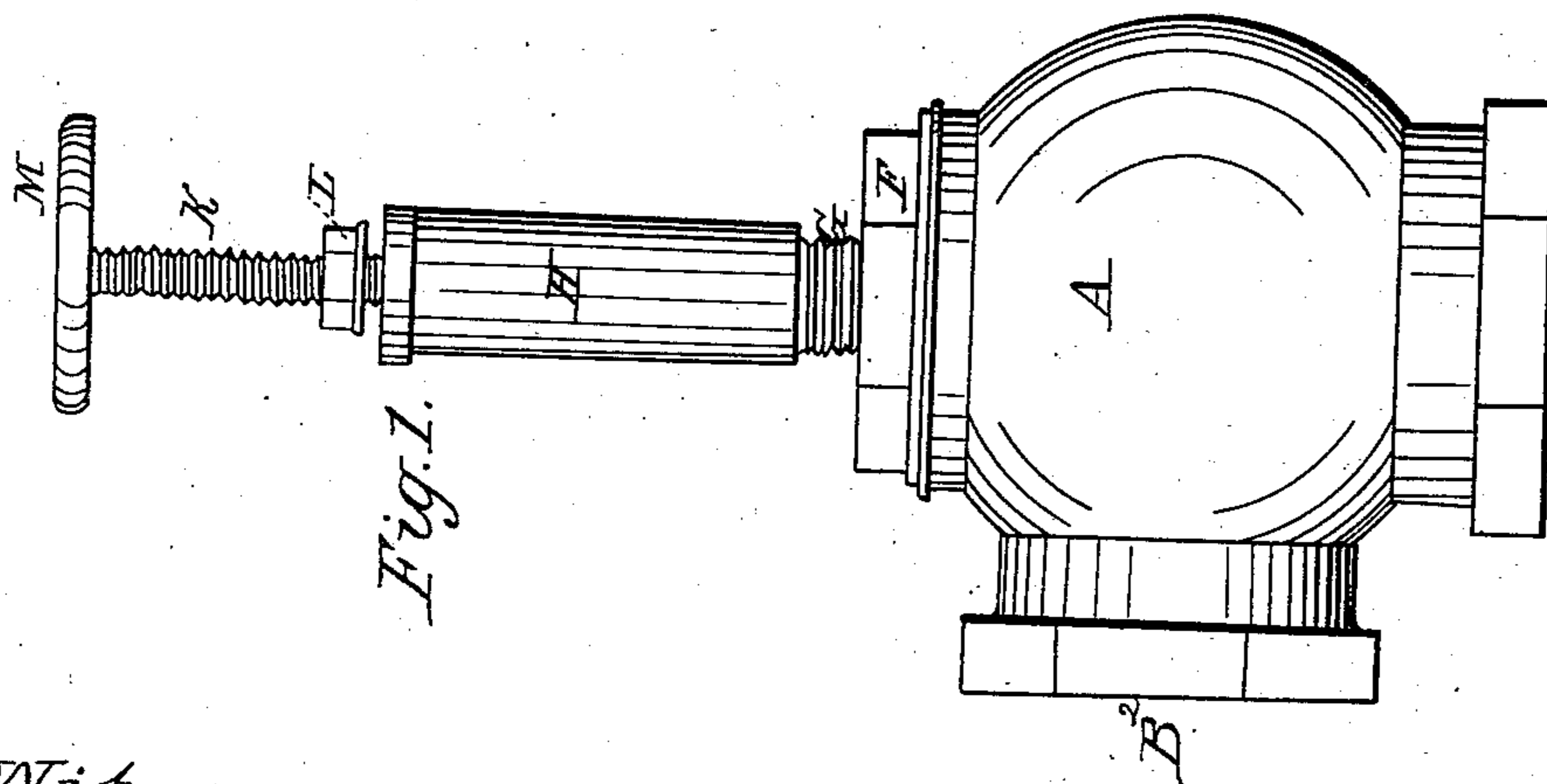
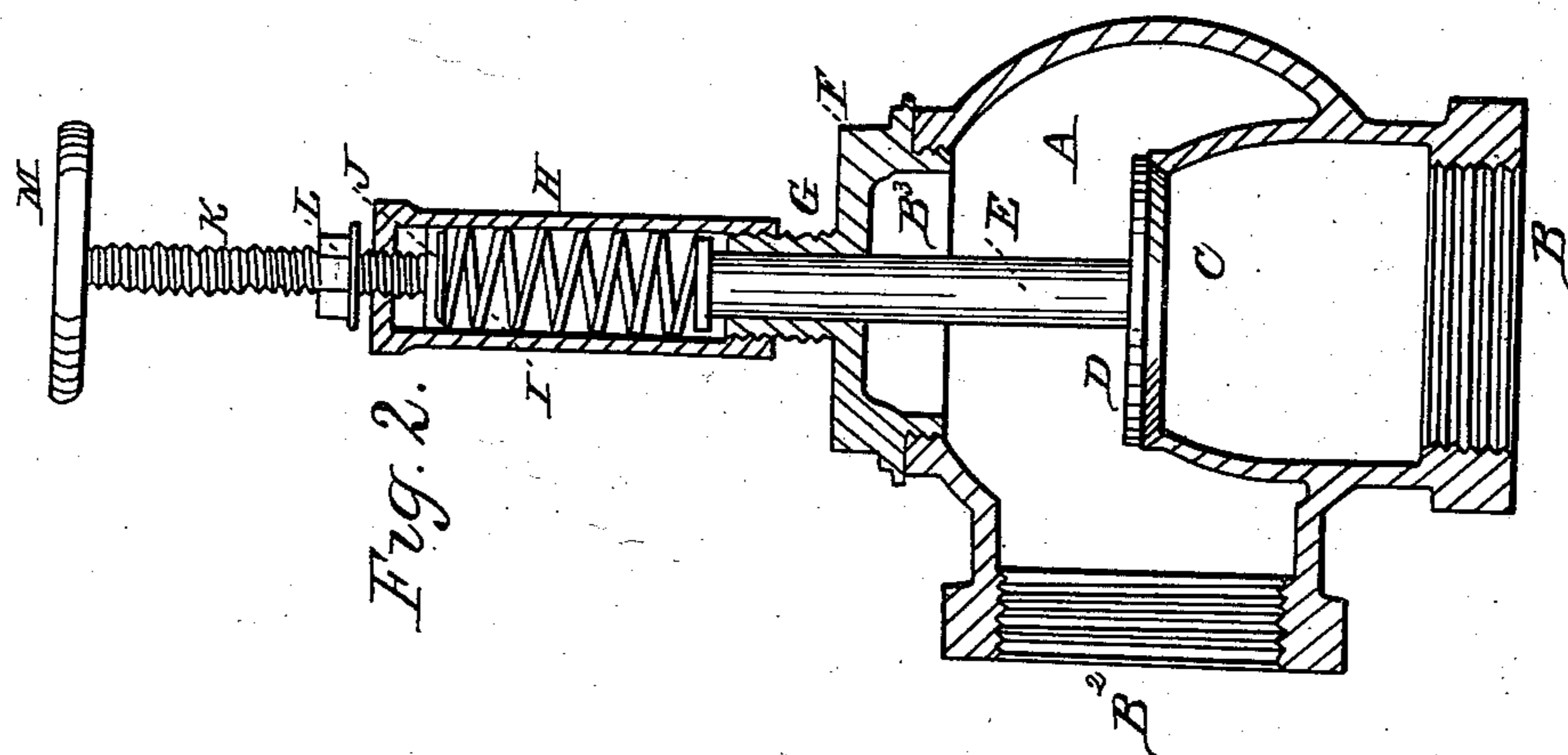


J. Shackleton,
Check Valve,
Nº 84,586, Patented Dec. 1, 1868.



Witnesses.
John Buchman
H. W. Henry

Inventor:
Joseph Shackleton
by Alfred G. Mullett.



JOSEPH SHACKLETON, OF RAHWAY, NEW JERSEY.

Letters Patent No. 84,586, dated December 1, 1868.

IMPROVEMENT IN STEAM-EXHAUST REGULATOR

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSEPH SHACKLETON, of Rahway, Union county, New Jersey, have invented, made, and applied to use, a new and improved valve, which I term "A Back-Pressure Valve or Steam-Exhaust Regulator;" and I do declare the following to be a full, clear, and correct description of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of my improved valve.

Figure 2 is a sectional view of the same.

In the drawings, like parts of the invention are designated by the same letters of reference.

The nature of my invention consists in the arrangement, as more fully hereinafter set forth, of a valve for attachment to the exhaust-pipe of steam-engines.

The object of the invention is the utilization of exhaust-steam, and the ability to use the same for heating, boiling, and other purposes.

To enable those skilled in the arts to make and use my invention, I will describe the construction and operation of the same.

A shows the shell of my improved valve, provided with the apertures B and B².

The aperture B is threaded upon its interior to admit of its being connected to the exhaust-pipe of a steam-engine, while the aperture B² is also threaded to allow a pipe to be connected easily to the same.

C shows the valve-seat, upon which bears or rests the valve D, supported by the stem E passed through the cap F secured in the aperture B³ of the shell A.

Upon the raised portion of this cap is the threaded projection G, over which is screwed one end of the tube H, in which is placed a spring, I, the position of which spring I, relatively to the stem E, a portion of which is received within the tube H, is regulated by the disk J, secured upon the end of spindle K inserted within the upper end of the tube H.

This spindle K is provided with a screw-thread to admit of its being readily manipulated by the hand of the operator, and has placed upon it the check-

nut L, governing the extent of its entrance within the tube H.

Upon the end of the spindle is the blank-wheel M, by which the spindle is operated.

Such being the construction, the operation is as follows:

The valve is attached by screwing the threaded aperture B of the shell A over the end of the exhaust-pipe of a steam-engine.

The exhaust steam enters the body of the shell A, and opens the valve D, supported by the stem E, allowing the steam not used to pass off through the aperture B².

The valve D is regulated, as may be desired, or to accommodate itself to the pressure of the steam by compressing or relaxing the spring I, held within the tube H by means of the disk J secured upon the end of the spindle K, which has a direct bearing upon or against the upper end of the spring I, the forward end of which bears upon or against the end of the valve-stem E.

The exhaust-pipe may be tapped at any convenient point below the valve, and the steam, supplied from the exhaust-pipe of the engine, may be conducted from the same by means of pipes, and be employed for heating, boiling, and other purposes.

The value of the invention is found in the ability it affords the user to utilize exhaust steam, while the adjustability of the spring, as shown, renders the valve applicable to engines of different sizes, and, at the same time, enables the operator to correct any wear of spring that may occur.

Having thus described my invention,

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

The arrangement of the valve D with its conical cup-seat C, the stem E, cap F, projection G, tube H, spring I, disk J, screw K, and check-nut L, substantially as herein set forth.

Witnesses: JOSEPH SHACKLETON.

A. SIDNEY DOANE,

A. W. HENLEY.