F. T. ROMBERGER.

INTERNAL COMBUSTION ENGINE.

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1,189,625. Patented July 4, 1916.

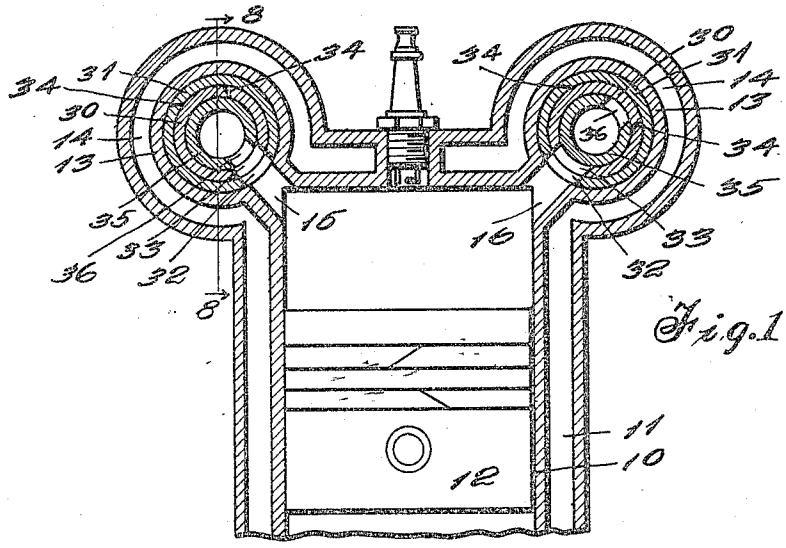
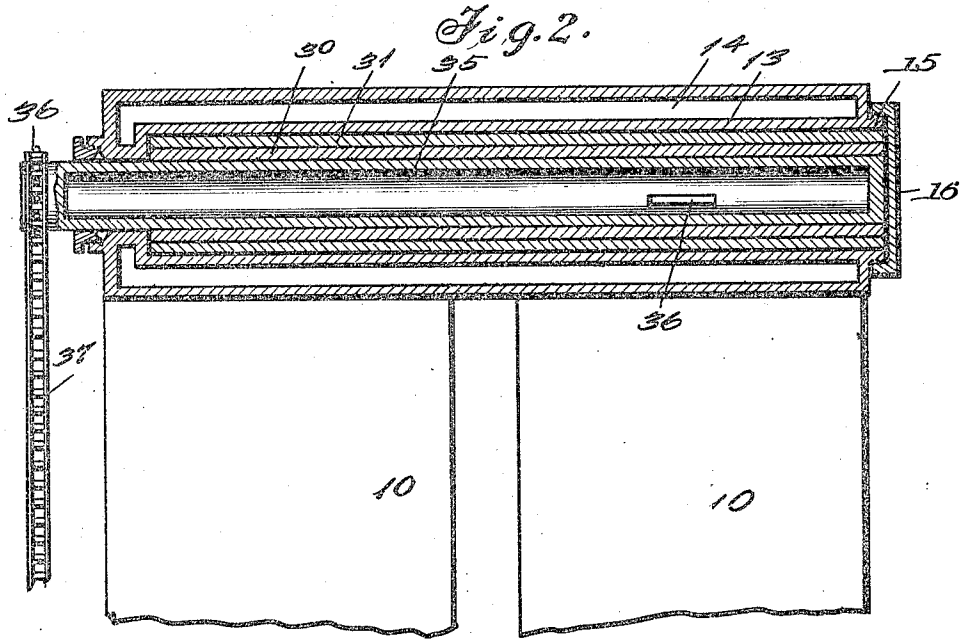


Fig. 1.

Fig. 2.



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INTERNAL-COMBUSTION ENGINE.

1,189,625. Specification of Letters Patent. Patented July 4, 1916.

Application filed January 28, 1916. Serial No. 74,729.

To all whom it may concern:

Be it known that I, FLOYD T. ROMBERGER, a citizen of the United States, residing at Elizabethville, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Internal-Combustion Engines, of which the following is a specification.

My invention relates to improvements in internal combustion engines of the type embodying a rotatable valve or valves, for controlling the entrance and discharge of gas into and out of the cylinders thereof.

An important object of the invention is to provide an engine of the above mentioned character, so constructed, that the leakage of pressure between or about the rotatable valve, from the cylinder, is prevented.

A further object of the invention is to provide an engine of the above mentioned character, which is simple in construction, and highly efficient in operation.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a central vertical sectional view through a cylinder of an engine embodying the invention, and, Fig. 2 is a vertical sectional view taken on line 8—8 of Fig. 1.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates the cylinders of an internal combustion engine, provided with a water jacket 11, as is customary. Mounted to reciprocate within these cylinders are pistons 12. Extending horizontally above the cylinders 10 are cylindrical valve casings 13, having water jackets 14, in free communication with the jacket 11. One end of this double walled tubular valve casing has a tubular head 13′, provided with a stuffing box 14′. The opposite end of the casing 13 is projected beyond the jacket 14 in the form of a screw-threaded flange 15′, receiving a cap 16′. The valve casings 14 have inlet and exhaust ports 15 and 16 communicating with the upper end of the cylinder, as shown.

In Figs. 1 and 2, a pair of intermediate substantially cylindrical sleeves 30 and 31 are arranged within the valve casing 13 and have ports 32 and 33, in registration with the ports 15 and 16, as shown. These intermediate sleeves may remain stationary or may be moved, such as turned back and forth or rotated. Each intermediate sleeve is split longitudinally, as shown at 34, and is circumferentially resilient whereby it is contractible and expansible. These sleeves have their longitudinally split portions arranged to break joint. Mounted to rotate within the inner sleeve 31 is a tubular valve 35 having a port 36 adapted for registration with the ports 32 and 33 as is obvious. The valve 34 is driven by a sprocket wheel 36 receiving rotation from a sprocket chain 37. The inner and outer sleeves 30 and 31 are held against longitudinal displacement by the tubular head 13′ and the cap 16′. The valve 35 projects through the stuffing box 14′, as shown.

In the operation of the engine, it is obvious that one valve 17 will control the inlet of gases into the cylinder 10 and the other valve the outlet of gases therefrom. It is obvious that the invention is in no sense restricted to the employment of two valves for this purpose as one valve may be provided with ports in a suitable manner to serve the function of both valves.

The operation of all other forms of the engine are believed to be obvious in view of the foregoing description.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described the invention, I claim:

An engine of the character described, comprising a cylinder having a substantially cylindrical double walled valve casing provided with a port communicating with the interior of the cylinder, said valve casing being provided at one end with a tubular head carrying a stuffing box and at its opposite end with a screw-threaded flange; a cap carried by the flange, a pair of cylindrical longitudinally split resilient sleeves mounted one within the other with their lon-

gitudinally split portions arranged to break joint and disposed within the valve casing and confined between the tubular head and cap; a tubular valve mounted within the inner sleeve and projecting outwardly through the tubular head and stuffing box; and means to rotate the valve.

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

FLOYD TROUTMAN ROMBERGER, M. D.

Witnesses:
ISAIAH S. DANIEL,
RAY K. BUFFINGTON.