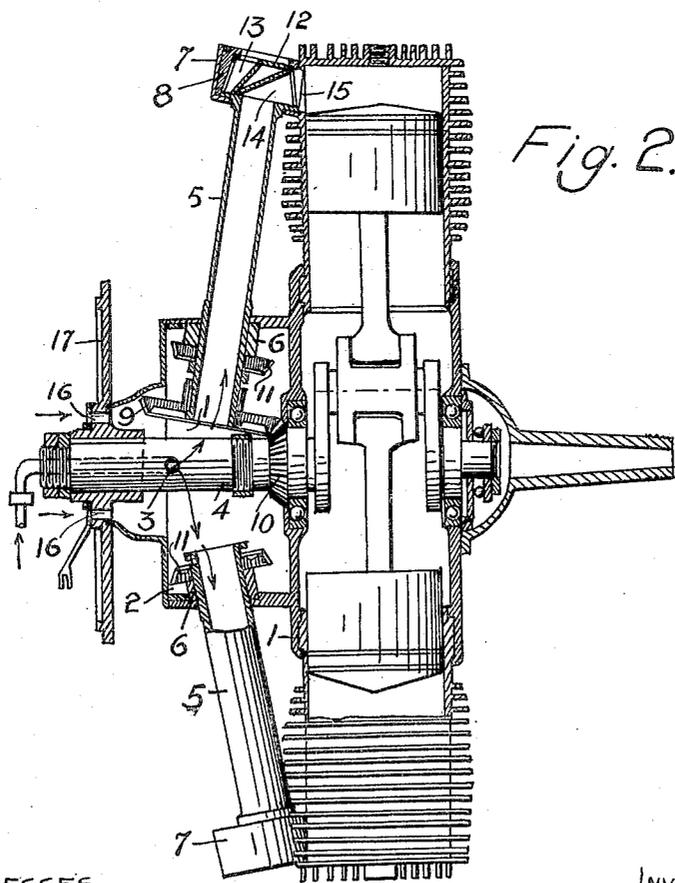
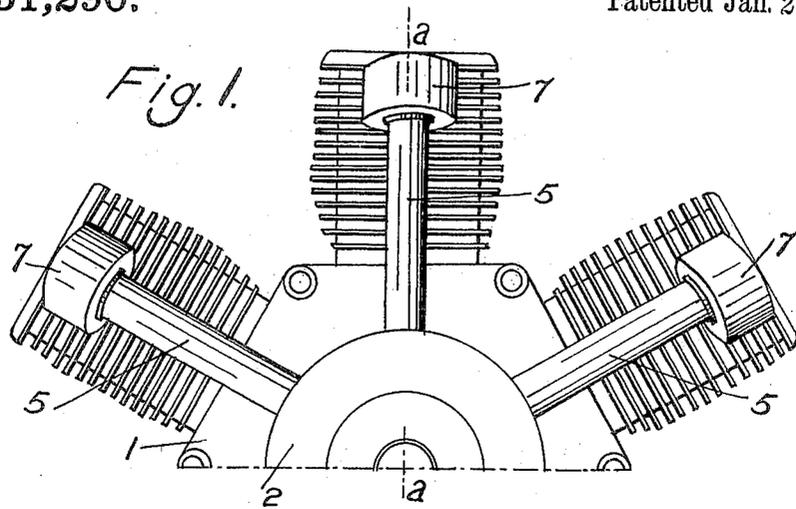


M. TIPS.
 VALVELESS ROTARY COMBUSTION ENGINE.
 APPLICATION FILED JULY 20, 1912.

1,051,290.

Patented Jan. 21, 1913.



WITNESSES
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VALVELESS ROTARY COMBUSTION-ENGINE.

1,051,290.

Specification of Letters Patent.

Patented Jan. 21, 1913.

Application filed July 20, 1912. Serial No. 710,687.

To all whom it may concern:

Be it known that I, MAURICE TIPS, a subject of the King of the Belgians, and residing at Brussels, Belgium, have invented certain new and useful Improvements in Valveless Rotary Combustion-Engines, of which the following is a specification.

My present invention relates to rotary or fixed combustion engines and has for its object to provide a valveless engine, wherein the explosive mixture from the carbureter or the liquid hydrocarbon is brought by suction through the hollow motor-shaft into a casing or chamber of the crank-casing, and from said chamber into the cylinders of the engine through rotatable suction-tubes, carrying at their outer ends drum-shaped gas distributors, which when turning around their axis connect the interior of the cylinders alternately with the outer atmosphere or a silencer and with the interior of said chamber, so that a complete cycle (admission, compression, explosion and exhaust) is produced in each cylinder at each second revolution of the engine.

My invention will be readily understood from the following description taken in connection with the accompanying drawings, wherein:

Figure 1 is a fragmental side elevation of my engine; Fig. 2 shows a cross-section taken on line *a-a* of Fig. 1.

The crank-casing 1 of my present engine carries a lateral box or chamber 2, into which is admitted the explosive mixture, or liquid hydrocarbon, discharged through a perforation 3 from the shaft 4; the interior of the box 2 serves as a carbureter—if liquid hydrocarbon is admitted into the same—air being admitted into said box through adjustable openings 16, provided in the stationary bracket 17.

Extending into the box 2 are the ends of suction-tubes 5, the number of which corresponds to the number of cylinders, said tubes being adapted to turn around their longitudinal axes in bearings 6 and casings 7 provided with bearings 8. One of the tubes 5 carries a toothed wheel 9, meshing with a toothed pinion 10, secured to the fixed shaft 4 (in an engine with revolving cylinders), and each tube 5 carries a toothed pinion 11, the pinions 11 of the various tubes meshing with one another. It will be easily understood from this arrangement that when the crank-casing and cylin-

ders of the engine are rotated, the various tubes 5 are turned around their longitudinal axes while they are rotated around the fixed shaft 4.

Each suction-tube 5 carries at its outer end a drum 12, provided with two passages 13, 14, which are caused to register alternately with the lateral inlet 15 of the corresponding cylinder. The passages 13, 14 are arranged in such a way that the passage 13 connects the interior of the cylinder with the outer atmosphere, when it is brought into register with the inlet 15, while the passage 14 connects the interior of the cylinder with the interior of the box 2 through the tube 5. In this way the admission and exhaust of gas are effected in a perfect way without the usual valves, the operation of which becomes inefficient after a short lapse of time. The gear-wheels 9, 10 and 11, are dimensioned so as to produce one explosion per second revolution of the engine in each cylinder.

The engine herein described may be used for propelling flying machines of any kind, driving motor cars, motor boats and the like. Said engine may have its cylinders stationary or fixed around a rotatable drive-shaft, or it may have its cylinders revolving around a fixed shaft.

I wish it to be understood that the details of construction may be changed as desired without departing from the scope of the invention.

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

1. In an engine of the class described, the combination with the cylinders and crank case, motor-shaft and pistons, of a box arranged on the side of and secured to the crank-case, means for admitting explosive mixture into said box, rotatable suction-pipes extending from the latter to the outer ends of the cylinders, a gas distributor at the outer end of each suction-pipe, suitable passages in said distributor adapted to alternately register with the inlet of the corresponding cylinder, and means for rotating the suction-pipes around their longitudinal axes, substantially as set forth.

2. In an engine of the class described, the combination with the cylinders and crank-case, the motor-shaft and pistons, of a box arranged on the side of and secured to the crank-case, means for admitting liquid hy-

drocarbon and atmospheric air into said box, rotatable suction-tubes extending from the latter to the outer ends of the cylinders, a gas distributor at the outer end of each suction-tube, passages in said distributor adapted to alternately register with the inlet of the corresponding cylinder, and means for automatically rotating the suction-tubes around their longitudinal axes, when the engine is started, substantially as set forth.

3. In an engine of the class described, the combination with the cylinders and crank-case, the motor-shaft and pistons, of a carbureter arranged around the shaft and secured to the side-wall of the crank-case, rotatable suction-tubes extending from said carbureter to the outer ends of the cylin-

ders, a gas distributor at the outer end of each suction-tube, a drum-like casing surrounding said distributor and secured to the cylinder, passages in said distributor arranged to alternately connect the interior of the cylinder with the carbureter and the outer atmosphere, a toothed pinion on the motor-shaft, a toothed wheel on one suction-tube and meshing with said pinion, and intermeshing pinions on the various suction-tubes, substantially as set forth.

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

MAURICE TIPS.

Witnesses:

CHAS. ROY NASMITH,
T. D. WAGNER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."