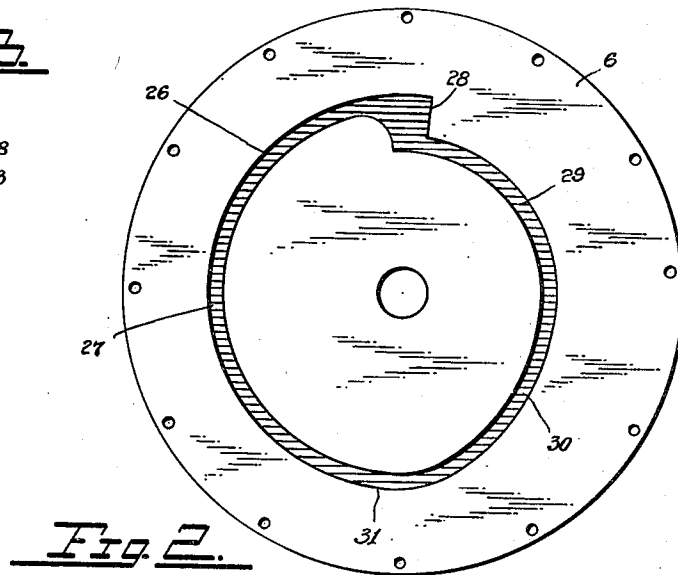
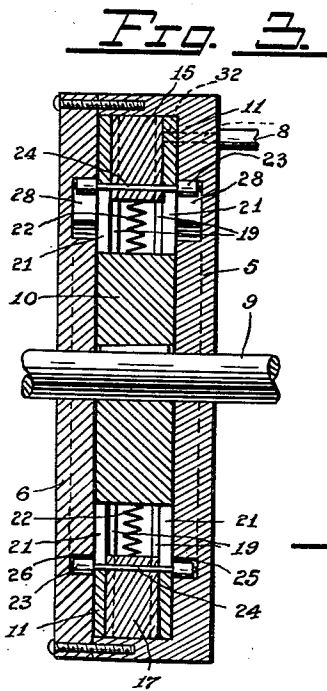
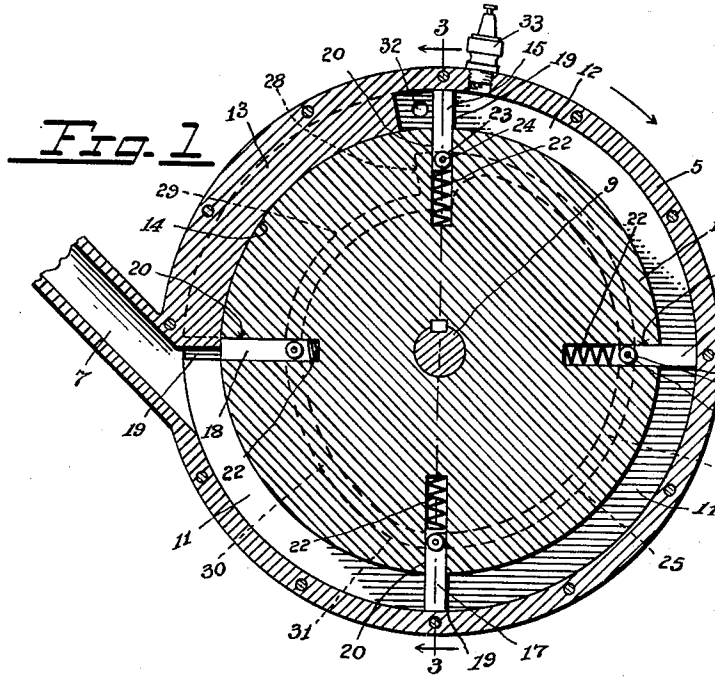


Dec. 10, 1940.

A. MAURER ET AL
COMBUSTION MOTOR

2,224,443

Filed April 27, 1940



Inventors
and *Albert Maurer*
Leon H. Maurer
John W. Maupin
Attorney

UNITED STATES PATENT OFFICE

2,224,443

COMBUSTION MOTOR

Albert Maurer and Leon H. Maurer, Seattle, Wash.

Application April 27, 1940, Serial No. 331,998

2 Claims. (Cl. 123—16)

Our invention relates to combustion motors and is a modified adaptation of the basic principles as set forth in our co-pending patent application entitled "Hydraulic transmissions," Serial Number 328,890 and filed April 10, 1940.

The primary objects of our present invention are to provide an internal combustion motor or engine of simple and inexpensive construction consisting of a rotor mounted within a housing and carrying a plurality of vanes slidably mounted in radial slots provided in its edge portion that are adapted to close a channelway around the rotor for the impact of an explosive charge whereby the rotor is revolved, and which vanes are caused to be drawn inward by stationary cam grooves provided in the sides of the housing thus opening an exhaust and scavenging the spent charge.

In the drawing:

Figure 1 is a view in transverse vertical section of the motor;

Fig. 2 is a view in elevation showing the inner face of the removed side; and

Fig. 3 is a view in longitudinal vertical section taken substantially on a broken line 3—3 of Fig. 1.

Referring in detail to the drawing wherein like reference numerals indicate like parts in the several views, the numeral 5 designates the main body portion of a hollow annular housing which is provided with a removable side 6. An exhaust port 7 is provided at one side of the housing and a fuel intake port 8 is provided in its top portion. A shaft 9 is journaled centrally through the housing and removable side and a rotor 10 is keyed centrally to said shaft. Said rotor is of smaller diameter than that of the housing and is provided with side flanges 11 which extend to the wall of the housing thus leaving a channelway 12 around the rotor. This channelway extends uniformly around the rotor with the exception of the distance between the exhaust 7 and the intake 8, said part of the channelway being closed by a block portion 13 which is offset from the annular housing wall. The inner face of this block portion is defined by an arc 14 and said block fits snugly but slidably into the channelway 12 and against the rotor 10.

Four equally spaced vanes 15, 16, 17 and 18 are slidably mounted in opposite radial grooves 19 provided in the inner faces of the rotor flanges 11. These grooves are extended into the rotor 10 to form slots 20 and openings 21 are provided on the sides thereof through the flanges 11 for reasons presently set forth. A spring 22

is interposed between the bottoms of the slots 20 and the vanes whereby same are normally held in the outward position against the interior of the housing wall thus closing the channelway 12. Each of the vanes is provided with roller bearings 23 mounted on the outer ends of small shafts 24 which extend through said vanes. It will thus be seen that the openings 21 provide clearance for the free inward and outward movements of said small shafts when the vanes are correspondingly moved.

The inside face of the housing body 5 is provided with a stationary cam groove 25 and the inside face of the removable side 6 is provided with a corresponding cam groove 26 that is opposite to and equal with the cam groove 25 in all respects. Each of said cam grooves consist of a major concentric arc portion 27 which is inset at its top to form a shoulder 28, a minor concentric arc portion 29 extending around a quarter distance from said shoulder and diametrically opposite the arc 14 which defines the inner face of the block portion 13, and an eccentric arc portion 30 connecting said major and minor portions by a somewhat abrupt curve at 31. The cam grooves 25 and 26 are adapted to receive the roller bearings 23, and it should be remembered that said grooves remain stationary in the operation of the device which will now be described.

A hole 32 is provided through one of the flanges 11 of the rotor 10 and is arranged to register with the fuel intake 8 at each revolution of the rotor. Now assuming that the vanes are in the position shown in Fig. 1 of the drawing, that the rotor is revolving in a clockwise direction, and that a charge of fuel has entered the channelway 12 through the intake 8 and the hole 32. The portion of said channelway between the block 13 and the vane 15 serves as a combustion chamber, and when said vane passes the spark plug 33 explosion will take place thus driving the rotor around with great force. The channelway 12 will continue to be closed by the vane 15 while the roller bearings 23 are traversing the major arc portions 27 of the cam grooves 25 and 26 and until same reach the abrupt curves 31 of said grooves where they join the eccentric arc portions 30 thereof. These eccentric arc portions will then draw the vane 15 inward thus opening the exhaust 7, permitting the spent charge to be expelled, and allowing said vane to pass the block 13. When said vane passes the shoulders 28 of the cam grooves its spring 22 will force it outward thus again closing the channelway 12

and completing the cycle of operations. While the movements of only one vane has been described, it will be understood that the movements of the other three vanes will be the same. It will also be understood that any desired number of vanes may be used, that the fuel charge may enter through oppositely disposed holes in the flanges 11, and that the drawing is merely intended to show one means of reducing the principles of the invention to practice.

We claim:

1. A combustion motor consisting of a housing having an intake and an exhaust, a rotor revolvably mounted within the housing and having annular flanges forming a channelway around same communicating with the exhaust, a hole through one of said flanges arranged to register with the intake at each revolution of the rotor, a block forming part of the housing and closing the channelway between the intake and exhaust, a plurality of vanes slidably mounted in slots provided in the edge portion of the rotor, a spring adapted to normally retain the vanes in the outward position, equal and opposite cam grooves in the respective sides of the housing, roller bearings for the vanes arranged to travel in said cam grooves whereby the vanes are caused to move inward and open the channelway to the exhaust upon rotary movement of the rotor, and said grooves having a shoulder diametrically adjacent the intake and an end of said block whereby the springs are caused to move the vanes outward and close the channelway when said vanes pass said shoulders whereby a combustion chamber is formed adjacent the intake.

2. A combustion motor consisting of a housing having an intake and an exhaust, a rotor revolvably mounted within the housing and having annular flanges forming a channelway around same communicating with the exhaust, a hole through said flanges arranged to register with the intake at each revolution of the rotor, a block forming a part of the housing and closing the channelway between the intake and exhaust, a plurality of vanes slidably mounted in slots provided in the edge portion of the rotor, a spring adapted to normally retain the vanes in the outward position, equal and opposite cam grooves in the respective sides of the housing, said cam grooves consisting of a major arc portion, a minor arc portion, a shoulder at the joiner of the major and minor arc portions that is diametrically disposed with respect to the intake and an end of the block, and an eccentric arc portion connecting the major and minor arc portions, roller bearings for each of the vanes arranged to travel in said cam grooves upon rotary movement of the rotor, said eccentric arc portions arranged to draw the vanes inward thereby opening the channelway to the exhaust, said minor arc portions adapted to retain the vanes in the indrawn position while passing the block, said shoulders arranged to permit the springs to move the vanes outward upon passing same, and said major arc portions adapted to retain the vanes in the outward position for closing the channelway.

ALBERT MAURER.
LEON H. MAURER.