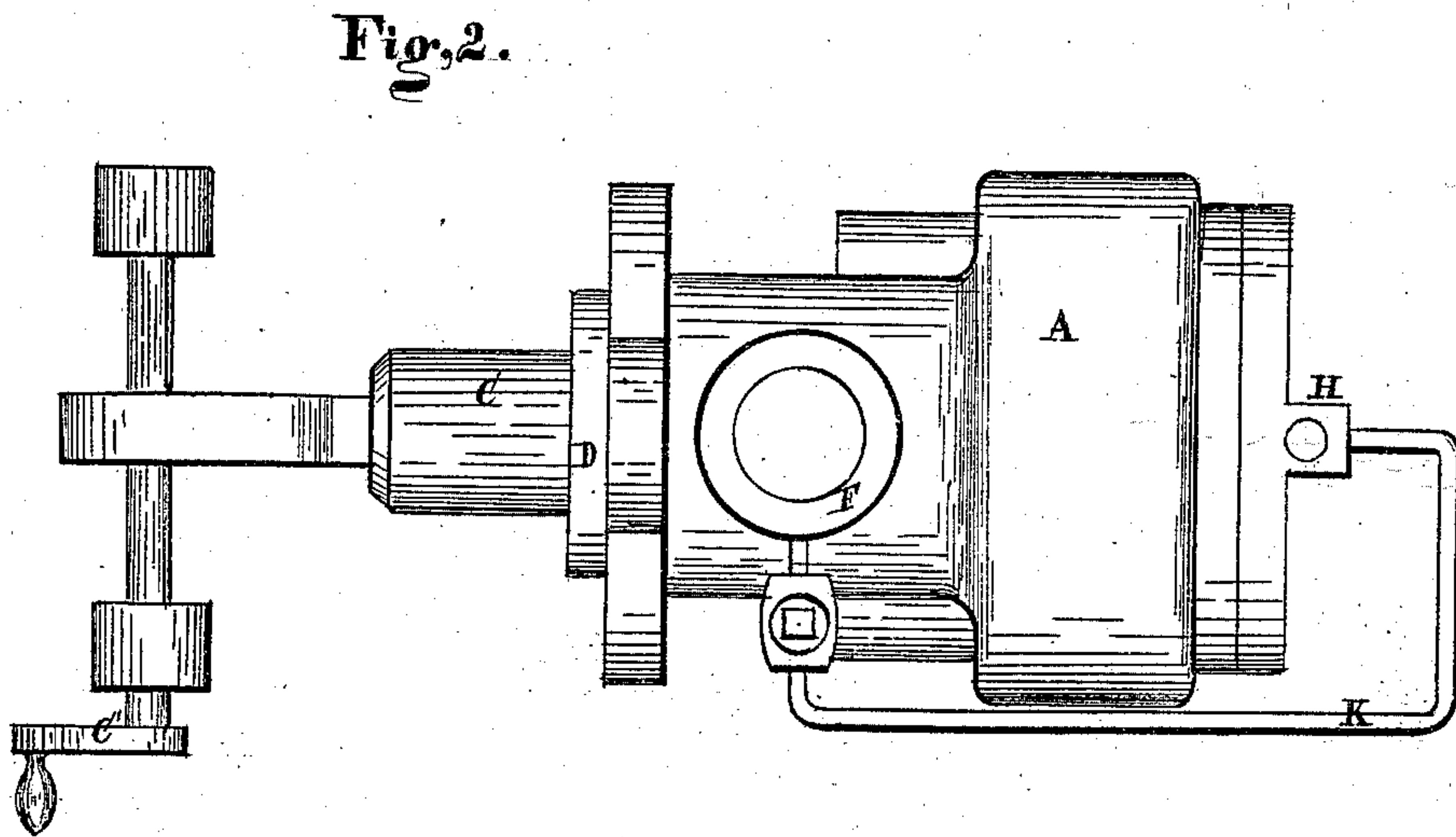
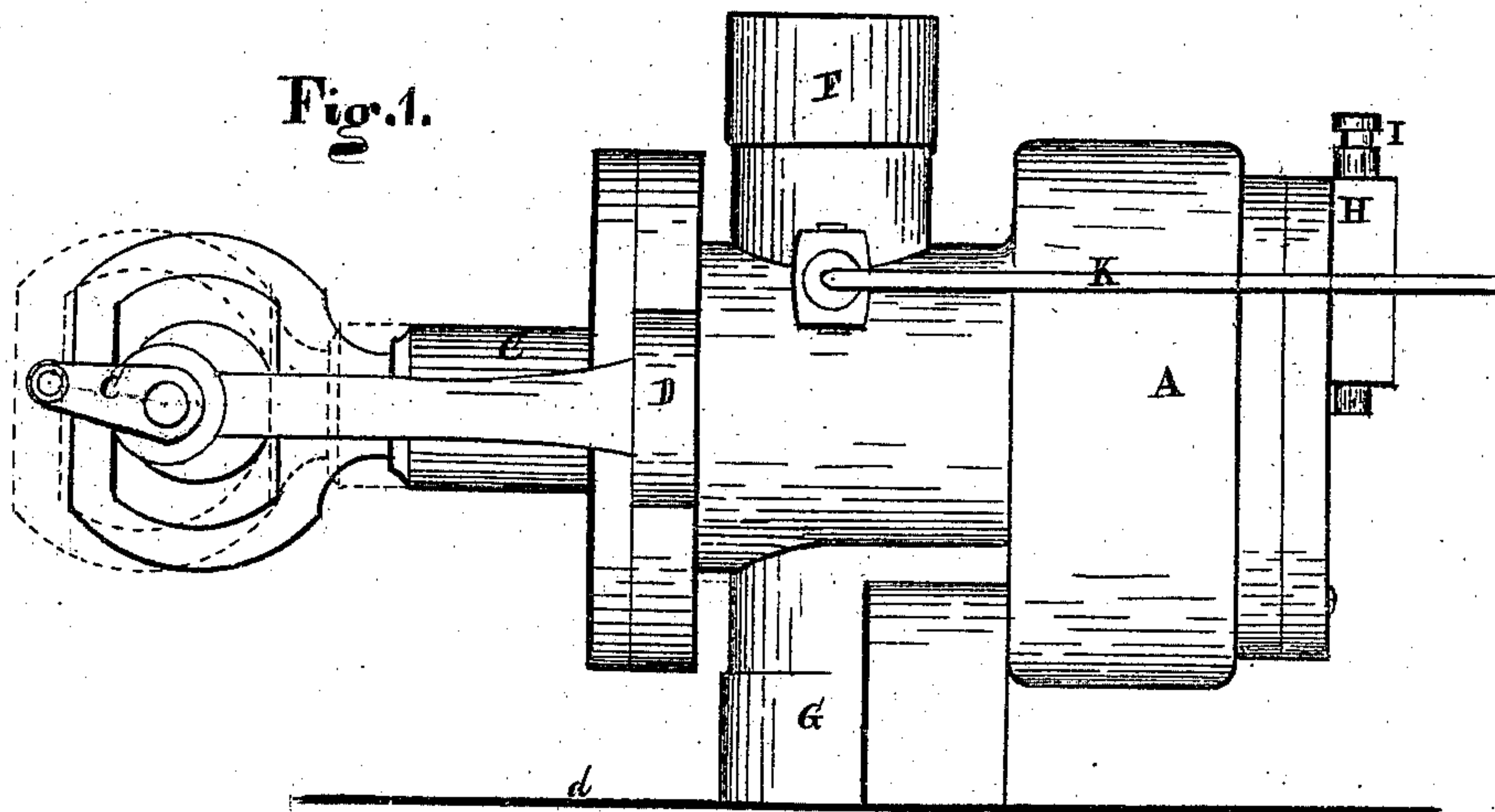


C. H. BURTON.

Improvement in Steam Governor-Valves.

No. 130,790.

Patented Aug. 27, 1872.



Witnesses.

W. H. Burridge
A. J. Cornell.

Inventor.

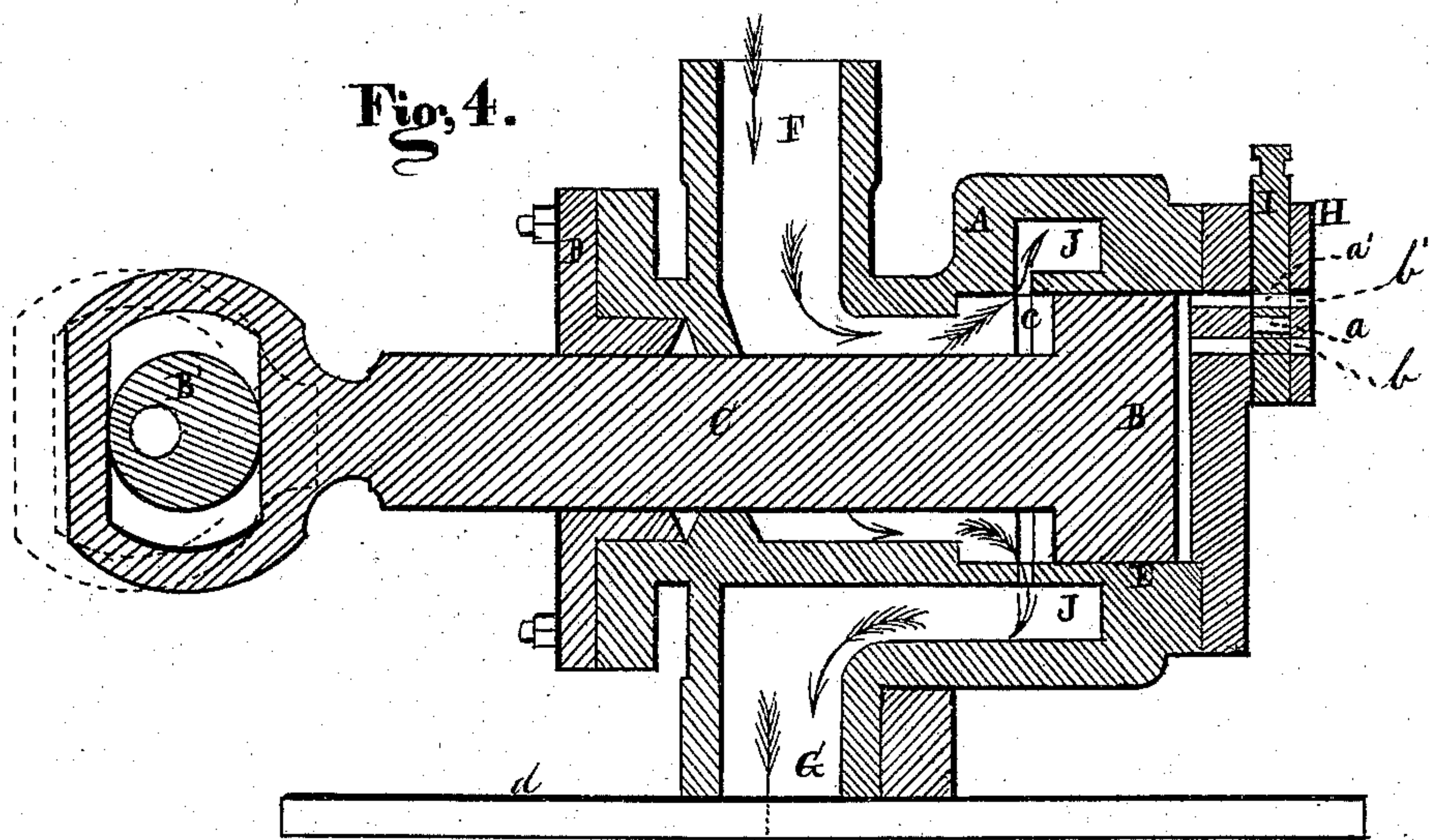
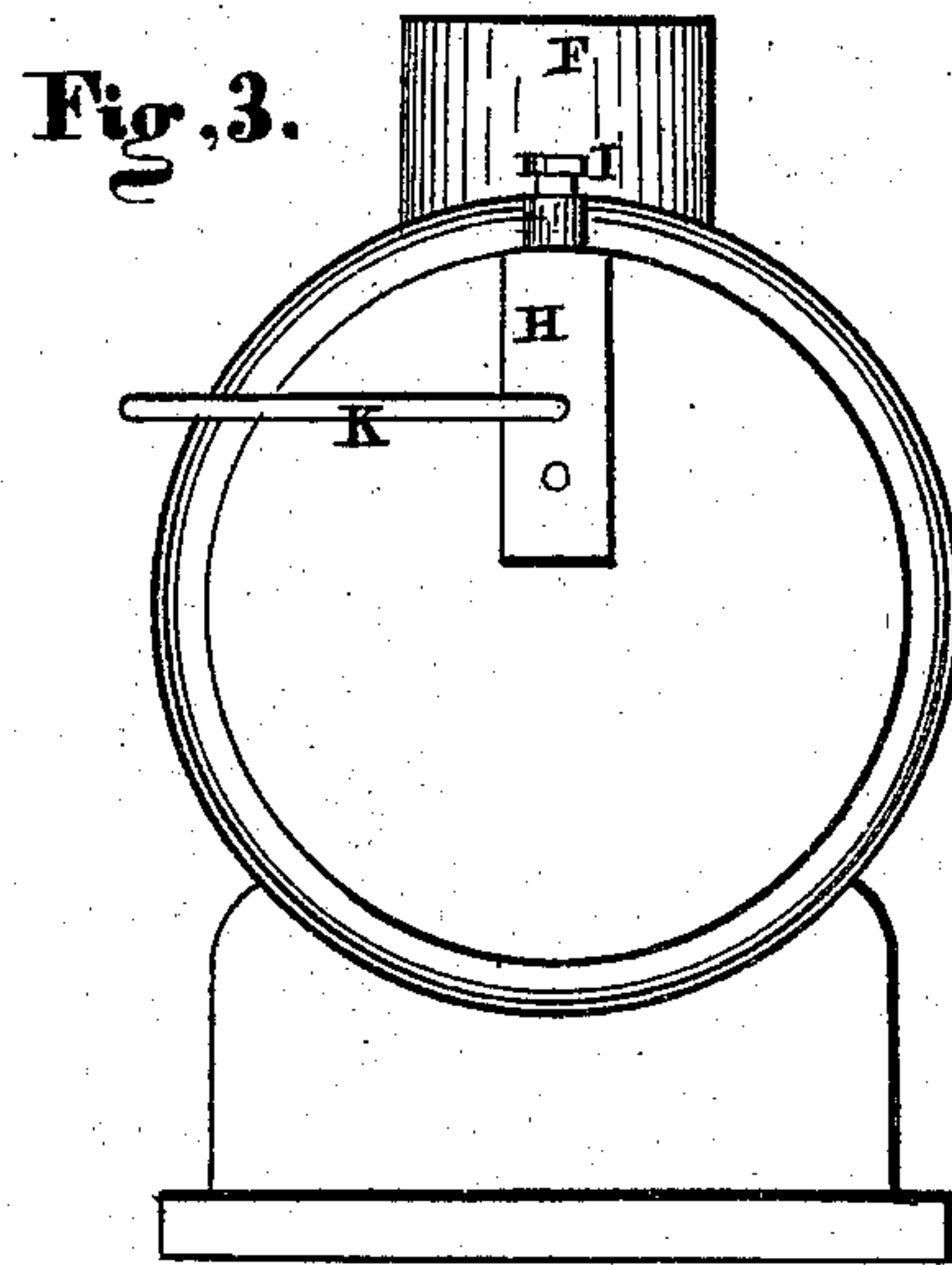
C. H. Burton.
Per Burridge & Co.
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UNITED STATES PATENT OFFICE.

CHARLES H. BURTON, OF CLEVELAND, OHIO.

IMPROVEMENT IN STEAM GOVERNOR-VALVES.

Specification forming part of Letters Patent No. 130,790, dated August 27, 1872.

To all whom it may concern:

Be it known that I, CHARLES H. BURTON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Governor Steam-Valve; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawing making part of the same.

Figure 1 is a side view of the steam-valve. Fig. 2 is a plan view. Fig. 3 is an end view. Fig. 4 is a vertical longitudinal section.

Like letters of reference refer to like parts in the several views.

SPECIFICATION.

The nature of this invention relates to a steam-valve, and the object of which is to admit steam to the cylinder or shut off the same, as the movement of the engine may require; the valve being operated by the governor, and constructed and operated as follows:

In the drawing, Figure 1, A represents a chamber in which the valve B, Fig. 4, is fitted. Of said valve, C is the stem passing from the chamber to the outside through a stuffing-box, D. In said chamber is the valve-seat E in which the valve referred to is closely fitted, and which is of a circular form. F is a pipe whereby the chamber is connected to the steam-pipe leading from the boiler, and G is a pipe whereby the chamber is attached to the steam-chest of the cylinder. At the rear end of the chamber is a valve-seat, H, in which is fitted a pin-valve, I, having through its diameter steam-ports *a a'*, Fig. 4, corresponding in size and position to the ports *b b'* of the valve-seat.

The practical operation of the above-described device is as follows: The apparatus is placed in connection with the steam-chest of the cylinder, and in the position shown in Fig. 1, in which figure the base-line *d* indicates the top of the steam-chest. Steam is admitted to the chest by first passing through the chamber A, following the direction of the arrows in Fig. 4, thereby filling the chamber around the stem C in front of the valve, which valve is represented as being moved back from the annular steam-port *c*, so the steam may pass in full head into the steam-way J, thence through the pipe G to the steam-chest. As the posi-

tion of the valve in its relation to the annular port, as shown in Fig. 4, admits a full head of steam, as above said, a high speed of motion will be given to the engine; to reduce which to a more moderate one, or that consistent with the demands of the machinery driven by the engine, the pin-valve I, Fig. 4, is raised by the governor, to which it is attached, to the position shown in said figure, in which it will be seen that the port *a'* in the valve is brought in open relation to the port *b'* of the valve-seat H, thereby admitting steam from the front of the valve B to the rear side thereof by means of the pipe K, Figs. 1 and 2. The pressure of the live steam on the larger area of the back of the valve will force it forward until it covers the annular port, more or less, as the pressure of the steam may be, thus shutting off a certain portion of the steam from passing into the cylinder through the annular port *c*, thereby reducing the speed of the engine as may be required. As the motion of the engine gradually falls below a certain required speed the governor falls also, and in so doing depresses the pin-valve so that it closes the port *b'* more or less, thereby shutting off steam from the back of the valve, and at the same time bringing the port *a* of the pin-valve in more or less open relation to the port *b* of the valve-seat H, thereby allowing the dead steam to escape from the back of the valve B, so that said valve can move back from the annular port by the superior pressure of steam on its front side, and admit more steam into the steam-way J, from thence to the cylinder. By means of the pin-valve the induction of steam to the valve B is readily and sensitively graduated as the speed of the engine may actuate the governor more or less for operating the pin-valve; as a very slight movement of the valve is sufficient to change the extent of the open relation of its ports to those of the valve-seat. The distance that the valve B traverses in its relation to the annular port *c* is also quite small, and, therefore, it acts with great facility and sensitiveness under a variable pressure of steam, so that its governing influence, upon the admission of steam to the cylinder, is steadily active and uniform. Instead of the pin-valve, above described, being used in connection with the governor a two-way cock can be sub-

stituted therefor without changing the nature of my invention. The valve B can be used as a stop-valve, for shutting off the steam by hand, by actuating it by means of the crank *c'*, which will turn the cam-wheel B', thereby operating the valve for closing or opening independent of the governor, and for the purpose specified.

Claims.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The herein-described valve B, chamber A, and annular port *c*, when constructed and

operated in the manner as and for the purpose set forth.

2. The pin-valve I, or its equivalent, as arranged in combination with the valve B and a steam-governor, in the manner substantially as described, and for the purpose specified.

3. The cam B' and valve B in combination with the chamber A and pin-valve I, substantially as and for the purpose set forth.

CHARLES H. BURTON.

Witnesses:

J. H. BURRIDGE,
A. F. CORNELL.