

May 3, 1932.

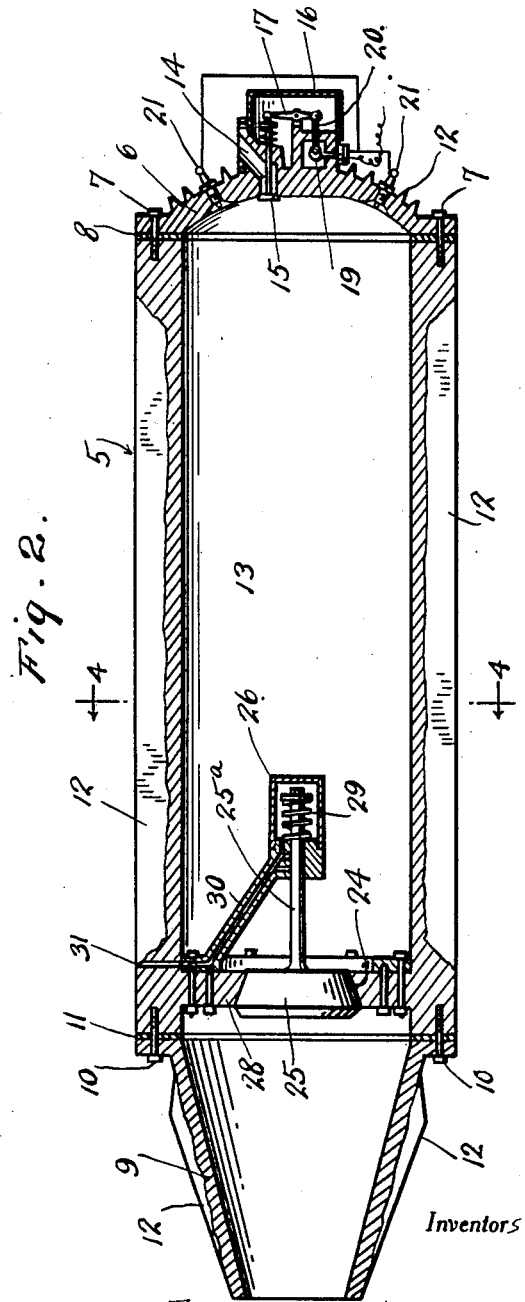
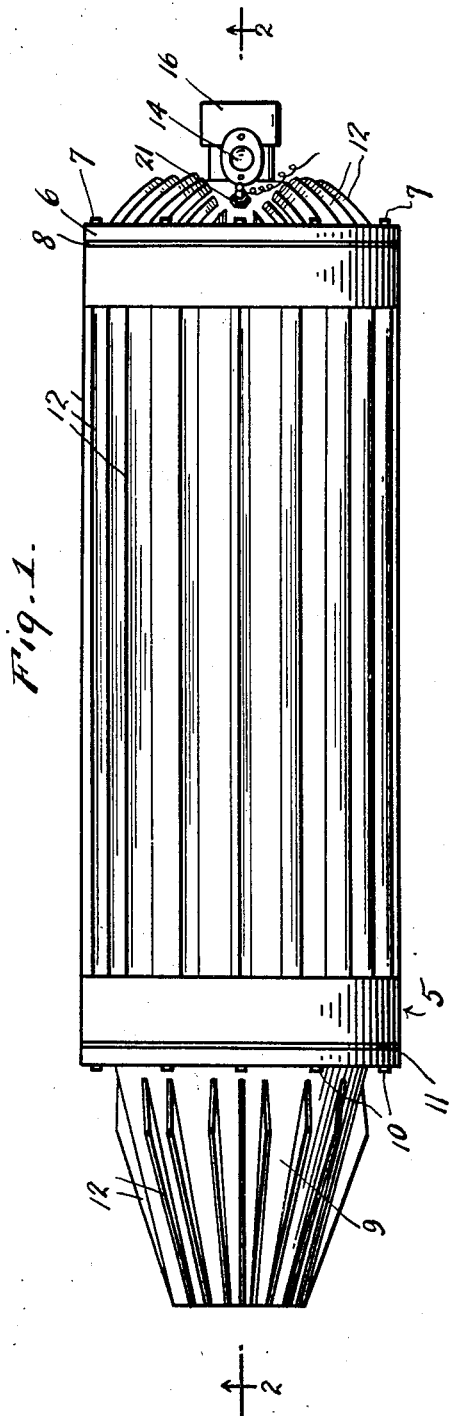
F. HADAMIK ET AL

1,856,552

CARBIDE ROCKET

Filed June 26, 1931

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

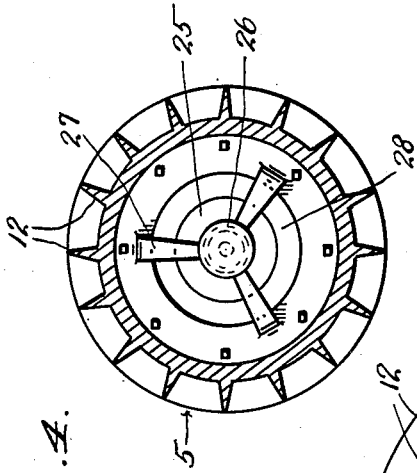


Fig. 4.

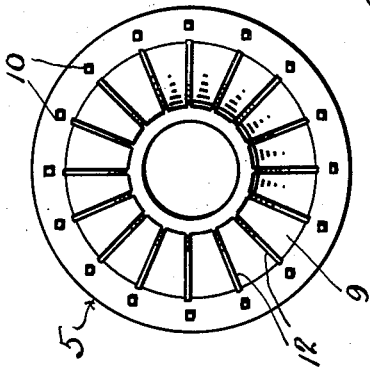


Fig. 3.

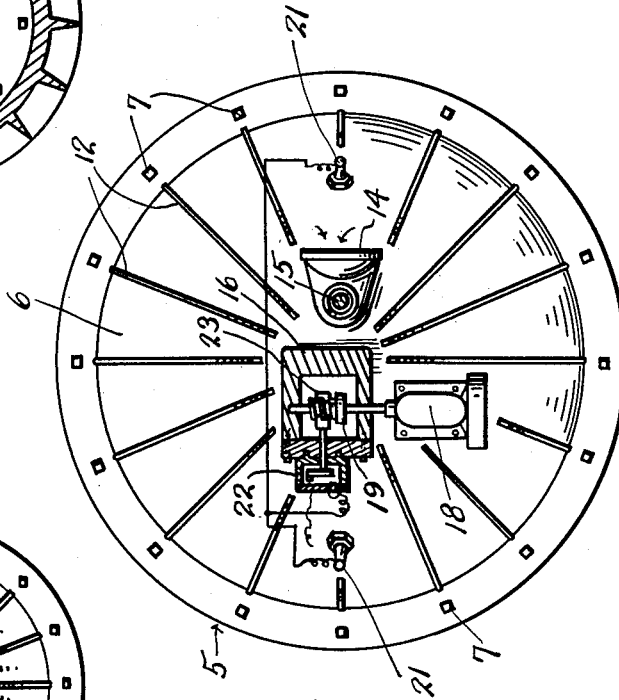


Fig. 5.

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CARBIDE ROCKET

Application filed June 26, 1931. Serial No. 547,166.

The object of this invention is to provide a carbide rocket especially adapted for use as a power plane for aero-structures.

A still further object of the invention is to provide a rocket for use as either the main or auxiliary power unit of aero-structures and other self-propelled vehicles, capable of using a carbide gas as a fuel, together with improved valve means for controlling the intake of the fuel to the combustion chamber.

A still further object of the invention is to provide in a rocket of the character above mentioned, improved means for igniting the fuel.

Other objects and advantages of the invention will become apparent from a study of the following description, taken in connection with the accompanying drawings wherein:

Figure 1 is an elevational view of the rocket.

Figure 2 is a longitudinal sectional view therethrough.

Figure 3 is a front end elevational view of the rocket.

Figure 4 is a transverse sectional view taken substantially on the line 4—4 of Figure 2.

Figure 5 is a rear end elevational view of the rocket, certain parts being shown in section.

With reference more in detail to the drawings it will be seen that the improved rocket comprises an elongated cylinder 5 provided at its rear end with a dome-shaped head 6 secured to the cylinder 5 by suitable fastening means 7. A gasket 8 is interposed between the head 6 and end of the cylinder 5 as shown in Figure 2. A conical discharge mouth 9 is provided for the front end of the cylinder 5, and at its largest end the mouth 9 is bolted to the cylinder 5 as at 10. A gland 11 is interposed between the flange at the largest end of the mouth 9, and the adjacent end of the cylinder 5.

The cylinder 5, head 6, and discharge mouth 9 are each provided on their outer faces with cooling fins 12.

The cylinder 5 provides a combustion chamber 13 for the rocket and the head 6 is

provided with a fuel intake port 14 controlled by an inwardly opening spring pressed valve 15.

The head 6 is provided with a casing 16 forming a chamber into which the free end of the stem of valve 15 extends, to be engaged by a rocker arm 17 rockably mounted in the casing 16.

Also mounted on the head 6 adjacent the casing 16 is an electric motor 18, and the armature shaft of the motor is provided with a cam 19. A link 20 connects the cam with the rocker arm 17, so that as the shaft of the motor rotates, the arm 17 will be rocked for effecting an alternate opening and closing of the valve 15. Also mounted in the head 6 is a pair of oppositely disposed spark plugs 21 that are arranged in circuit with a commutator 22 suitably supported on the head 6 adjacent the casing 16. The shaft of the motor 18 has a suitable driving connection 23 with the shaft of the commutator as clearly shown in Figure 5.

For the combustion chamber 13 there is provided at the front end of the cylinder 5 an outlet port 24 controlled by a suitable valve 25 opening outwardly of the chamber. The stem 25a of the valve 25 is slidable through an axially located guide housing 26 supported inwardly of the chamber 13 from the outlet port 24 through the medium of bracket arms 27 which at their free ends are suitably bolted to the end plate 28 provided at the front end of the cylinder 5 and which is apertured to provide the outlet or exhaust port 24. The valve 25 is normally retained in a closed position through the medium of a suitable spring device 29 arranged within the housing 26. Either or all of the bracket arms 25a may be provided with an oil conduit 30 connecting the interior of the housing 26 with an oil intake port 21 provided in the cylinder 5. From any suitable source of supply, oil is conducted through the inlet 31, passage 30 and into the housing 26 to pass about the stem of the valve 25 for retaining the valve in a cooled condition.

In actual practice, it will be seen that fuel, preferably a mixture of carbide gas and air in suitable proportions, is fed to the com-

bustion chamber 13 through the intake 14 and controlled by the valve 15. With the valves 15 and 25 closed, the fuel in the chamber 13 will be ignited by the spark plugs 21, thus causing the valve 25 to be moved to an open position whereby the burnt gases will pass through the exhaust port 24 and through the conical discharge mouth 9, the gases passing through the mouth 9, striking the air, the impact incident thereto forcing the aeroplane or vehicle forwardly, the rocket providing roughly a power plant for the aeroplane or other vehicle with which it may be associated.

It is to be noted, that the diameter of the discharge mouth 9 at the smallest end thereof is substantially the same as the diameter of the exhaust port 24 at the largest end of said port thus preventing any loss of power which would possibly occur if the diameters of the parts referred to vary with respect to one another.

It is also to be understood, that the motor 18 may be utilized for operating a pump (not shown) for feeding fuel to the combustion chamber 13.

Even though we have herein shown and described the preferred embodiment of the invention, it is to be understood that the same is susceptible of changes, modifications and improvements coming within the scope of the appended claim.

Having thus described our invention, what we claim as new is:

A power rocket comprising in combination a cylinder provided with a combustion chamber and an inlet and outlet for said chamber, an inwardly opening valve controlling said inlet, a rocker arm engaging the stem of said valve, a cam shaft, means for transmitting movement of said cam shaft to said rocker arm, and means for driving said cam shaft, a spring pressed valve controlling said exhaust and opening outwardly of the combustion chamber, and spark plugs supported in operative relation to said combustion chamber for igniting the fuel, and a commutator having electrical connections with said spark plugs and having operative association with said cam shaft.

In testimony whereof we affix our signatures.

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