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L. E. LOWE.

VALVE AND SPARKING MECHANISM FOR HYDROCARBON ENGINES.

APPLICATION FILED DEC. 3, 1906.

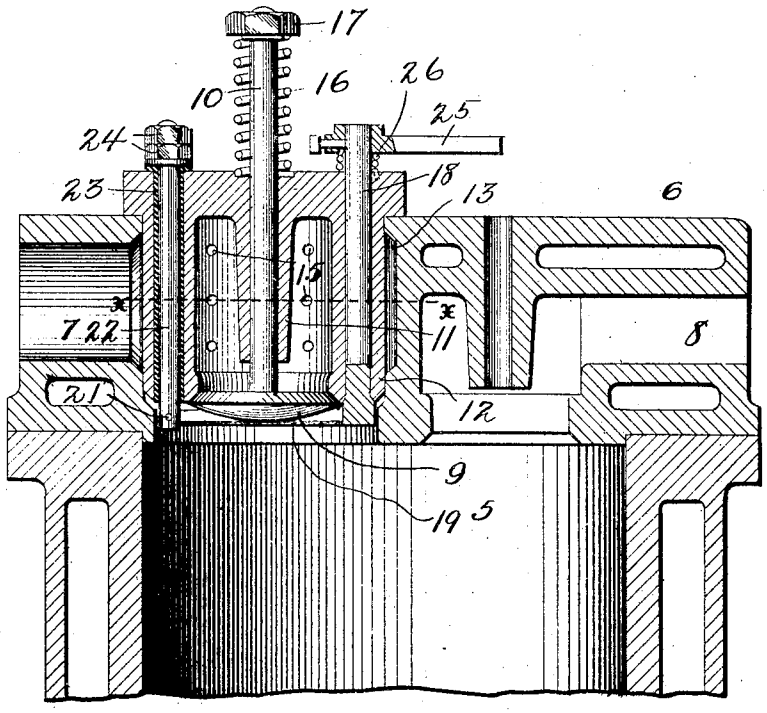

Fig. 1.

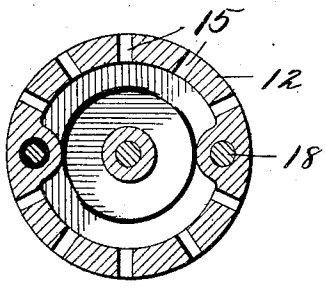

Fig. 3.

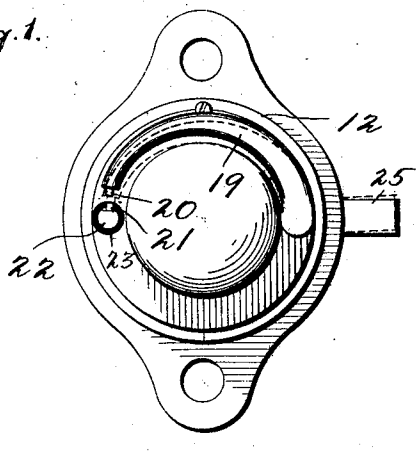

Fig. 2.

Witnesses:
Carl Stoughton
A. L. Phelps

Inventor
Levi E. Lowe
By Shepherd & Parker
Attorneys

UNITED STATES PATENT OFFICE.

LEVI E. LOWE, OF COLUMBUS, OHIO.

VALVE AND SPARKING MECHANISM FOR HYDROCARBON-ENGINES.

No. 865,650. Specification of Letters Patent. Patented Sept. 10, 1907.

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To all whom it may concern:

Be it known that I, LEVI E. LOWE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Valves and Sparking Mechanism for Hydrocarbon-Engines, of which the following is a specification.

My invention relates to a valve and sparking mechanism for hydrocarbon engines and has for its object the provision of a device of this character constructed in such manner that the incoming charge of volatile fluid will effectually cool the valve and its casing and the sparking points, as well as keep said sparking points clean.

Further objects and advantages of the invention will be set forth in the detailed description which now follows:

In the accompanying drawing: Figure 1 is a sectional view of the upper end of an engine cylinder having my improvements applied thereto, Fig. 2 is an underside view of the valve casing and sparking mechanism, and, Fig. 3 is a horizontal section through the valve casing upon line *x x* of Fig. 1.

Like numerals designate corresponding parts in all of the figures of the drawing.

Referring to the drawing, the numeral 5 designates the upper end of a gas engine cylinder. The cylinder head 6 has an inlet port 7 and an exhaust port 8 formed therein, the exhaust valve being omitted as it forms no part of the present invention.

My invention relates particularly to the inlet valve and the sparking mechanism. The inlet valve which is indicated at 9 is mounted upon the usual stem 10 which is slidably disposed in the neck 11 of a casing 12. An opening 13 extends entirely around this casing from the inlet port 7, the explosive mixture entering through the openings 15 which are formed in the wall of the casing and passing downwardly past the valve 9 to the upper end of the cylinder 5. A spring 16 normally holds the valve 9 upon its seat, said spring bearing against the upper end of the casing and a nut 17 which is threaded upon the upper end of the valve stem 10. It will therefore be seen that the incoming charge of cold fluid passes entirely around the valve casing 12 coming into contact with said casing or other part thereof and effectually cooling said casing.

A vertical shaft 18 is journaled in the casing and carries at its lower end a curved finger 19, one of the sparking points 20 being located at the free end of this finger (see Fig. 2) and the other sparking point 21 being carried by the lower end of a stem 22. This stem passes through a sleeve 23 of insulating material. Binding nuts 24 are carried by the upper end of this stem and are adapted to have an electric wire secured thereto.

The operation of the device is as follows: The stem 18 is adapted to have an oscillatory movement imparted thereto in any desired manner from the engine shaft, in order to move the contact point 20 toward and from the contact point 21. The means for imparting this oscillatory movement to the stem, form no part of the present invention and they have consequently not been illustrated. A lever 25 is secured upon the upper end of the shaft 18 and a spring 26 normally tends to actuate this shaft to hold the finger 19 away from the contact point 21, the lever 25 serving as part of the connection between the shaft 18 and the engine shaft. It will therefore be seen that when the valve 9 opens and the incoming charge passes therethrough, said charge is directed across the contact points 20 and 21 cooling and cleaning them. This cooling and cleansing action, prevents the formation of carbon upon the sparking points and will consequently obviate much of the difficulty that has heretofore been experienced from this source.

It has been found that in many instances, the engines have failed to work because the sparking points have been short circuited by having a drop of water strike them. This water is the result of condensation in the carbureter or the intake passages. It is a well-known fact that the highly volatile character of gasolene, results in rendering the parts through which it passes very cold and this sometimes results in a condensation of whatever moisture may be drawn in with the explosive charge in damp or foggy weather. When a drop of water connects the two sparking points, a short circuit is formed and it is impossible to obtain a spark. By virtue of the present construction, in which these sparking points are located directly in the path of the incoming charge such a difficulty as this will be effectually obviated, for the incoming charge will blow the water from the points.

From the foregoing description, it will be seen that simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim, is:

In a device of the character described, the combination with the cylinder of an explosive engine, of an inlet valve

comprising a valve stem and a valve head, a casing in which said valve is mounted, an oscillatory arm located upon one side of said valve, a contact point located upon the opposite side of said valve, and a curved finger carried by and movable with the oscillatory arm which extends around the valve head and is provided upon its free end with a contact point adapted to contact with the first named contact point, said contact points being located in the path of gas flow past the valve head, and said valve head being so shaped as to direct a portion of the gas flow against the contact points, said valve head lying within the curved portion of the finger.

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

LEVI E. LOWE.

Witnesses:
FRANK G. CAMPBELL,
A. L. PHELPS.