March 7, 1950 E. J. HART 2,499,863

ROTARY JET PROPELLED MOTOR

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Fig 2

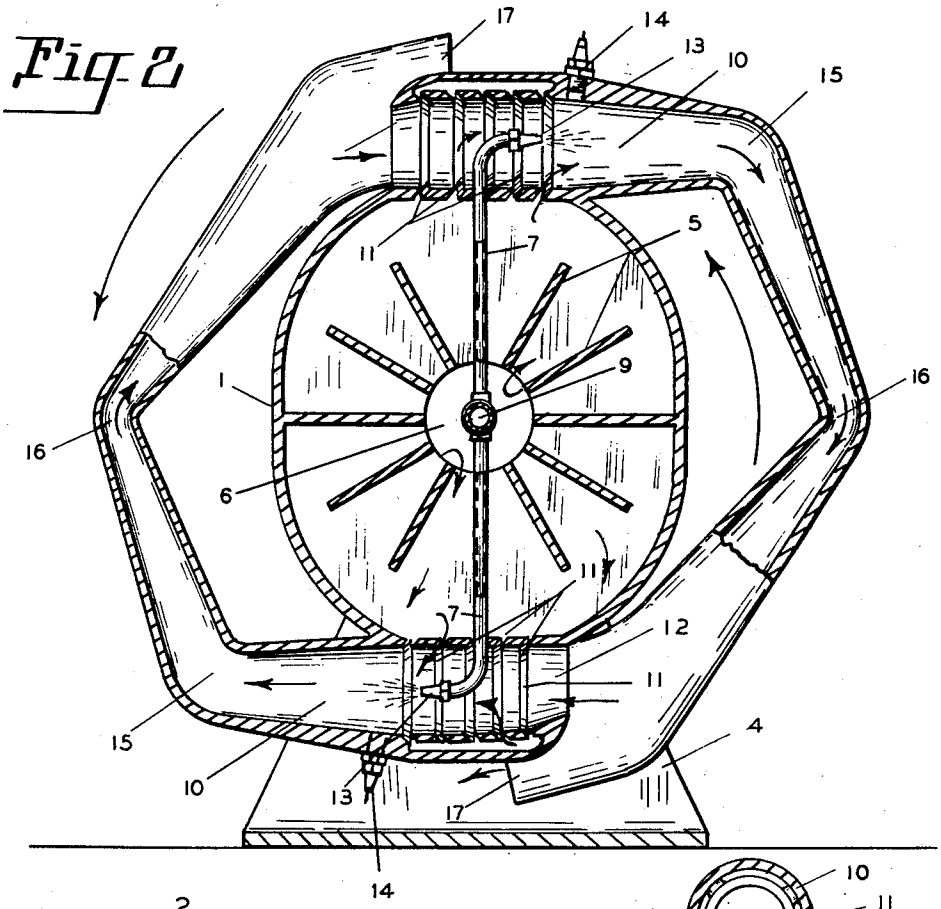
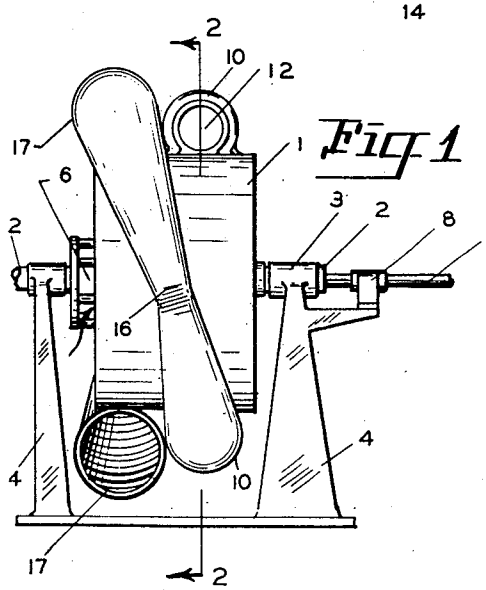


Fig 1



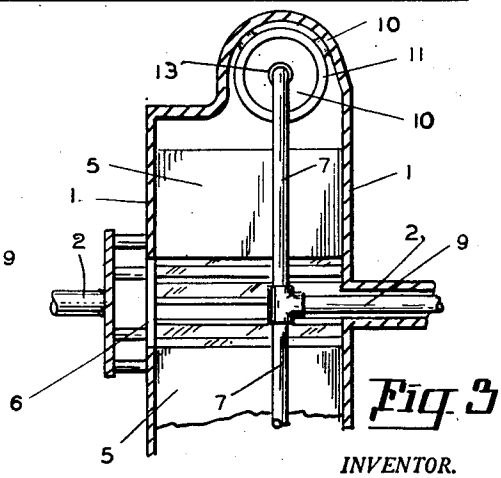


Fig 3

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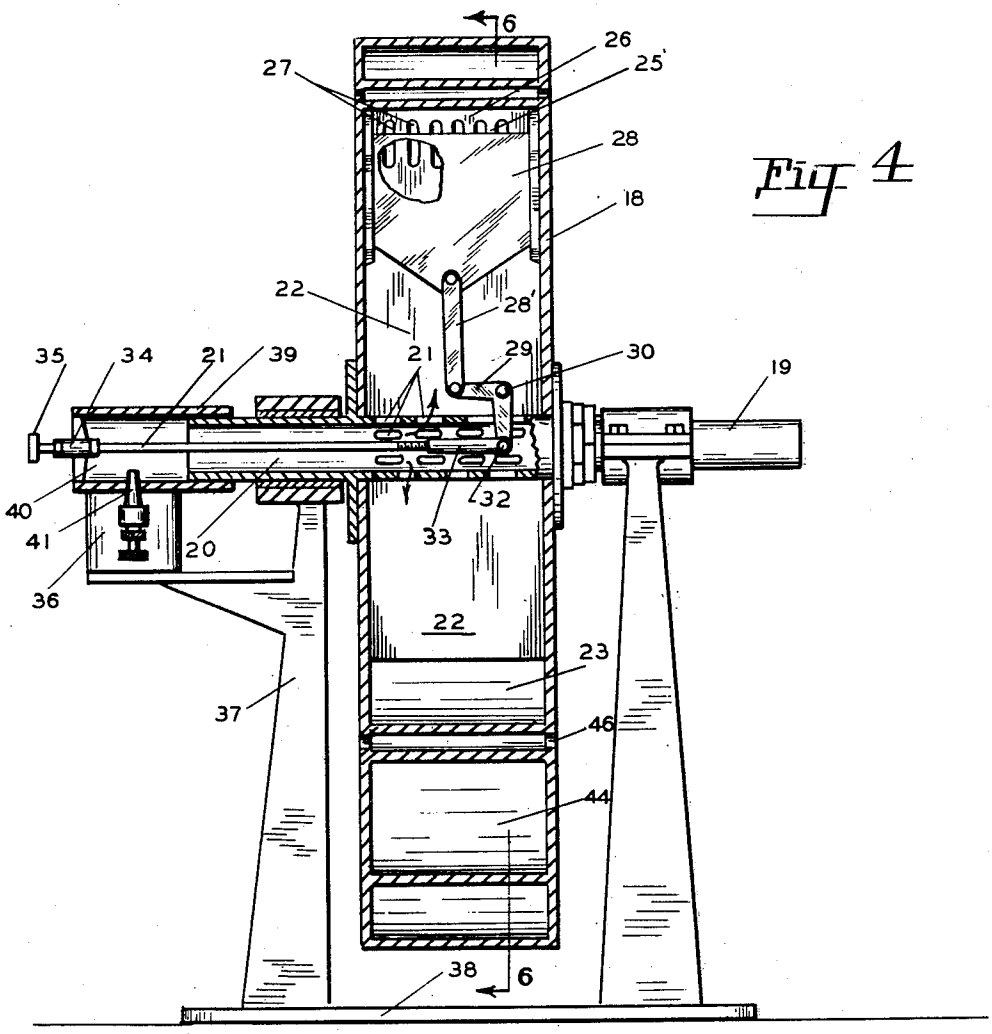

Fig 4

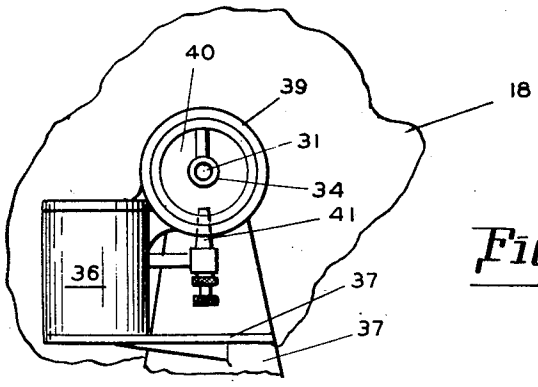

Fig 5

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ROTARY JET PROPELLED MOTOR

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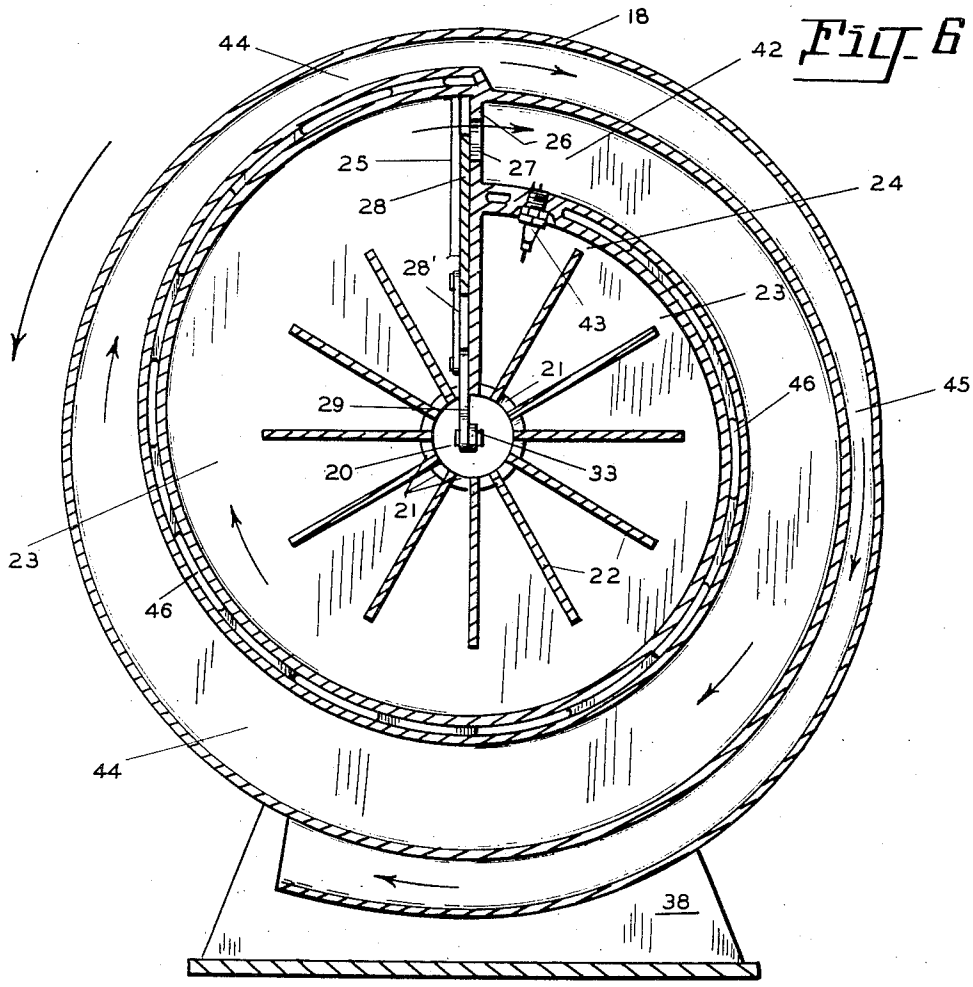

Fig 6

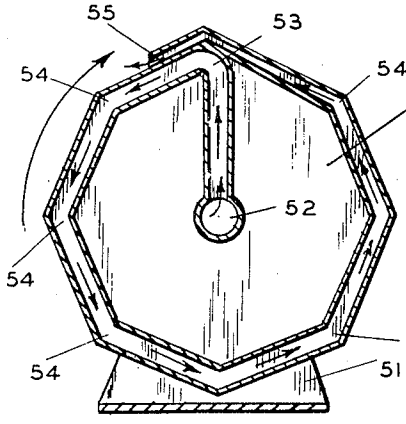

Fig 7

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2,499,863

ROTARY JET-PROPELLED MOTOR

Elmer J. Hart, Vancouver, Wash.

Application June 21, 1945, Serial No. 600,660

3 Claims. (Cl. 60—41)

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This invention relates to jet propelled rotary motors. The primary object of the invention is to employ the jet propulsion method within a rotor mounted upon a driving shaft.

With my new and improved jet propelled rotor motor the reaction of burned gases within the combustion chambers, employing the jet propulsion system, wherein the passage of the gases are directed through a reduced orifice, then expanded to the atmosphere, the combustion chamber rotating in the opposite direction of the discharge opening.

In my invention the combustion chambers as stated above, are mounted and fixed to a driving shaft so that as this reaction takes place it will revolve the shaft supplying power thereto.

These and other incidental objects will be apparent in the drawings, specification and claims.

Referring to the drawings:

Figure 1 is a side view of my new and improved jet propelled rotary motor.

Figure 2 is an end sectional view, taken on line 2—2 of Figure 1, looking in the direction indicated, parts broken away for convenience of illustration.

Figure 3 is a fragmentary longitudinal sectional view of the rotor, parts illustrating the rotor mounted upon the shaft and the air and fuel supply.

Figure 4 is another preferred form of mechanical embodiment of my new and improved jet propelled rotary motor.

Figure 5 is a fragmentary detailed view of the air intake and fuel supply unit.

Figure 6 is a sectional view, taken on line 6—6 of Figure 4, looking in the direction indicated.

Figure 7 is another preferred form of jet propelled rotary motor, this view is a sectional end view taken through the rotor.

In the drawings:

My jet propelled motor consists of a hollow housing or rotor 1, fixedly mounted upon the shaft 2, the said shaft is journalled within suitable bearings 3 mounted upon the base 4.

Centrally and radially mounted within the rotor 1 are fan blades 5. Air is drawn in through the opening 6 of one side of the rotor, while a fuel supply line 9 enters through the shaft 2 on the opposite side of the rotor. A stuffing box 8 allows the supply line 7 to rotate therein and receive its fuel under pressure from the fuel line 9.

Combustion chambers 10 receive air from the fan blades 5 through the slots 11. Air is also admitted through the forward openings 12.

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Fuel is introduced into the combustion chambers through fuel nozzles 13 under pressure delivered from a pressure system not here shown, but is similar to the Diesel fuel injector system. Suitable ignition means, such as spark plugs 14, are provided.

In the operation of my new and improved jet propelled rotary motor, as above described, the motor is revolved at a high rate of speed, by a starter not here shown, compressing air within the combustion chambers 10. The fuel is then injected through the nozzles 13 and ignited. The reaction of the combustion from the combustion chambers 10 towards the low pressure areas 15 and 16, thence to the exhaust discharge located at 17, drives the rotor 1 in the direction of the arrow. This principle is being used today in jet propelled planes, the different being that I have converted this principle of propulsion and reaction to a rotor mounted on a shaft.

In my construction I have illustrated the exhaust points 17 as enlarged from that of the restricted area at 16, changing the high velocity at 16 to a high pressure at 17. This I believe is an improvement over the discharging of the gases from a restricted or high velocity area. I do not wish to be limited to increasing the area and pressure at the discharge point of the gases from the motor, as my invention will still operate in the conventional manner by discharging the gases under high velocity at the discharge point of the exhaust.

Referring to Figures 4, 5 and 6, I show a slightly modified form of my invention. A body or rotor 18 is fixedly mounted to the shaft 19. The shaft 19 is hollow at 20 and has openings 21 communicating with the fan blades 22, which are also fixedly mounted to the shaft 19 and rotor 18. Air is taken through the shaft at 20 by the suction of the fan blades 22 and dischargeed into the space 23, which gradually gets larger from the point 24 in the direction of the arrow to the throttle valve 25.

This valve consists of a slotted diaphragm or combustion head 26, having slots 27 therein and covered by the sliding valve plate 28. This valve plate is connected by a link 28' to the bell crank 29, pivotally mounted at 30. A connecting link 31 is connected to the bell crank arm at 32, being threaded within the sleeve 33 on its one end and passing through the guide 34 at its opposite end with a suitable hand wheel 35 for making the adjustment of the valve plate 28.

A carburetor 36 is mounted to the frame 37 of the base 38 and registers with the shaft and has

a tubular section 38 for registering with the shaft 19. Air enters at 40 through the carburetor flowing past the jet 41 into the space 20 of the shaft 19 and out through the openings 21 of the fan blades 22 where it is thoroughly mixed and delivered to the compression space 23. I do not wish to be limited to this exact method of supplying the fuel, as other forms of carburetors or fuel supply means may be employed still coming within the scope of my claims.

As the mixed fuel from the compression chamber 23 passes through the valve 25 into the combustion chamber 42 it is ignited by any suitable means, as plugs 43. The combustion travels around the combustion chamber in the direction of the arrow from the high pressure area 44 to the low pressure and high velocity 45. I have provided a cooling means between the combustion chamber 42 and the compression chamber 23, consisting of a double wall construction having ventilation ports 46 running therebetween. I have illustrated the jet propulsion system in Figures 4 and 5 as is commonly known in jet propulsion action as is being applied to airplanes.

Referring to Figure 7 I have illustrated another preferred form of my invention wherein a rotor 50 is mounted upon a base 51. Gases and air are introduced through the manifold 52, and are ignited by any suitable means not here shown, these gases pass through the manifold 52 and are changed in their direction at 53, which provides for the first reaction of the gases causing the rotor 50 to revolve. The gases then travel through the manifold 52 reacting against the points 54, each reaction adding to the power directed against the rotor from the gases until they are finally discharged through the exhaust port 55. The present propulsion system as used in airplanes and the like have only one reaction and that is at the point 55, but as can be observed part of my invention consists in providing a number of bends 54, each one of which causes a turning action upon the rotor adding to the power exerted at the exhaust port 55.

I do not wish to be limited to the exact structure as illustrated in my drawings, as other forms of mechanical equivalents may be used still coming within the scope of my invention.

What I claim is:

1. A jet propelled rotary motor comprising a base, a rotor casing journalled in the base, a pair of combustion chambers tangentially affixed to the periphery of the casing in diametrically opposite relation and open at one end to the atmosphere, slots in the wall of a portion of each chamber establishing communication with the interior of the casing, a pair of fuel nozzles each in a chamber, a fan in the casing supplying compressed air through the slots to the chambers, a pair of outlets for the burned gases each connected at one end to the other end of a chamber and having the other free end disposed laterally of and behind the open end of the other chamber.

2. The motor according to claim 1 and wherein each combustion chamber includes another portion of an interior cross-section decreasing away from the end open to the atmosphere and the outlet connected to the other portion of the chamber has an interior cross-section increasing toward its free end.

3. The motor according to claim 1 and wherein each fuel nozzle is directed away from the end of the combustion chamber open to the atmosphere.

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