(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 314 604**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **88600013.2**

(22) Date of filing: **14.10.88**

(51) Int. Cl.4: **F 02 B 75/28**

(30) Priority: **30.10.87 GR 871665 29.12.87 GR 872038**

(43) Date of publication of application:
03.05.89 Bulletin 89/18

(84) Designated Contracting States:
AT BE CH DE ES FR GB IT LI NL SE

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(54) Internal combustion engine with two reciprocating rotating pistons.

(57) Internal combustion engine, comprising two pistons (2) of cylindrical form, whose basement is shaped in a screw driver like tip, whereas a round hole is provided at their centre. The pistons are placed within two linearly aligned cylinders,which have a basement being provided with a cylindrical shaft (16) which passes through the hole of the piston (2), whereas a ring (17),tangential to the edges of the piston has a cross section assimolating two joined triangles with rounded corners. The cylinder (1) is provided with the holes of introduction (9) and discharge of the fuel (10), whereas a spark plug (11) is provided onto the ring (17). The pistons (2) are provided with recessions (14) to accomodate the tightness springs, as well as with holes (12) for the lubrication of the cylindrical shaft (16). The upper part of the pistons is connected with a common shaft (3) at the ends, being fixedly mounted via nuts (4) and guides (5). The shaft (3) is provided with guides (6) and slides within a gear (7). The gear (7) is stabilized by other gears (8) which rotate within bearings (15). The cylinders (1) and the bearings (15) are mounted onto a basement (13). Sliding means (12) are also provided, being based at the upper part of the pistons (2) and moving in the same way as the edges of the pistons (2) at the upper shaped part of cylinders (1). The edges of the pistons (2) and the mounted corners of the rings (17) are inclined or not. The rotating pistons more upwardly-downwardly, thereby performing the 4-stroke operation.

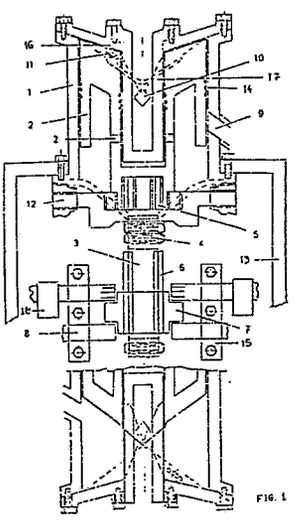

FIG. 1

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Description

INTERNAL COMBUSTION ENGINE WITH TWO PECIPROCATING ROTATING PISTONS

The invention relates to an internal combustion engine which basically comprises a pair of horizontally disposed cylinders (1) and pistons (2). The engines used are the reciprocating four and two stroke engines, as well as the rotary Wankel type.

The four stroke engine requires valves and certain auxiliary accessories in order to operate. The two stroke engine is simpler and shorter in size,it makes use of gates, but is disadvantageous in that its operation comprises a simultaneous introduction and discharge of the fuel. The rotary Wankel type motor is also simple, but it nevertheless presents a good tightness and thereby the edges of its piston are worn out.

The present invention provides a better tightness than the rotary engine,less wear of the pistons, does not require valves but gates and the two pistons make two strokes each out of the four stroke operation.

The motor in accordance to the invention was characterized by that each piston operates for two of the strokes in a four stroke cycle. The motor is in accordance to the invention shown to comprise two pistons, thereby being of a small size and weight with the best possible relationship between horsepower and weight.

Figure 1 shows the whole arrangement of the motor, whereaw Fig. (2) shows the piston and basement of the cylinder. The mode of application of the invention is described by reference to the accompanying drawings. The motor comprises two pistons (2) of cylindrical form, each of which is shaped in such a way as to form an edge similar to the tip of a screw driver, whereas there is a round hole at the centre of the pistons (2). The pistons are placed within two cylinders (1), being disposed in a linear disposition, where the upper part of one cylinder, is opposite to that of the other. The basement of the cylinders (1) is provided with a cylindrical shaft 16 which passes through the hole (2) of the piston, whereas ring 17 comprising the locus of contact of the piston edges has a cross sectional area assimilating two joined triangles, whose corners have been rounded. The cylinders are provided with holes of introduction and discharge of the fuel (9) and (10) respectively, whereas a spark plug (11) is provided onto the basement of the cylinder. The two pistons (2) have a common shaft (3) being connected at its ends via nuts (4) and guides (5), enabling movement of the shaft (3) with the pistons (2). The movement of the shaft (3) is transferred to a gear (7), where the shaft slides within the gear (7), which is forced to rotate. The gear (7) is stabilized through the reciprocating motion of other gears (8), which rotate within ball bearings (15). Lubricating holes for the cylindrical shaft (16) of cylinder (1) are provided onto the pistons (2). The cylinders (1) and the ball bearings (15) are mounted onto a basement (13), which is used as an oil tank. There are also provided sliding means (12) comprising a shaft equipped with two small wheels on either end of the shaft, where these wheels are based onto the pistons (2) and move on the upper part of the cylinders (1), which are suitably formed and move in a manner proportional to the number of pistons (2), thereby reducing their wear.

The pistons (2) are also provided with recessions(14) where springs for tightness purposes are placed within these recessions. Furthermore the edges of the pistons (2) and the rounded edges of the rings (17) of cylinders (1) can be made with or without inclination. During their rotational motion, one of the pistons (2) moves upwardly and performs the expansion and suction stroke, whereas the other piston moves downwardly and performs the compression and discharge strokes.

As illustrated in Figure 2, the gear 7 includes a small free space in between two consecutive teeth at two or more points along its toothing.

As well to the gears (8) there are fitted the counter-weights. (18)

Claims

1. Internal combustion engine comprising two rotating, reciprocating pistons, characterized by that it comprises two pistons (2) of cylindrical form, whose basement is formed in an edge with the approximate shape of a screw driver tip, where a round hole is provided onto their centre, where said pistons slide within two cylinders (1) being at a linear disposition, which are provided with the holes of introduction and discharge (9) and (10) respectively,where the edges of the pistons are tangential onto the ring (17), and a cylindrical shaft (16) is provided which passes through the hole of the piston (2), whereas another hole is also provided to accomodate the spark plug, where the piston (2) are connected to a common shaft (3) at its ends and fixed via nuts (4) and guides (5), whereas shaft (3) is provided with further guides (6) and slides within a gear (7) , which is stabilized through, the reciprocating motion transmitted from other gears (8), rotating within bearings (15), which are together with the cylinders (1) mounted onto a basement (13), where sliding means (12) moving within a suitably shaped upper part of cylinders (1) is mounted onto the upper part of the pistons (2).

2. Internal combustion engine with two reciprocating pistons in accordance to the above invention (1), characterized by the pistons (2) being provided with recessions (14) to accomodate the tightness springs.

3. Internal combustion engine with two reciprocating, rotating pistons in accordance to the above claims 1 and 2. Characterized by that the edges of the pistons (2) and the rounded

corners of the rings (17) are inclined or non-inclined.

4. Internal combustion engine with two reciprocating rotating pistons in accordance to the above claims 2 and 3. Characterized by that the gear 7 includes a small free space in between two consecutive teeth at two or more points along its toothing.

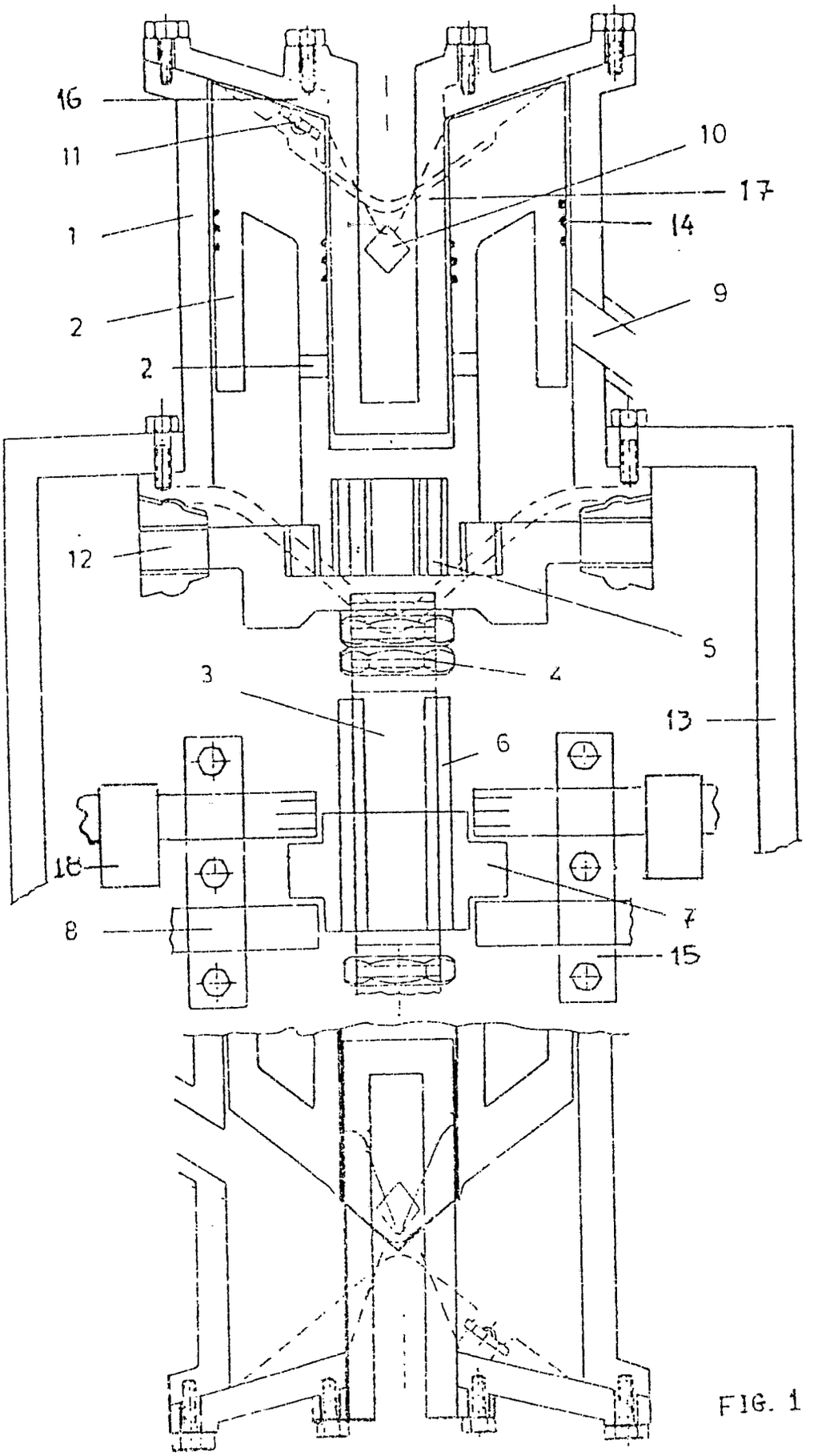

FIG. 1

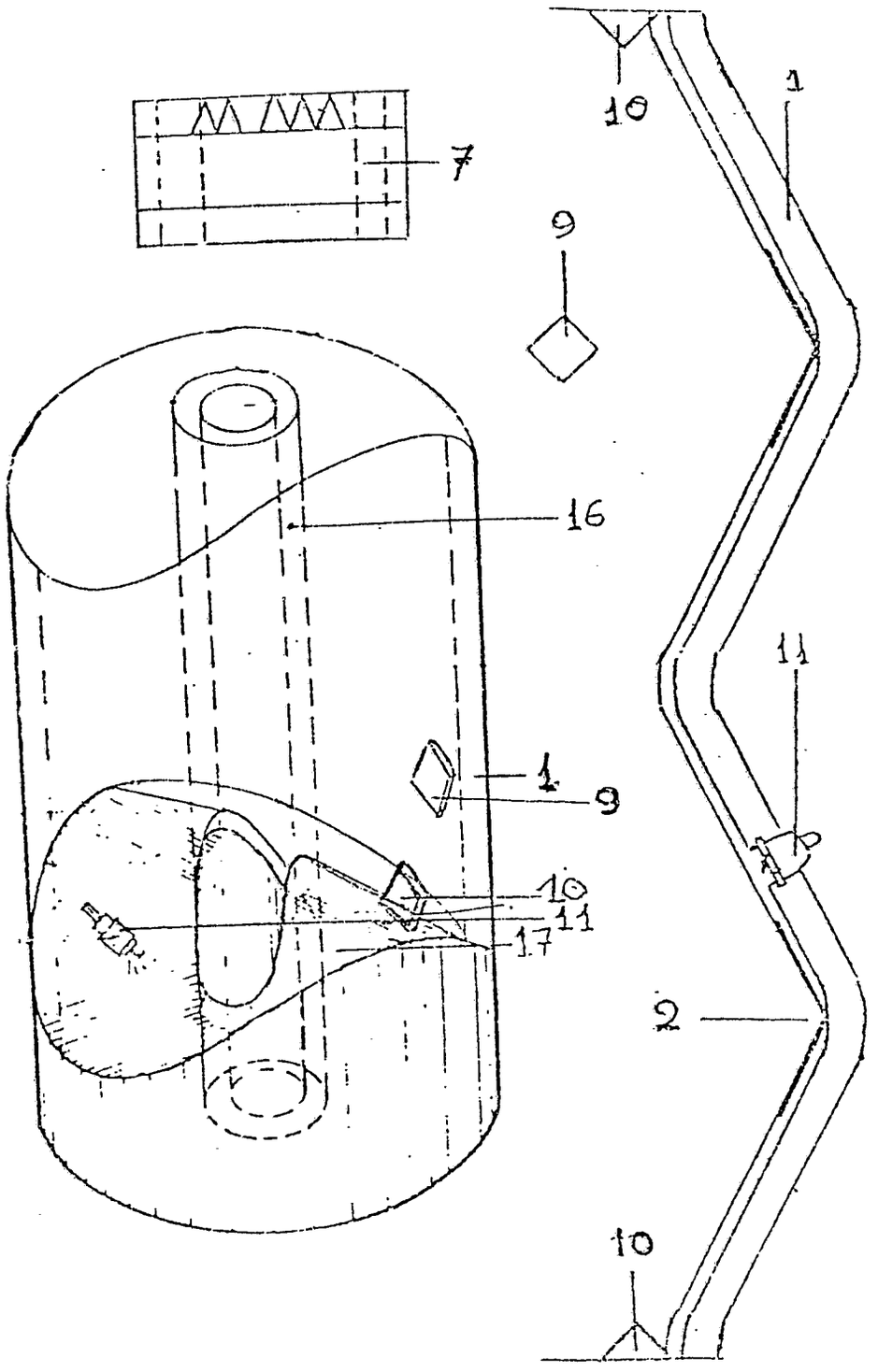

FIG.2