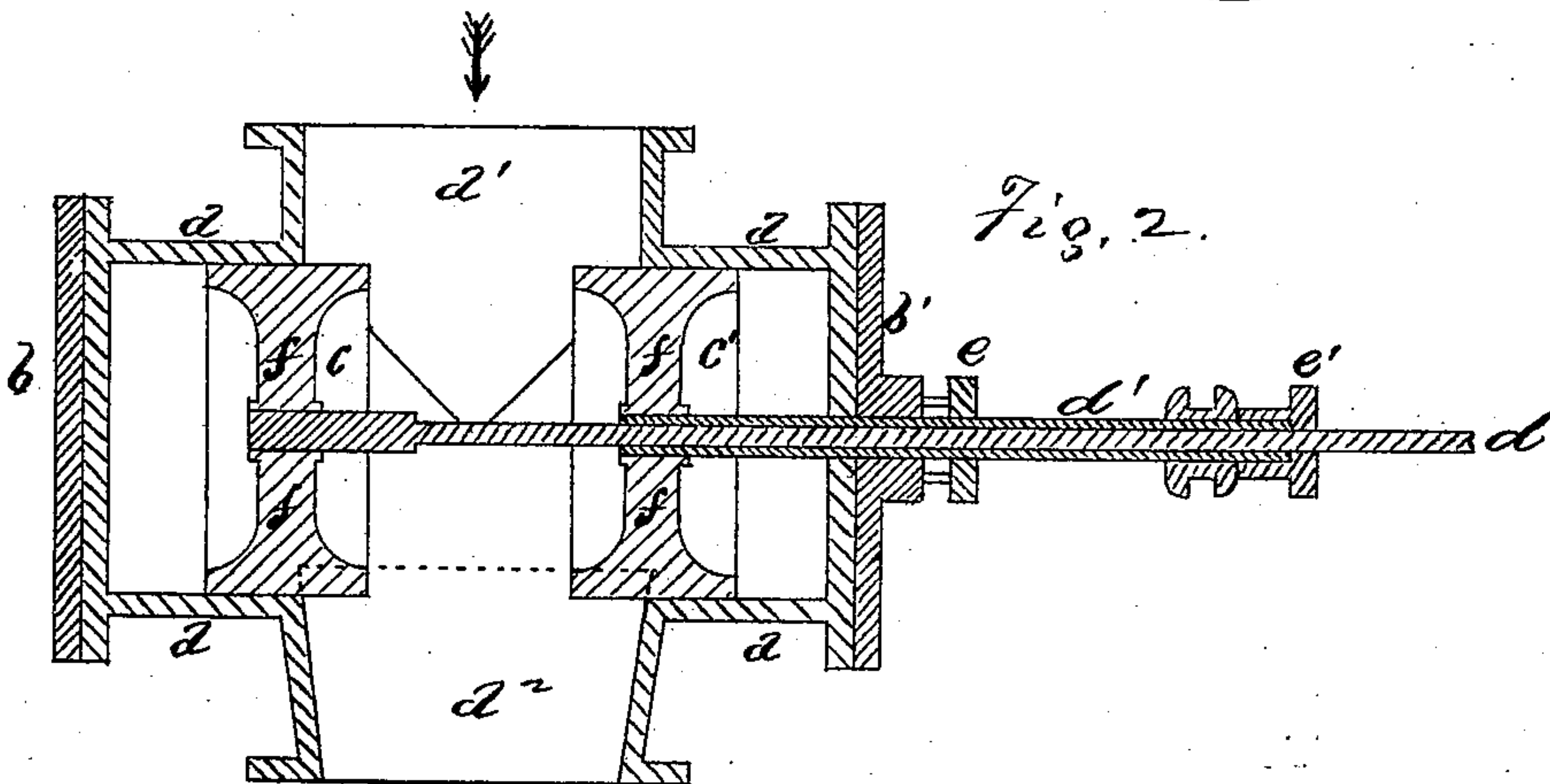
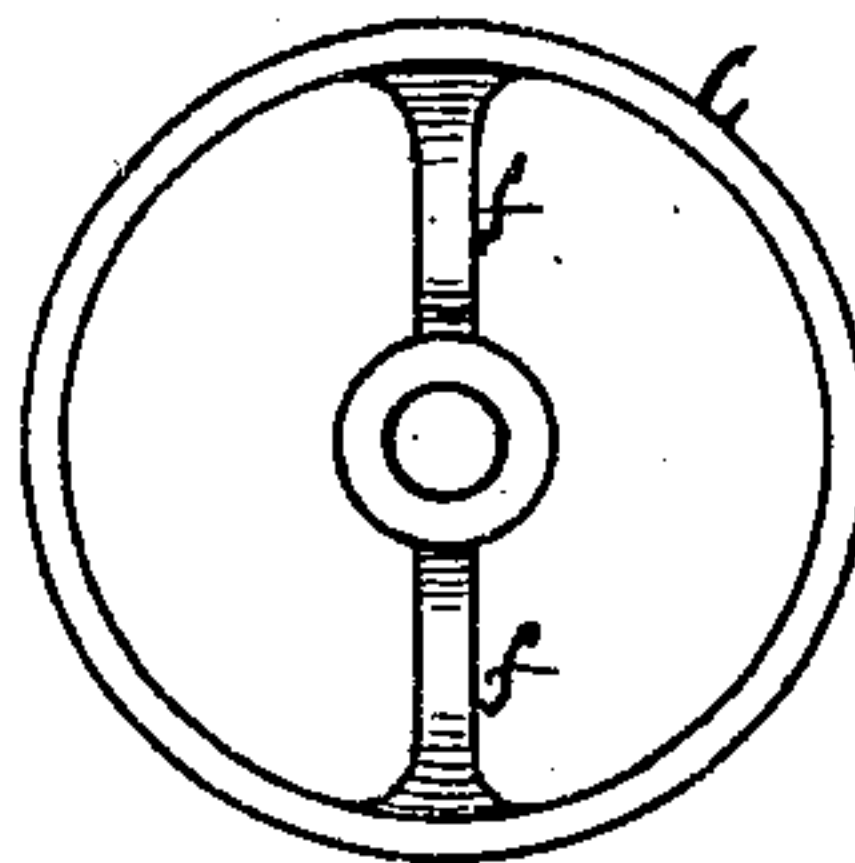
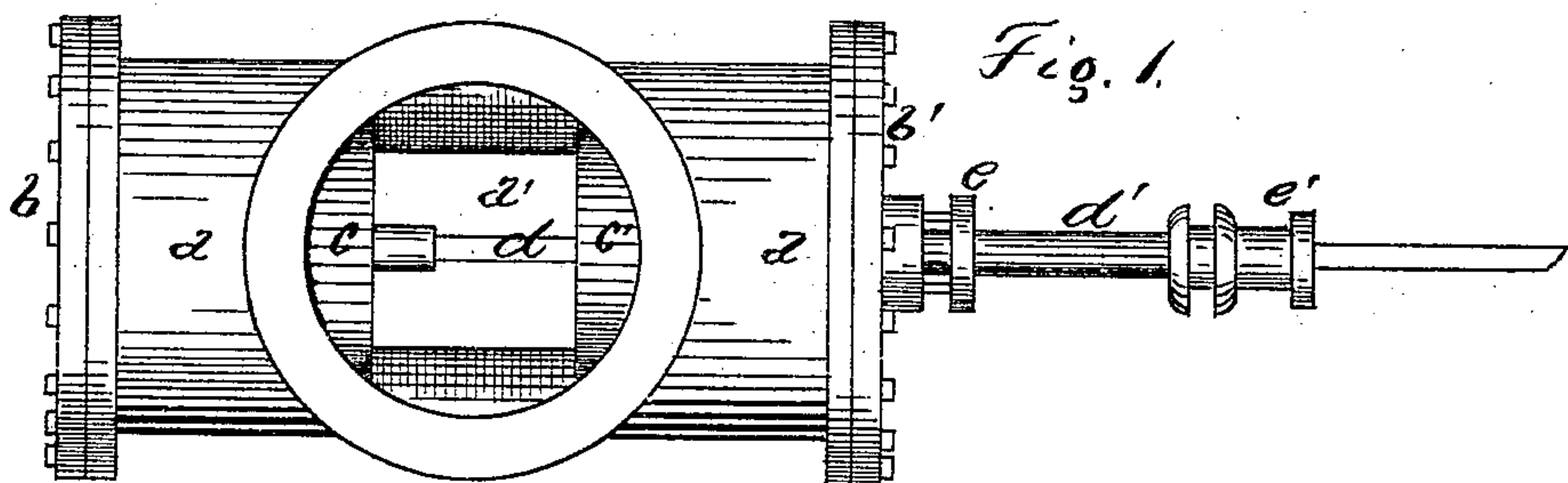


H. B. WEAVER.  
Governor-Valves.

No. 143,045.

Patented September 23, 1873.



WITNESSES.

John Pollitt  
H. E. Fuller

INVENTOR.

Horatio B. Weaver  
B. W. E. Vincent  
Att.

# UNITED STATES PATENT OFFICE.

HORATIO B. WEAVER, OF HARTFORD, CONNECTICUT.

## IMPROVEMENT IN GOVERNOR-VALVES.

Specification forming part of Letters Patent No. **143,045**, dated September 23, 1873; application filed June 18, 1873.

*To all whom it may concern:*

Be it known that I, HORATIO B. WEAVER, of the city of Hartford, county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Governor-Valves for Steam-Engines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a view of the exterior of the valve, looking into the feed or entrance pipe. Fig. 2 is a view of the valve in central longitudinal section through the dotted line *xx*. Fig. 3 is an end view of one of the valves proper.

The features of the invention are two in number, namely: A new method of balancing the valve, and an adaptation of such balanced valve to the governor patented to me by Letters Patent of the United States dated June 20, 1871.

The letter *a* indicates the round barrel or body of the device; *a*<sup>1</sup>, the pipe where the steam enters, and *a*<sup>2</sup> the pipe where the steam finds exit; *b* and *b'*, the heads screwed to the barrel. The letters *c* and *c'* indicate the two valves proper—the former attached to the valve-rod *d* and the latter to the valve-rod *d'*, through which the rod *d* runs, so that the two valves proper can be operated, by means of their respective valve-rods, independently of each other. The two valves *c* and *c'* are entirely open from front to rear, except the supporting-arms *f*, so that the steam has free access to both sides of the valves, thereby keeping them perfectly balanced. The valve-rod *d'* is packed steam-tight by means of the stuffing-box *e'* carried on the end of the valve-rod *d*.

I will now describe the adaptation of this valve to the governor patented to me, as aforesaid, June 20, 1871. The valve *c* is attached directly, by means of the rod *d*, to the governor-balls, so that as the balls fall this valve will open, and when the balls rise the valve will shut, the valve moving in exact concord-

ance with the up and down motion of the governor-balls. This valve is so adjusted that it will project about half its width into the steam-way when the governor-balls are at the height which indicates the desired speed of the engine.

I intend to make a separate claim to the method by which this and the other valve can be made thick enough, though not shown here, to cover and close the entire steam-way.

The valve *c'* is attached, by means of the rod *d'* to the lever, actuated by the differential mechanism of the said governor patented to me, so that this valve is caused to move more slowly than, and upon an entirely different principle from, the valve *c*, which said principle of operation is fully described in said patent.

The practical operation of this valve, when attached to my said patented governor, is such that when the balls of the governor rise or fall from the point which indicates the desired speed of the engine the valve proper *c* will at once close or open accordingly; and then, by means of the differential mechanism of the governor, the valve *c'* is moved so as to adjust the steam-way between the valves to the load upon the engine, and when this adjustment is attained the valve *c* returns to its original or normal position.

It is obvious that since the valves are open endwise, the steam can be made to pass out at the end of the barrel *a* as well as at the exit-pipe *a*<sup>2</sup>.

I claim as my invention—

The combination of the barrel *a*, the ingress and exit pipes, valves *c* and *c'*, and valve-rods *d* and *d'*, all constructed, arranged, and designed for operation and use, substantially as described.

H. B. WEAVER.

Witnesses:

WM. E. SIMONDS,  
JOHN POLLETT.