

No. 627,372.

Patented June 20, 1899.

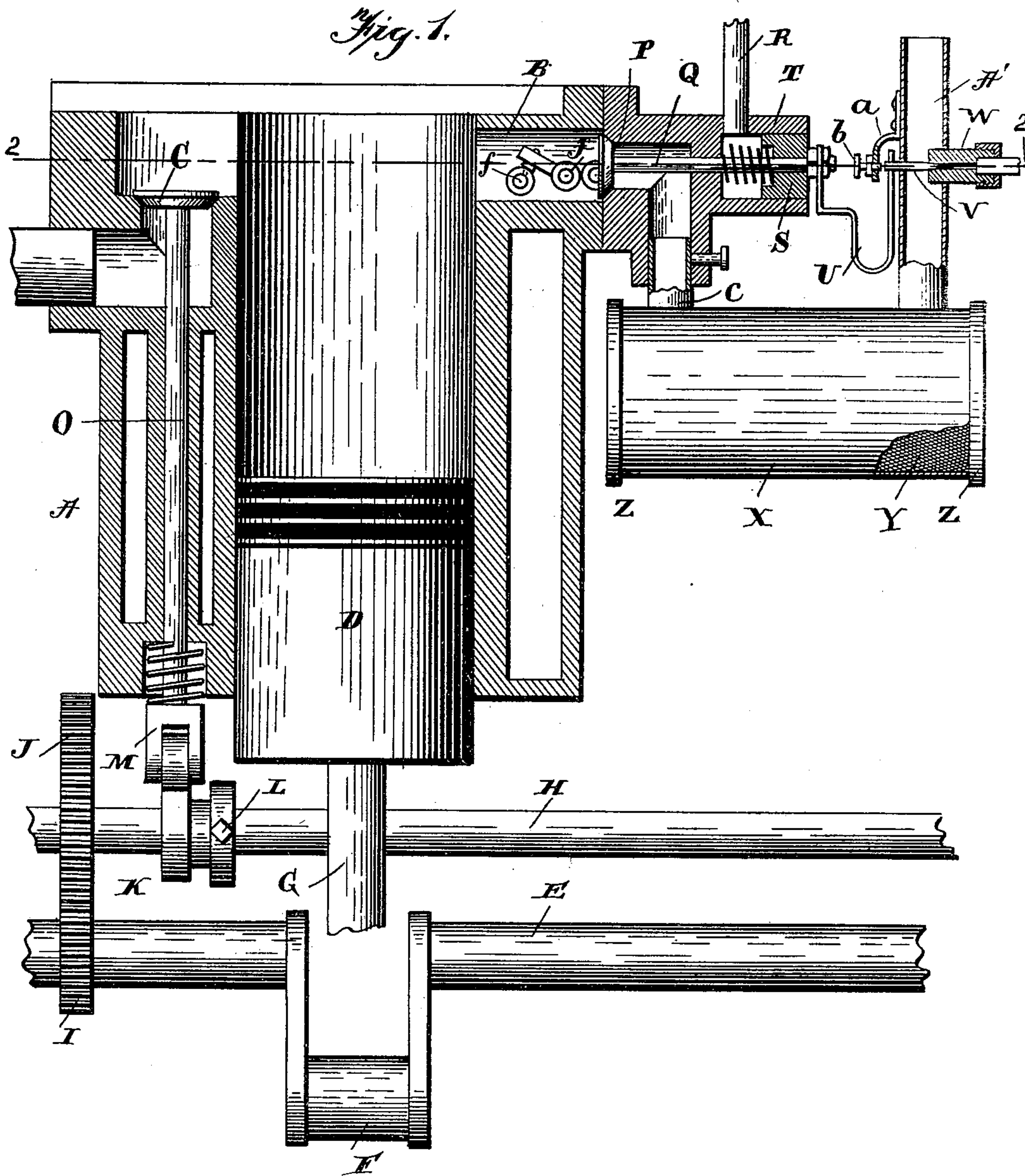
A. WINTON.

FLUID FEEDER OR REGULATOR FOR EXPLOSIVE ENGINES.

(Application filed May 4, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses  
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Fig. 2.

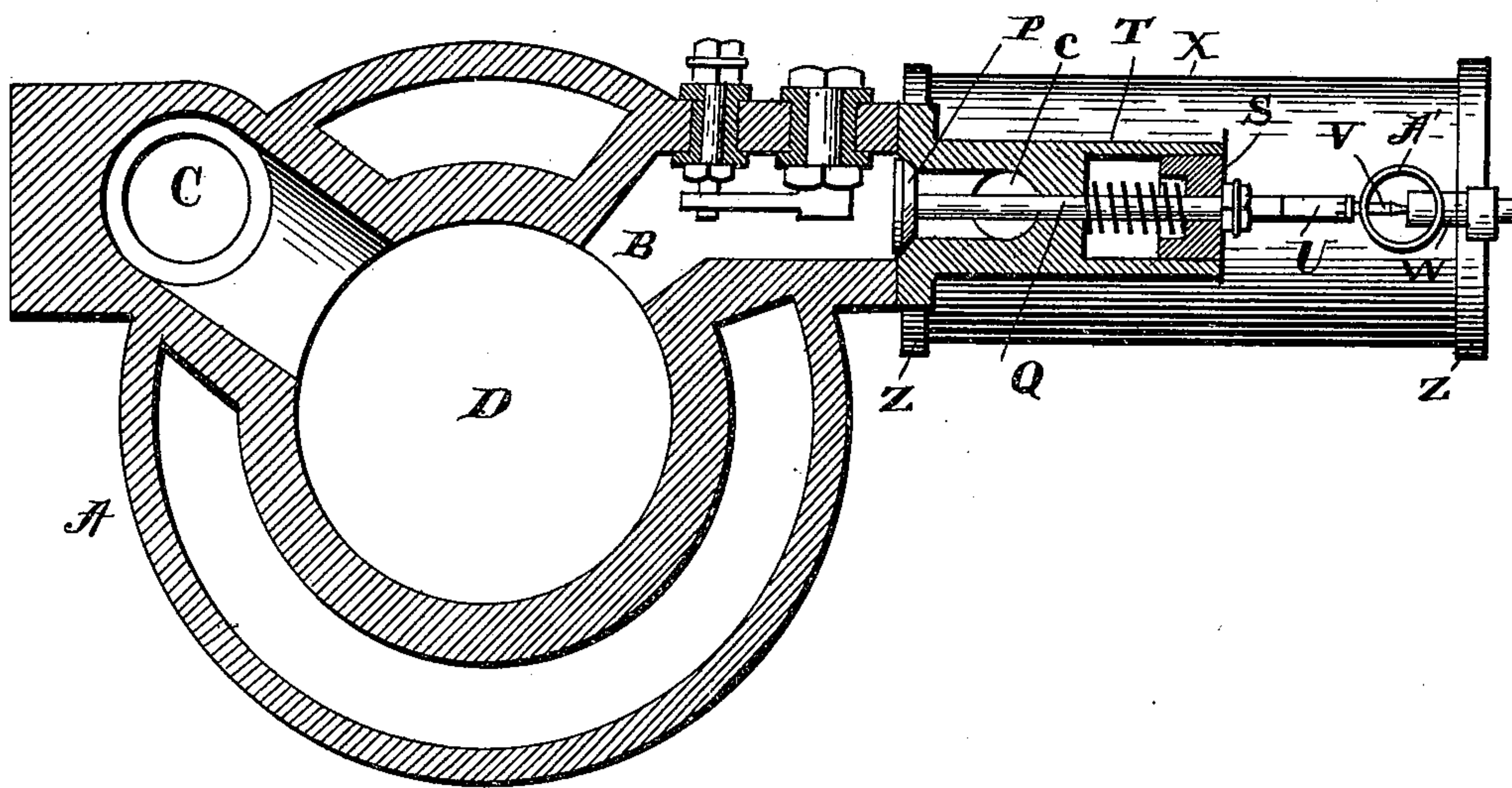
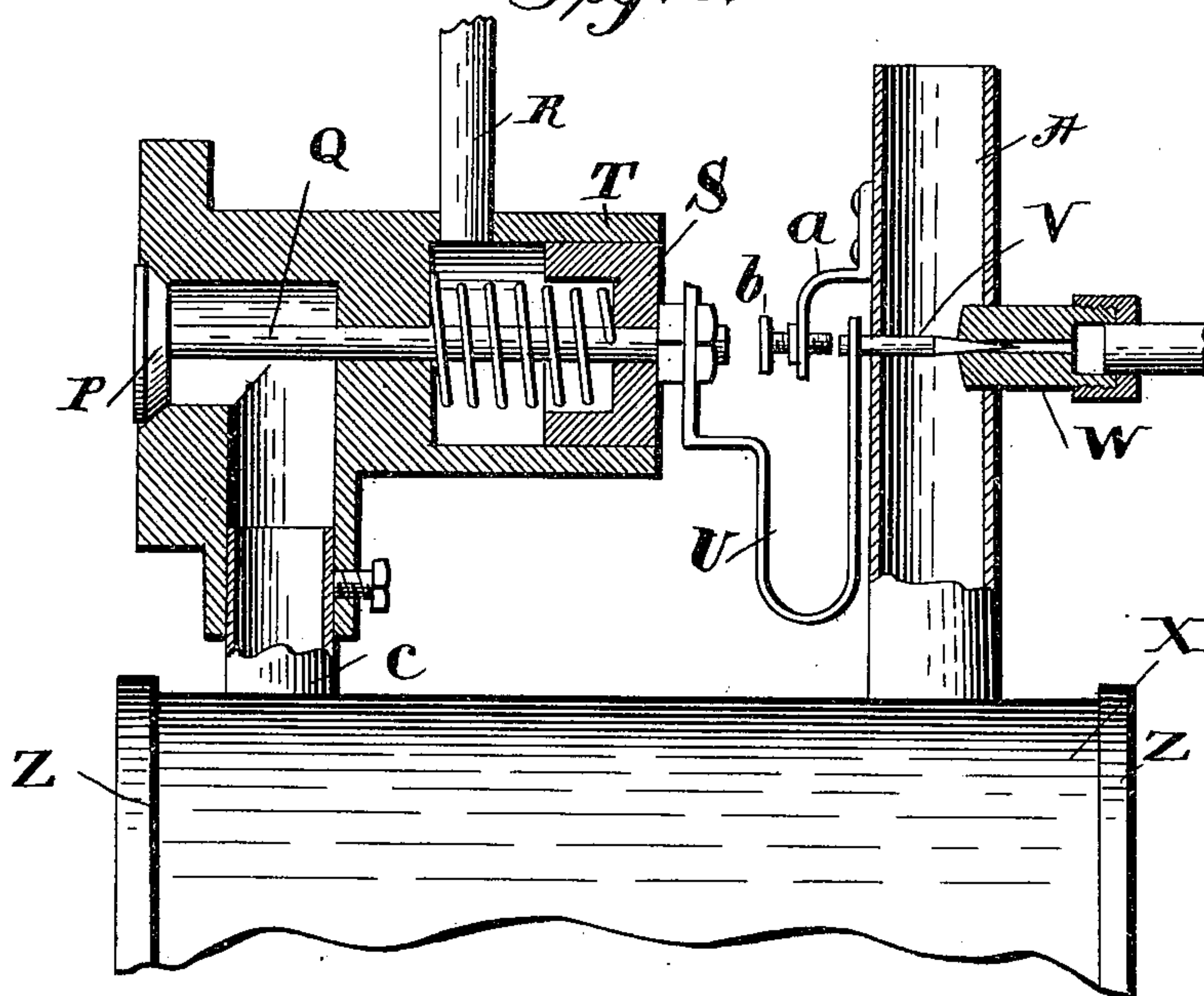


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

ALEXANDER WINTON, OF CLEVELAND, OHIO.

## FLUID FEEDER OR REGULATOR FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 627,372, dated June 20, 1899.

Original application filed September 18, 1897, Serial No. 652,175. Divided and this application filed May 4, 1898. Serial No. 680,420. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER WINTON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Fluid Feeders or Regulators for Explosive-Engines, (which is a division of my application filed September 18, 1897, bearing Serial No. 652,175,) of which the following is a specification.

My invention relates to improvements in fluid feeders or regulators for explosive-engines; and it consists in the construction, combination, and arrangement of parts, which will be fully described hereinafter and particularly referred to in the claims.

One object of my present invention is to provide means for regulating accurately the distance the fluid-inlet or needle-valve is to be opened, the same being constructed to permit of any desired adjustment.

Another object of my present invention pertains to the connecting of a yielding operating member between the explosive-inlet valve and the fluid-regulating valve or needle and means for regulating the distance of the movements of the regulating needle or valve whereby it is not affected by the explosive-inlet valve's irregular movement.

A further object of my present invention is the providing of a chamber through which the gasolene is drawn on its way to the explosive-inlet port, whereby it is disintegrated and broken up into vapor and thoroughly mixed with air before passing into the explosive end of the cylinder.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of an engine with my invention applied thereto. Fig. 2 is a horizontal sectional view taken on line 2 2 of Fig. 1. Fig. 3 is an enlarged sectional view taken on dotted line 3 3 of Fig. 2.

Referring now to the drawings, A represents a cylinder having the usual water-jacket, and B the inlet to the explosive end thereof, through which the explosive mixture is drawn.

E is the driving-shaft, F the crank-pin therefor, and G the piston-rod, which will be connected in the usual manner with the crank-pin through the medium of a pitman. (Not here shown.)

C is the exhaust-valve, and D the piston.

Extending preferably transverse the cylinder and parallel with the driving-shaft is the counter-shaft H, carrying a cam K, engaging a wheel M in the lower end of the exhaust-valve stem O, the shaft H being driven through the medium of the gears I and J, whereby the shaft H has one revolution to every two of the shaft E, as is usual in explosive-engines. The cam K is so situated and is adjustable upon the shaft H, through the medium of the clamping-screw L, that the exhaust-valve is lifted at the proper time to permit the escape of the exhaust, as is well understood by those skilled in the art.

Situated preferably within the suction-inlet B are the electric contacts *f*, which will be operated in any well-known and desired manner and which form no part of my present invention, and therefore need not be shown or described.

Communicating with the air-pipe A' is a gasolene-supply pipe W, having a needle-valve V coacting therewith. This needle-valve, as shown, passes through the opposite side of the pipe A' and through the means of a U-shaped spring U is connected with either the valve-stem, as here shown, or the piston S, as may be preferred. Situated just outside of the outer end of the needle-valve V is a bracket *a*, carrying an adjustable screw or member *b*, adapted to engage the end of the valve V as it is being reciprocated and to thereby regulate the distance the valve shall be drawn from its seat, which in turn regulates the amount of gasolene supplied at each movement of the valve.

A box or chamber X has detachable screw-threaded ends Z, and this box or chamber is filled with wire-cloth Y. One end of this box is provided with an air-pipe A' for the inward passage of air, as indicated by arrow, and at the opposite end with a pipe *c*, communicating with the explosive end Z of the engine-cylinder. This inlet *c* is intersected by the valve P, having a valve-stem Q passing through the wall of the inlet and outward through a cylinder T. This cylinder T is provided with a piston or diaphragm S, and a pipe R communicates with the cylinder at a point inside of the piston. This pipe R is connected with a



pressure-producing device, preferably an air-pump, and the pressure upon the piston is varied, according to the speed of the engine, as fully described in my patent granted the 4th day of May, 1897, and need not be here shown or described. A spring serves to hold the piston S normally outward.

In operation we will say that the piston is at the top of the stroke and having thus completed the exhaust. As the piston moves down within the cylinder air is drawn through the pipe A' and the chamber X, which owing to its filling thoroughly breaks up the gasoline into vapor, as well as thoroughly mixing the vapor with air, and thence through the inlet-port B to the explosive end of the cylinder. When the air-pressure rises by reason of the engine running faster than its normal speed, the movement of the inlet-valve is less, as is described in my previously-mentioned patent, allowing less combustible mixture to pass into the cylinder until the speed of the engine is decreased, and with the decrease of the speed of the engine the air-pressure upon the piston D likewise decreases, allowing the inlet-valve P to be opened wider, thus automatically controlling the speed of the motor. When the piston rises, the gases are compressed and fixed at the end of the stroke, forcing the piston down. The following stroke is the exhaust, and so the cycle of operation goes on, as is well understood. The movement of the piston S is at times greater than the movement of the valve V, and hence it is necessary to have a uniform stop or regulator for the valve—that is to say, the valve P is regulated as described in my patent referred to and its movement varies—while it is necessary and desirable to have the valve P move a uniform distance, and hence this is provided through the medium of the stop herein referred to to prevent the needle-valve being opened too far by the opening of the valve P, which would otherwise occur. The additional movement of the valve P, to which the needle-valve is connected, is permitted through the yielding of the spring U, which actuates the needle-valve, as clearly illus-

trated. By means of this construction I am enabled to give a uniform movement of the needle-valve V and yet by the simple arrangement to regulate its amount of movement to suit the amount of air admitted through the pipe A'.

It is very essential in gasoline-engines that there be a proper relative mixture of air and gasoline, and I am enabled to accomplish this through the medium of the adjustment hereinbefore referred to. The chamber X, being filled with wire-cloth Y, thoroughly breaks up the gasoline into vapor and thoroughly mixes the vapor with the air passing therethrough into the explosion end of the cylinder, which is found to be very advantageous in an engine of this character.

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

1. In an explosive-engine, the combination of an explosive-inlet port, a valve therefor, a variable means for regulating the distance the valve shall open and thereby varying its movement, an air-supply, an oil-supply, a valve for the oil-supply, a yielding connection between the valve, and a regulating-stop for the oil-supply valve whereby the oil-supply valve has a uniform movement irrespective of the varied movements of the inlet-port valve, substantially as described.

2. An oil and air mechanism for explosive-engines comprising an inlet-port valve having a variable movement, an oil-inlet valve, a spring serving as the only means of uniting the two valves, and a regulating-stop for the oil-valve whereby the oil-valve has a uniform movement irrespective of the variable movement of the inlet-port valve, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALEXANDER WINTON.

Witnesses:

THOS. HENDERSON,  
GEO. H. BROWN.