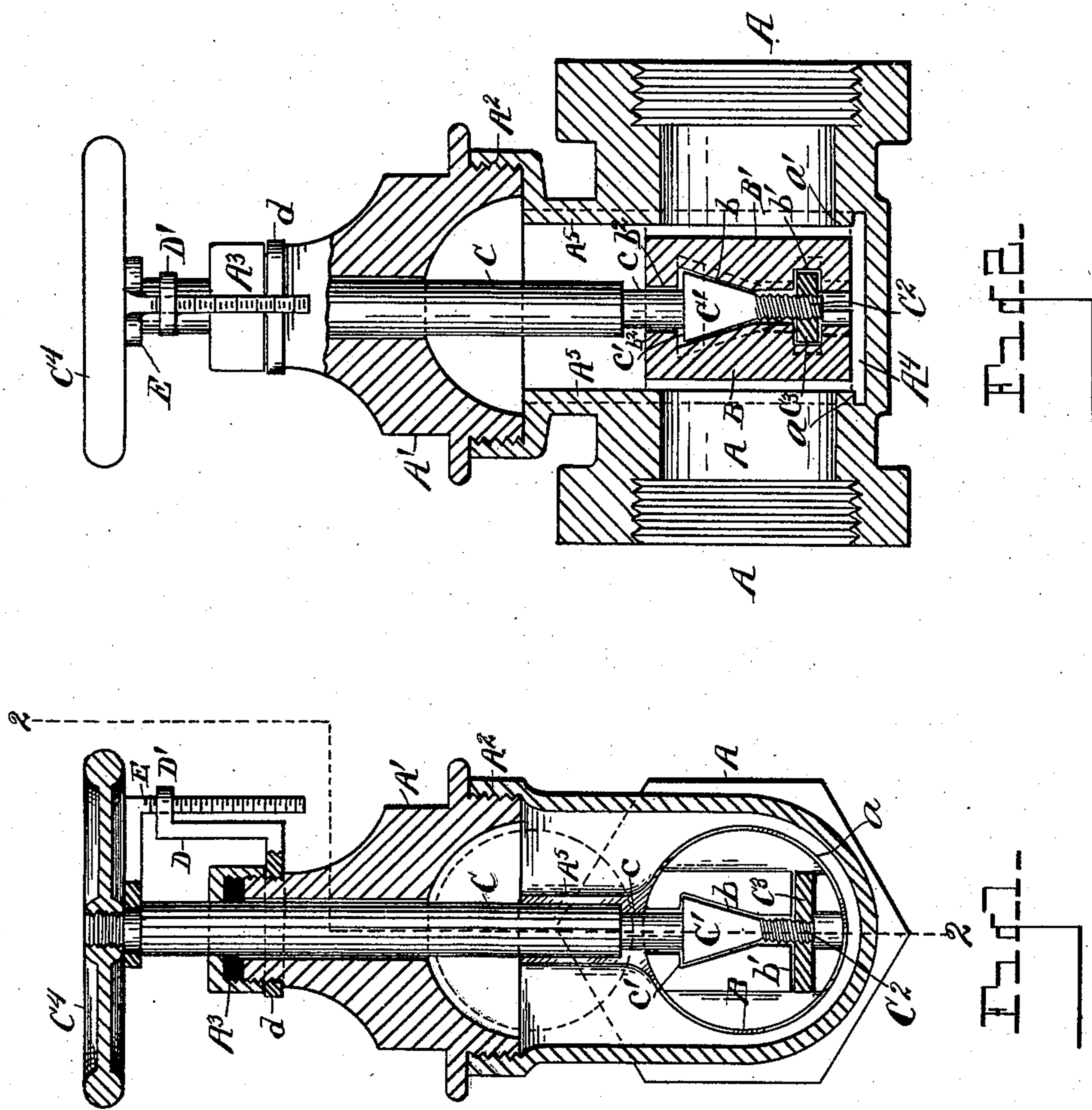


(No Model.)

F. W. O'BRIEN.
STRAIGHTWAY VALVE.

No. 575,848.

Patented Jan. 26, 1897.



WITNESSES

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FREDERICK W. O'BRIEN, OF DETROIT, MICHIGAN.

STRAIGHTWAY VALVE.

SPECIFICATION forming part of Letters Patent No. 575,848, dated January 26, 1897.

Application filed March 30, 1896. Serial No. 585,322. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. O'BRIEN, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Straightway Valves; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in a straightway valve, my design being to provide a quick-opening and quick-closing valve of superior efficiency and utility.

My invention includes within its scope the construction of the valve for any and all uses to which it may be found adapted.

To these ends my invention consists of the construction, combination, and arrangement of devices hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical cross-section; and Fig. 2 is a vertical longitudinal section on the line 2 2, Fig. 1.

I carry out my invention as follows:

A represents the valve-case, formed with interior valve-seats, as at $a\ a'$.

A' is the cap, having a threaded connection with the case, as indicated at A².

A³ indicates a packing-nut of a stuffing-box or packing-gland.

B and B' denote valve disks or plates, constructed to seat on the valve-seats $a\ a'$ when said disks are in closed position. These valve disks or plates B B' are each recessed toward their upper edges to form a chamber b . Said plates are also recessed toward their lower edges to form an additional chamber b' .

C represents the valve-stem, constructed with a conical-shaped portion C' to engage the valve-plates within the chamber b . The lower end of the valve-stem is threaded, as indicated at C², to engage a rectangular nut C³ within the chamber b' , said chamber constructed to correspond in form to the shape of said nut and to hold the nut from turning. The valve-

stem is preferably cut away just above the conical portion C', as indicated at c , forming a shoulder c' at the upper edge of the conical portion C' to engage the inwardly-projecting shoulders b^2 on the upper edges of the valve-disks. The body of the stem C above the said disks is unthreaded and reciprocates freely through the cap A'.

An important feature of my invention is to provide for the quick adjustment of the valve-plates to any desired position and quickly lock said plates at any point, as may be desired. It will be perceived that by tightening up the threaded portion C² of the stem in the nut C³ the conical-shaped portion C' is caused to wedge against the valve-plates to spread said plates and lock them against the adjacent portions of the valve-case. By loosening the valve-stem in engagement with said nut the valve-plates are loosened in relation to the conical-shaped portion C', so that the valve-stem may be adjusted in or out readily and quickly through the cap A' to move the valve-disks toward or from a closed position to entirely close the passage-way through the valve-case or to open the passage-way there-through in any desired degree, more or less, as may be desired, simply by reciprocating the valve-stem through the case A' by a straight pull or opposite movement and then slightly turning the handle C⁴ of the valve-stem to tighten the stem in the nut C³, thereby locking the plates in any given position. Obviously this permits the quick adjustment of the valve-plates and the quick locking of the same at any desired point of adjustment.

The two seats of the valve-chamber A⁴ are vertically parallel or in two vertically-parallel planes, and above the valve-seat the walls of said chamber are formed with a rib A⁵ of suitable width, so that said walls shall be maintained parallel, and whereby the valve-plates will move freely from the bottom to the top of the chamber, and whereby said plates may be locked against said ribs in any desired position.

To indicate at what position the valve-plates are adjusted, I provide a gage of any suitable construction, as, for example, an arm D, engaged upon the cap A', the arm D being

preferably formed with a collar *d*, having a threaded connection upon said cap. This arm is formed with a loop, (indicated at *D'*.)

Upon the valve-stem is engaged an indicator-arm *E*, which may be provided with a scale, as shown, the arm *E* working freely through the loop *D'* and thereby indicating any given position of the valve-plates.

By dispensing with any threaded engagement of the valve-stem within the cap and simply forming the valve-stem with a threaded engagement with the nut *C*³ the construction is greatly simplified, as well as rendered more efficient, permitting the quick opening and closing of the valve.

The nut *C*³, it will be understood, is immovable in the chamber *b'*, intermediate the valve-disks. In Fig. 2 the valve-disks are shown in unseated condition, the conical portion *C'* being indicated as loose within the chamber *b*. By tightening up the valve-stem in the nut *C*³ by turning the stem in the proper direction it will be apparent that the conical-shaped portion *C'* will be drawn down, so as to wedge apart the valve-disks, as indicated in dotted lines, Fig. 2, forcing the valve-disks upon their adjacent seats. A corresponding action will lock the valve-disks in any given position of adjustment. It takes but a slight movement of the handle *C*⁴ in the proper direction either to loosen or tighten the conical-shaped portion *C'* within the chamber *b*, rendering the adjustment of the valve-disks quick and easy of accomplishment.

It is evident that the shoulders *b*² will limit the movement of the conical-shaped portion *C'* in the chamber *b*, thereby preventing the stem *C* being disengaged from the nut *C*³ while in engagement with the valve-disks.

What I claim as my invention is—

1. In combination, the valve-case, the valve-plates formed with an intermediate chamber *b*, and an intermediate chamber *b'*, a valve-stem formed with a conical-shaped portion *C'* located in the chamber *b*, a nut located in the chamber *b'*, having a threaded engagement with the lower extremity of the valve-stem, and means to hold the nut from rotating relatively to the valve-plates, said plates engageable with the inclined sides of the cone on the stem, substantially as and for the purpose described.

2. In a valve, the combination of the case formed with a valve-chamber, having vertically-parallel valve-seats, a cap, valve-plates formed with an intermediate chamber *b*, and an intermediate chamber *b'*, a valve-stem reciprocatory through the cap of the valve-case formed with a conical-shaped portion *C'* located in the chamber *b*, and a nut located in the chamber *b'*, having a threaded engagement with the valve-stem, and means to hold the nut from rotating relatively to the valve-

plates, said plates engageable with the inclined sides of the cone on the stem, substantially as and for the purpose described.

3. A valve having in combination, a case, valve-plates, a nut held in place between the valve-plates, and a valve-stem having a threaded engagement with the nut, said valve-stem formed with a conical-shaped portion *C'* located intermediate the valve-plates, whereby the valve-plates may be quickly adjusted and locked in any desired position, said plates engageable with the inclined sides of the cone on the stem, substantially as and for the purpose described.

4. A valve having in combination, a case, the valve-plates, the nut held in place between the valve-plates, a stem reciprocatory through the cap of the valve-case, and having a threaded connection with said nut, said stem formed with a conical-shaped portion *C'* located between said valve-plates whereby the valve-plates may be adjusted and locked in any given position, a gage to indicate the position of the valve-plates, and means to hold the nut from rotating relatively to the valve-plates, said plates engageable with the inclined sides of the cone on the stem, substantially as and for the purpose described.

5. A valve having in combination a case, valve-plates, a nut held in place between the valve-plates, and a valve-stem having a threaded engagement with the nut, said valve-stem formed with a conical-shaped portion *C'* located intermediate the valve-plates, said plates formed with shoulders projecting over the upper edge of the conical-shaped portion *C'*, whereby the valve-plates may be quickly adjusted and locked in any desired position, and whereby the valve-stem will be held in engagement with the nut while the valve-plates are in position within the case, said plates engageable with the inclined sides of the cone on the stem, substantially as set forth.

6. A valve having in combination a case, provided with vertically-parallel valve-seats, and with vertically-parallel ribs *A*⁵ above the valve-seats, valve-plates, a nut held in place between the valve-plates, and a valve-stem having a threaded engagement with the nut, said valve-stem formed with a conical-shaped portion *C'* located intermediate the valve-plates, whereby the valve-plates may be quickly adjusted and locked in any desired position, said plates engageable with the inclined sides of the cone on the stem, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

FREDERICK W. O'BRIEN.

Witnesses:

N. S. WRIGHT,

JOHN F. MILLER.