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(54) **Internal combustion engine**

(57) The engine consists of a fixed part body (1) with an internal space formed on the bottom by a cylindric hollow (2) disposed longitudinally and axially containing the rotating cylindric body (3), supported on crankshaft bearings (4), having a hollow system (5) on its outside wall. Said cylindric hollow (2) communicates on its upper part with cylindric hollows (6) set in parallel wherein the pistons (7) slide. The outside hollows (5) are arranged on the piston persistence bands (7) alternately at an angle to each other of 180° so to reach in a sequence the position under the couples of pistons (7), coming to their bottom dead center, thus achieving two rotations of the said rotating cylinder body (3) for each working cycle of the Otto-cycle. During the induction phase the mixture is introduced into a cylindric hollow (6) through the valve

(8) then closed by piston (7) thereof, which goes down to compress the mixture itself until reaching the bottom dead center at the same time in which the relative outside hollow (5) thereof gets positioned so to form a combustion chamber (9) with into a groove (10) a plug (11). The activation in a sequence of plug (11) causes, as a consequence of the explosion, the start of the clockwise rotating movement of the rotating cylindric body (3). Then, the piston (7) rises, exhaust gases are discharged through the valve (12), while the sequential series of explosion phases which take place within the combustion chambers determine the further movement of the rotating cylindric body (3) which, through its protruding end part and a reduction gear (13) with a camshaft (14) on main bearings (15), activates the pistons (7) by means of connecting rods (16).

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Description

The invention refers to a new internal combustion engine principally making use of combustion to rotate a coaxial laying of a cylinder moving the drive shaft. Said cylinder making two revolutions for each theoretical Otto-working cycle according to the following sequences: 1) of intake; 2) of compression and beginning of combustion; 3) of end of combustion, expansion and exhaust; 4) of ejection. In this way having with parity of the resultant combustion power the doubling of the engine revolutions being the better yield of the combustion power ensured by a different operating system of the reciprocating motion elements not more subjected to the retaining effects to the motion as it happens in the current internal combustion engines; in where the friction comes to generate impassable limits exceeding a certain speed. The situation above described is clearly noted from a schematic observation of what happens in the cylinders of the current Otto-cycle of an internal combustion engine. In fact, in the said cycle the alternate movement of the piston support system is opposed, and therefore slackened in succession, at first by the mixture flow during the intake phase, then by the mixture compression and explosion, and finally by the expansion and exhaust flow. The invented device on the current assumption that in the current engine system, building in the piston with the drive shaft frictions are generated according to the number of engine revolutions, provides the alternate arrangement of the relative chambers in a sequence inside hollows -constructed to receive the pushing impulse- from a cylindric body which sets in motion the drive shaft located on bearings into a coaxial laying. To better understand this new system is to be considered that the diameter of the rotating cylindric body is strictly related to the one of the cylinders in order to create -in a continuous sequence- blast chambers to be obtained by coming into its lower position of the piston on the relative hollow. Moreover said rotating cylindric body makes two revolutions for each Otto-cycle working cycle of the pistons. Thus in the invented engine, if compared to the current system, the number of the engine revolutions comes to be double in a movement condition with inertia effect and with no hindrances causing frictions. Moreover, the motion of the said rotating cylindric body through a kinematic gear down chain starts the camshaft moving the connecting rods activating the pistons. To explain the invented engine a two stroke cycle is featured where, after the washing with the mixture, the piston goes down, closes the regulator and compresses the mixture to get the explosion with the subsequent expansion and exhaust, at the same time the piston causes the intake and the compression of the mixture. The invented engine features a fixed part body 1 with an internal space formed on the bottom thereof by a cylindric hollow 2 disposed longitudinally and axially containing the rotating cylindric body 3, supported on crankshaft bearings 4, and having a hollow

system 5 on its outside wall. The said cylindric hollow 2 communicates on its upper part with cylindric hollows 6 set in parallel, wherein the pistons 7 slide. Said outside hollows 5 are arranged on the piston persistence bands 7 alternately at an angle to each other of 180° so to reach in a sequence the position under the couples of pistons 7, coming to their bottom dead center, thus achieving two rotations of the said rotating cylindric body 3 for each working cycle of the Otto-cycle. During the induction phase the mixture is introduced into a cylindric hollow 6 through the valve 8 then closed by piston 7 thereof, which goes down to compress the mixture itself until reaching the bottom dead center at the same time in which the relative outside hollow 5 thereof gets positioned so to form a combustion chamber 9 with into a groove 10 a plug 11. The activation in a sequence of plug 11 causes, as a consequence of the explosion, the start of the clockwise rotating movement of the rotating cylindric body 3. Then, the piston 7 rises, exhaust gases are discharged through the valve 12, while the sequential series of explosion phases which take place within the combustion chambers determine the further movement of the rotating cylindric body 3 which, through its protruding end part and a reduction gear 13 with a camshaft 14 on main bearings 15, activates the pistons 7 by means of connecting rods 16. Lubricating oil is spread both on the bottom of the cylindric hollow 2, between bearings 4 which support the rotating cylindric body 3, and inside chamber 17 of the same cylindric body 3; said lubricating oil pumped through an oil filter neck 18. The invented engine is illustrated in schematic views in the drawings of sheets 1, 2 and 3. In sheets 1 and 2 figures 1, 2, 3 and 4 show a theoretical Otto-cycle internal combustion engine working cycle according to the present invention for a two-stroke engine. In sheet 3 fig. 5 is a view of a possible engine.

Claims

1. Internal combustion engine consists of a fixed part body (1) with an internal space, characterized in that:
 - the space is formed on the bottom by a cylindric hollow (2) disposed longitudinally and axially containing the rotating cylindric body (3), supported on crankshaft bearings (4), and having a hollow system (5) on its outside wall;
 - the cylindric hollow (2) communicates on its upper part with cylindric hollows (6) set in parallel wherein the pistons (7) slide and the outside hollows (5) are arranged on the piston persistence bands (7) alternately at an angle to each other of 180° so to reach in a sequence the position under the couples of pistons (7), coming to their bottom dead center, thus achieving two locations of the said rotating cylinder body (3)

- for each working cycle of the Otto-cycle;
- during the induction phase the mixture is introduced into a cylindric hollow (6) through the valve (8) then closed by piston (7) thereof, which goes down to compress the mixture itself until reaching the bottom dead center at the same time in which the relative outside hollow (5) thereof gets positioned so to form a combustion chamber (9) with into a groove (10) a plug (11);
 - the activation in a sequence of plug (11) causes, as a consequence of the explosion, the start of the clockwise rotating movement of the rotating cylindric body (3).
 - then the piston (7) rises, exhaust gases are discharged through the valve (12), while the sequential series of explosion phases which take place within the combustion chambers determine the further movement of the rotating cylindric body (3) which, through its protruding end part and a reduction gear (13) with a camshaft (14) on main bearings (15), activates the pistons (7) by means of connecting rods (16);
 - lubricating oil is spread both on the bottom of the cylindric hollow (2), between bearings (4) which support the rotating cylindric body (3), and inside chamber (17) of the same cylindric body (3); said lubricating oil pumped through the oil filter neck (18).

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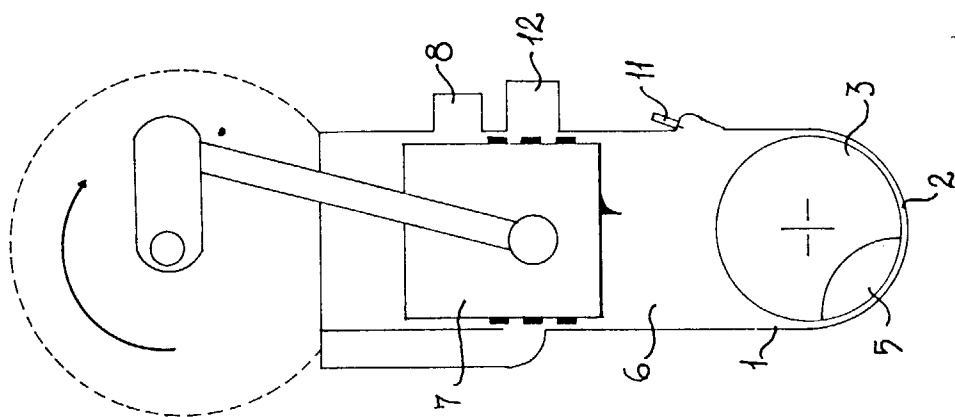


FIG. 2

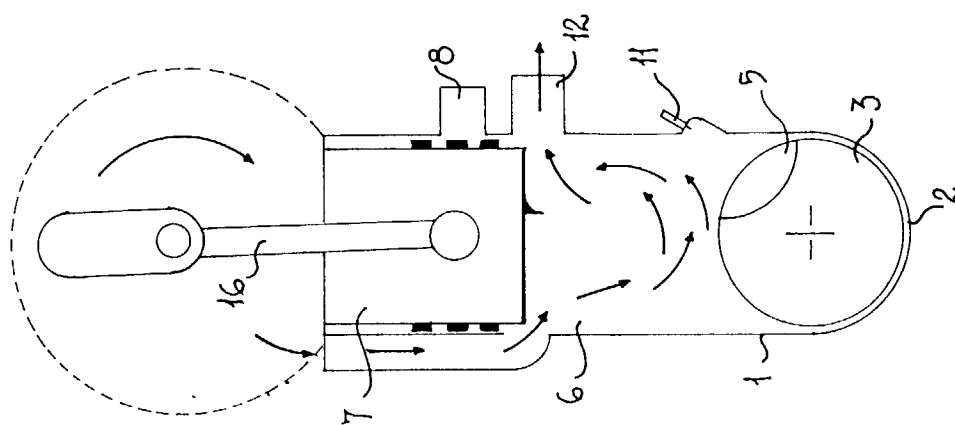


FIG. 1

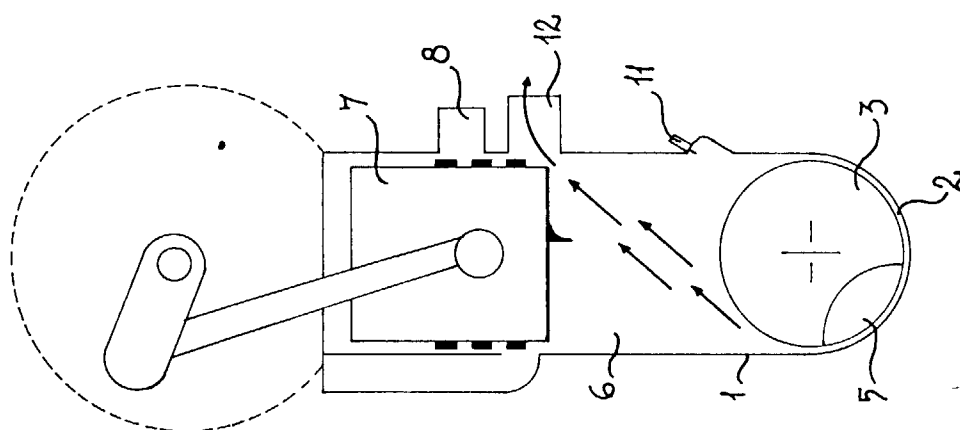


FIG. 4

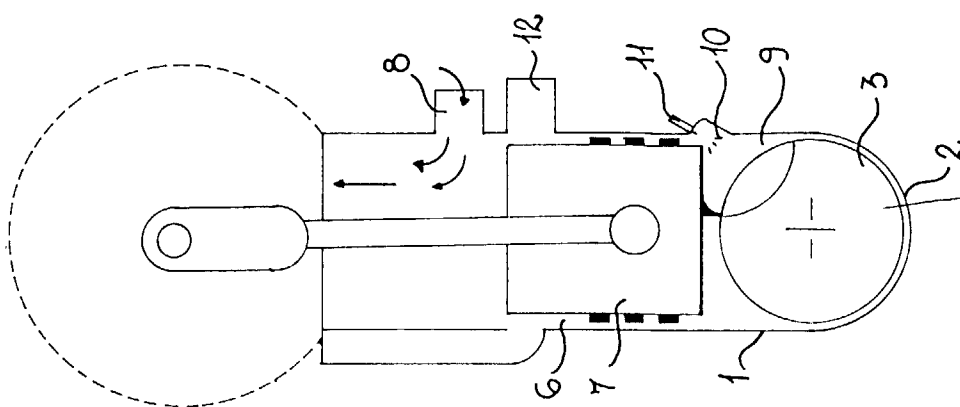
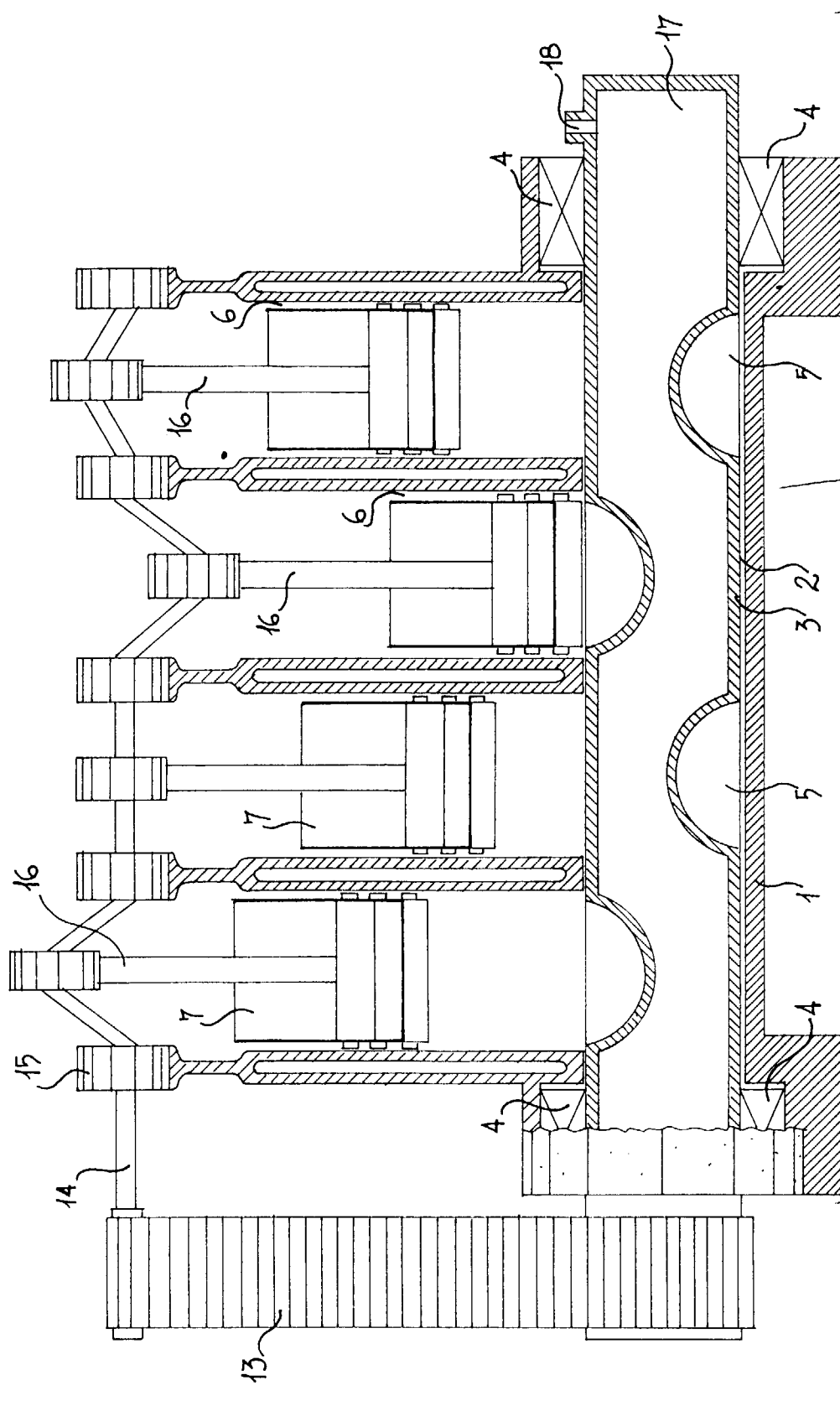


FIG. 3





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EUROPEAN SEARCH REPORT

Application Number
EP 97 11 8152

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	DE 23 50 075 A (DAIMLER BENZ AG) * the whole document *	1	F02B75/02 F01L7/02 F01L7/12
A	US 5 052 349 A (BUELNA TERRY) * abstract; figure 1 *	1	
A	US 5 255 645 A (TEMPLETON GEORGE W) * abstract; figure 1 *	1	
A	FR 2 668 199 A (HERVIER GERARD) * abstract; figure 1 *	1	
A	FR 896 442 A (BAJARD) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			F02B F01L
The present search report has been drawn up for all claims			
Place of search: THE HAGUE		Date of completion of the search: 15 January 1998	Examiner: Wassenaar, G
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