

No. 790,056.

PATENTED MAY 16, 1905.

G. M. HILGER.  
REDUCING VALVE.  
APPLICATION FILED OCT. 21, 1904.

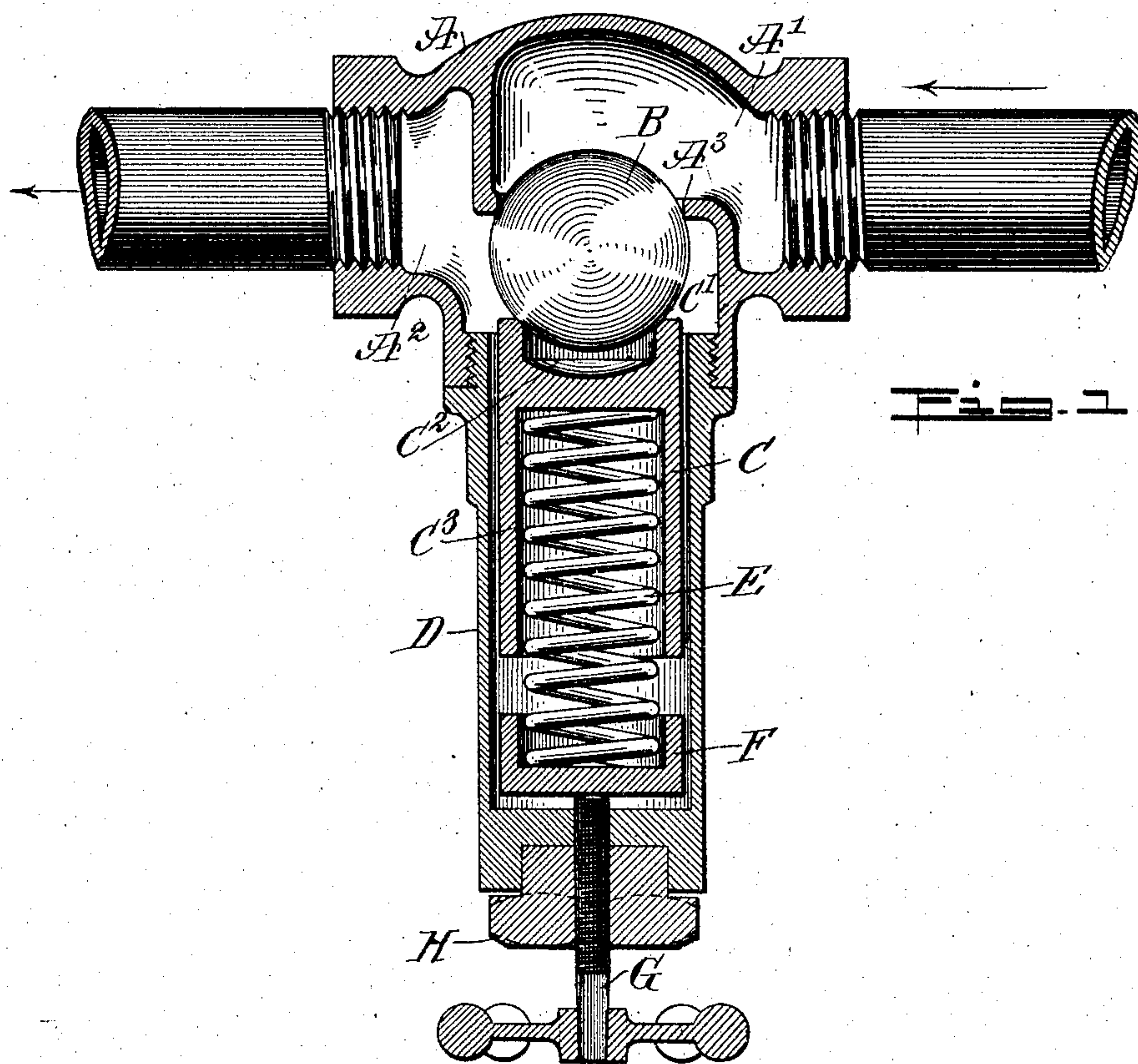


Fig. 1.

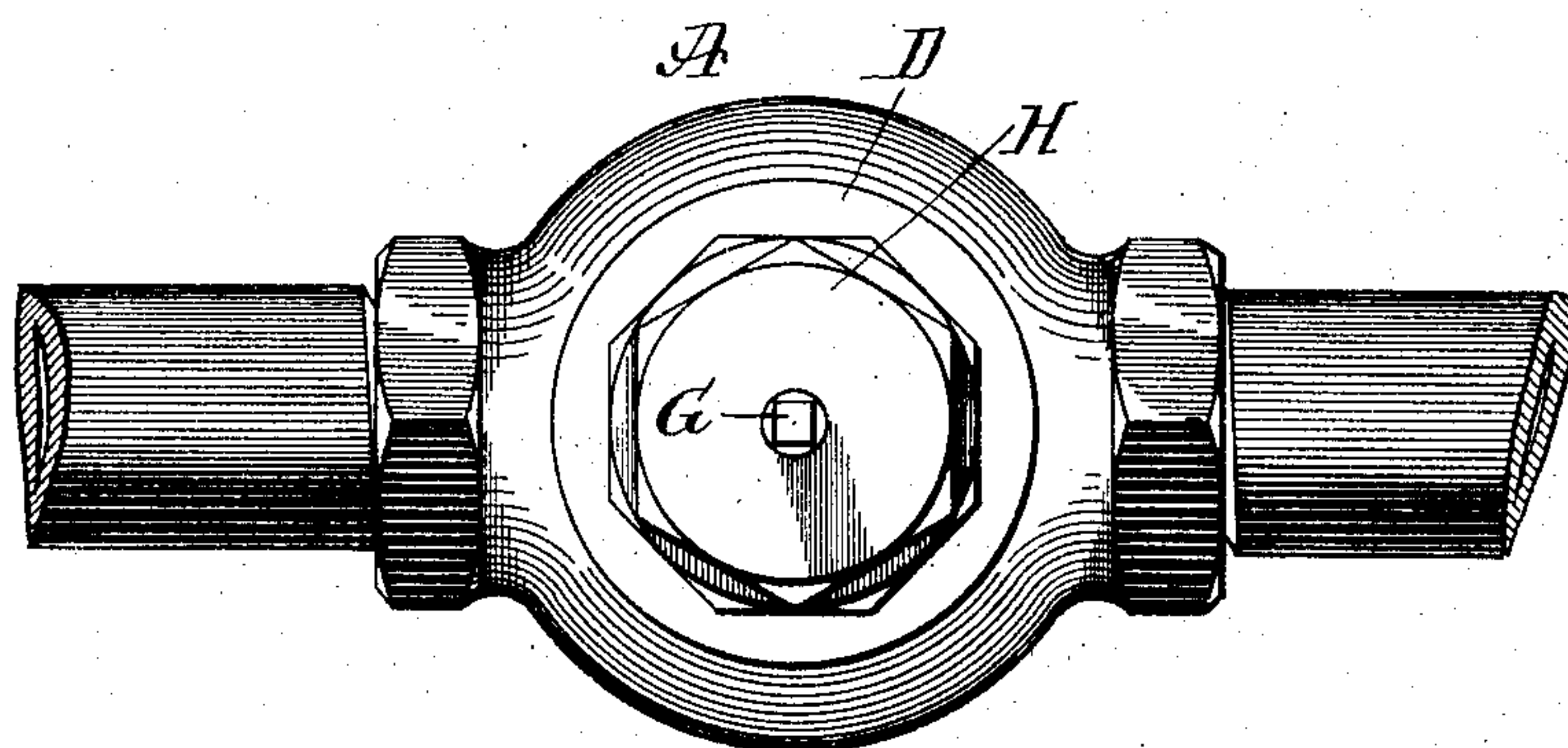


Fig. 2.

WITNESSES:  
C. A. Jarvis  
Geo. H. H. H.

INVENTOR  
George M. Hilger  
BY *Wm. W. W.*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

GEORGE M. HILGER, OF CHICAGO, ILLINOIS.

## REDUCING-VALVE.

SPECIFICATION forming part of Letters Patent No. 790,056, dated May 16, 1905.

Application filed October 21, 1904. Serial No. 229,432.

*To all whom it may concern:*

Be it known that I, GEORGE M. HILGER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Reducing-Valve, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved reducing-valve which is simple and durable in construction, very effective, and sensitive in operation, and arranged to prevent jerking or jarring of the valve when in use.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a sectional side elevation of the improvement, and Fig. 2 is an inverted plan view of the same.

The valve-body A is provided with an inlet A' and an outlet A<sup>2</sup>, separated from the inlet by a valve-seat A<sup>3</sup>, on which is adapted to be seated a ball-valve B, resting loosely on a seat C', formed on the upper end of a piston C, mounted to slide loosely in a bonnet or cylinder D, screwed or otherwise fastened on the valve-body A in axial alinement with the seat A<sup>3</sup>. The bonnet D extends from the outlet side of the valve-body A, as plainly indicated in Fig. 1, so that the pressure of the fluid entering the inlet A' presses on the top of the ball-valve B to force the same off its seat A<sup>3</sup> in order to establish communication between the inlet A' and the outlet A<sup>2</sup>.

The valve-seat C' is formed with a deep recess C<sup>2</sup> to allow water of condensation to pass into the recess. The latter is normally held to its seat A<sup>3</sup> by the pressure of a spring E, fitted with its upper portion into a recess C<sup>3</sup>, formed in the bottom of the piston C, and the lower end of the said spring E rests on a cup-shaped follower F, arranged in the lower portion of the bonnet D. A screw-rod G, screw-

ing in the closed lower end of the bonnet, abuts against the under side of the follower F, so that on screwing the screw-rod inward or outward the tension of the spring E can be increased or diminished.

After the tension of the spring E is set to the desired degree by adjusting the screw-rod D, as described, the latter is locked in place by a suitable jam-nut H.

By the arrangement described the ball-valve B is loosely seated on the seat C' of the piston C, which thus forms a spring-pressed support for the ball-valve, so that the latter at all times properly seats itself on the seat A<sup>3</sup> in the valve-body A.

In case the valve is used for reducing or throttling steam, for instance, the water of condensation filling the recess C<sup>2</sup> acts as a hydraulic cushion for the ball-valve B, and the water of condensation passing into the bonnet D acts on the piston C in such a manner that when the valve B is open and the piston C is pressed downward against the tension of the spring E then the water is forced out of the bonnet D, and consequently the piston C and the displaced water act as a dash-pot to prevent undue jerking or jarring of the valve B when opening.

The device is very simple and durable in construction, not liable to easily get out of order, and is very sensitive, and jarring or jerking of the valve is reduced to a minimum.

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

1. A reducing-valve comprising a valve-body having an inlet, an outlet, a valve-seat between the inlet and outlet and a cylindrical extension in axial alinement with the said valve-seat, a ball-valve adapted to be seated on the said seat, and a spring-pressed piston in the said extension, carrying the said ball-valve, said piston having a recess therein admitting a portion of the valve without being filled thereby, as and for the purpose set forth.

2. A reducing-valve comprising a valve-body having an inlet, an outlet, a valve-seat between the inlet and outlet, a cylindrical extension in axial alinement with said valve-seat, a ball-valve adapted to be seated on the said

seat, and a spring-pressed piston on the said extension, provided with a seat for the said ball-valve to rest on, said seat having therein a recess admitting a portion of the valve without being filled thereby, adapting the recess  
5 to receive water of condensation.

3. A reducing-valve comprising a valve-body, a ball-valve adapted to be seated in the said valve-body, and a spring-pressed movable  
10 support for the said ball-valve, having therein

a recess admitting a portion only of the valve without being filled thereby.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE M. HILGER.

Witnesses:

JEAN P. CLEMES,  
E. C. BARRY.