

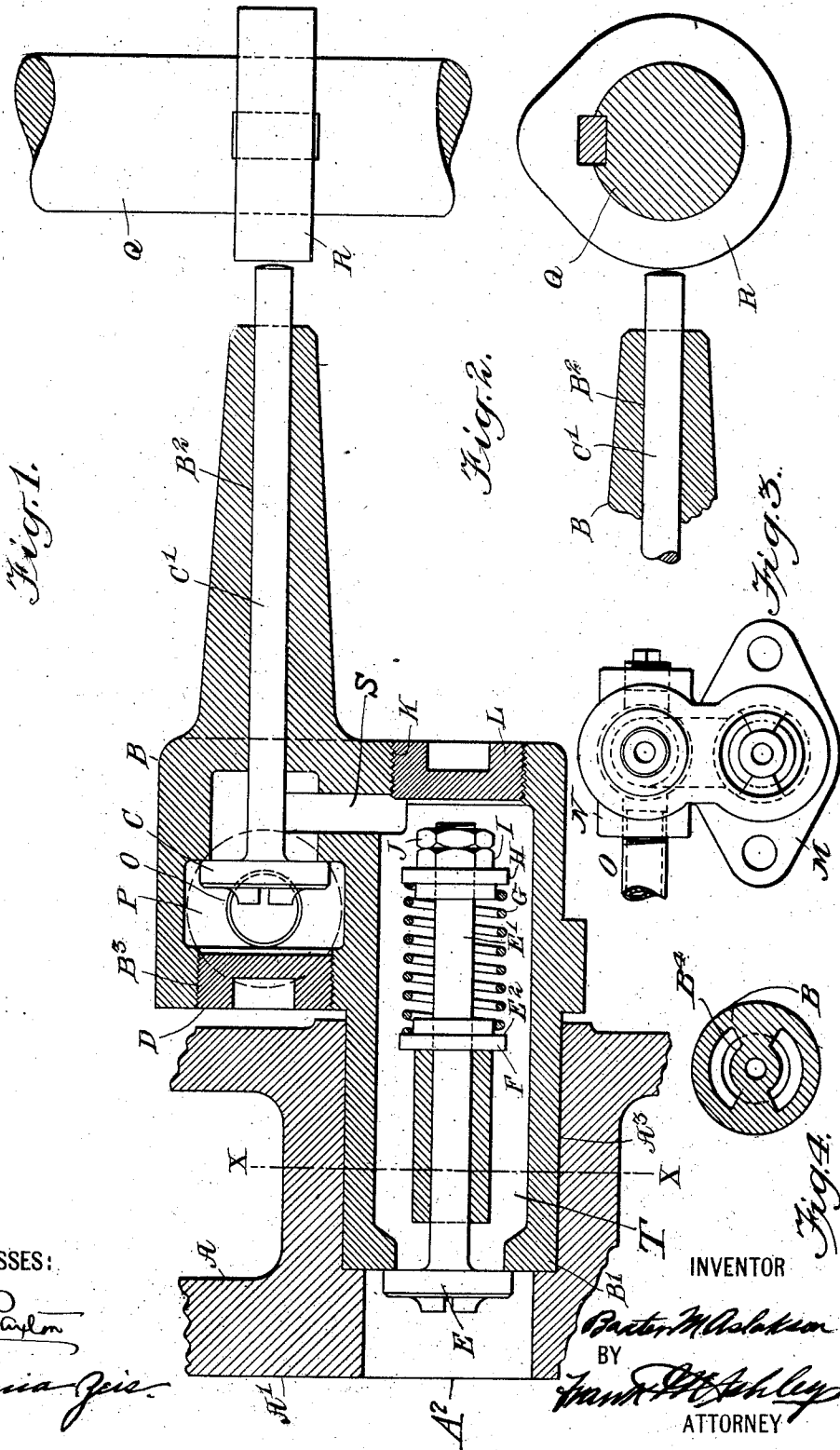
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STARTING VALVES FOR GAS ENGINES.

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1,009,626.

Patented Nov. 21, 1911.



WITNESSES:

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STARTING-VALVE FOR GAS-ENGINES.

1,009,626.

Specification of Letters Patent.

Patented Nov. 21, 1911.

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To all whom it may concern:

Be it known that I, BAXTER M. ASLAKSON, a citizen of the United States, and a resident of Salem, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Starting-Valves for Gas-Engines, of which the following is a specification.

My invention relates to starting means for gas engines and the object of my invention is to provide a novel, simple and highly efficient device by means of which a gas engine may be started by compressed air or other gas.

Referring to the drawings which form a part of this specification. Figure 1, is a longitudinal sectional view through the casing, disclosing the valves therein, and the cam means by which one of said valves is operated. Fig. 2, is a cross sectional view of the driving shaft, and a side view of the cam mounted thereon, in relative relation to the end of the valve stem. Fig. 3, is an end view of the valve casing, viewed from the lower side of Fig. 1, with the valves removed, and Fig. 4, is a cross sectional view of the valve casing on line $x-x$ of Fig. 1, as it would appear when removed from the cylinder casing.

A, indicates a section of a gas engine cylinder and A' the interior surface thereof.

A³, is a recess in the cylinder casing A, preferably cylindrical in form and adapted to receive the end B' of the casing B. Located in casing B, is a mechanically operated valve C, the stem C' of which extends through an extended guide-way B². The valve C, is introduced into the casing B, through an opening B³, which opening is afterward closed by a plug D.

An automatically operated valve E, is seated on the end of the casing B', and the valve stem thereof is supported in a guide which is cast integral with the casing B, shown clearly in Fig. 4, and indicated by B⁴. The valve stem E', extends beyond one end of said support and carries a collar F, through which the valve stem freely slides. This collar is provided with a shoulder E², which serves as an abutment for one end of the spring G, the other end of said spring resting and abutting against a similar collar H, which is also freely slidable on said valve stem, and is adjusted in position by nuts I and J, thus making provision for increasing or decreasing the tension of the

spring G. The spring, collars and nuts are introduced into the casing through an opening K, in the casing B, and closed by a plug L. A flange M, is formed integral with the casing B, (Fig. 3) and provided with holes through which bolts may be projected to bolt the casing B to the casing A.

N, indicates an extension of the casing B, and O a pipe connected thereto through which compressed gas is conducted to chamber P.

Q, is a driving shaft on which is keyed a cam R, which are driven in timed relation with the stroke of the engine. Other suitable means may be used to operate valve C, in place of the cam, if desired.

The operation of the device is as follows: Compressed air is admitted through pipe O to the chamber P, and when the piston of the operating engine is in position to begin its power stroke, the cam R will press against the end of valve stem C' thus opening valve C against the air pressure in chamber P. The air will flow through conduit S and chamber T and open valve E, entering the engine cylinder through port A², thus starting the engine, as will be readily understood. As soon as the engine begins to operate under the explosions of the gas mixtures in the cylinder, the valve E will instantly close due to the increased pressure in the engine cylinder, regardless of the position of valve C. After the engine has been started, the air may be shut off from the chamber P by a valve located in pipe O, which valve is not shown in the drawings. The device embodies a simple construction not easily disarranged and is now in practical use.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is,—

1. In a starting device for explosive engines, a valve casing, a valve C, the stem C' of which extends through an extended guide-way B², and is so arranged as to be operated by the engine, the valve C admitting compressed air from a supply pipe through a conduit S, to a second valve E, which is arranged parallel to the valve C in the valve casing, the valve E admitting the compressed air behind the piston of the engine to start the same; the valve C being automatically thrown open and out of operation when the air is cut off from communication therewith.

2. In a starting device for gas engines, a

valve casing, a valve C arranged therein and adapted to be operated by the engine and to admit compressed air from a supply pipe through a conduit S to a second valve
5 E, the stem E' of which is supported in a guide B⁴ which is cast integral with the valve casing, the stem E' extending beyond one end of the guide B⁴, and having a spring G arranged between collars F and H, and
10 means for increasing or decreasing the ten-

sion of the said spring; the valve E admitting the compressed air behind the piston of the engine to start the same.

Signed at Salem in the county of Columbiana and State of Ohio this sixteenth day 15 of September A. D. 1907.

BAXTER M. ASLAKSON.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."