

R. B. CHAPMAN & E. F. SPAULDING.

Valves.

No. 126,182.

Patented April 30, 1872.

Fig. 2.

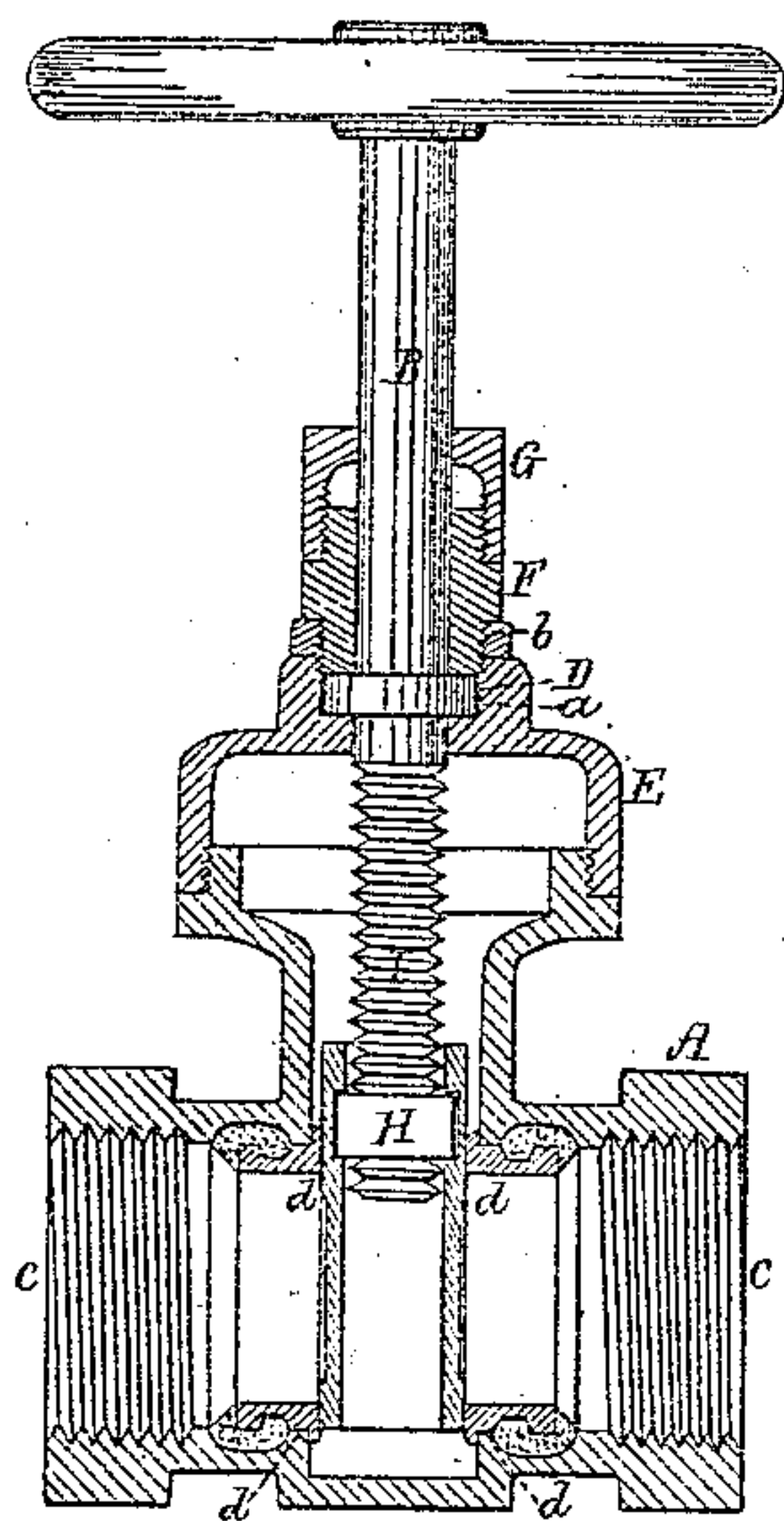


Fig. 6.

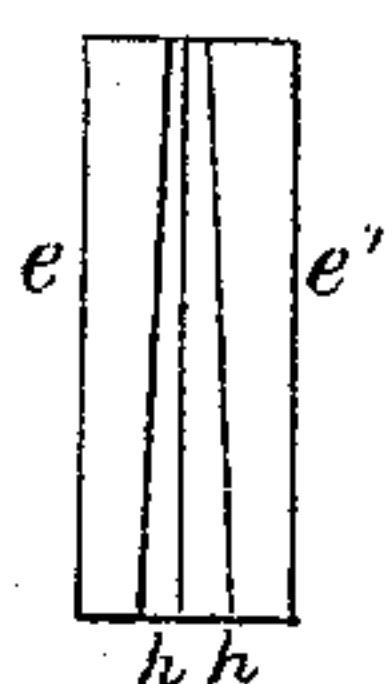


Fig. 7.

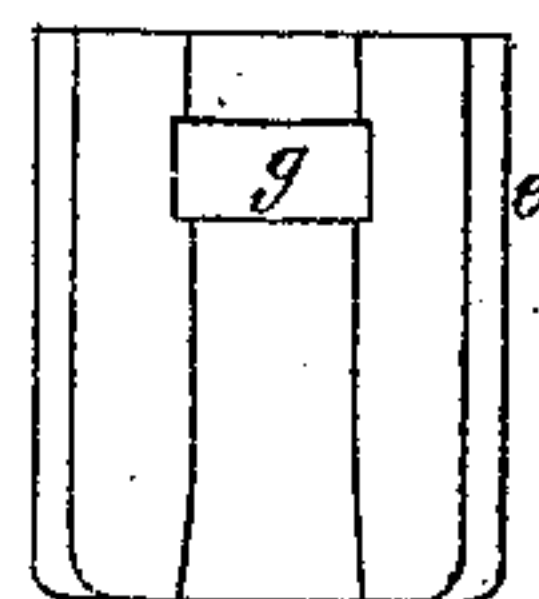


Fig. 5.

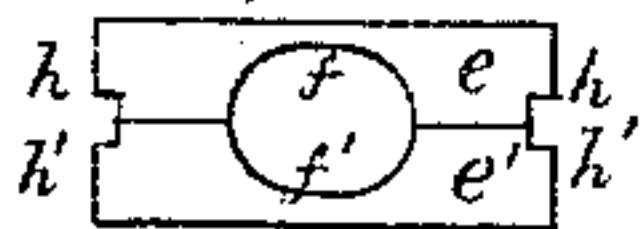


Fig. 1.

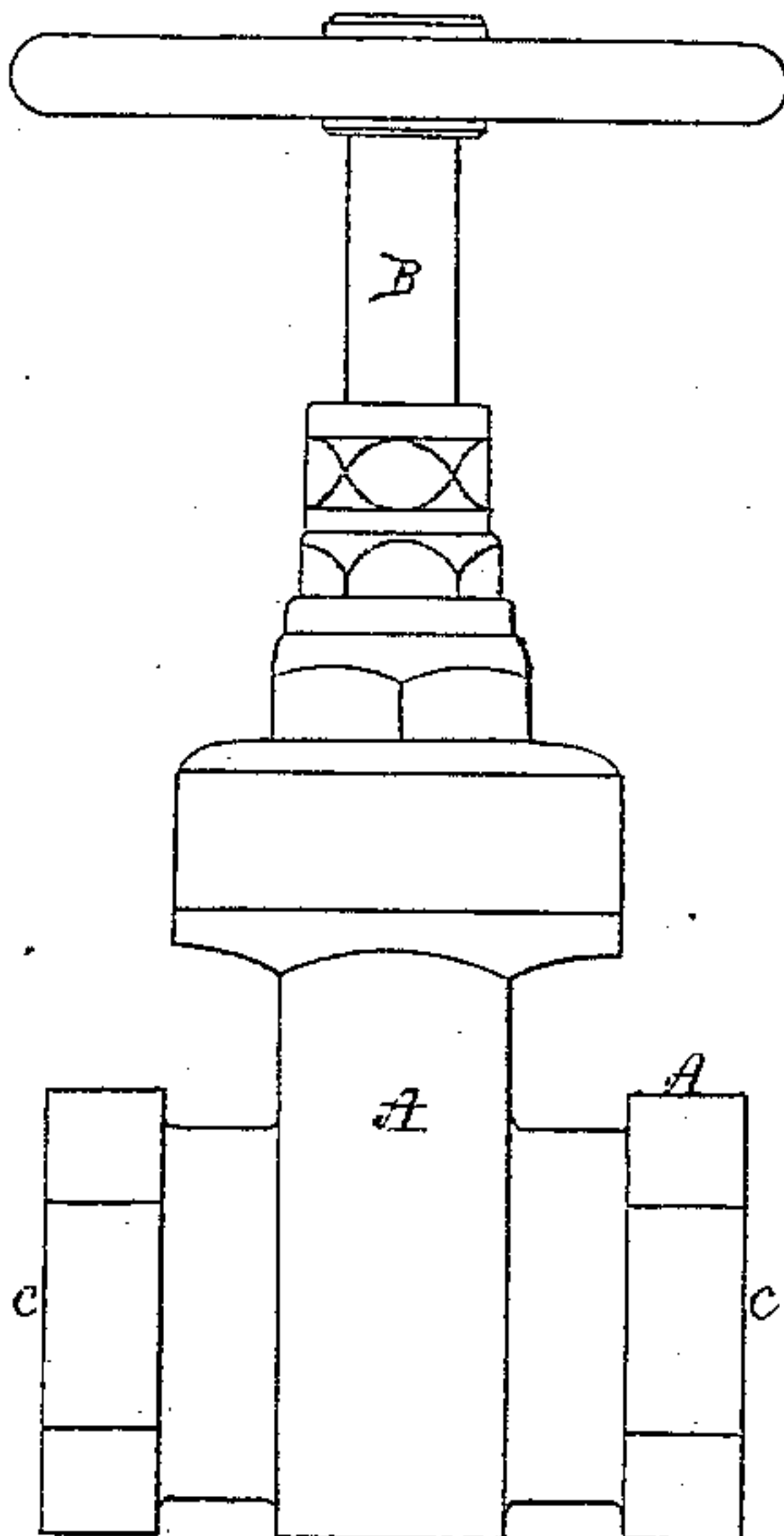


Fig. 4.

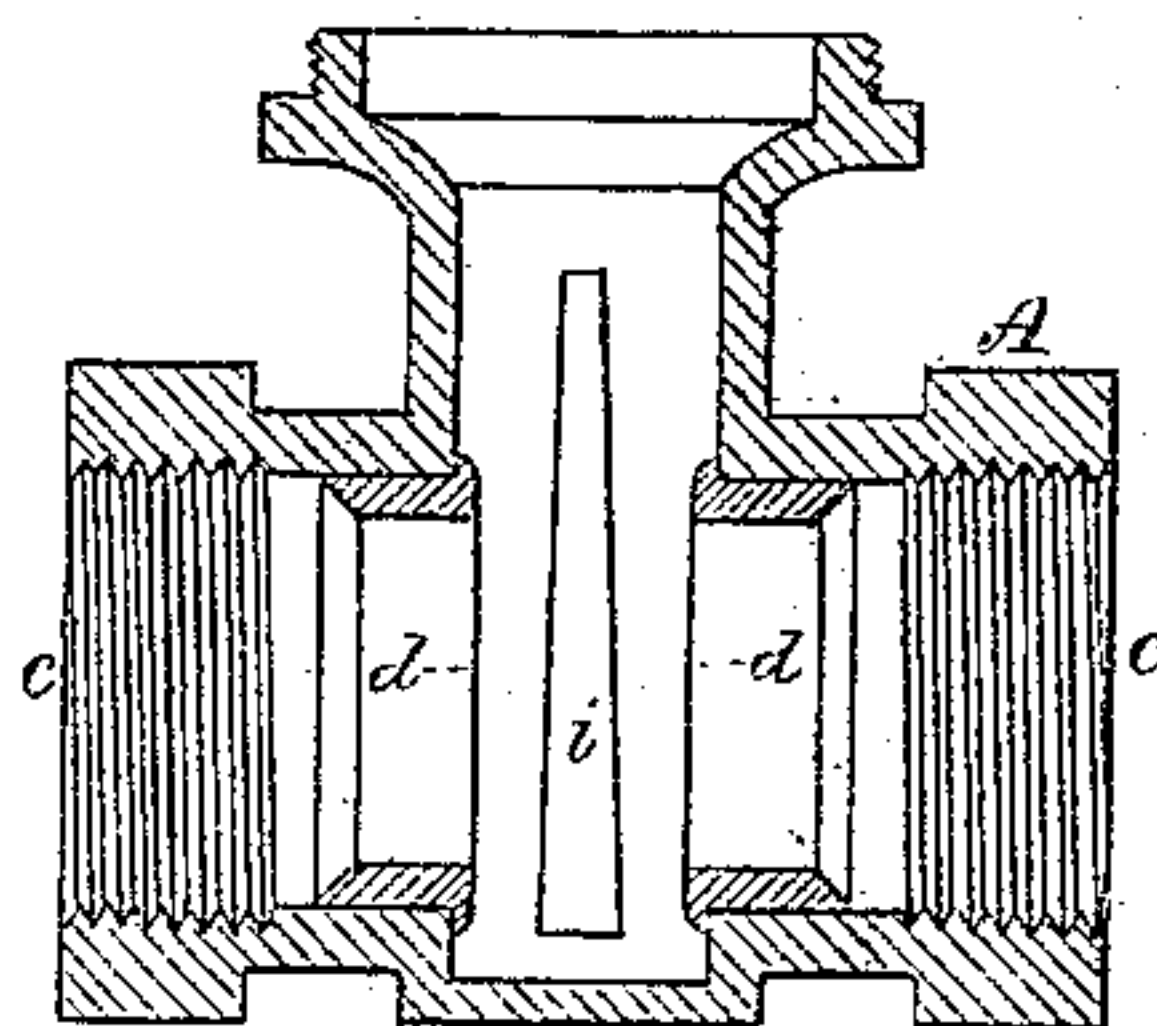
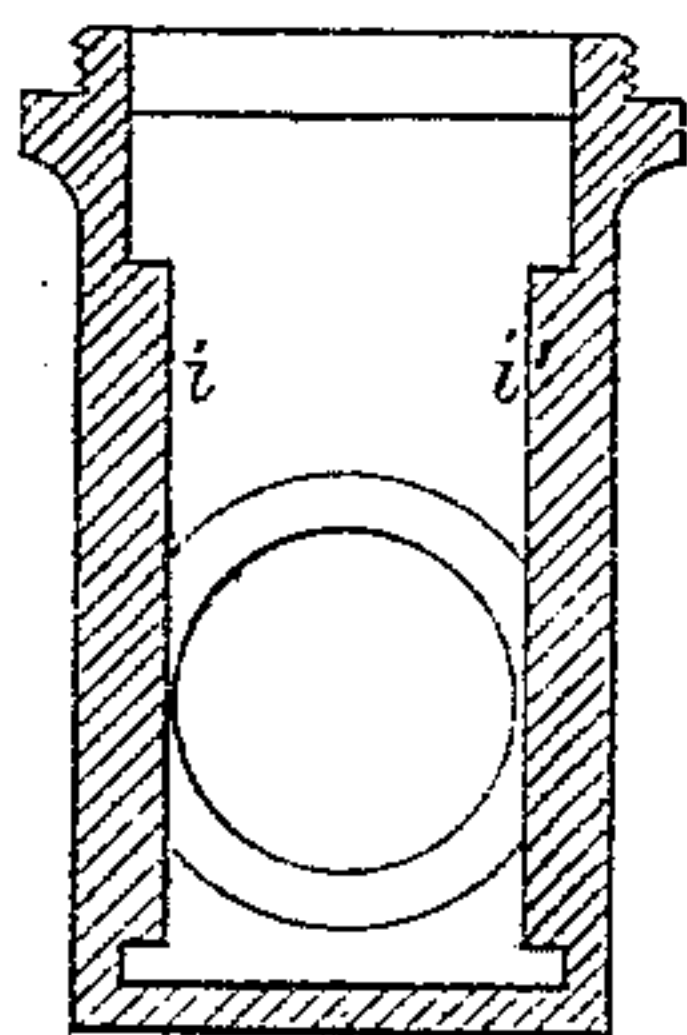


Fig. 3.



Witnesses.

J. C. Hale

Geo. T. Poor

R. B. Chapman & E. F. Spaulding.

by their attorney.

J. C. Hale



# UNITED STATES PATENT OFFICE.

RUFUS B. CHAPMAN, OF WALTHAM, AND E. FRANK SPAULDING, OF CAMBRIDGEPORT, MASSACHUSETTS, ASSIGNORS TO RUFUS B. CHAPMAN.

## IMPROVEMENT IN VALVES.

Specification forming part of Letters Patent No. 126,182, dated April 30, 1872.

*To all to whom these presents may come:*

Be it known that we, RUFUS B. CHAPMAN, of Waltham, and E. FRANK SPAULDING, of Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Valves; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 denotes a side elevation; Fig. 2, a vertical and central section of a valve embodying our improvement. Figs. 3 and 4 are vertical and central sections of the shell or body of the valve, taken in planes at right angles to each other. Fig. 5 is a top view of the valve-plug or plates. Fig. 6 is a side view thereof; and Fig. 7, an inside view of one of the said plates.

The object of our invention is to provide a simple, cheap, and effective valve for water, steam, gas, &c.; and consists in combining with two tapering ribs or guides disposed on opposite sides of the shell a pair of valve-plates or gates each having on its inner face a groove with an inclination corresponding with that of the said ribs, the ribs and groove conjointly operating, so that when the said gates are moved downward they may gradually and equably spread apart, and always maintain their outer faces in a line parallel with their seats, and thereby, when brought to bear against the same, to impinge with equal force upon all parts thereof and produce a perfectly tight connection.

In the said drawing, A denotes the shell or body of the valve, through which a straight passage for the flowage of steam, water, &c., is made. B is the valve-stem, which is provided with a hand-wheel at its upper end. D is an annular shoulder formed on the said stem, the same resting upon the bottom of a chamber, *a*, made in the top of a cap, E, which is screwed upon the neck of the valve-case. F is a tubular guide or collar having a stuffing-box, G, mounted upon its upper end, its lower end having a male-screw, *b*, cut upon it, and which screws into a female screw formed on the inner surface of the chamber *a*. The lower end of the part *b* forms a bearing for the said shoulder, which being thus confined prevents

the stem from having any longitudinal movement and limits it to a simple rotation upon its axis. *c c* are the steam or water-ways extending through the shell at right angles to the stem of the valve, and having a flat seat, *d*, on the inside of each. In a cavity in the shell A and between the seats *d d'* the valve-plug is placed, the same consisting of two flat valve-plates, *e e'*, each of which has a semi-circular groove, *f* or *f'*, extending longitudinally through its inner-surface and a rectangular recess or socket, *g*, to receive a slider or traversing-nut, H, corresponding in shape thereto and working upon and in connection with a screw, I, formed on the lower portions of the valve-stem B. Furthermore, there is formed in the vertical sides of the plug two inclined grooves or channels, *h h'*, which are of a corresponding shape, and extend through the entire length of the plug, the same having their greatest width at the lower part thereof. These channels receive two correspondingly-shaped ribs or projections, *i i'*, which are disposed vertically on the inner walls of the shell and at right angles to the steam or water-ways, as shown in Fig. 3. These ribs are of a length somewhat greater than the grooves in which they slide. The valve-plates are also of a length greater than the diameter of the water-way, such latter construction of the said parts being in order to compensate for any wear of the said plates, and to insure a perfectly tight connection under any wear that may result from the use of the valve. By means of the tapering-ribs on the walls of the shell and the correspondingly-shaped grooves or channels on the inner sides of the valve-plates or gates, the faces of the said gates, as they are moved downward, are always kept in a line parallel with their seats, so that when the gates are forced home they will move with a positively parallel action and equably impinge against such seats. As the valves or their seats become worn the valve-plates will descend to a lower point before they impinge against their seats so as to close the water-ways, the greater width of the wedges or ribs at such point compensating for such wear, and thus maintaining the parts in their due relation.

We do not claim a valve having its plug

formed of two plates or disks to close upon two valve-seats, as we are aware that such is not new; nor do we claim any of the devices, either singly or combined, as shown in Letters Patent No. 111,920 or 113,337, as our invention differs therefrom.

What we claim as our invention is—

The valve-plates or gates *ee'*, when provided with the tapering channels *h h'*, as described, in combination with the tapering ribs *ii'*, the

traversing-nut H, and the screw I, the whole being constructed, arranged, and applied together and within the shell A, in manner and so as to operate as above set forth.

RUFUS B. CHAPMAN.

E. FRANK SPAULDING.

Witnesses:

F. P. HALE,

F. C. HALE.