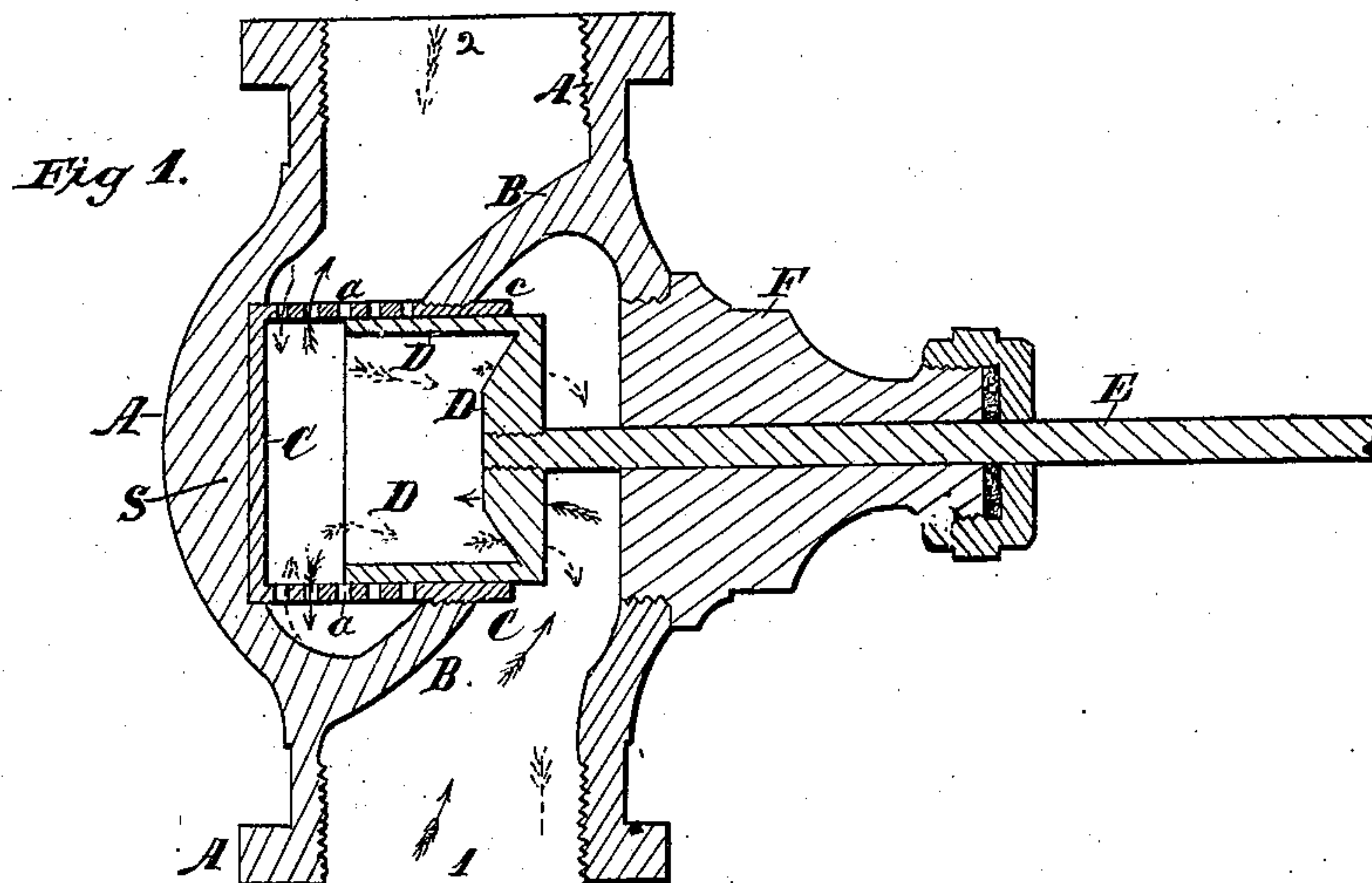
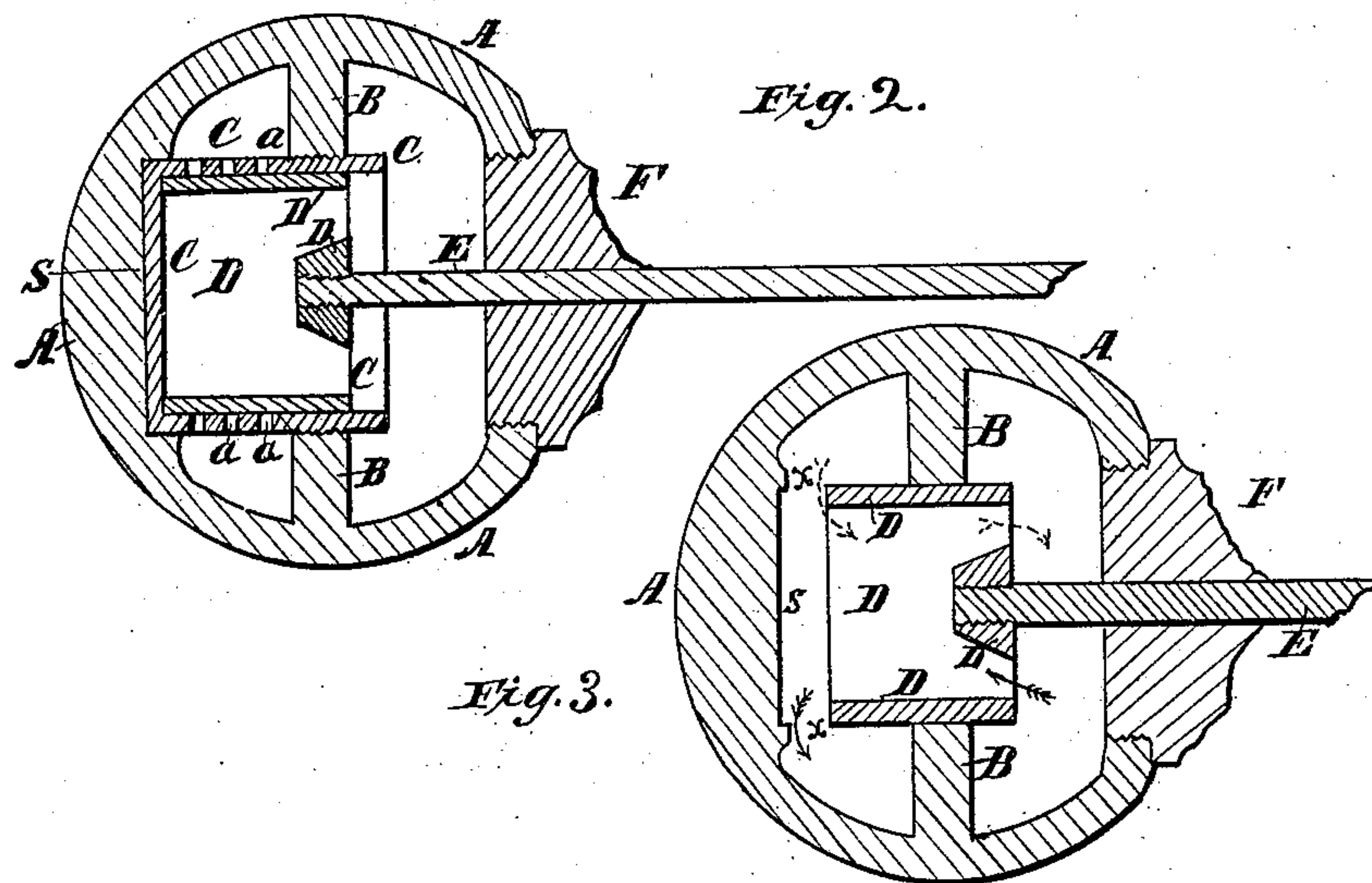


*G. E. Noyes,*  
*Globe Valve,*

*No. 43,598,*

*Patented July 19, 1864.*



*Witnesses:*  
*W. Clayton*  
*Charles Alexander,*

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# UNITED STATES PATENT OFFICE.

GEORGE E. NOYES, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN GOVERNOR-VALVES.

Specification forming part of Letters Patent No. 43,598, dated July 19, 1864.

*To all whom it may concern:*

Be it known that I, GEORGE E. NOYES, of Washington city and county, in the District of Columbia, have invented certain new and useful Improvements in Valves for Steam-Engines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference thereon marked.

In the drawings, Figure 1 is a vertical section. Fig. 2 is a horizontal section. Fig. 3 is a horizontal section showing the valve constructed without the perforated cup.

To enable those skilled in the art to make and use my invention, I will describe its construction and operation.

My invention relates to an improved construction of regulator-valves, more especially for steam engines, but adaptable to water-ways. It may be described as a balanced sliding regulator-valve.

A is the globular valve-case, of cast-metal, in general form similar to the common globe-valve, and provided with screw-nozzles 1 and 2 for the attachment of the induction and eduction pipes. The chamber of the valve-case A is divided by the diagonal partition B, (see Fig. 1,) which is cast so that the "case" and the "partition" are in one casting.

C is the perforated cylindrical valve-cup, which passes through and is screwed into the partition B, and has its bottom let into the case A at s.

a a are openings through the valve-cup for the passage of the steam.

D is the sliding valve, and consists of a hollow cylinder turned so as to fit and slide in the valve-cup C, and to seat itself against the bottom of the valve-cup, and is open at both ends for the free passage of the steam through it.

E is the valve-stem, and is screwed into the bale of the valve. F is the valve-plug screwed into the case A, and of a diameter sufficient to admit the valve-cup through it.

G is a stuffing-box on the outer end of the plug F.

The valve-stem reciprocates through the plug F and stuffing-box G.

In the operation of my invention the valve-stem E, being suitably connected to the usual operating mechanism, after being started by

hand, causes the valve D to slide in and out of the valve-cup C, regulating the amount of steam according to the degree of withdrawal of the valve by the governor. When the valve is seated at the bottom of cup C, as in Fig. 2, the steam is entirely cut off. When the valve is withdrawn, as at Fig. 1, one-half of the full head of steam is let on. A suitable spring keeps the valve seated when not operated upon. It will be seen that it is immaterial which of the nozzles 1 and 2 is made the induction-pipe. In either case the steam passes through the whole length of the valve.

The solid arrows indicate the course of steam when the induction-pipe is attached to nozzle 1. In this case the steam first enters the lower chamber of the valve-case. It then passes through the cylindrical valve D and into the perforated valve-cup C. Thence it escapes through openings a a into the upper chamber, and thence through the nozzle 2 and eduction-pipe to the cylinder.

The dotted arrows indicate the course of the steam when the induction-pipe is attached to nozzle 2. In this case the steam first enters the upper chamber of the valve-case. It then passes through perforations a a into the valve-cup C; thence through the valve D into the lower chamber, and thence through nozzle 1 and eduction-pipe to the cylinder.

In Fig. 3 is represented a simpler mode of constructing my valve, which, from its great simplicity, is well adapted to water-ways. This mode differs from that just described in dispensing with the perforated cup C and fitting the valve D, so as to make it play in and through partition B and to seat at s in the case A, the steam entering the valve D from the upper chamber at x x, as is fully shown in Fig. 3. It will be seen that the pressure upon the valve at any given moment is the same at all points, and hence that it is perfectly balanced.

I have found from actual trial that there is no need of fitting the valve into the cup or the partition with great exactness, and that, owing to the almost perfect balance and the small amount of packing, (only the small stuffing-box G around the light valve-stem,) the friction, and consequent wear and tear, is so much lessened as to greatly increase the durability of my valve over the valves generally used.

The advantages of my improved valve consist in its extreme simplicity, effectiveness, durability, its security and cheapness.

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

The combination and arrangement of the

valve D, partition B, and perforated valve-cup C, when constructed and operating substantially as described.

G. E. NOYES.

Witnesses:

V. C. CLAYTON,  
Jo. C. CLAYTON.