Sept. 24, 1940. A. A. RUEGG 2,215,728

ROTARY VALVE

Filed March 2, 1939

FIG. 1.

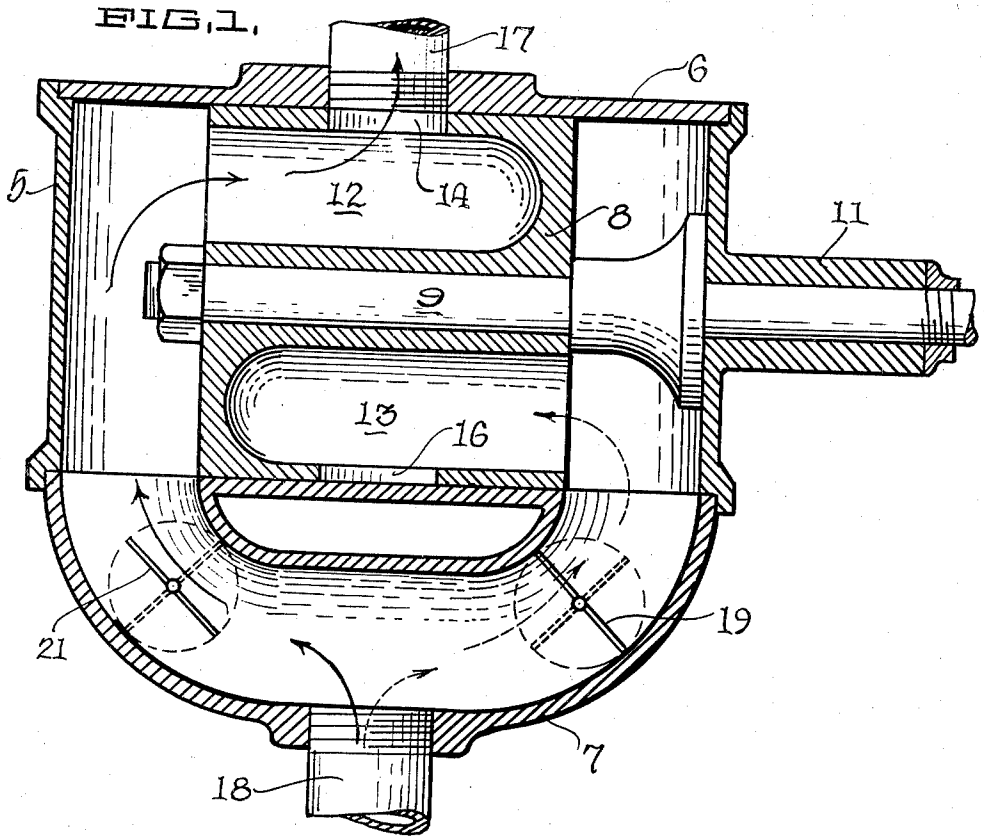
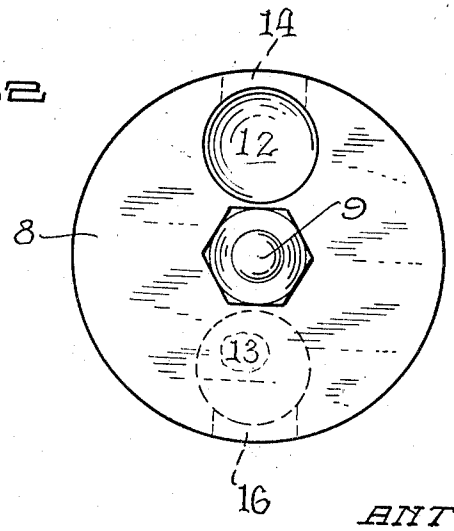


FIG. 2



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Patented Sept. 24, 1940 2,215,728

UNITED STATES PATENT OFFICE

2,215,728

ROTARY VALVE

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Application March 2, 1939, Serial No. 259,454

4 Claims. (Cl. 137—146)

This invention relates to improvements in a valve mechanism and has particular reference to a rotary valve for an internal combustion engine whereby the engine may be caused to fire as either a two-cycle, four-cycle, or even a six-cycle engine.

A further object is to produce a device of this character which may be employed with any standard form of engine without altering its construction or its normal operation.

A further object is to produce a device of this character which is economical to manufacture and simple to install.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawing forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a vertical cross sectional view of my valve; and

Fig. 2 is an end elevation of the rotary portion of the valve.

The usual internal combustion engine is provided with poppet valves which are opened and closed by a cam shaft, which is actuated in proportion to the speed of the motor.

It is my intention to employ a valve which will permit an engine to run at any given speed and to convert the same at will into either a four-cycle or two-cycle engine.

In the accompanying drawing wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 5 designates a casing having a cover plate 6 and a bottom cup-shaped member 7. Within this casing is arranged a bore in which is mounted my valve, which comprises a cylindrical member 8, secured in any desired manner to a shaft 9, which shaft extends through the casing 5 and has bearing in an extension 11. This shaft 9 may be driven at half speed from the crank shaft of the engine to which the device is attached.

The cylindrical member 8 has chambers 12 and 13 extending thereinto but from opposite ends, and each of these chambers is provided with a port, as shown at 14 and 16 respectively. An outlet pipe 17 connects to the intake of the engine, and an inlet pipe 18 connects to the cup-shaped member 7. Butterfly valves are shown at 19 and 21 and are so arranged that the intake may be delivered to either or both ends of the cylindrical member 8.

The result of this construction is that when my device is attached to an engine, gas entering through the pipe 18 passes the valve 19 and can only enter the chamber 13. However, when the valve is rotated through 180°, the port 16 will be opened to the outlet 17, and therefore, a charge either from the crank case or from the blower can pass through the valve mechanism. When the valve 19 only is opened, the engine will, therefore, only receive a charge at every other revolution and will function as a four-cycle engine. However, when both valves 19 and 21 are opened, the engine will function as a two-cycle engine, firing at each revolution.

It will thus be seen that with this arrangement, I have accomplished all the objects above set forth.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. In a device of the character described, comprising a casing having closed ends, a cover formed on said casing, a cup-shaped member forming the bottom of the casing, a continuously driven rotary body mounted in said casing and leaving a space at each end thereof, said cup-shaped member having communications with the said spaces, chambers formed in said rotary body, each chamber communicating respectively with one of said spaces, each of said chambers having a port, and outlet means carried by said cover and in alinement with said ports in said chambers.

2. In a device of the character described, comprising a casing having closed ends, a cover formed on said casing, a cup-shaped member forming the bottom of the casing, a continuously driven rotary body mounted in said casing and leaving a space at each end thereof, said cup-shaped member having communications with said spaces, chambers formed in said rotary body, each chamber communicating respectively with one of said spaces, each of said chambers having a port, outlet means carried by the said cover and in alinement with said ports in said chambers, and valves mounted in said cup-shaped member adapted to prevent the flow of gas to either space at the end of the rotary body.

3. In a device of the character described, comprising a cylindrical casing closed at its ends, a continuously driven cylindrical body mounted

in said casing and forming therewith a space at each end thereof, a pair of chambers formed in said cylindrical body, each chamber communicating respectively with one of said spaces, a discharge port carried by the casing and said chambers each having a discharge port extending through the cylindrical body and adapted to register with the discharge port of the casing.

4. In a device of the character described, comprising a cylindrical casing closed at its ends, a continuously driven cylindrical body mounted in said casing and forming with said casing a space at each end of the continuously driven cylindrical body, a pair of chambers formed in said cylindrical body and opening from opposite ends, each chamber communicating respectively with one of said spaces, a cup-shaped member communicating with the spaces beyond the ends of the cylindrical body, a supply pipe connected to the cup-shaped member, a valve in said cup-shaped member on each side of the supply pipe, a discharge port connected to the cylindrical casing, and each of said chambers having a discharge port extending through the wall of the cylindrical body and adapted to register with the discharge port in the casing.

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