper arm and extending in opposite directions within the horizontal arm of the air conduit, the inner end of said cross arm terminating in a nozzle, the outer end projecting from the side wall of the air conduit, and a needle valve located in the outer portion of the horizontal cross arm and controlling the passage of hydrocarbon through the nozzle, said valve having its outer end projecting from the exposed end of the horizontal conduit arm.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN W. SMITH.

Witnesses:
WILBUR J. BERRYMAN,
FRANK RICHE.

Correction in Letters Patent No. 854,246.

It is hereby certified that the name of the assignee in Letters Patent No. 854,246, granted May 21, 1907, upon the application of John W. Smith, of Aurora, Iowa, for an improvement in "Carbureters," was errroneously written and printed "Aurora Manufacturing Company, of Aurora, Illinois, a corporation of Illinois," whereas said name should have been written and printed *Aurora Manufacturing Company, of Aurora, Iowa, a corporation of Iowa;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 11th day of June, A. D., 1907.

[SEAL.]

E. B. MOORE,
Commissioner of Patents.

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