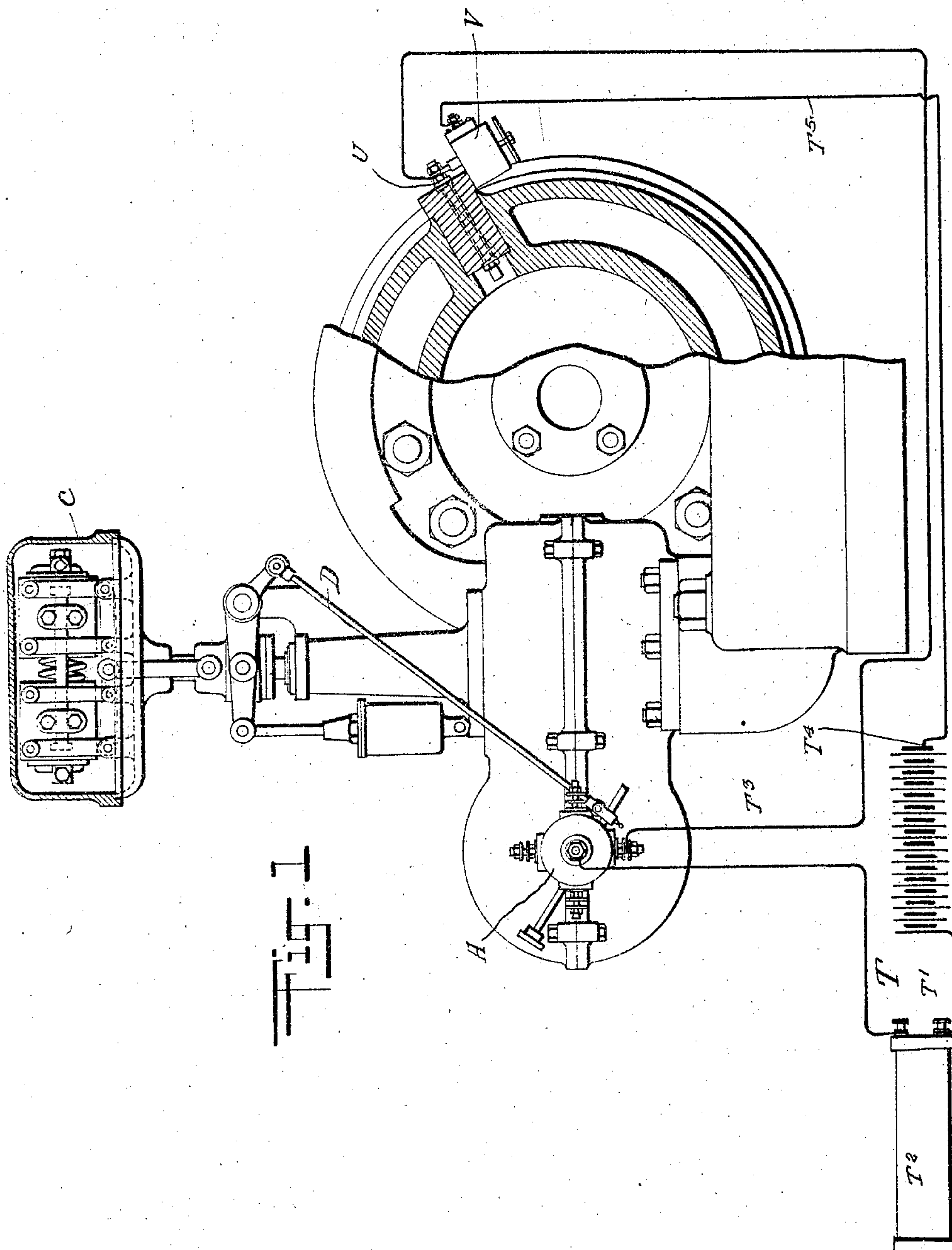


APPLICATION FILED OCT. 14, 1907.

968,635.

Patented Aug. 30, 1910.

3 SHEETS—SHEET 1.



WITNESSES:

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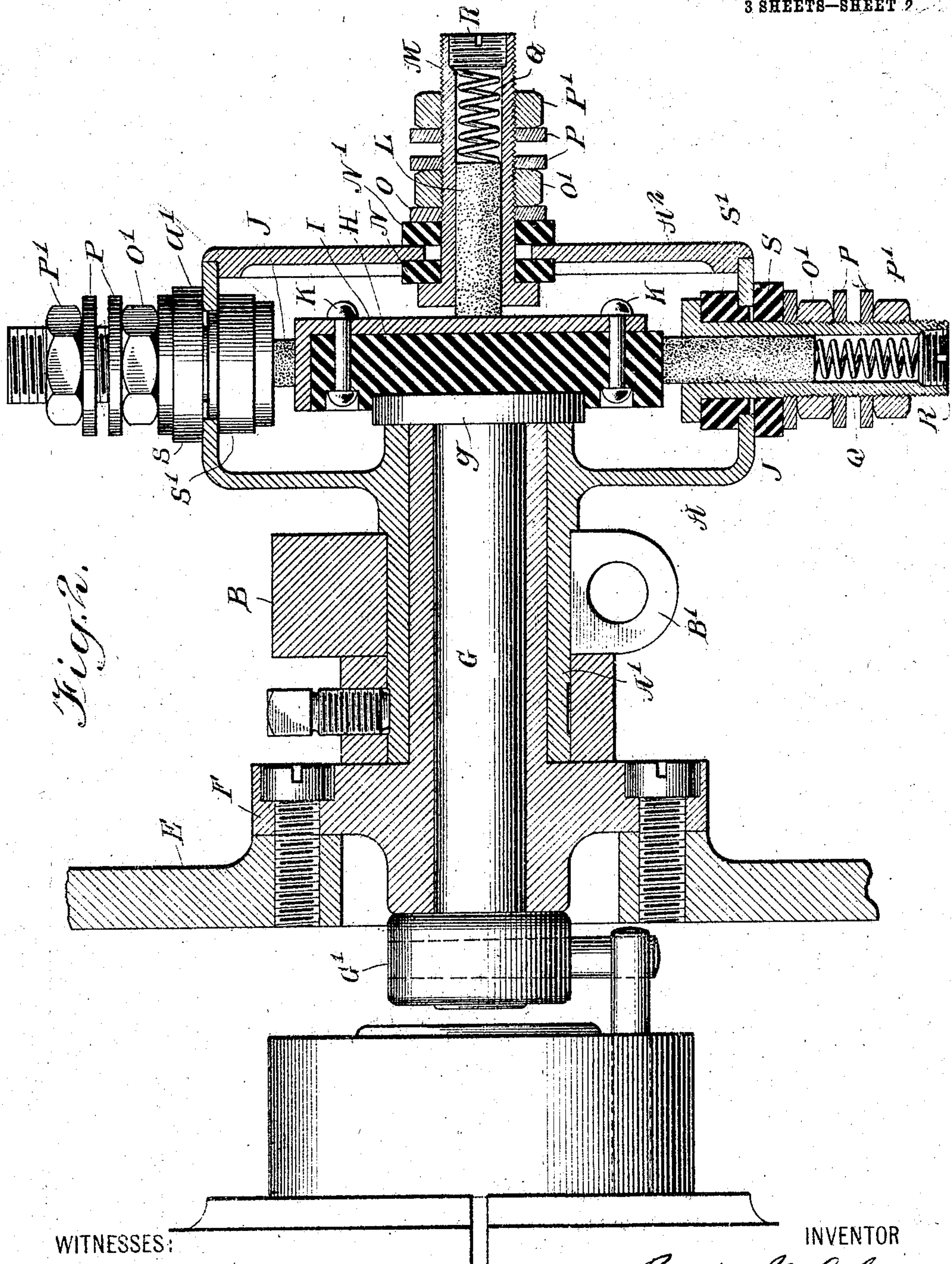
ATTORNEY

B. M. ASLAKSON.
 TIMER FOR GAS ENGINES.
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3 SHEETS—SHEET 2



WITNESSES:

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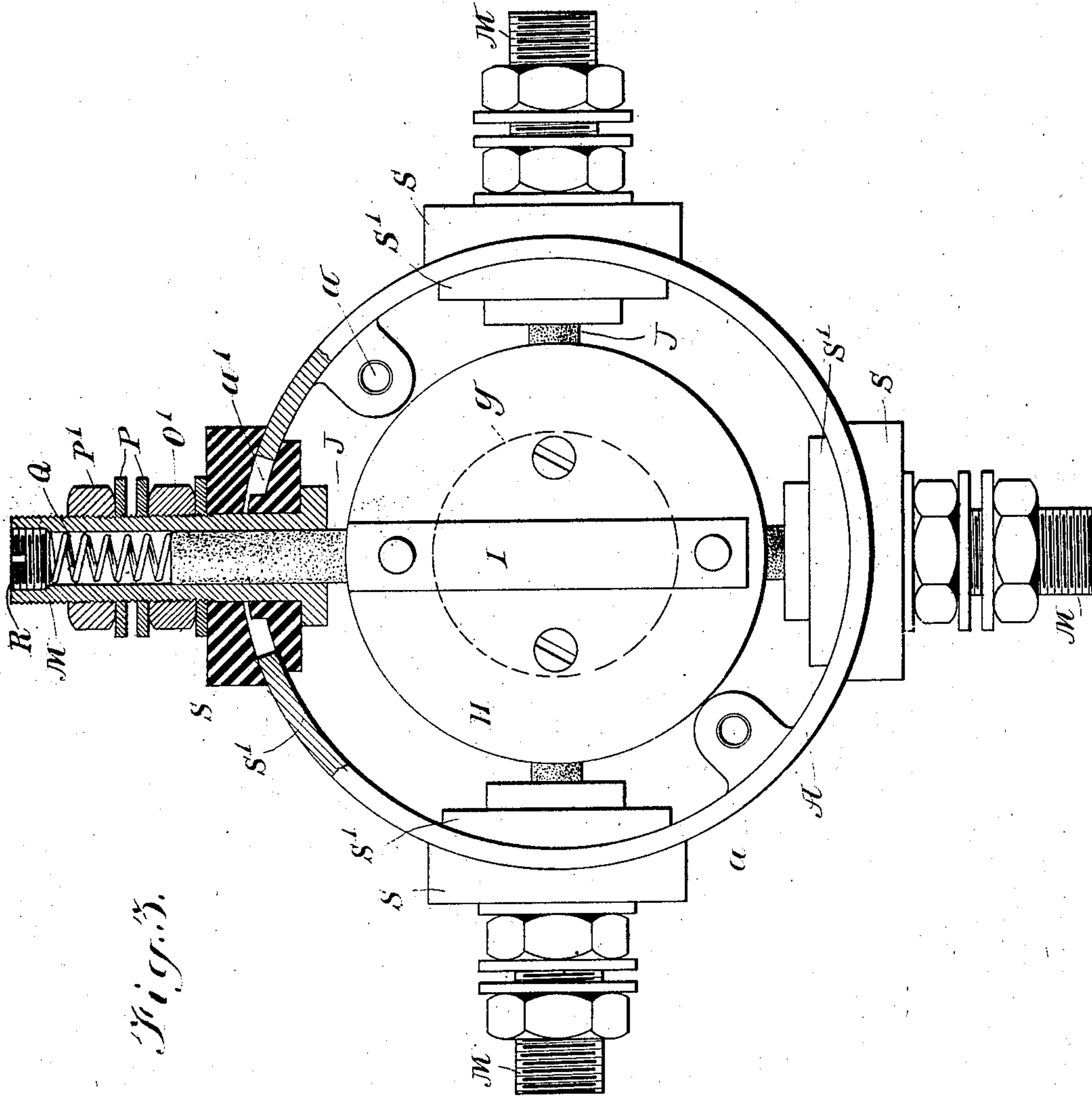
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3 SHEETS--SHEET 3.



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UNITED STATES PATENT OFFICE.

BAXTER M. ASLAKSON, OF SALEM, OHIO.

TIMER FOR GAS-ENGINES.

968,635.

Specification of Letters Patent.

Patented Aug. 30, 1910.

Application filed October 14, 1907. Serial No. 397,410.

To all whom it may concern:

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

My invention relates to the electrical distribution of current by means of a "timer", and the object of my invention is to provide an improved device of this character which may be governed automatically to advance or retard the sparking in the cylinder of a gas-engine, and also to provide means whereby the several contacts may be independently adjusted.

My invention further comprehends the details of construction hereinafter set forth and claimed.

Referring to the drawings which form part of this specification, Figure 1, discloses a timer located on an engine adjacent to the cylinder and controlled by a governor driven by the engine, and also shows the spark coil and wiring plan. Fig. 2, is a vertical sectional view through the timer and supporting means. Fig. 3, is a side view with the cover removed, and one of the terminals shown in section.

A, indicates the casing of the timer, which in this case is provided with a hollow shank A', on which is mounted a collar B, movable relative to said shank, and being divided at B' to form a clamp to hold it tight in any desired adjustment on said shank, so that the latter and casing may be moved by the governor C, by means of rod D.

E, indicates a section of the engine frame, to which is bolted a casting F, the exterior surface of which is cylindrical in form to serve as a bearing for shank A'. Extending longitudinally through the center of casting F, is a shaft G, having at one end means G', through the instrumentality of which shaft G, may be rotated on its axis. Mounted on the opposite end of shaft G, is a disk g, on which is mounted a disk of insulating material H, such as hard rubber. Fastened to disk H, and inlaid therein so that its outer surface will be flush with the surface of the said disk, is a metal strip I, which extends across the center of said disk, and one end of which is bent at a right angle to form a contact for the carbon brushes J. The strip I is secured to disk H by rivets K—K.

L, indicates a cylindrical carbon brush which is held in a metal brush holder M, which is identical in structure with the holders for the brushes J, and interchangeable therewith. The brush holder holding brush L, is insulated from the casing A by non-conducting washers N and N', which are clamped to the casing by a nut O and lock nut O'.

P—P are metal washers which are secured on the brush holder M, and serve as binding posts, and P' indicate lock nuts therefor.

The springs Q abut the ends of the brushes at one end and screw plugs R at their opposite ends to effect proper contact between the brushes and the rotating switch I. The casing plate A² is removable and is secured to the main portion of the casing by screws which enter the holes a—a respectively, in ears radially within the casing at the front edge thereof. The brush holders which hold the brushes J and are located on the rounded periphery of the casing A, are provided with insulating washers S and S' respectively which conform to the curvature of the casing and extend across an opening therein indicated by a'. This opening permits the brush holders to be independently adjusted on the casing relative to each other to effect the relative advancement or retardation of the sparking in the cylinders of the engine. The casing A is normally filled with grease or a heavy oil to lubricate the switch and parts.

In operating with a low tension spark, the positive side of the circuit will be from battery T', coil —T²— and along wire T to the binding post of the brush L of the timer, and continued by wire T³, from the binding post of one of the brushes J, to the device V which operates to create a spark within the cylinder. The current is grounded in the engine, by wire T⁴ T⁵.

The letter —U— indicates the spark plug, which is connected with the device —V—.

It will be readily appreciated from the foregoing that the shaft G, rotated through its connection with the revolving part of the engine correspondingly rotates the disk H, which causes the circuit to be periodically established through the medium of the strip I and brushes J and L coacting therewith, the establishment of the circuit through the switch and brushes effecting the spark formation within the cylinder, as well understood. Whenever there is an increase in the

speed of the governor above the normal, the governor C, will operate to raise the rod D, and effect such partial turning of the casing A, relative to the disk H, as will result in a retardation of the spark formation. Similarly, the lowering of said rod due to a decreased speed will be to advance the time of sparking, the general effect being to maintain a high economy in the use of fuel due to the following: The reason for the governor control of the ignition as used on stationary engines running at a constant speed is as follows: With a maximum load, I use a maximum strength of mixture and a maximum volume at the same time, also maximum compression. When these three things occur—to-wit: maximum volume, strength of mixture and compression, the flame in the combustion chamber propagates fastest, hence the spark should be delayed or come rather late. On the other hand assuming that the load has dropped entirely off the engine so that it runs merely on the friction load, the mixture has become automatically as weak as possible consistent with its capability of being ignited. The volume admitted has been decreased due to the throttling by the governor, with the also consequent diminution of the compression. With a low compression the flame propagates slower and it is therefore necessary to give the gases more time to burn, hence requiring an earlier ignition which the governor automatically takes care of.

Obviously, by loosening the collar B, on the arbor or sleeve A', said collar will rotate on said arbor under the varying action of the governor without occasioning any variation in the timing of the spark formation.

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

1. In a device of the character described, the combination with an oscillatively supported circular casing, a switch within said casing, designed for rotation by an engine and for constant connection at one side of a circuit; a brush peripherally carried by said casing and circumferentially adjustable relative to the same, said brush being for intermittent contact with the switch, an engine governor, and means for connecting the casing with the engine governor, whereby the latter can turn the casing to vary the timing of its brush contact with the switch.

2. In a device of the character described, the combination with an oscillatively supported circular casing, a switch within said casing, designed for rotation by an engine and for constant connection at one side of a

circuit, brushes peripherally carried by said casing and circumferentially adjustable relative to the same and to each other, said brushes being for intermittent contact with the switch, an engine governor, and means for connecting the casing with the engine governor, whereby the latter can turn the casing to vary the timing of the contact of the brushes with the switch.

3. In a device of the character described, the combination with an oscillatively supported circular casing, a switch within said casing designed for rotation by an engine and for constant connection at one side of a circuit, an insulated brush holder peripherally carried by said casing and circumferentially adjustable relative to the same, a brush yieldingly supported within said brush holder and adapted for intermittent contact with the switch, an engine governor, and means for connecting the casing with the engine governor, whereby the latter can turn the casing to vary the timing of its brush contact with the switch.

4. A timer for gas engines comprising a disk formed from insulating material, and rotatably mounted on the frame of an engine and having a shaft provided at one end with an extension; a rotary member mounted on the said engine and rotated by the same, having suitable means for engaging the said extension in loose contact therewith; contacting brushes, a metallic contact strip mounted on said disk to form a flush surface in the path of said contact brushes and extending to the center of said disk; a casing rotatably mounted to inclose said disk and to move concentrically with said disk; an electric contact mounted in said casing to rest on the metallic strip carried by said disk and in the center of said disk; electric contacts mounted in the periphery of said casing to bear on the said disk at a point removed from the center and in the path of the said strip on said disk, said contacts being independently movable around the periphery of said casing; a collar mounted on said casing, and adapted to be shifted thereon circumferentially and having means for being connected with the governor of the engine to be moved thereby, and a governor adapted to operate said timer.

Signed at Salem in the county of Columbiana and State of Ohio, this eighth day of October A. D. 1907.

BAXTER M. ASLAKSON.

Witnesses:

FRANK M. ASHLEY,
W. G. HARD.