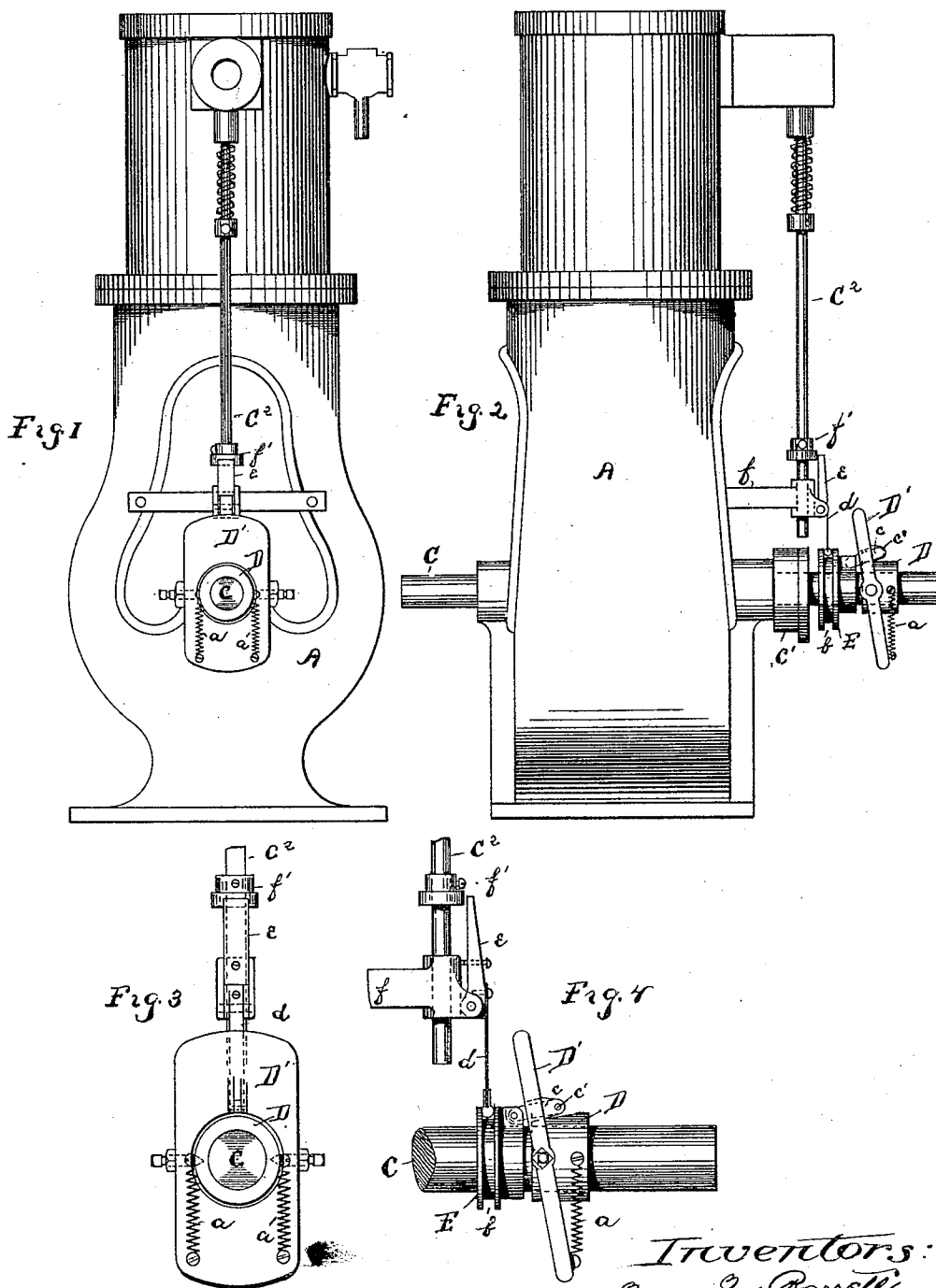


(No Model.)

M. M. BARRETT & J. F. DALY.  
VALVE REGULATING GOVERNOR FOR GAS ENGINES.

No. 463,436.

Patented Nov. 17, 1891.



Witnesses:

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# UNITED STATES PATENT OFFICE.

MORA M. BARRETT AND JOHN F. DALY, OF SAN FRANCISCO, CALIFORNIA,  
ASSIGNORS TO THE PACIFIC GAS ENGINE COMPANY, OF SAME PLACE.

## VALVE-REGULATING GOVERNOR FOR GAS-ENGINES.

SPECIFICATION forming part of Letters Patent No. 463,436, dated November 17, 1891.

Application filed May 28, 1891. Serial No. 394,415. (No model.)

*To all whom it may concern:*

Be it known that we, MORA M. BARRETT and JOHN F. DALY, citizens of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Valve-Regulating Governors for Gas-Engines; and we do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

Our invention relates to certain new and useful improvements in speed-regulating attachment for gas-engines, which consists in the arrangement of parts and details of construction, as will be hereinafter more fully set forth in the drawings, described, and pointed out in the specification.

Our invention consists in providing a speed or gas controlling governor whereby unnecessary loss or expenditure of power to overcome the compression of air contained within the engine-cylinder is obviated and inflow of gas through the inlet-valve may be readily controlled, so as to provide for the least possible consumption of gas in the running of the engine.

The present invention relates more particularly to certain improvements in the governor, fully set forth and described in the application filed on the 16th day of April, 1891, Serial No. 389,255; and it consists in providing a governor which shall be more sensitive to the action of the engine, less expensive, and more effectual in its operation than the governor therein set forth.

Referring to the drawings forming a part of this specification, wherein similar letters of reference denote corresponding parts throughout the several views, Figure 1 is a front elevation of a gas-engine, showing controlling-governor applied thereto; Fig. 2, a side view thereof; Fig. 3, a front detail of the governor, and Fig. 4 a detail side elevation of Fig. 3.

The letter A indicates the frame of the gas-engine, and C the operating-shaft, working in suitable bearings, which operates the engine-piston. (Not shown.) Secured to said shaft is the operating-cam C', which is adapted to

open the exhaust-valve through the medium of valve-stem C<sup>2</sup>, similar to that set forth and fully described in application Serial No. 389,255, and consequently need not herein be specifically described. Upon the outer end of shaft is rigidly fastened collar D, to which is pivotally secured the plate-governor D', which is held at an incline by means of springs a, connected to lower end thereof and the sleeve. Movably located upon said shaft between cam C' and collar D is the sleeve E, which is provided with circular groove b. Connection is formed between the sliding sleeve and plate-governor by means of link or arm c, one end of which is secured to the sleeve, while the other projects through said governor. Within the circular groove b works the lower end of spring-plate d, the upper end of which is connected to the pivoted arm or stem e, secured to valve-stem guide f. The upper end of said pivotally-working stem is adapted to move beneath collar f' as the valve-stem is uplifted, and thus hold the exhaust open until the engine has freed itself of spent gas. As the engine speed increases, and plate-governor is thrown outward by centrifugal force, and contacting with enlarged end c' of arm c moves sleeve E outward, which, carrying spring-plate working in circular groove therewith, causes the same to bear or press inward upon stem e, thereby forcing its upper end below collar f', so as to uphold the valve-stem. As the engine speed decreases, resiliency of springs a causes the plate-governor to assume its incline position, and pressure of spring-plate d moves or forces sleeve E inward, thus releasing the pivoted stem from beneath collar of valve-stem and permitting the exhaust-valve to seat itself. It will thus be observed that as the plate-governor moves from an incline to a vertical position by increased speed of the engine the exhaust-valve is held open, while upon reverting to an incline position by decrease in the engine's speed exhaust-valve is resealed.

Our governor may be either a wing, disk, or other governor so regulated as to be at an angle when at rest and by centrifugal force to move outward, and by its inward or outward movement close or to maintain the exhaust-valve open. By any suitable mechanism connection may be made between inlet or

gas valves and plate-governor, so that said valve may be held open or closed by the movement of the governor for the purpose of controlling the flow of gas into the combustion-chamber.

Having thus described our invention, what we claim as new, and desire to secure protection in by Letters Patent of the United States, is—

1. In a gas-engine, the combination of a valve-stem having a collar thereon, a pivoted arm or stem to engage and disengage said collar, a spring-plate secured to the lower end of the pivoted arm, an operating-shaft, a sleeve loosely mounted on said shaft and provided with a peripheral groove to receive the lower end of the spring-plate, a plate-governor pivoted to the operating-shaft, a link or arm connecting the upper portion of the plate with the movable sleeve, and springs connecting the lower end of said plate with the shaft and normally maintaining the same at an incline, substantially as set forth.

2. In a gas-engine, the combination of valve-

operating mechanism, an operating-shaft, a sleeve loosely mounted on said shaft and provided with a peripheral groove within which valve-operating mechanism works, a collar rigidly secured to the outer end of the operating-shaft, a plate-governor provided with an aperture through which the collar passes, the plate being pivoted to the collar at diametrically-opposite points, a link or arm having one end connected to the movable sleeve and its opposite end projecting through the plate-governor with its extremity enlarged, and springs connecting the lower end of the plate with the collar and normally holding said plate in an inclined position, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

MORA M. BARRETT.  
JOHN F. DALY.

Witnesses:

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J. W. KEYS.