C. E. BERG.

INTERNAL COMBUSTION ENGINE.

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1,417,133.

Patented May 23, 1922.

Fig. 1.

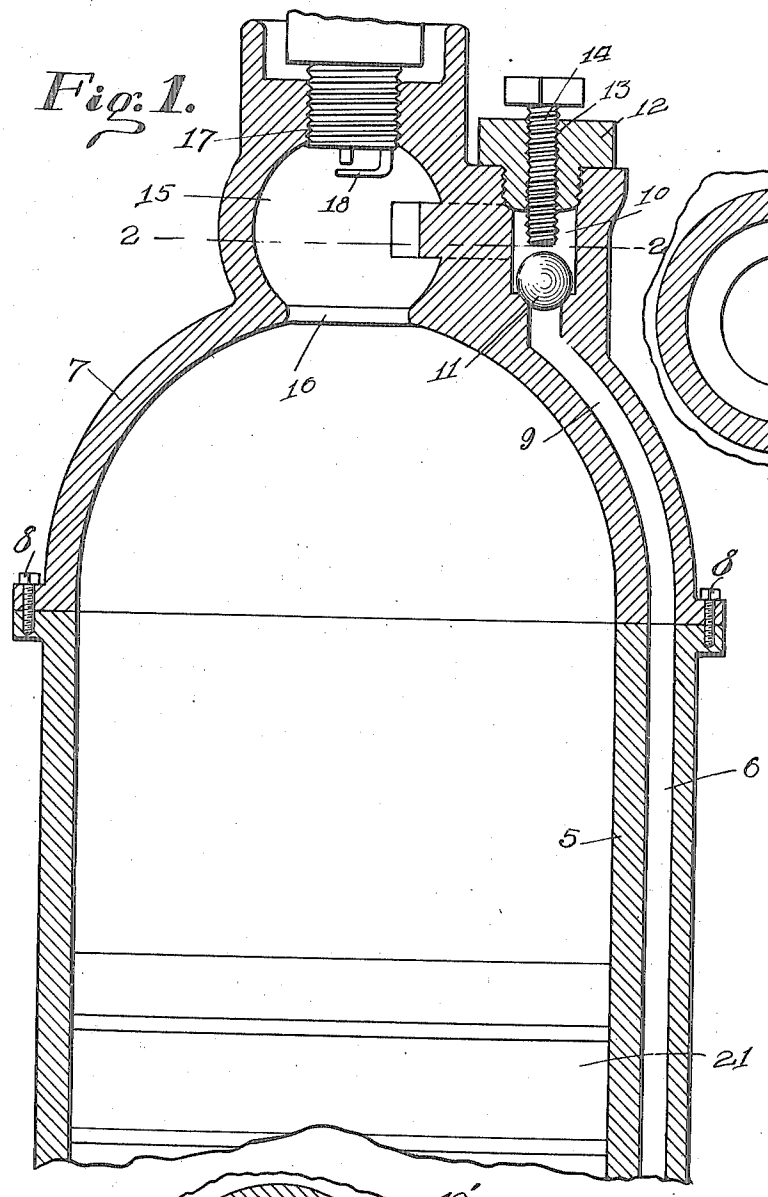
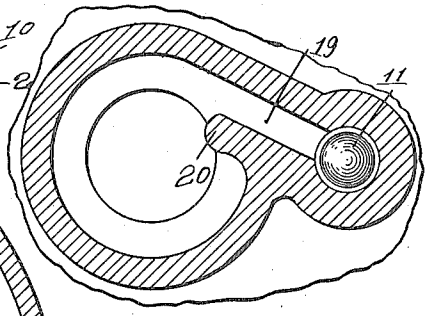


Fig. 2.



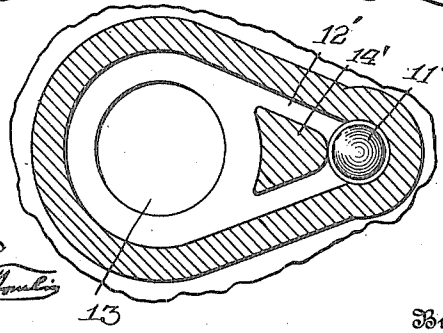


Fig. 3.

Witness

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UNITED STATES PATENT OFFICE.

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INTERNAL-COMBUSTION ENGINE.

1,417,133. Specification of Letters Patent. Patented May 23, 1922.

Application filed January 27, 1921. Serial No. 440,398.

To all whom it may concern:

Be it known that I, CARL E. BERG, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Internal-Combustion Engine, of which the following is a specification.

This invention relates to engine cylinder constructions, an object of the invention being to provide a novel form of cylinder head to increase the efficiency of the engine by insuring the firing of the charge which enters the cylinder.

A further object of the invention is to provide a compartment or chamber, the walls of which are formed integral with the walls of the cylinder proper, the chamber providing a housing for the spark plug points and adapted to receive a portion of the charge entering the cylinder, where the charge is fired.

A still further object of the invention is to provide means for causing the charge entering the cylinder, to take a swirling motion within the compartment, to insure the intimate mixing of the elements of the charge.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the detail of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawing:—

Figure 1 illustrates a fragmental longitudinal section view through a cylinder and head constructed in accordance with the present invention.

Figure 2 illustrates a sectional view taken on line 2—2 of Figure 1.

Figure 3 illustrates a transverse sectional view through a modified form of spark plug chamber.

Referring to the drawing in detail, the reference character 5 designates the cylinder of an internal combustion engine, the same being provided with the lateral by-pass 6 through which the charge passes, on its travel to the interior of the cylinder.

The head which is indicated by the reference character 7 and which forms the subject matter of the invention, is substantially dome shaped and is secured to the cylinder by means of the bolts 8.

This head 7 is also provided with a by-pass 9 in communication with the by-pass 6, the upper extremity of the by-pass 9 terminating in the valve chamber 10, in which operates the ball valve 11, the lower edge of the chamber 10 being cut away to provide a valve seat so that when the ball valve 11 is in a position as indicated by Figure 1 of the drawing, the by-pass 9 is closed, at its upper end.

A threaded plug 12 is positioned in the upper extremity of the chamber 10, and is provided with a central threaded opening 13 adapted to accommodate the adjusting screw 14, which has its lower end disposed in spaced relation with the ball valve 11 to restrict movement of the ball valve within the chamber 10, to vary the quantity of fuel passing through the chamber 10.

Disposed at the upper extremity of the cylinder and more particularly the head thereof, is a spherical chamber indicated at 15, which has communication with the interior of the opening as by means of the opening 16, there being provided a threaded opening 17 in the upper portion of the chamber 15, to receive the usual threaded portion of the spark plug, the sparking points thereof being indicated by the reference character 18 and disposed within the chamber 15.

The chamber 15 has communication with the chamber 10, through the passageway 19, the walls of which being formed tangent to the walls of the chamber 15 so that the charge entering the passageway 19 and the chamber 15, is caused to take a swirling motion within the chamber 15.

Arranged within the path of travel of the gas passing within the chamber 15, is a baffle 20 which is formed integral with one of the walls of the passageway 19, and causes the charge to be thrown towards the center of the chamber 15 to insure an infinite mixture of the charge.

In the form of the invention as illustrated by Figure 3 of the drawing, the charge enters under the ball valve 11′ where the same passes through the passageways 12′, the charge passing into the spherical chamber 13′, and since the divided charge is again mixed

at a point opposite the partitioning member 14', it is obvious that an exceedingly rich mixture is provided.

In the operation of the device, assuming that the piston indicated at 21 is moving upwardly within the cylinder, it is obvious that a portion of the charge which has been drawn into the chamber 15, and upper portion of the cylinder, is compressed in the chamber 15, and when the spark plug, which has it points disposed within the chamber fires, the charge within the chamber 15 is also fired with the result that the charge in the head is also fired to cause the operation of the piston.

Having thus described the invention, what is claimed as new is:—

An internal combustion engine including a cylinder having a head formed with a spherical chamber, said cylinder having a passageway extending longitudinally thereof, said passageway terminating in a valve chamber, a ball valve seated in the valve chamber, means for regulating the ball valve to permit the same to open predetermined distances, a passageway for providing communication between the valve chamber and first mentioned chamber, and a spark plug having its firing points disposed within the first mentioned chamber.

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

CARL E. BERG.

Witnesses:
D. G. GRAHAM,
A. M. WARLEY.