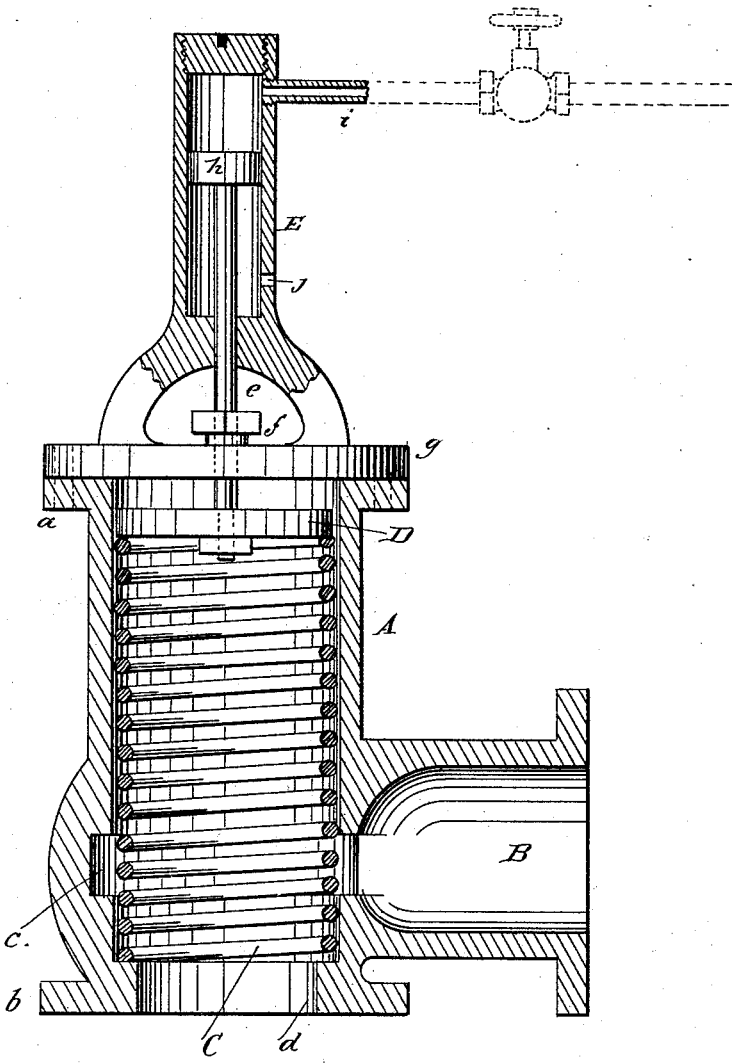
(No Model.)

J. P. WALTERS.

GOVERNOR VALVE.

No. 342,275. Patented May 18, 1886.



WITNESSES:

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JAMES PIERS WALTERS, OF ROSEDALE, INDIANA.

GOVERNOR-VALVE.

SPECIFICATION forming part of Letters Patent No. 342,275, dated May 18, 1886.

Application filed February 16, 1886. Serial No. 192,112. (No model.)

To all whom it may concern:

Be it known that I, JAMES PIERS WALTERS, of Rosedale, in the county of Parke and State of Indiana, have invented a new and useful Improvement in Governor-Valves, of which the following is a specification, reference being had to the annexed drawing, forming a part thereof, which is a side sectional elevation of my improved governor-valve.

The object of my invention is to provide for steam-engine governors and steam-pressure regulators a simple and reliable balance-valve for controlling the flow of steam.

My invention consists in a valve-casing having supply and discharge openings provided with a fillet in the lower part thereof, a spiral spring resting on the fillet and interposed between the supply and discharge openings of the casing, and a piston arranged to compress the spirals of the spring, and thus diminish the space between the convolutions, shutting off the steam more or less, according to the degree to which the spiral is compressed.

In the drawing I have shown my improved valve as applied to a steam-pressure regulator; but it may with equal advantage be used in connection with an automatic engine-governor. It may also be adapted as a hand regulating-valve.

The casing A is of cylindrical form, having at the top and bottom flanges *a b*, and having at one side thereof a branch pipe, B, communicating with an annular recess, *c*, in the casing. In the lower end of the casing A is formed a fillet, *d*, upon which rests a spiral spring, C. The external diameter of the spiral spring is less than the internal diameter of the casing A; and to the casing is loosely fitted a piston, D, which rests upon the top of the spiral spring C, and is connected with a piston-rod, *e*, which passes through a gland, *f*, in the cap *g* of the casing A. In the present case the piston-rod *e* extends into a small steam-cylinder, E, supported by the cap *g*, and is attached to a piston, *h*, fitting the cylinder E steam-tight. The cylinder E is closed at both ends, and in the upper end thereof is inserted a steam-supply pipe, *i*, for furnishing steam from the pipe or receptacle, which is supplied with steam through the valve-casing A. In the lower end of the cylinder E is formed a small aperture, *j*, for maintaining atmospheric pressure in the lower part of the cylinder E. Steam may enter the valve-casing A either through the opening in the bottom thereof or through the branch pipe B, and in passing through the valve-casing it must necessarily pass between the different convolutions of the spiral spring C. When the pressure in the pipe *i* increases, the piston *h* is forced downward, and the piston D in the valve-casing A is also carried downward, closing together the spiral, thus diminishing the area of the passage through the valve until the pressure in the pipe *i* has reached the prescribed limit, when the spiral spring C will be maintained in its partly-closed position until the pressure diminishes in the pipe *i*, when the spiral spring C expands by its own elasticity, and by increasing the distance between the convolutions of the spiral enlarges the area of the valve-opening and allows more steam to pass. The pressure within and without the spiral C and piston D being approximately the same, the valve is nearly balanced, so that very little power is required to operate it.

When my improved valve is used in connection with an automatic engine-governor, the rod *e* is connected with the valve-operating spindle of the governor mechanism, and the opening and closing of the spiral C by the governor will regulate the supply of steam to the engine.

The cross-section of the wire or rod of which the spiral is formed may have any desired shape, either circular, as shown in the drawing, or oblong, square, or elliptical.

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

1. In a regulating-valve, the combination, with a casing having supply and discharge openings, of a spiral spring arranged in the said casing between the supply and discharge openings, and a piston resting upon the spiral spring and operated by the pressure in an ad-

jacent steam-cylinder, substantially as described.

2. In a regulating-valve, the combination, with the casing A, provided with supply and discharge openings, of the spiral C, interposed between the supply and discharge openings, the piston D, resting on the spiral, the piston-rod *e*, the steam-cylinder E, and piston *h*, contained thereby and attached to the piston-rod *e*, substantially as described.

JAMES PIERS WALTERS.

Witnesses:

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