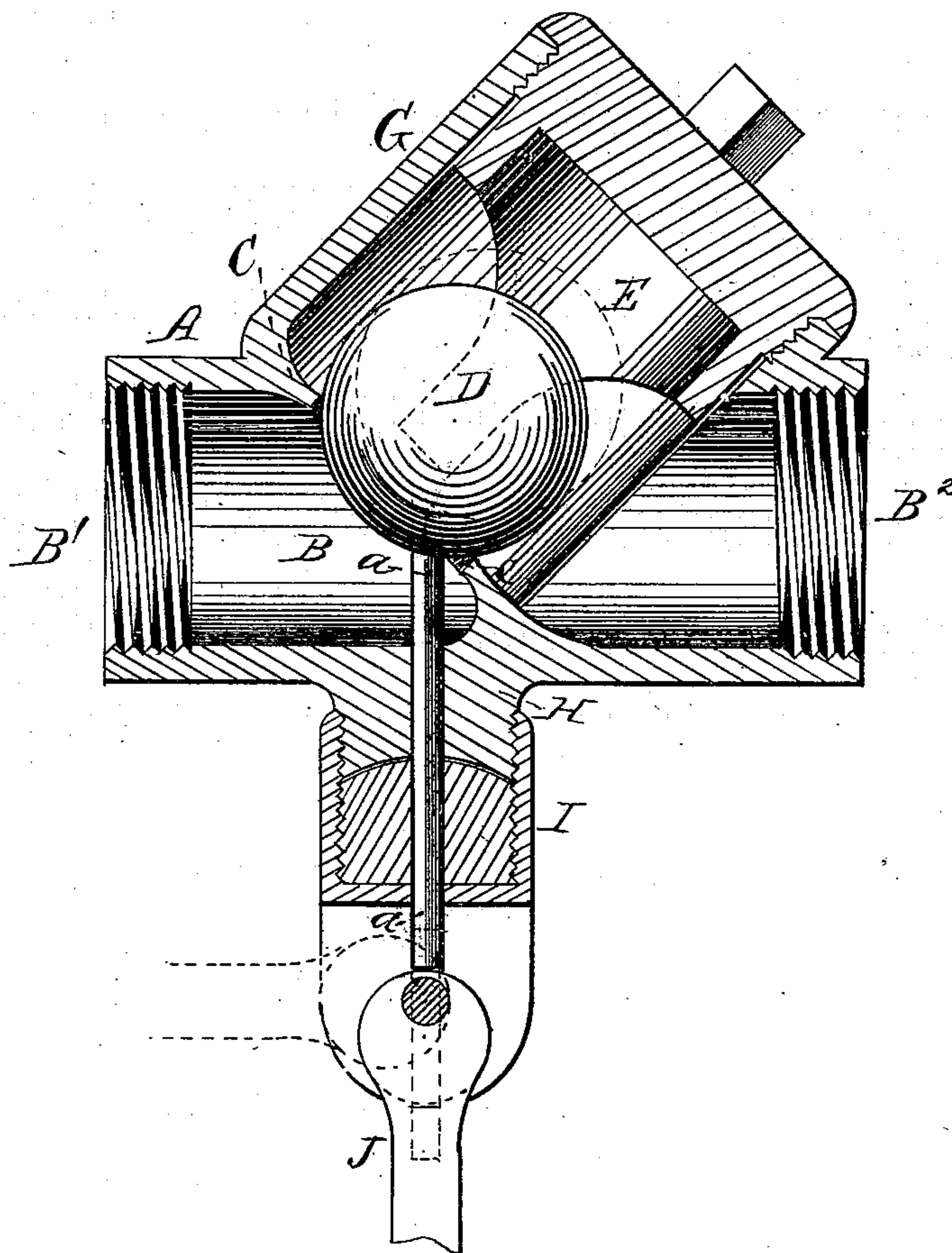


O. B. GOODWIN & H. ESSEX.

THROTTLE AND CHECK VALVES.

No. 187,373.

Patented Feb. 13, 1877.



Witnesses:

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# UNITED STATES PATENT OFFICE.

OCTAVIUS B. GOODWIN, OF OIL CITY, AND HENRY ESSEX, OF MEADVILLE,  
PENNSYLVANIA.

## IMPROVEMENT IN THROTTLE AND CHECK VALVES.

Specification forming part of Letters Patent No. **187,273**, dated February 13, 1877; application filed  
December 28, 1876.

*To all whom it may concern:*

Be it known that we, HENRY ESSEX, of Meadville, in the county of Crawford, and OCTAVIUS B. GOODWIN, of Oil City, in the county of Venango, and State of Pennsylvania, have invented certain new and useful Improvements in Throttle and Check Valves; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, making a part of this specification.

This invention relates particularly to check and throttle valves; and it consists in the construction of the valve-chamber with a valve-seat at an angle with the direction of the passage through the chamber, so that with a ball-valve the same chamber may be used either in a horizontal or vertical position.

This invention further consists in lifting a ball-valve from the bottom, all as hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawing, which represents a longitudinal section of our invention.

A represents the valve-chamber of a check or throttle valve, with passage B running on a straight line from the inlet B<sup>1</sup> to the outlet B<sup>2</sup>. Within the valve-chamber is a valve-seat, C, which stands at an angle of about forty-five degrees with the passage B through the valve-chamber. The valve-seat C is round, and of suitable shape to receive a ball or spherical valve, D, which is guided by means of a cage, E, screwed into an inclined enlargement, G, of the valve-chamber. The ball valve D falls of its own gravity, shutting off the back flow in a check-valve, and the direct flow in a throttle-valve, of either steam or water, the pressure of the same keeping the valve firmly down on its seat.

By arranging the valve-seat C on an incline, as shown, the valve-chamber may be used equally as well when the passage B, for the flow of the steam or water, is vertical as when it is horizontal.

The ball-valve D is raised from its seat by means of a rod, *a*, working from underneath through a projection, H, on the valve-chamber, on the end of which projection is a packing-box, I. The rod *a* is operated by means of an eccentric lever, J, by which the rod may be raised to lift the valve from the bottom upward off of its seat.

This part of our invention may be applied to any valve using a ball or spherical valve to fall by its own gravity. We do, however, not confine ourselves to the particular device shown and described for lifting the ball from the bottom, as many mechanical devices may be arranged to perform the same function.

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

1. In a check or throttle valve, the combination of the gravitating-ball or spherical valve D, the rod *a*, independent of the valve, and a mechanism for operating said rod, whereby the ball-valve is lifted from the bottom, substantially as herein set forth.

2. The combination, with the valve-chamber A, having straight passage B, of the inclined valve-seat C, enlarged barrel G, with screw-cage E, the ball or spherical valve D, rod *a*, independent and separate from the valve, and a cam-lever, or equivalent mechanism, for raising and lowering said rod, substantially as set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

OCTAVIUS B. GOODWIN.  
HENRY ESSEX.

Witnesses:

W. J. BELL,  
DAVID READY.