

W. MENDHAM.
Ball-Valves.

No. 143,294.

Patented September 30, 1873.

Fig. 1.

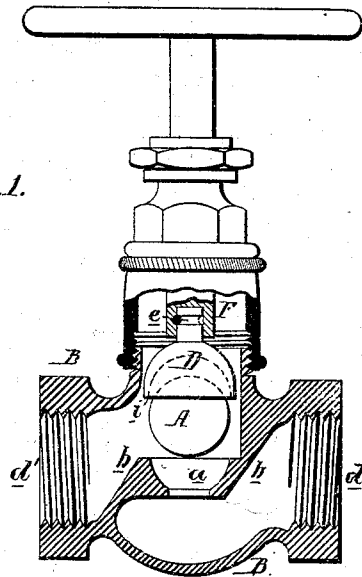
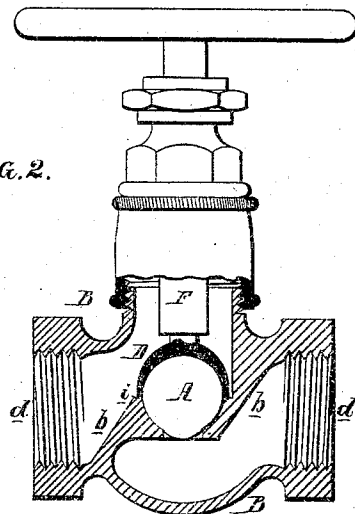


Fig. 2.



WITNESSES

Thomas McShain
Harry Smith

William Mendham
by his attys.
Howson & Son.

UNITED STATES PATENT OFFICE.

WILLIAM MENDHAM, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
HIMSELF AND W. PRICE DAVIS, OF SAME PLACE.

IMPROVEMENT IN BALL-VALVES.

Specification forming part of Letters Patent No. **143,294**, dated September 30, 1873; application filed
February 1, 1873.

To all whom it may concern:

Be it known that I, WILLIAM MENDHAM, of the city and county of Philadelphia, State of Pennsylvania, have invented Improvements in Ball-Valves, of which the following is a specification:

The object of my invention is to prevent undue compression and distortion of an elastic ball-valve in forcing the same into its seat, to reduce the wear upon the said valve, and to obtain a steam and water tight joint.

I accomplish this object, in the manner plainly shown in the vertical section, Figures 1 and 2, of the accompanying drawing, by adapting the elastic and compressible ball-valve A to a semi-spherical, or nearly semi-spherical, seat, *a*, formed in the partition *b* between the inlet and outlet branches *d* and *d'* of the casing B, and to a similarly-shaped cup, D, swiveled at *e* to the threaded valve-stem F, by turning which, in one direction or the other, the said cup may be raised or lowered, so as to release or force the valve into its seat.

In ordinary valve-cocks of this class the elastic ball has been forced upon a seat, which received but a small portion of the same, by a plunger attached to the valve-stem, and limited in its downward movement by the valve alone, the consequence being that the valve was unduly compressed, worn away, and flattened or otherwise distorted, so that, if retained for any length of time in its seat, it soon lost its spherical shape, and, when released and turned to any other position, failed to produce a tight joint. These objections I have effectually overcome by swiveling the cup D, as above described, so as to prevent the same from turning upon and wearing away or twisting the valve when the latter is in contact with its seat; second, by causing the lower edge *i* of the cup, when the valve is sufficiently com-

pressed, to be brought in contact with the portion of the partition *b* surrounding the valve-seat, as shown in Fig. 2, thus limiting the movement of the said cup toward the valve, and preventing undue and injurious compression of the latter after it has been forced into its seat; and, third, by making both the seat and cup nearly semi-spherical, so that the valve, when confined between them, as seen in Fig. 2, shall be entirely inclosed and retained in very nearly its proper spherical shape, so that, when released and turned to a different position and again confined, it will entirely fill the seat and form a perfectly steam or water tight joint.

I prefer to limit the movement of the cup D toward the valve by bringing it in contact with the partition *b*; but a stop-pin on the upper portion of the valve-stem arranged to strike the casing when the valve was sufficiently compressed would answer the purpose.

I claim as my invention—

1. The combination, substantially as described, with a ball-valve, A, of a cup or plunger, D, swiveled to the valve-stem, and having a semi-spherical recess, for the purpose set forth.

2. The combination, with an elastic ball-valve, A, of a semi-spherical seat, *a*, adapted to the valve, and a semi-spherical plunger, T, between which and the seat the valve can be confined, compressed, and inclosed without materially altering its form, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM MENDHAM.

Witnesses:

JOHN H. DAY,
JOHN WILLIAMS.