Oct. 31, 1933. J. B. CIMINS 1,933,415

ROTARY ENGINE

Filed Feb. 18, 1931 3 Sheets-Sheet 1

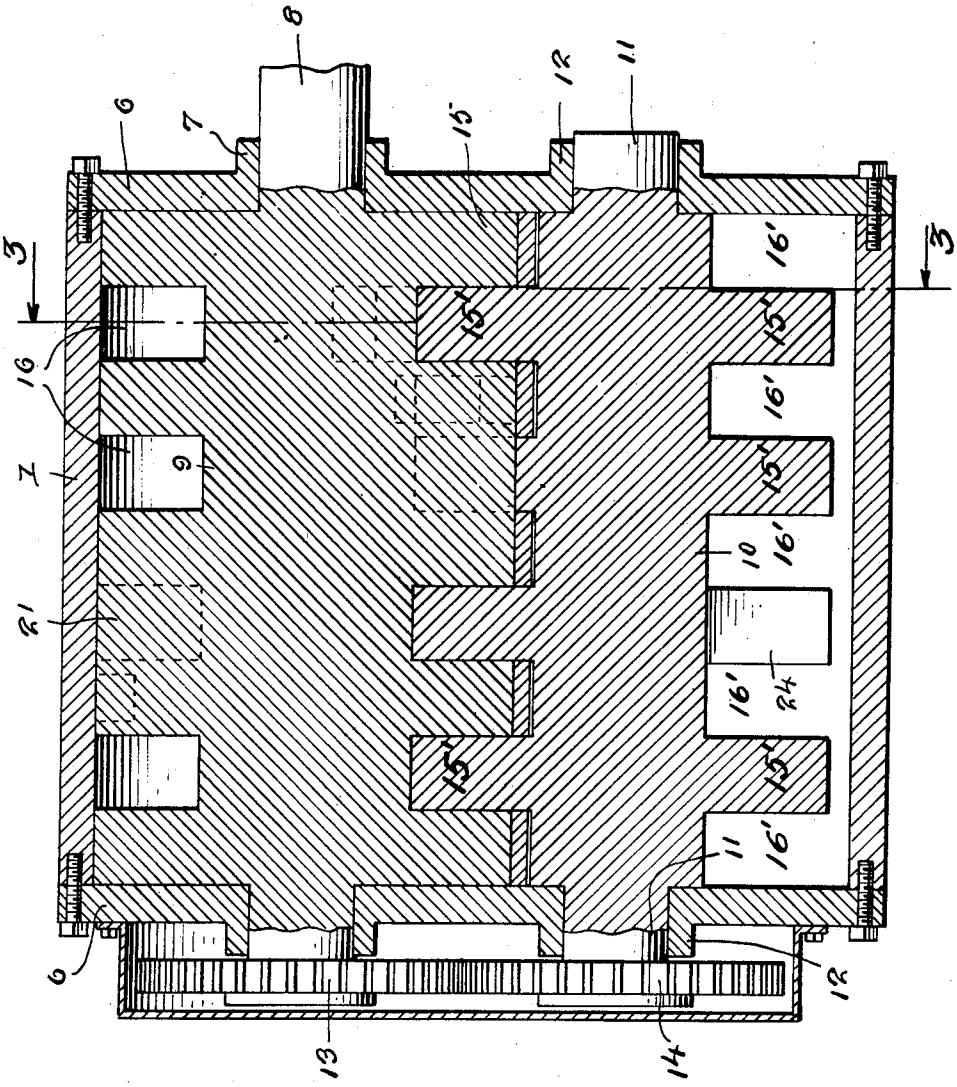


Fig. 1.

John B. Cimins
INVENTOR
BY Victor J. Evans & Co.
ATTORNEYS

Oct. 31, 1933. J. B. CIMINS 1,933,415

ROTARY ENGINE

Filed Feb. 18, 1931 3 Sheets-Sheet 2

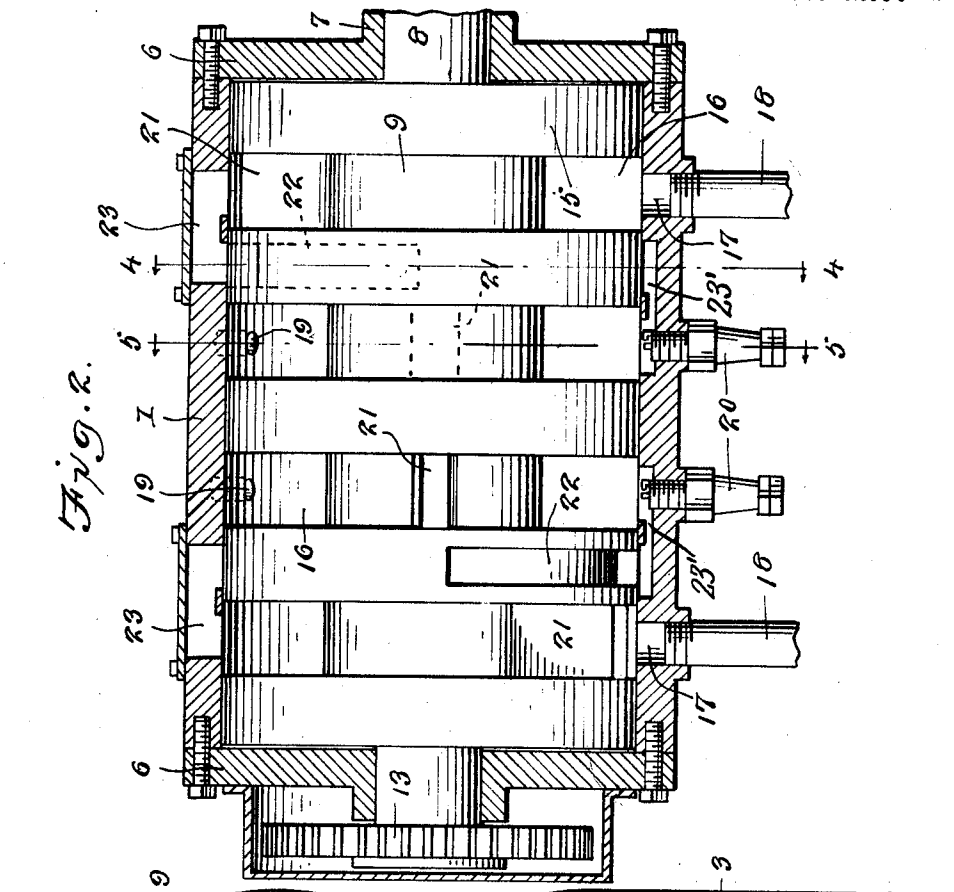


Fig. 2.

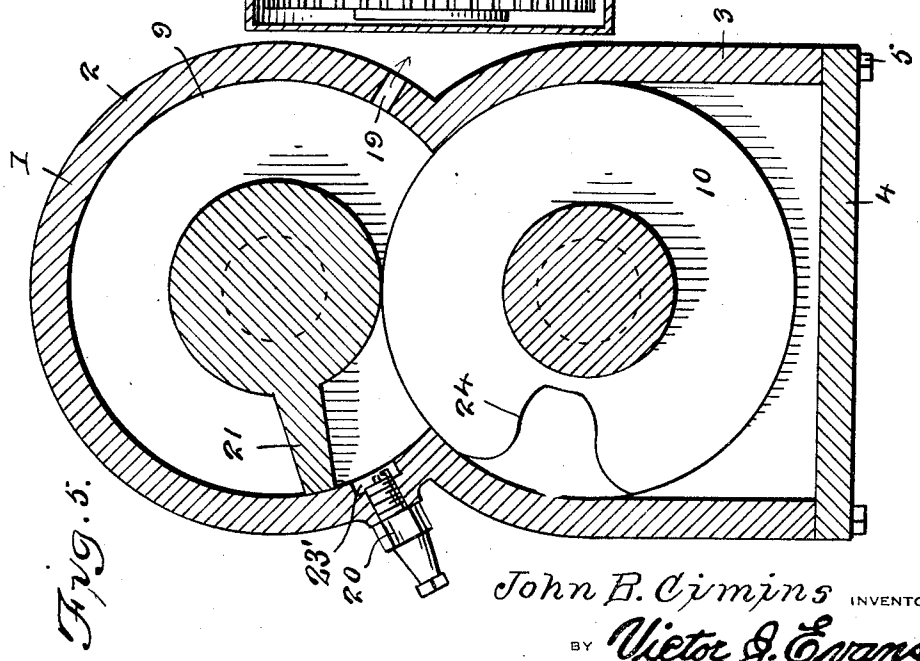


Fig. 3.

John B. Cimins INVENTOR

BY Victor J. Evans & Co

ATTORNEYS

Oct. 31, 1933. J. B. CIMINS 1,933,415

ROTARY ENGINE

Filed Feb. 18, 1931 3 Sheets-Sheet 3

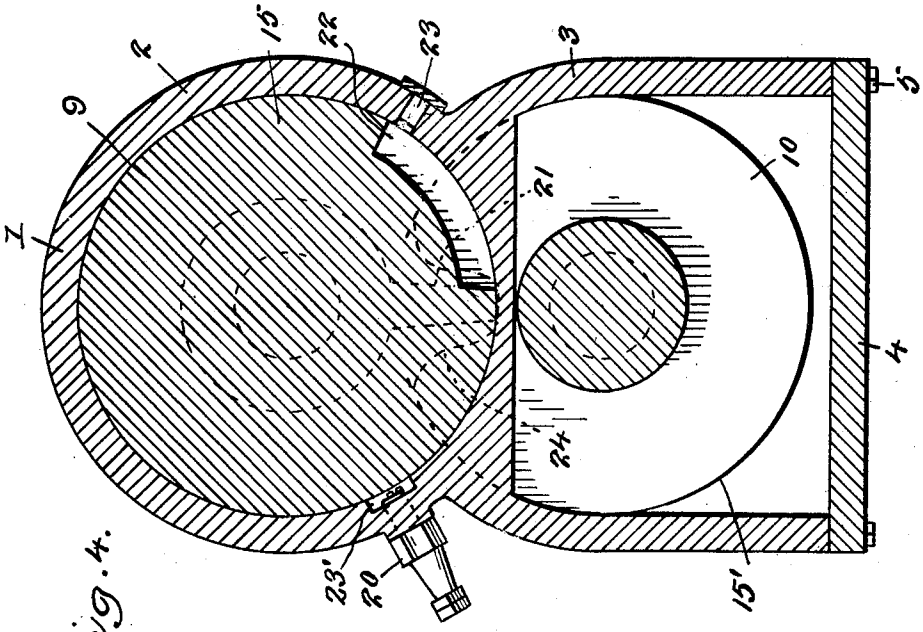


Fig. 4.

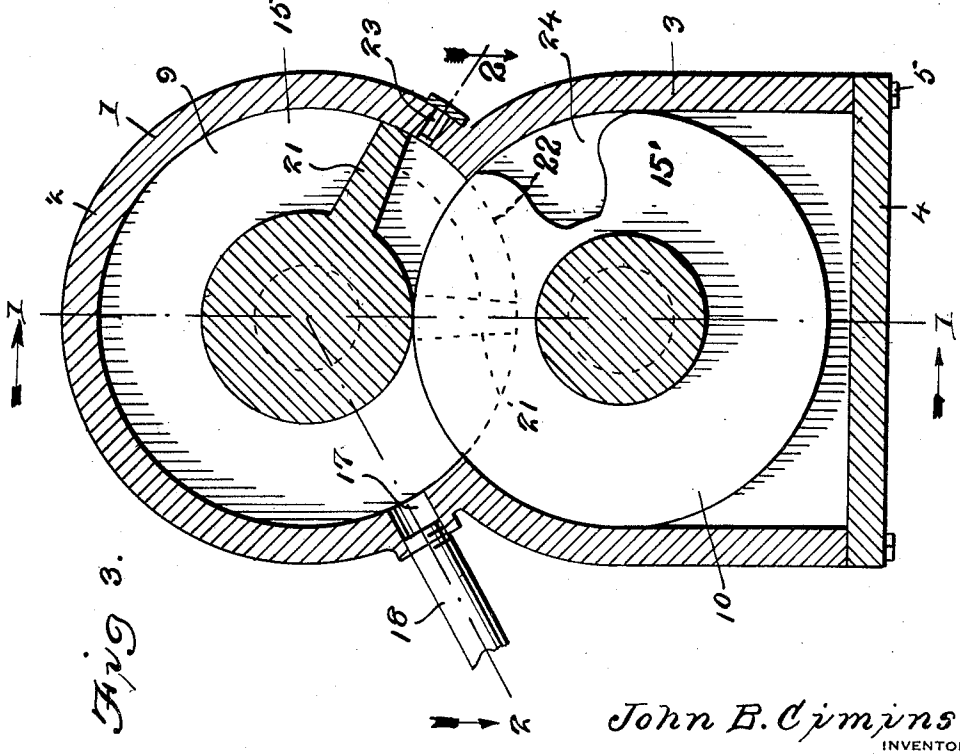


Fig. 3.

John B. Cimins
INVENTOR

BY Victor J. Evans & Co.
ATTORNEYS

Patented Oct. 31, 1933 1,933,415

UNITED STATES PATENT OFFICE

1,933,415

ROTARY ENGINE

John B. Cimins, Easton, Pa.

Application February 18, 1931. Serial No. 516,727

1 Claim. (Cl. 123—13)

This invention relates to rotary engines and more particularly to a rotary engine of the internal combustion type, and the invention has as its primary object to provide a rotary engine of this type which will afford maximum power in consonance with the quantity of fuel consumed and in which the period of delivery of power on each explosion of the fuel charge is of greater length than is possible in an engine of the crank shaft type.

Another object of the invention is to provide a rotary internal combustion engine so constructed that the parts comprising the stator or casing and the rotors may be very conveniently assembled and disassembled in the event repairs are found necessary.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings, and specifically pointed out in the appended claim, it being understood of course that minor changes may be made so long as they fall within the scope of the claim.

In describing my invention in detail, reference will be had to the accompanying drawings, wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a vertical longitudinal sectional view through the rotary combustion engine embodying the invention taken on the line 1—1 of Figure 3, looking in the direction of the arrows.

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

Figure 3 is a vertical sectional view taken substantially on the line 3—3 of Figure 1, looking in the direction indicated by the arrows.

Figure 4 is a similar view on the line 4—4 of Figure 2, looking in the direction indicated by the arrows.

Figure 5 is a similar view on the line 5—5 of Figure 2, looking in the direction indicated by the arrows.

The engine embodying the invention comprises a casing which is indicated in general by the numeral 1 and which casing comprises upper and lower, substantially cylindrical chambers indicated respectively by the numerals 2 and 3, the two chambers being in communication with each other at their lower and upper sides, respectively. The chamber 3 is open at its bottom but normally closed by a base 4 removably secured in place by bolts 5. The chamber 2 is closed by heads 6 and these heads are formed with bearing extensions 7, and trunnions 8 at the ends of a rotor, indicated in general by the numeral 9 are journalled in these bearings. A rotary abutment indicated in general by the numeral 10 is provided at its ends with trunnions 11 which are journalled in bearings 12 upon the heads 6, which heads also close the ends of the lower chamber 3. Intermeshing gears 13 and 14 of precisely the same diameter connect the rotor 9 to the abutment 10 and therefore the rotor and the abutment are caused to rotate in unison with each other and in consonance with each other. The rotor is provided with spaced cylindrical body portions 15 defining between them annular chambers 16. The abutment is provided with spaced cylindrical body portions 15′ defining between them annular chambers 16′, the latter having the body portions 15 projecting therein, while the body portions 15′ project into the chambers 16.

Inlet ports 17 are provided in the wall of the chamber 2 and adjacent the point of juncture of this chamber with the chamber 3, and supply pipes 18 for the motive fluid under pressure are placed in communication with these ports. An exhaust port 19 is lilkewise provided in the opposite side of the chamber 2 and substantially opposite and in approximately the same plane as the inlet ports 17, and, mounted upon the chamber 2 at that side opposite the side at which the exhaust port 18 is located are spark plugs 20, and these plugs are of the conventional type.

The rotor 9 is formed with two vanes 21 which are located diametrically opposite each other and which are radial to the axis of the rotor 9 and extend transversely of two of the annular chambers 16. One of the circumferential body portions 15 of the rotor 9 is formed, as shown most clearly in Figure 4 of the drawings, with a compression pocket 22 which is of arcuate form, and the wall of the chamber 2 is formed in its inner side with a by-pass passage 23 which communicates at one end with the annular chamber in which the said body portion 15 rotates and, at its other end with the annular chamber in which the next adjacent annular body portion rotates.

Each of the circumferential body portions of the abutment 10 is formed with an arcuate recess 24 to receive the vanes.

In operation, during the rotation of the rotor 9, the fuel enters the annular chambers 16 which are in communication with the fuel pipes 18 and the vanes in said chambers force the fuel under compression in the by-passes 23 at one side of the casing and the compressed fuel within said

by-passes is delivered into the pockets 22 and from there into the by-passes 23' at the opposite side of the casing where said compressed fuel is ignited by the spark plug 20 to expand against the vanes of the other annular chambers 16 and the spent or burnt gases exhaust therefrom through the ports 19. Thus it will be seen that the fuel may be drawn into the engine and then compressed and ignited by a minimum number of parts.

While the present invention as illustrated and described as embodied in a rotary internal combustion engine or, generally speaking, as a rotary engine, it will be understood that it may take the form of a pump for the delivery of water, oil, air, or any other fluid.

What I claim is:

A rotary engine comprising a casing having upper and lower communicating compartments, a rotor journaled in the upper compartment and having annular spaced chambers forming in the rotor annular enlargements and one of said enlargements having a peripheral and arcuately curved pocket, a rotatable abutment journaled in the lower compartment and having annular chambers to receive the enlargements of the rotor and providing annular enlargements received by the annular chambers of the rotor, vanes formed on the rotor and located in the chambers thereof, meshing gears connecting the rotor to the abutment, said abutment having recesses to receive the vanes during the rotation of the rotor and the abutment, said casing within the upper compartment having by-passes oppositely arranged to each other and each communicating with a chamber of the rotor and adapted to communicate with the curved pocket of the rotor during the rotation of the latter, a fuel supply pipe communicating with one of the chambers of the rotor, said casing having an exhaust port communicating with the other chamber of said rotor, and a spark plug carried by the casing and extending into one of the by-passes, one of said vanes and its respective chamber and the abutment cooperating to form a compressor for the fuel to force said fuel from the fuel pipe into one of the by-passes, said curved pocket adapted to transfer the compressed fuel in the last-named by-pass into the other by-pass to be ignited by said spark plug and act against the other vane.

JOHN B. CIMINS.