J. C. JOHNSON.

GASOLENE ENGINE.

APPLICATION FILED JAN. 4, 1909.

940,027.

Patented Nov. 16, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

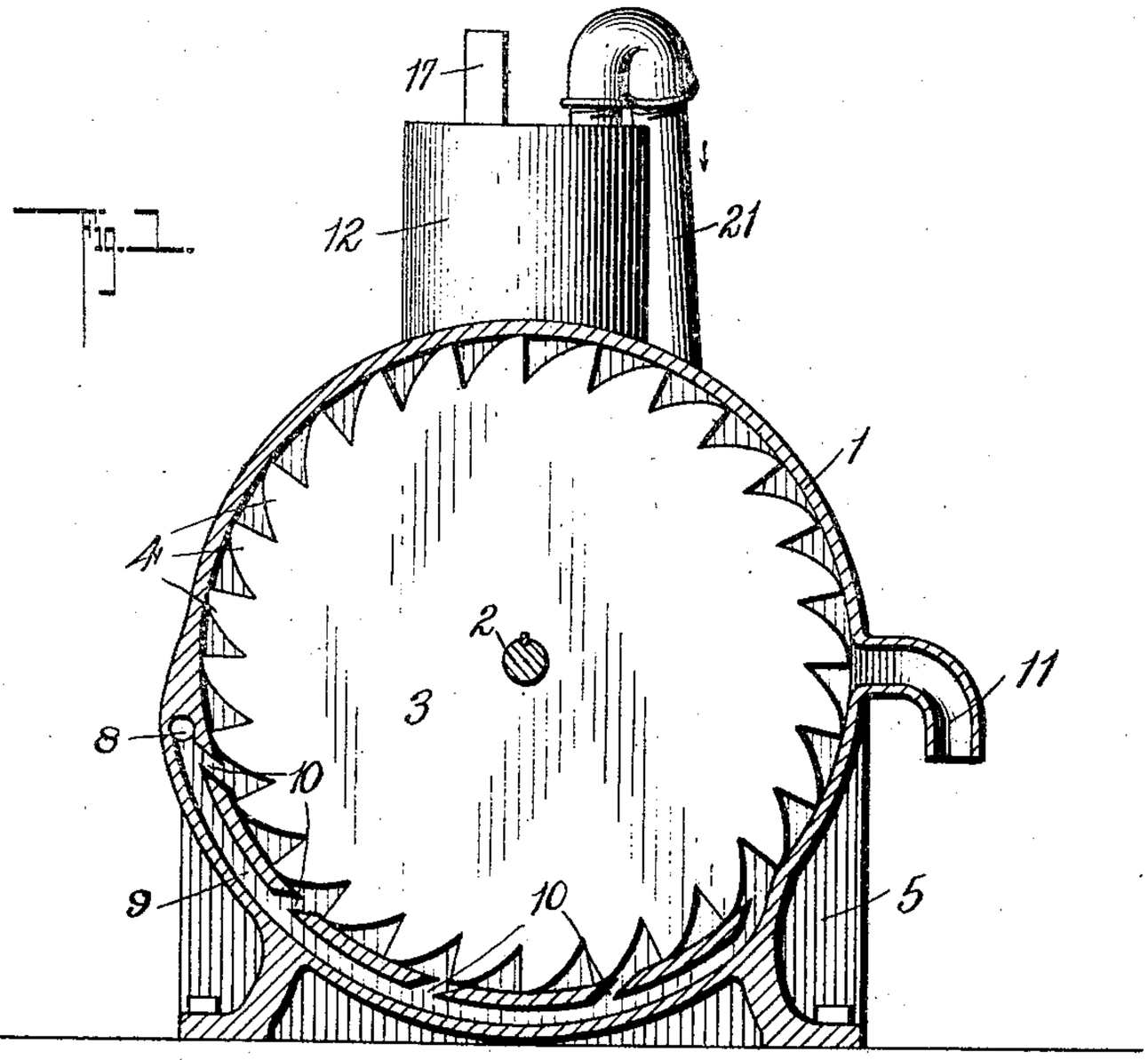

Fig. 2.

Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

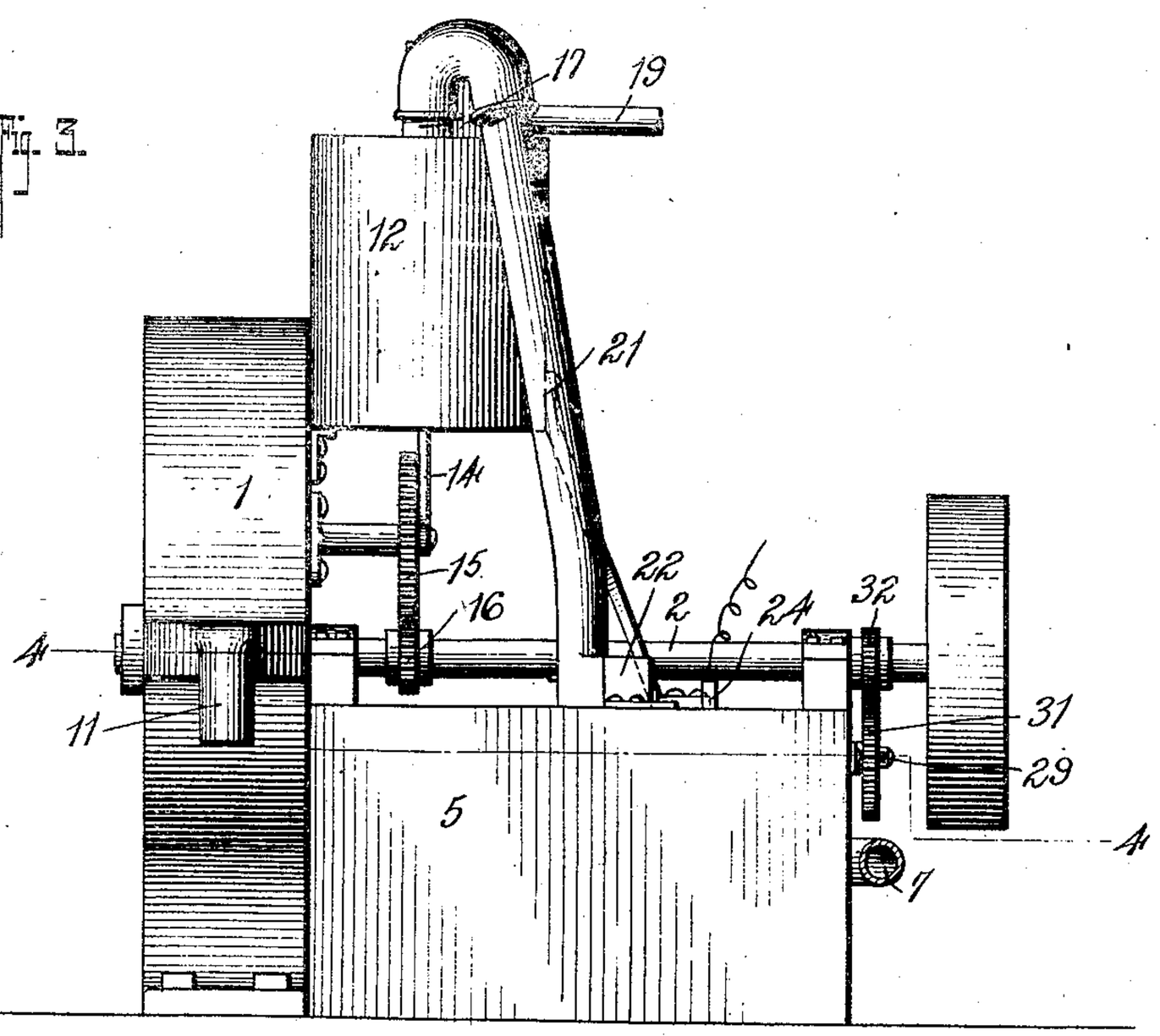
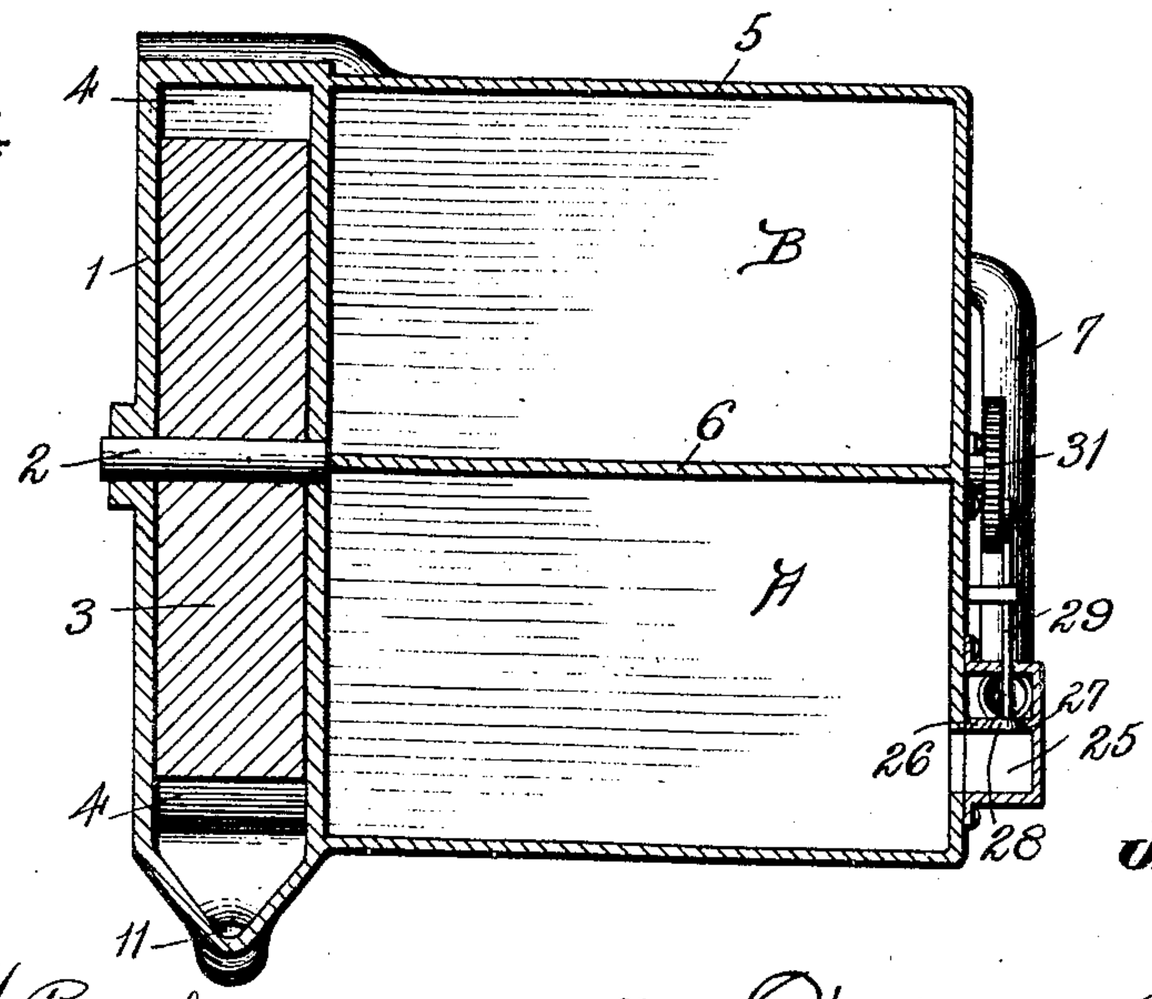


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

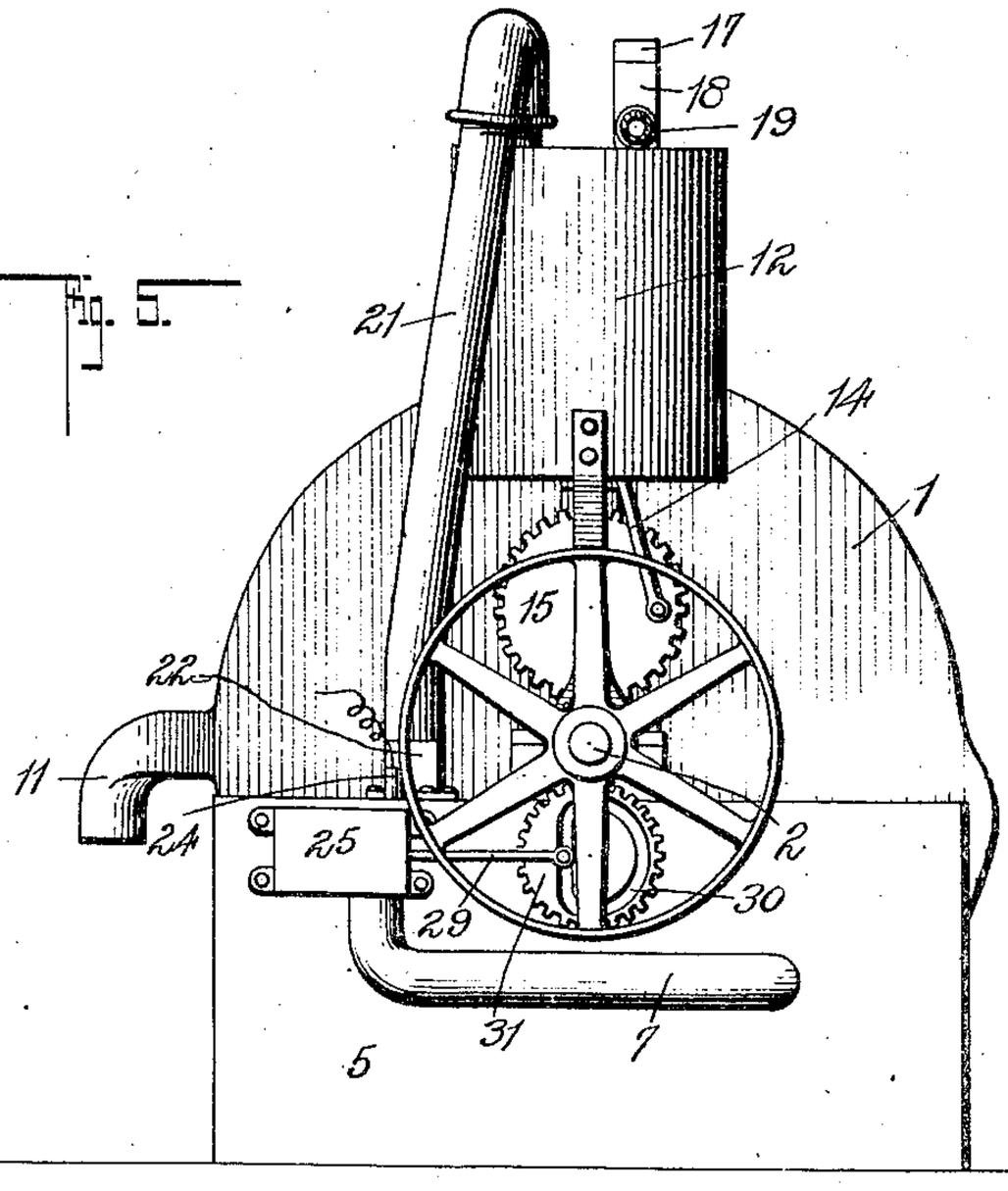


Fig. 6.

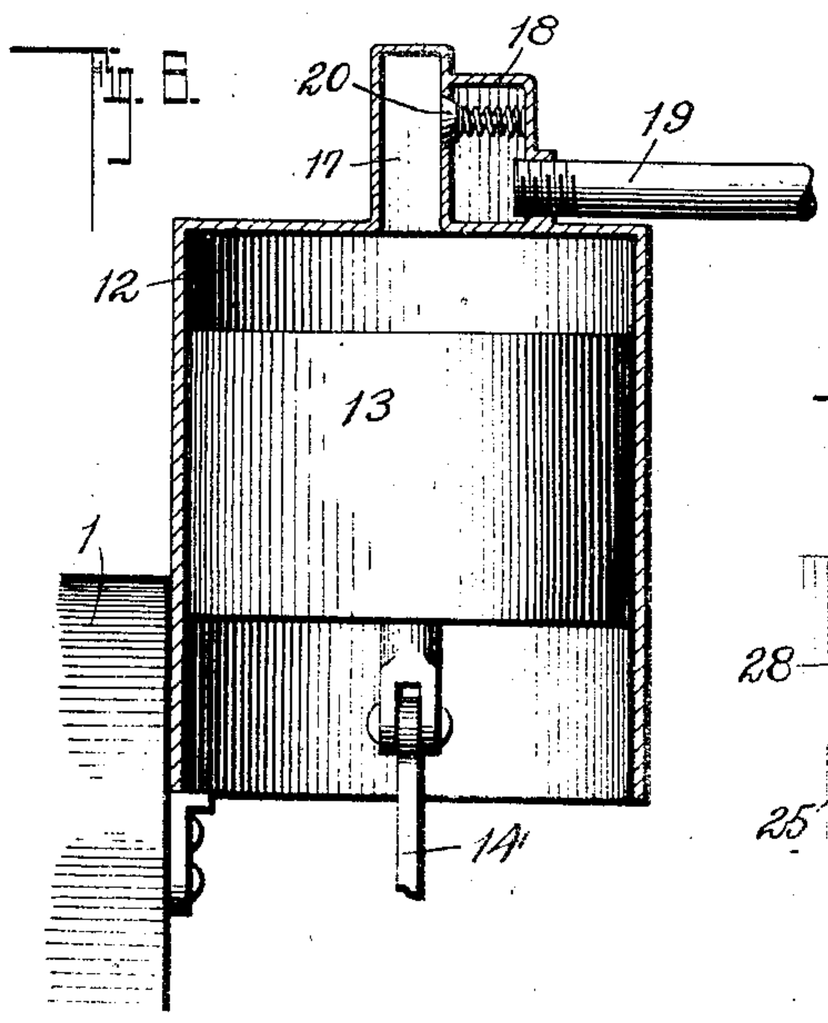


Fig. 7.

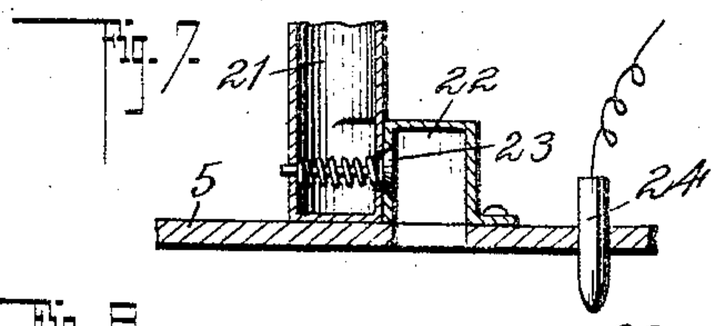
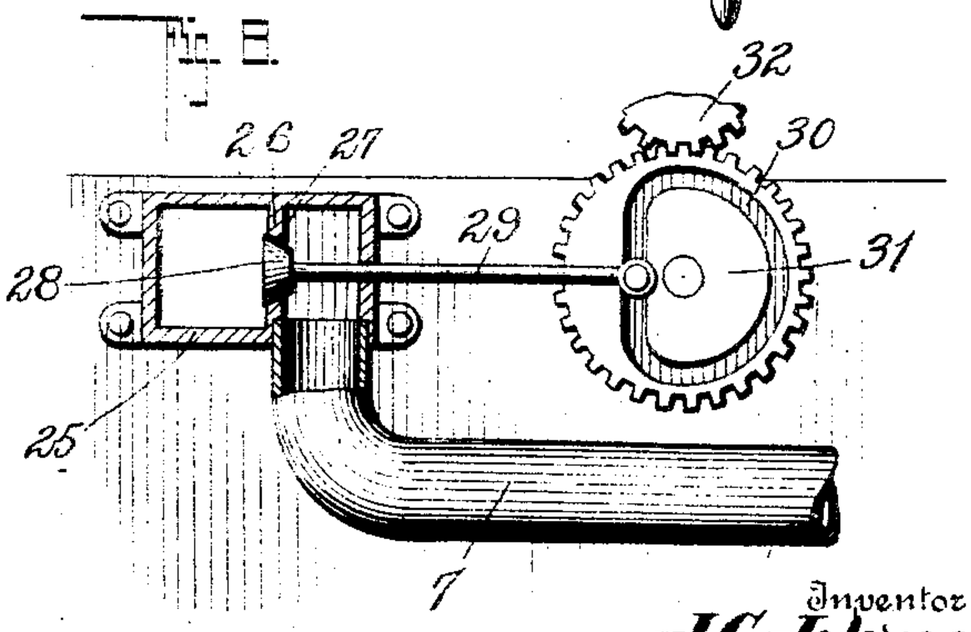


Fig. 8.



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UNITED STATES PATENT OFFICE.

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GASOLENE-ENGINE.

940,027. Specification of Letters Patent. Patented Nov. 16, 1909.

Application filed January 4, 1909. Serial No. 470,617.

To all whom it may concern:

Be it known that I, JOHN C. JOHNSON, a citizen of the United States, residing at Randalia, in the county of Fayette and State of Iowa, have invented a new and useful Improvement in Gasolene-Engines, of which the following is a specification.

This invention relates to a gasolene engine of the rotary type, and one of the main objects of the invention is to provide in an engine of this kind means for admitting pressure, by the expanding of an explosive compound, to several portions of a suitable disk at one time.

The invention consists in the novel features of construction, arrangement and combination of parts hereinafter fully described, pointed out in the claims and shown in the accompanying drawings, in which:—

Figure 1 is a section on the line 1—1 of Fig. 2. Fig. 2 is a plan view, a portion being broken away and shown in section. Fig. 3 is an end elevation. Fig. 4 is a section on the line 4—4 of Fig. 3. Fig. 5 is a rear elevation. Fig. 6 is an enlarged sectional view illustrating a pump and inlet valve. Fig. 7 is a detail sectional view illustrating a valve connection between the pump and the explosive chamber. Fig. 8 is a detail view partly in section and partly in elevation illustrating a valve arrangement between the explosive chamber and a compartment communicating with a rotatable disk or piston.

In constructing the engine, I employ a casing 1 cylindrical in form and through which passes transversely and centrally a shaft 2. This shaft has keyed upon it a disk 3 which rotates in the cylinder 1 and the disk has upon its periphery a plurality of slightly curved teeth 4, the space between said teeth forming pockets into which an explosive mixture is admitted, after being exploded in a compartment having communication with the casing 1. Upon the rear side of the cylindrical casing 1 is a horizontally arranged casing 5 which is divided into two compartments by a partition 6, said partition being parallel to the shaft 2. This divides the casing 5 into two compartments which will be designated as A and B.

The compartment A is the compartment into which the compressed air and gas is forced and in which it is exploded, and the compartment B receives the exploded mixture through a pipe 7 and passes it through a port 8 into a circumferential bore 9 formed in the lower portion of the casing 1 and which communicates through a number of by-passes 10 with the pockets between the teeth 4, exhausting through an exhaust pipe 11.

To compress the mixture, I provide a pump consisting of a cylinder 12 a piston 13, and a piston rod 14 which is pivotally connected to a gear wheel 15 driven by a pinion 16 fixed upon the shaft 2. The cylinder 12 has at its upper end an extension 17 by one side of which is arranged a valve casing 18 and a feed pipe 19 supplying the explosive mixture opens into the valve casing 18 and a spring drawn check valve 20 controls passage of the mixture from the casing 18 into the extension 17 of the pump cylinder 12. A pipe 21 leads from the upper end of the cylinder 12 and opens into the explosive compartment A of the casing 5 through a valve box 22, a spring controlled check valve 23 regulating the admission of the compressed mixture from the pipe 21 to the compartment A, the said valve being oppositely arranged with respect to the valve 20 of the pump.

A suitable igniting plug 24 is carried by the casing 5 and extends into the compartment A. The pipe 7 which leads from the compartment A to the compartment B communicates directly with the latter compartment but has communication with the compartment A through a casing 25 divided into two parts by a partition 26 in which is formed a port 27 controlled by a valve 28 carrying a valve stem 29, said stem being operated by a cam groove 30 formed in a gear wheel 31 which wheel meshes with a pinion 32 fixed upon the shaft 2. Upon one side of the partition 26, the casing 25 opens into the compartment A and upon the other side into the pipe 7.

The operation of the device is as follows: The downward movement of the piston 13 will open the valve 20 and draw in a charge of gas and air through the pipe 19 and upon the up stroke of said piston, the valve 20 will be closed and the charge will be compressed and forced through the pipe 21 through the valve 23, which opens inwardly and into the compartment A. The charge is exploded in this compartment and passes through the port 27, the cam groove 30 having moved the valve 28 into open position, and the products of combustion pass

through the pipe 7 into the compartment B, and thence through the inlet port 8 into the bore or passage 9 and through the by-passes 10 where it acts upon the teeth 4, finally escaping through the exhaust 11.

What I claim is:—

1. In a gasolene engine a vertically arranged cylindrical casing, a shaft passing transversely therethrough, a toothed disk fixed upon said shaft, a horizontally extending casing upon the rear side of the vertical casing, the horizontal casing being arranged beneath the shaft, a partition parallel to said shaft dividing said horizontal casing into two compartments, means for admitting an explosive mixture under pressure to one of said compartments, means for exploding the said mixture in said compartment and a valve controlled pipe leading from said compartment to the other compartment, the last mentioned compartment opening into the said vertical casing, thereby admitting the exploded gases to the said disk, as and in the manner set forth.

2. A gasolene engine consisting of a vertical casing, a shaft passing therethrough, a toothed disk upon said shaft and within the vertical casing, the said casing having a circumferential bore extending throughout its lower portion and communicating at various points with the interior of the casing, and having an exhaust opening upon one side, a horizontally extending casing arranged upon one side of the vertical casing and below the shaft, a pump mounted above said horizontal casing, said pump being driven from the shaft and supplying a compressed explosive vapor to the horizontal casing, the said casing being divided into two separate compartments, one of which receives the explosive mixture from the pump and the other of which communicates with the bore of the vertical casing, and a valve controlled pipe connecting the two compartments.

JOHN CLARENCE JOHNSON.

Witnesses:
D. N. Holmes,
L. L. Walker.