Nov. 16, 1948. C. E. PLUMMER 2,454,006

INTERNAL-COMBUSTION ROTARY MOTOR

Filed June 4, 1945 2 Sheets-Sheet 1

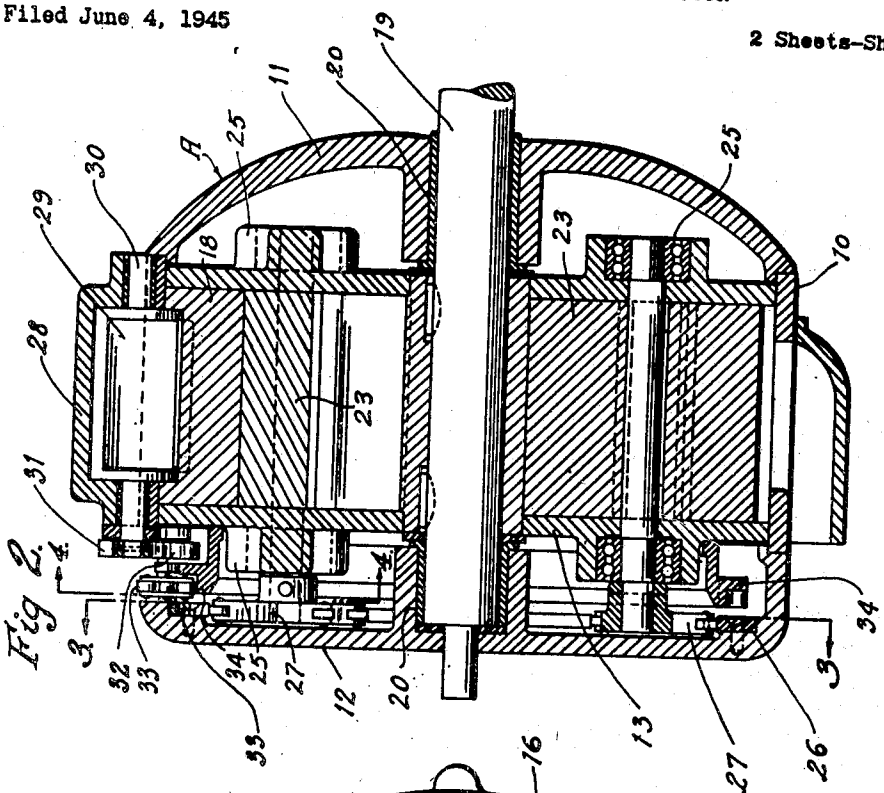


Fig. 2.

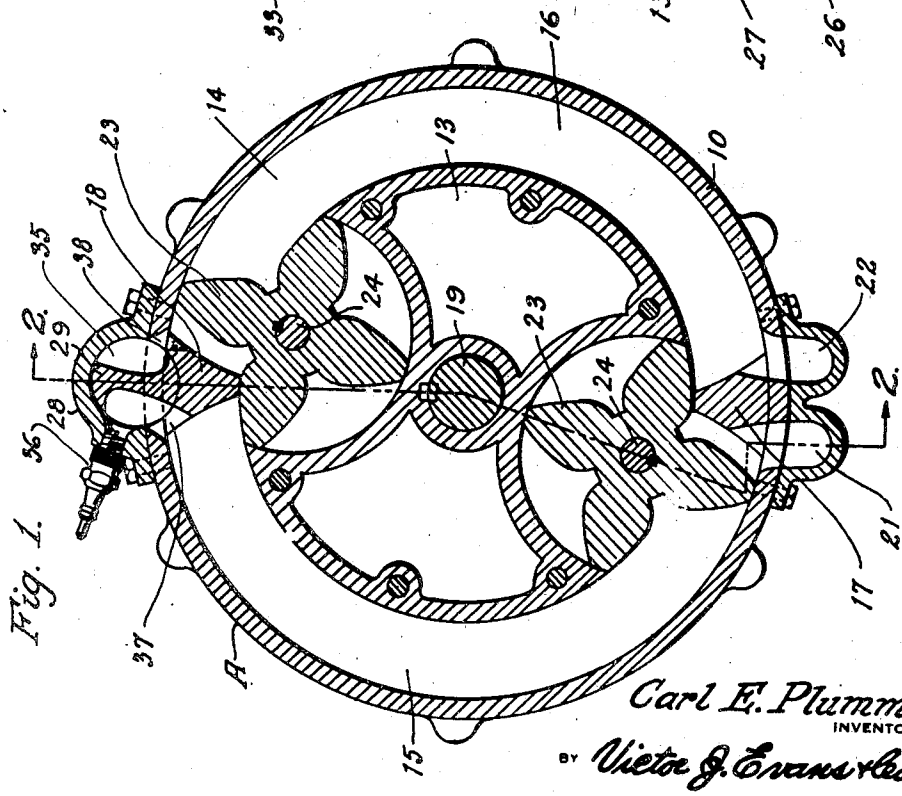


Fig. 1.

Carl E. Plummer.
INVENTOR

BY Victor J. Evans & Co.
ATTORNEYS

SEARCH ROOM

Nov. 16, 1948. C. E. PLUMMER 2,454,006

INTERNAL-COMBUSTION ROTARY MOTOR

Filed June 4, 1945 2 Sheets-Sheet 2

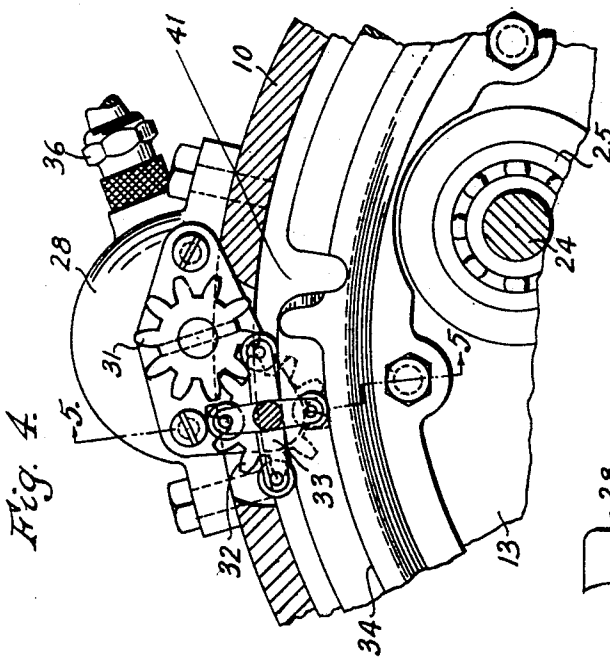


Fig. 4.

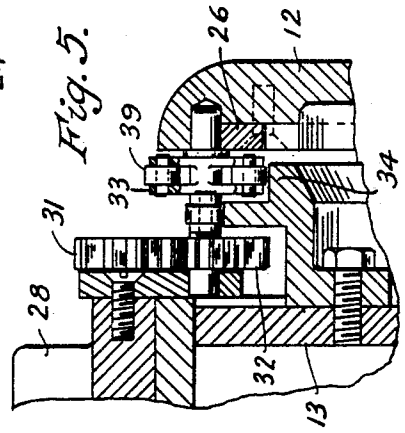


Fig. 5.

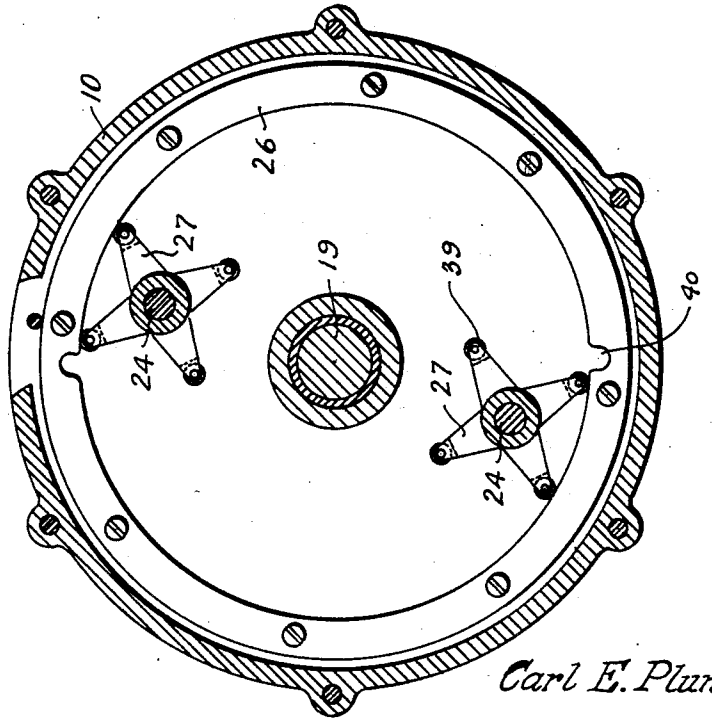


Fig. 3.

Carl E. Plummer.
INVENTOR

BY Victor J. Evans & Co.
ATTORNEYS

SEARCH ROOM

Patented Nov. 16, 1948

2,454,006

UNITED STATES PATENT OFFICE

2,454,006

INTERNAL-COMBUSTION ROTARY MOTOR

Carl E. Plummer, Tulsa, Okla.

Application June 4, 1945, Serial No. 597,548

1 Claim. (Cl. 123—8)

1

The invention relates to a motor and more particularly to an internal combustion rotary motor or engine.

The primary object of the invention is the provision of a motor or engine of this character wherein the rotor carries power blades, these being of the spider type and operate within a compression chamber interiorly of the casing and such blades are timed in their working so as to effect a continuous drive of the motor and smooth operation thereof.

Another object of the invention is the provision of a motor of this character which is compact and economically operated for the production of maximum power in the driving of mechanism.

A further object of the invention is the provision of a motor of this character which is most efficient in operation, assuring maximum production of power and economy in fuel consumption, thoroughly reliable and efficient in operation, and inexpensive to manufacture and install.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawings, which discloses the preferred embodiment of the invention and pointed out in the claim hereunto appended.

In the accompanying drawings:

Figure 1 is a vertical sectional view through the motor constructed in accordance with the invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2, looking in the direction of the arrows.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2, looking in the direction of the arrows.

Figure 5 is a sectional view taken on the line 5—5 of Figure 4, looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views, in the drawings.

Referring to the drawings in detail, A designates generally the motor constructed in accordance with the invention and hereinafter fully described.

The motor A comprises a circular casing 10 having heads 11 and 12 respectively, while interiorly of this casing 10 is a rotor 13 forming an

2

annular chamber 14 which is separated into power, firing and exhaust zone 15 and compression and intake zone 16, respectively, by means of abutments 17 and 18, diametrically opposite each other and formed interiorly of the said casing.

The rotor is keyed to a power shaft 19 journalled in center bearings 20 in the heads 11 and 12 for the casing 10.

The casing 10 has formed therewith intake and exhaust leads 21 and 22 respectively opening into the power, firing and exhaust zone 15 and the compression and intake zone 16 of the said chamber 14.

The rotor 13 at diametrically opposite points of the periphery thereof has fitted therein spider type bladed rotatable vanes 23, the blades of which are tripped by the abutments 17 and 18 and such vanes are fixed to rotatable supporting axles 24, these being journalled in bearings 25 fitting the rotor 13. Fixed within the casing 10 next to the head 12 is a timing ring 26 which coacts by means of notches 40 with trips 27 fixed to the axles 24 of the bladed vanes 23 and such trips 27 function in association with the ring 26 to have the blades of the vanes 23 override the abutments 17 and 18 within the chamber 14 at the correct times for the power operation of the motor.

Upon the casing 10 is a combined firing and compression cylinder housing 28 having therein a rotatable combined firing and compression cylinder 29, it having the journalled ends 30 fitting the housing 28 and one of these journalled ends carries a toothed gear 31 meshing with a companion gear 32 operated from a timing spider wheel 33 suitably journalled and coacting with a timing ring 34 on the rotor 13. This combined firing and compression cylinder 29 has the cavities 35 therein and separated from one another while fitting the housing 28 is an ignition device such as a spark plug 36 adapted to be arranged within an ignition system for the firing of the charges within the cavities 35, that is to say one of the same when it is in communication with the power or firing zone 15 through the port 37 provided in the abutment 18. This abutment 18 also has a port 38 which leads from the zone 16 when one of the cavities 35 in the cylinder 29 registers therewith so that the compression charge will pass through port 38.

It will be apparent that the power bladed vanes 23 are timed for rotation to clear the abutments 17 and 18 and also that the combined firing and compression cylinder 29 is timed for the explosion periods of the motor in the working thereof.

The gear 32 is journalled in the head 12 and the timing ring 34 for the spider trip wheel 33 is mounted on the rotor 13, as will be clearly apparent from Figures 4 and 5 of the drawings. The spider arms of the wheels 27 and 33 have bearing rollers 39 and these engage trip notches 40 and 41 respectively in the timing rings hereinbefore described.

In the operation of the motor the rotor 13 is driven in one direction and through internal combustion action power and cycle of rotation thereof is effected as should be obvious, while the timing for the explosion and the compression intake and exhaust periods of action is automatically controlled, in the manner as hereinbefore set forth.

For example, referring to Figure 1, each of the four cycles have been completed. The power or firing zone 15 comprises the cavity 35 in the cylinder 29 and extends downward to vanes 23, while the exhaust zone 15 comprises the exhaust lead 21 and the remainder of zone 15 to the vane 23. In like manner the intake zone 16 comprises the intake lead 22 and extends upward to the vane 23 while the compression zone 16 comprises the cavity 35 in the cylinder 29 and the remainder of the zone 16. Therefore, as the vanes 23 rotate past the abutments 17 and 18 the vanes will move into position for the cycles to be repeated.

It is believed that this description with Figure 1 as an example will clearly explain the operation of the motor without a more extended explanation.

It will be understood, therefore, by those skilled in the art that a motor has been provided that will accomplish the objects set forth and that changes and modifications of the various combinations and parts may be made within the spirit of the invention and the scope of the appended claim.

What is claimed is:

A motor of the kind described comprising a circular casing having diametrically opposed abutments therein to form opposed chambers having power firing and exhaust, compression and intake zones in the chambers at opposite sides of the abutment said power firing and exhaust zone being to the left of the abutments, and said compression and intake zone being to the right of the abutments, a rotor within the casing and having spider type power bladed rotatable vanes adapted to be tripped by said abutments, intake and exhaust leads to and from the respective zones in said chambers, a timing ring fixed in said casing, tripping wheels for the said bladed vanes and controlled by said timing ring, a combined firing and compression cylinder fitted to the casing and having firing and compression cavities therein for communication with the compression zone, and the firing zone, a timing ring on the rotor, a trip operating said firing and compression cylinder and controlled by said last mentioned ring, and ignition means for the firing and compression cylinder.

CARL E. PLUMMER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
804,162	Ober et al.	Nov. 7, 1905
1,302,504	Briggs	May 6, 1919
1,595,496	Beggs	Aug. 10, 1926
2,124,542	Chisholm	July 26, 1938
2,179,401	Chkliar	Nov. 7, 1939
2,182,719	Booth	Dec. 5, 1939
2,228,184	Strite	Jan. 7, 1941