Feb. 12, 1957 G. BARBERI 2,781,031

VALVE ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES

Filed June 1, 1953

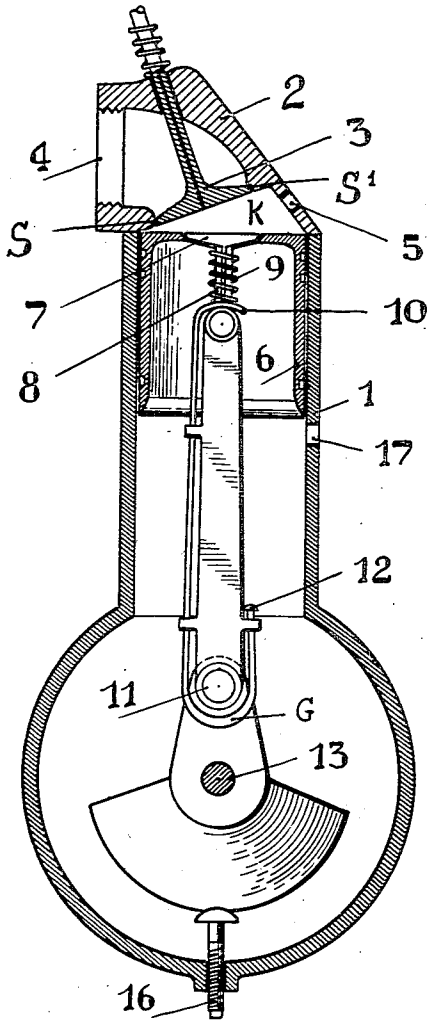


FIG. 1

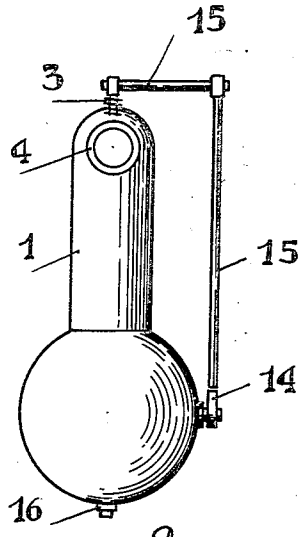


FIG. 2

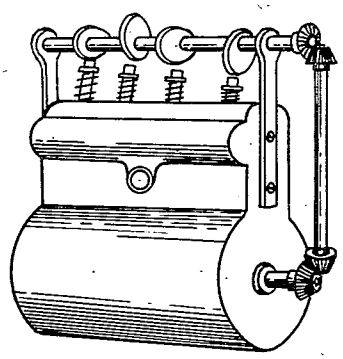


FIG. 3

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2,781,031

Patented Feb. 12, 1957

2,781,031

VALVE ARRANGEMENT FOR INTERNAL COMBUSTION ENGINES

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Application June 1, 1953, Serial No. 358,663

1 Claim. (Cl. 123—47)

The purpose of the present invention is to provide an internal combustion engine particularly adapted to achieve a higher degree of efficiency than achieved in present day engines, owing to a valve arrangement locating the exhaust valve on the top of the cylinder and the inlet valve on the piston head.

The invention essentially comprises a cylindrically shaped housing containing the crank shaft, a row of cylinders for movement of the pistons mounted perpendicular to said housing, each cylinder comprising a head located exhaust valve, orientated angularly with respect to the plane of motion of the piston and operated by a cam the shaft of which is coaxial with the crankshaft and an inlet valve fitted on the piston head and operated in a manner hereinafter described.

The present invention is illustrated schematically and by way of example in the drawing included herewith where:

Fig. 1 is a schematic cross-section of a cylinder according to the invention;

Fig. 2 is a form of the mechanism operating the exhaust valve of a single-cylinder engine according to the invention;

Fig. 3 is the schematic view of a camshaft operating the exhaust valves of a four-cylinder engine according to the invention.

In said figures a dome **2** is fitted at the top of cylinder **1** containing exhaust valve **3** mounted angularly with respect to the plane of motion of the piston and having seats S—S'. Said dome **2** is provided with orifice **4** through which the exhaust gases are discharged and orifice **5** in which the spark plug is fitted with its point within the combustion chamber K. Reciprocating within the cylinder is piston **6** on the head of which inlet valve **7** is fitted, said valve having stem **8** surrounded by coil spring **9**. Said spring rests normally on element **10** slidably mounted in rod protrusions. Element **10** is bent around pivot **11** and has a free end **12** designed to permit limited vertical movement. Shaft **13** of the device bears cam **14**, said cam operating levers **15** controlling exhaust valve **3** in the combustion chamber.

At about half the height of the cylinder an inlet **17** is provided for feeding the mixture into the cylinder. At the bottom of said cylinder an adjustable screw **16** is provided to actuate the inlet valve **7** by means of the element **10**. The elbow G of element **10** contacts the head of screw **16** thereby causing inlet valve **7** to open and close at the appropriate time and to open proportionally to the amount of adjustment given said screw **16**.

The engine described above has been designed to utilize gasoline. It can, however, be adapted for fuel-oil. In that case the cylinder is provided with a spray nozzle at **5** for the fuel eliminating the spark plug.

Fig. 3 illustrates schematically a camshaft system operating the exhaust valves. The cycle of the engine according to the invention being the usual cycle of a four-stroke engine, said engine is operated as follows:

When the engine is in the position illustrated by Fig. 1 an air fuel mixture enters into the cylinder through inlet **17** while the piston, actuated by an explosion in the combustion chamber K, begins its downward stroke said piston covers inlet **17** and compresses the air fuel mixture which has dropped inside the cylinder. Compression continues until the end of the piston downward stroke at which time the mixture thus fully compressed escapes through inlet valve **7** actuated by screw **16**, and thus enters into the combustion chamber K where it is again compressed by the upward stroke of the piston. When a predetermined degree of compression has been reached, ignition takes place and the ensuing explosion causes the piston to repeat the above-described cycle.

The engine according to the invention utilizing the construction and cycle of operation described above has a much greater degree of theoretical efficiency than engines at the present time in use, due to a novel valve arrangement as described, facilitating the rapid evacuation of combustion gases, and eliminating the possibility of contact between combustion gases and fresh air fuel mixture and possible leakage of said air fuel mixture.

I claim:

In an internal combustion engine, a crank case, a cylinder and cylinder head, a piston head, a connecting rod and crankshaft, an inlet valve mounted on said piston head, an outlet valve mounted in said cylinder head, a valve operator connected to said inlet valve extending adjacent to the connecting rod and terminating adjacent the crankshaft within the crank case, means adjustably mounted in the wall of the crank case and directly below the crankshaft and adapted to actuate said valve operator to open said inlet valve and spring means for returning said inlet valve to the closed position thereof.

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