G. B. ABER.

ROTARY GAS ENGINE.

APPLICATION FILED DEC. 7, 1917.

1,315,897.

Patented Sept. 9, 1919.

3 SHEETS—SHEET 1.

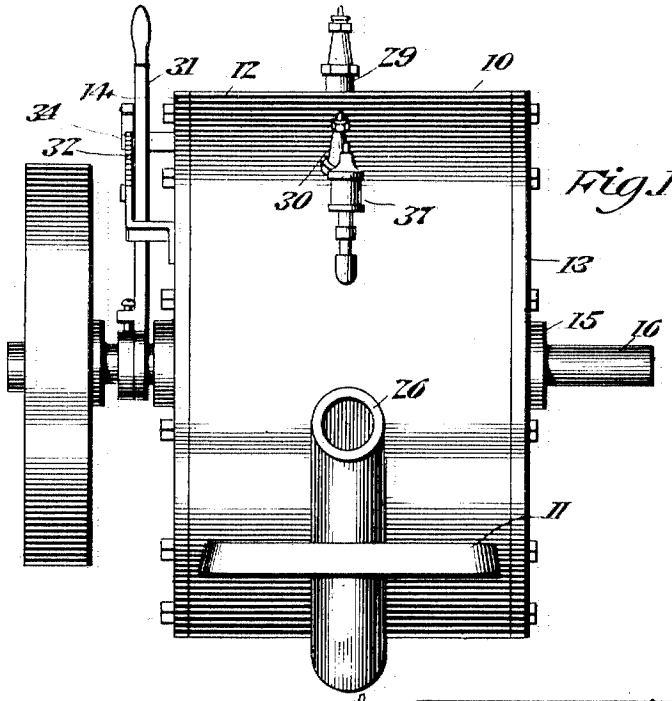
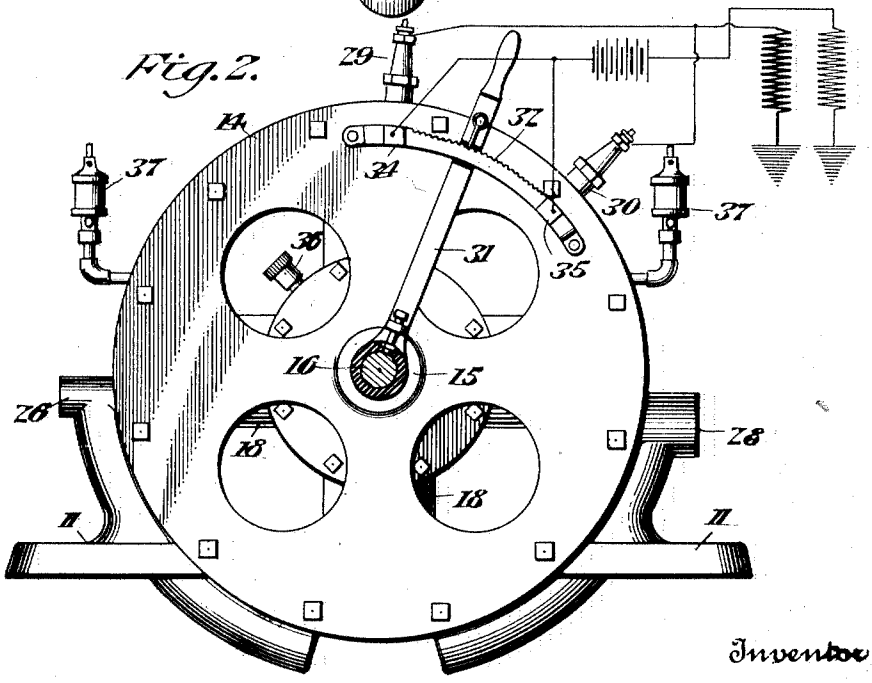


Fig. 1.

Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

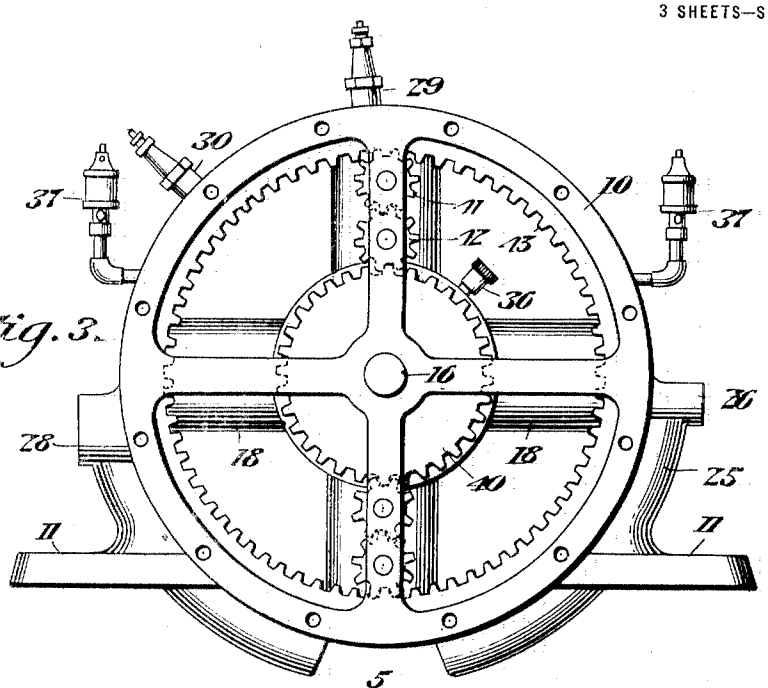
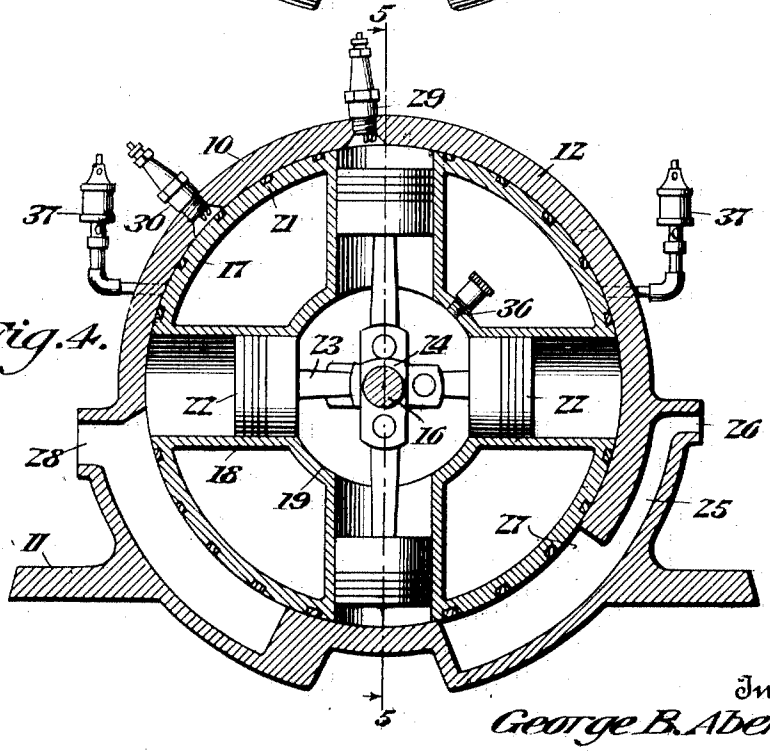


Fig. 4.



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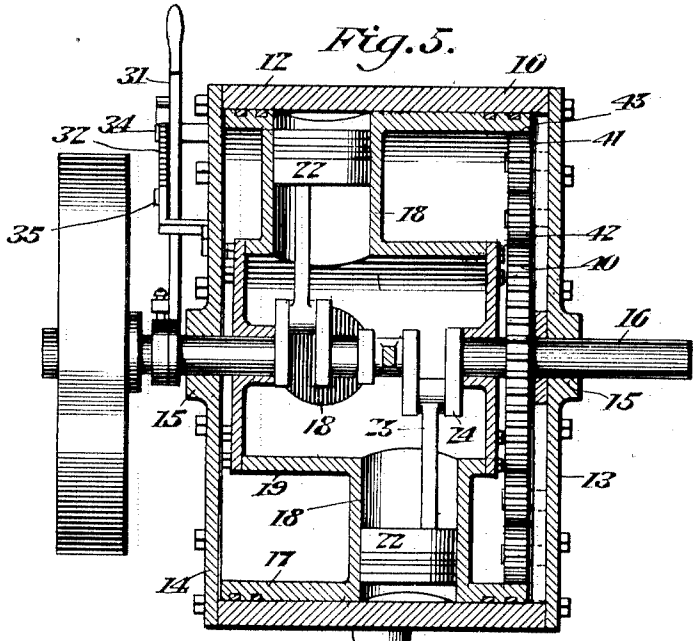
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3 SHEETS—SHEET 3.

Fig. 5.



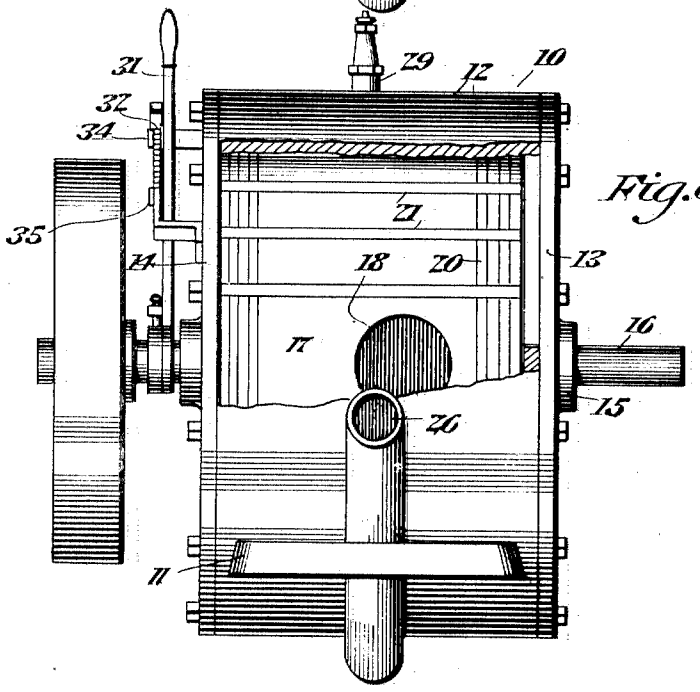


Fig. 6.

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UNITED STATES PATENT OFFICE.

GEORGE B. ABER, OF CRANBERRY LAKE, NEW YORK.

ROTARY GAS-ENGINE.

1,315,897. Specification of Letters Patent. Patented Sept. 9, 1919.

Application filed December 7, 1917. Serial No. 206,011.

To all whom it may concern:

Be it known that I, GEORGE B. ABER, a citizen of the United States, residing at Cranberry Lake, in the county of St. Lawrence and State of New York, have invented new and useful Improvements in Rotary Gas-Engines, of which the following is a specification.

This invention relates to motors and aims to provide a rotary internal combustion motor in which vibration has been reduced, construction simplified, exhaust noises eliminated and all cams and springs dispensed with.

More specifically stated, the invention provides a novel form of stationary casing, which permits of the circulation of air to cool the motor, said casing housing therein a revolving casing in which the cylinders are formed, a frame interposed between the stationary and revolving casings carrying the gearing by means of which the last mentioned casing is operated.

The invention also consists of a novel form of timing device by means of which the ignition spark may be regulated to control the speed of the motor.

The invention further consists of a novel form of packing means employed to increase the compression of the charge within the cylinders.

Further objects and advantages of the invention will appear when the following description is read in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a motor embodying the present invention;

Fig. 2 is an end view thereof;

Fig. 3 is a view looking at the outside end of the motor from that shown in Fig. 2 with the head plate removed;

Fig. 4 is a vertical sectional view of the same;

Fig. 5 is a similar view on the line 5—5 of Fig. 4; and

Fig. 6 is an elevation with the outer casing broken away to show the packing strips.

Referring to the drawings in detail, similar characters of reference denote corresponding parts throughout the several views.

In carrying out the invention, there is provided an outer stationary casing 10, which is cylindrical in form and is provided with outwardly extending base flanges 11, by means of which the motor may be secured to a suitable bed. The casing 10 includes the cylindrical portion 12 and the opposite head plates 13 and 14, these head plates being bolted to the cylindrical portion 12 as shown. Formed integral therewith or secured to each of the head plates 13 and 14 is a bearing 15, within which is mounted the shaft 16.

Mounted to revolve within the outer casing 10 is an inner casing 17, which includes a plurality of diametrically arranged cylinders 18. These cylinders have their outer ends formed by the casing 10, their inner ends communicating with the crank case 19, within which is adapted to be placed a lubricating oil, as is usual with motors of this type. In order to form a tight joint between the inner and outer casings, so as to hold the compression within the cylinders 18, there is provided packing strips 20 arranged around the periphery of the cylinder 17 in the form of rings, transversely arranged strips 21 also being carried by the casing 17, which latter strips intersect the strips 20.

Mounted for movement within each of the cylinders 18 is a piston 22, the rod 23 of which is connected to one of a number of diametrically arranged cranks 24 formed on the shaft 16, this shaft constituting a crank for the motor.

The cylinders 18 are arranged in pairs, each pair being offset from the other, so that they will revolve to pass the cap of the spark plug (hereinafter referred to) at the same relative distance. The connecting rods 23 of the pistons are also offset, permitting of a more compact form of construction than would otherwise be possible.

Formed in the casing 10 is an intake channed 25, fuel being supplied to this channel from any suitable means through the entrance 26, the inner end of the channel 25 terminating in an intake port 27, which is adapted to alternately communicate with each of the cylinders 18 in their travel within the casing 10. Located upon the opposite side of the casing 10 is an outlet port 28, which is also adapted to alternately communicate with each of the cylinders 18.

Located within the top of the casing 10 and in the path of the cylinders 18 is a common ignition element, in the form of a spark plug 29, controlled by a timing device to be hereinafter explained. Also carried by the casing 10 is a second spark plug 30 which, as will be hereinafter explained, forms a part of the ignition system of the

motor and is regulated by the timing device just referred to.

A crank shaft 16 is secured to a gear 40, which is adapted to rotate therewith and carried by the outer stationary casing 10 and disposed automatically upon each side of the gear 40 are pinions 41 and 42. The pinions 42 engage the gear 40 while the pinions 41 engage an internal ring gear 43 secured to the inner casing 17. This causing the inner casing which carries the cylinders 18, to revolve in the same direction as the crank shaft.

In the operation of the motor fuel is drawn into one of the cylinders 18 during its passage over the intake port 27, the piston 22 being then traveling inward, the said piston being at the limit of its inward stroke when the cylinders 18 are in a substantially horizontal position. Further traveling of the cylinder in a clockwise direction will compress the charge, compression beginning as soon as the cylinder passes the horizontal. When the cylinders reach a substantially vertical position, the pistons are at the limit of their outward stroke and the charge is at the highest point of compression. The spark plug 29 is located at this point, so that if desired the charge may be ignited at this stage of compression.

As before stated, the invention provides novel means for timing the spark, so that if desired the charge may be ignited when the cylinders reach the spark plug 30, so that the charge will be ignited after the greatest point of compression has been passed. For the accomplishment of this purpose, the shaft 16 has mounted thereon an adjusting lever 31, which operates within an offset toothed segment 32 secured upon the outside of the face plate 14. This lever carries a timing device or commutator located adjacent the shaft 16, which may be of any preferred form. Secured to the segment 32 are contacts 34 and 35 respectively, the former when the lever is adjusted in contact therewith causing the current to flow through the spark plug 29 to ignite the charge at the highest point of compression, while the contact 35 causes the ignition of the charge after it has reached this point.

Suitable oiling means are provided, oil being placed within the crank case 19 of the port 36, while oil cups 37 serve to lubricate the joint between the casings 10 and 17.

It is believed that from the foregoing description when read in connection with the accompanying drawings, the construction, operation and advantages of the invention will be apparent. The right is reserved to make such changes in the form and proportion thereof as will fall within the scope of the claim hereto appended.

Having described the invention, what is claimed is:

A motor embodying a stationary cylindrical casing, a cylindrical casing mounted to revolve and having a working fit within the stationary casing, a plurality of diametrically disposed offset cylinders having their outer ends connected to and extending inward from the revolving casing, a common intake port, a common exhaust port, pistons mounted for operation within said cylinders, a single concentrically mounted crank shaft connected to all of said pistons, a concentrically arranged cylindrical casing spaced from the revolving casing and connecting the inner ends of the cylinders to provide a crank casing and a bearing for the crank shaft, and gearing connected to said crank shaft and stationary casing for revolving the cylinder.

In testimony whereof I affix my signature.

GEORGE B. ABER.