

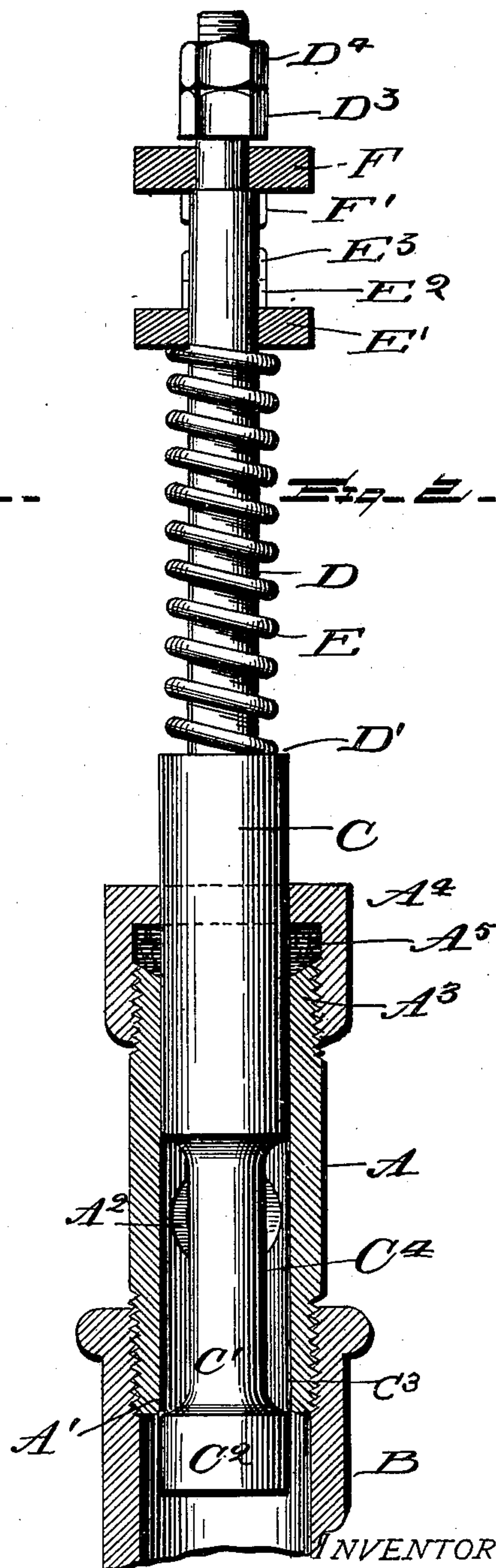
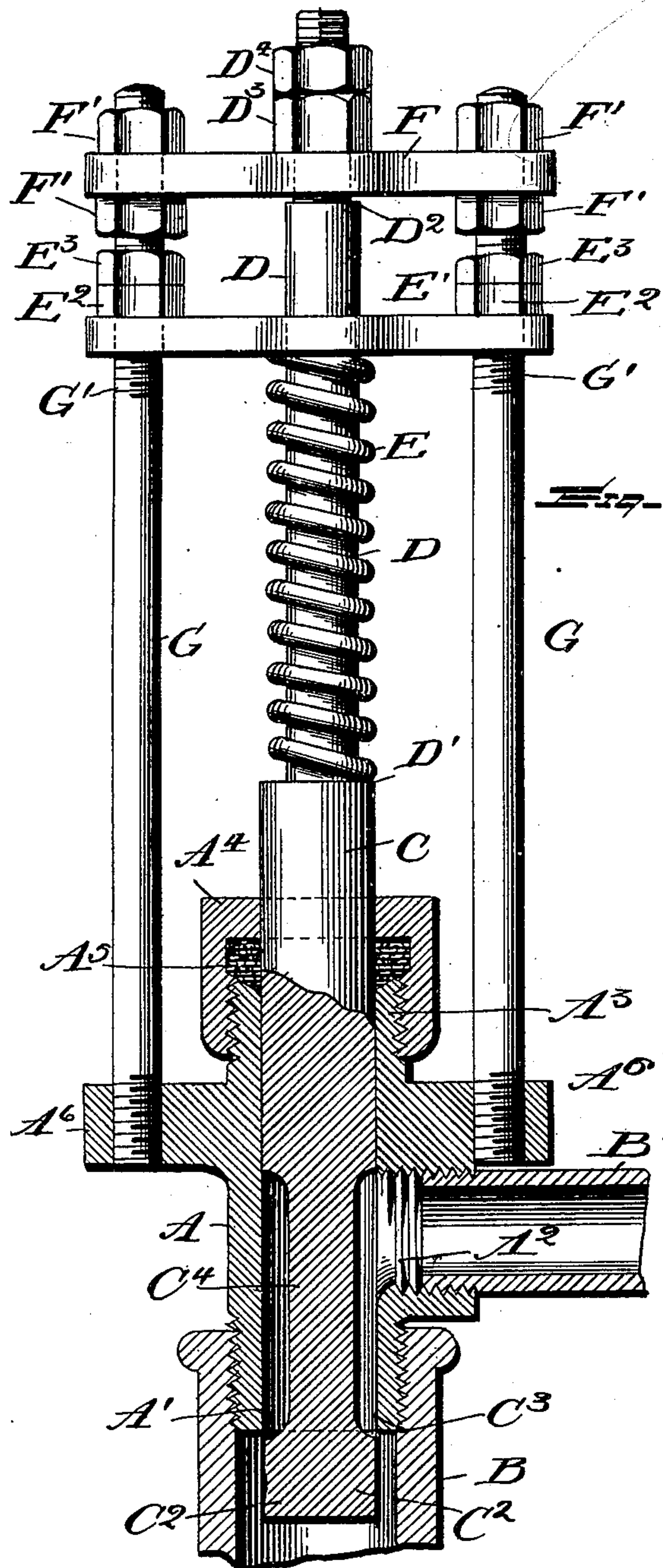
No. 667,429.

Patented Feb. 5, 1901.

H. DRACH.  
AUTOMATIC REGULATING VALVE.

(Application filed May 24, 1900.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HENRY DRACH, OF ANDERSON, INDIANA, ASSIGNOR OF ONE-HALF TO J. W. BAILEY, OF SAME PLACE.

## AUTOMATIC REGULATING-VALVE.

SPECIFICATION forming part of Letters Patent No. 667,429, dated February 5, 1901.

Application filed May 24, 1900. Serial No. 17,854. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY DRACH, a citizen of the United States, residing at Anderson, in the county of Madison, State of Indiana, have invented certain new and useful Improvements in Automatic Regulating-Valves, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to automatic regulating-valves, and particularly to means for governing the extent of movement of said valve and the tension of the spring against which the valve operates.

The invention has for one object to provide an improved construction of parts by which the extent of reciprocation of the valve-stem may be limited and determined in both directions and also an adjustable tension-plate by means of which the spring tension under which the valve is held in an open position may be regulated in order that a predetermined pressure will be necessary in order to close the valve.

Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is an elevation of the valve with parts in section; and Fig. 2 is a vertical section at right angles to the position shown in Fig. 1, parts being in full lines.

Like letters of reference indicate like parts throughout both figures of the drawings.

The letter A designates a valve-casing which is provided with an inlet connection A' and an outlet A<sup>2</sup>, disposed at any suitable points and adapted to be connected in any desired manner with a main B and service-pipe B' for the purpose of permitting the passage through the valve-case A of fluids or liquids under ordinary pressure. The valve-casing is provided at its end opposite the inlet-opening A' with a sleeve A<sup>3</sup>, through which the valve-stem C of a valve C' passes, and said sleeve has suitably mounted therein a cap A<sup>4</sup>, adapted to contain and compress a packing A<sup>5</sup> of any suitable character. The valve C' is provided with a face or head C<sup>2</sup>, which slid-

pressure of the fluid or liquid within the main B will act in order to force or slide the valve C' into contact with the seat C<sup>3</sup> at the outer end of the inlet A' to thus prevent the further passage of fluid into the system if the valve be adjusted for that purpose. At the rear of this head C<sup>2</sup> the valve is provided with a reduced neck C<sup>4</sup> to permit the passage of the fluid around the same and into the service-pipe B', while beyond this pipe the stem C of the valve snugly fits the sleeve A<sup>3</sup>, extending from the valve-case, and thus prevents the escape of fluid or liquid around said stem. The extended end of the valve-stem C is provided with a reduced portion D, having a shoulder D', against which one end of a tension-spring E bears, the opposite end of said spring being in contact with an adjustable tension-plate E', which is provided with an aperture through which the stem D of the valve passes. Beyond the tension-plate E' a second shoulder or stop D<sup>2</sup> is provided, which is adapted in the reciprocation of the valve-stem to abut against a stop-plate F, while the extended threaded end of the stem D has applied thereto an adjustable nut D<sup>3</sup> and a lock-nut D<sup>4</sup>, by means of which the extent of movement of the valve-stem in opening the valve may be regulated.

For the purpose of adjustably supporting and holding the tension-plate E' and the stop-plate F, I have provided standards or rods G, secured at one end in suitable lugs A<sup>6</sup>, extended from the valve-casing A and provided at their opposite ends with threaded portions G'. The tension-plate E' is provided with apertures at its opposite ends and adapted to fit over the standards, and it may be adjusted toward or from the valve-case A by means of the adjusting-nuts E<sup>2</sup>, which are held in position by the lock-nuts E<sup>3</sup>. It is apparent that a movement of the plate E' toward the valve-casing places the spring E under greater compression or tension, and this requires a higher pressure of fluid or liquid upon the valve-head C<sup>2</sup> in order to close the valve, while a movement of the plate in the opposite direction relieves the tension upon the spring and the consequent pressure required to close the valve. Upon the threaded ends G' of the standards G, beyond the tension-plate E', the



stop-plate F is disposed and is suitably adjusted and held by means of the adjusting-nuts F', located upon opposite sides of the plate. The relative movement of this stop-plate toward and from the stop or shoulder D<sup>2</sup> upon the valve-stem limits the movement of the valve in order that the extent to which the same may be closed shall be governed as necessary and desirable in many instances.

If the fluid to be regulated should be a gaseous one, it will be evident that to entirely cut off the supply would be in many cases inconvenient and possibly disastrous, so that the stop-plate F would ordinarily be adjusted to prevent the complete closing of the valve under pressure by causing the shoulder or stop D<sup>2</sup> to contact with the plate while the valve is still open to a small extent, and thus establishing a minimum supply to the service, which if the pressure be high will continue the lights or burners in their usual condition.

The operation of the valve will be apparent from the foregoing description and attention need only be especially called to the novel and improved features of construction by which the valve is rendered capable of use with any desired pressure and to either wholly or partially cut off the supply under conditions of excessive pressure. This regulating means comprises a simple structure capable of adjustment by any person with an ordinary wrench and does not require the services of a skilled mechanic to regulate the pressure at which the valve must operate. It is therefore evident that the ordinary householder can by this invention regulate the supply or pressure of gas consumed and prevent the flaming of the burners through excessive pressure or the complete extinguishing of the same by the closing of the regulator-valve, which occurs in many constructions.

It will be obvious that changes may be made in the details of construction and configuration of the several parts without departing from the spirit of the invention as defined by the appended claims.

Having described my invention, what I claim is—

1. A regulating-valve comprising a casing, a valve therein having a stem extended beyond said casing, a stop-shoulder upon the extended end of said stem, a stop-plate supported beyond said shoulder and adjustable to or from said stop-shoulder, and means upon the opposite side of said plate from the shoulder to limit the movement of said shoulder away from said plate; substantially as specified.

2. A regulating-valve comprising a casing, a valve therein having a stem extended beyond said casing, a stop-shoulder upon the extended end of said stem, a stop-plate supported beyond said shoulder and adjustable to or from said stop-shoulder, means upon the opposite side of said plate from the shoulder to limit the movement of said shoulder away from said plate, a spring surrounding said stem and bearing against the same, and an adjustable tension-plate located at the opposite end of said spring; substantially as specified.

3. A regulating-valve comprising a casing provided with inlet and outlet ports and a sleeve for a stem, a cylindrical valve having a pressure head or face adapted to slidingly fit the inlet-port and a stem extended through said sleeve, lugs carried by said casing, standards extending from said lugs, a tension-spring for opening said valve, means carried by said standards for adjusting the tension of said spring, a stop-plate carried by said standards, and contact means carried by said stem upon opposite sides of said plate for limiting the movement of said valve in both directions; substantially as specified.

4. A regulator-valve comprising a casing, a valve therein, standards extending from said casing and threaded at their free ends, a spring surrounding the stem of said valve and bearing against a portion of the same, a tension-plate bearing against the opposite end of said spring and held in position by adjusting-nuts upon said standards, a stop-shoulder carried by said valve-stem to limit the closing movement, a stop-plate through which said stem passes adjustably supported upon said standards beyond said shoulder, and an adjustable stop upon the end of said valve-stem at the opposite side of said plate to limit the opening movement of said stem; substantially as specified.

5. A regulating-valve comprising a casing, a valve therein, a tension-spring for normally holding said valve in an open position, an adjustable stop-plate adapted to be engaged upon one face by the stem of said valve in its closing movement, and an adjustable stop carried by said stem and adapted to engage the opposite face of said plate in the opening movement of the valve to limit the same; substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY DRACH.

Witnesses:

MAURICE E. FITZGERALD,  
M. M. LEWIS.