

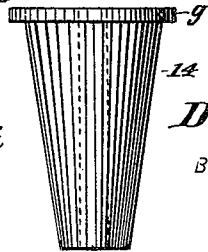
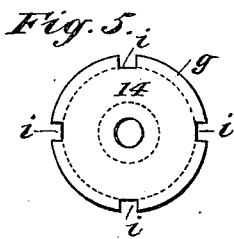
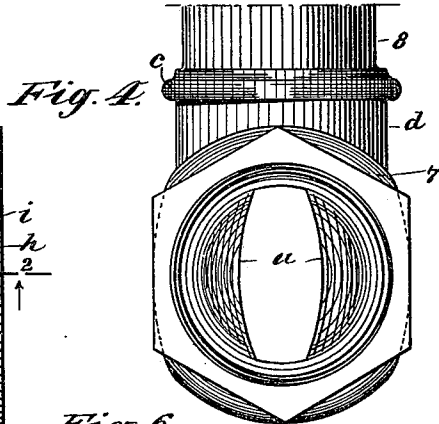
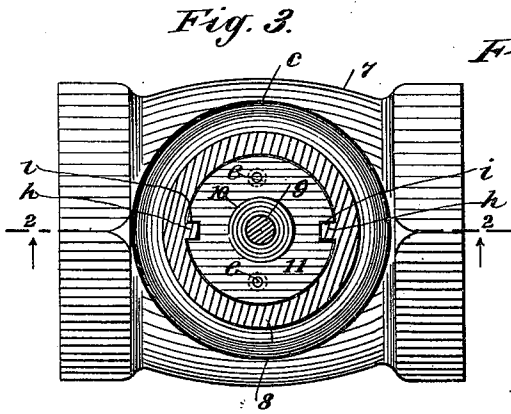
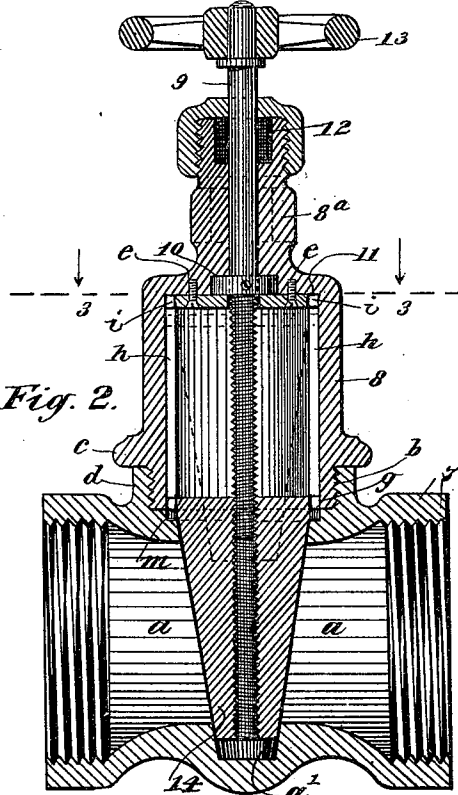
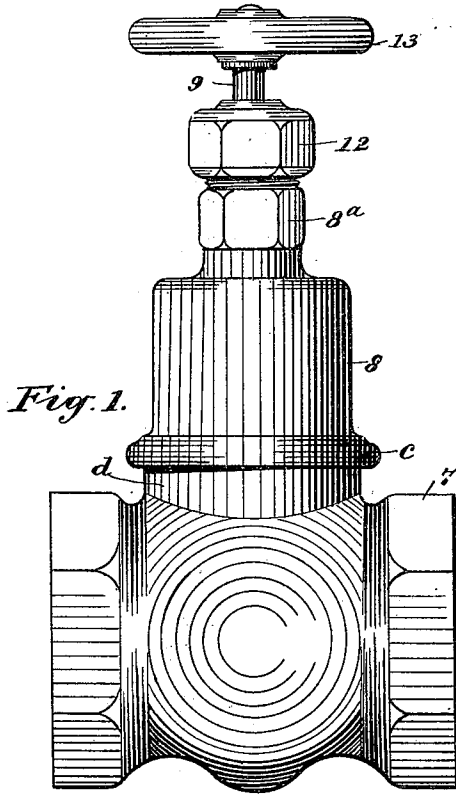
No. 643,476.

Patented Feb. 13, 1900.

D. J. CROZIER.
STRAIGHTWAY VALVE.

(Application filed Apr. 11, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

DAVID J. CROZIER, OF NEW YORK, N. Y.

STRAIGHTWAY VALVE.

SPECIFICATION forming part of Letters Patent No. 643,476, dated February 13, 1900.

Application filed April 11, 1899. Serial No. 712,604. (No model.)

To all whom it may concern:

Be it known that I, DAVID J. CROZIER, of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Straightway Valve, of which the following is a full, clear, and exact description.

This invention is a straightway valve having novel details of construction, whereby simplicity, cheapness, and a high degree of efficiency are afforded.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improved valve. Fig. 2 is a sectional side view substantially on the line 2 2 in Fig. 3. Fig. 3 is a partly-sectional plan view substantially on the line 3 3 in Fig. 2. Fig. 4 is an end view of the valve with the upper portion removed. Fig. 5 is a plan view of the valve-gate employed, and Fig. 6 is a side view of the valve-gate.

In the embodiment of my invention illustrated in the drawings, 7 indicates the body or shell of the valve, preferably furnished with hexagon formations at the ends for the reception of a wrench in securing the valve in place for service.

A vertical passage *a* (shown clearly in Fig. 4) is produced in the valve-body by the contraction of the longitudinal passage therein near the center of length. An opening is formed in the normally upper side of the valve-body 7, which intersects the upper end of a conical valve-seat *a'*, that extends downwardly across the passage *a* and a short distance into the lower side of the valve-body, as indicated in Fig. 2.

The opening in the upper side of the valve-body 7 is counterbored and internally threaded, as shown at *b* in Fig. 2, for the threaded engagement therewith of the screw-cut lower end of the extension-chamber 8, which is essentially a portion of the valve-body, and is thus joined thereto with a water-tight joint. The upright extension-chamber 8 is cylindrical and may have a circumferential flange *c* formed on it immediately above the thread on its lower end, which flange seats upon the true upper end of the collar *d*, that is part of the valve-body 7.

The upper portion of the extension-chamber 8 is reduced in diameter, as shown at 8^a, and this neck is preferably rendered hexagonal to accommodate a wrench used in connecting or disconnecting the extension-chamber and the valve-body. A true flat seat is formed interiorly where the neck 8^a merges into the extension-chamber 8, and through the longitudinal axis of the neck 8^a a suitable perforation is formed for the reception of the valve-stem 9.

A circumferential flange or collar 10 is formed or secured on the valve-stem 9, which collar seats in a counterbore formed in the lower end of the axial perforation of the neck 8^a, as indicated in Fig. 2. To retain the valve-stem and collar loosely engaged within the bore of the neck 8^a, a keeper-disk 11 is removably secured upon the true upper wall of the extension-chamber 8 by screws *e* or equivalent means.

The upper portion of the valve-stem 9 extends through a packing-box 12 on the upper extremity of the neck 8^a and is furnished with a hand-wheel 13 or the like for convenient manipulation. The portion of the valve-stem 9 that extends below the collar 10 is threaded throughout its length for screwed engagement with the valve-gate 14, which is axially perforated and threaded in said perforation to adapt it to screw upon the valve-stem.

As represented in Figs. 2 and 6, the valve-gate 14 is coniform in the body and of such proportions as will permit it to fit water or gas tight into the coniform seat *a'*, provided for its reception in the valve-body 7, as herebefore described.

A circumferential flange *g* is formed on the upper end of the valve-gate 14, the peripheral edge thereof being circular and of such relative diameter as will permit said flange to slide freely in the extension-chamber 8. At diametrically-opposite points two vertical guides *h* are formed or secured upon the inner surface of the extension-chamber 8, and corresponding notches *i* are provided

in the flange *g* to permit the valve-gate 14 to receive longitudinal adjustment for opening or closing the passage *a*. The guides *h* and notches *i* in the flange *g* hold the valve-gate 14 from rotatable movement, and preferably four of said notches *i* are formed in the flange *g* at equal distances apart, as shown in Fig. 5.

It should be explained that the perforated disk 11 has two notches formed in it at opposite points to permit it to pass over the guides *h* and engage the valve-body, as before mentioned. Furthermore, there may be a shallow counterbored recess *m* formed in the valve-body around the upper extremity of the conical valve-seat *a'*, which will enable the flange *g* to descend slightly within said recess, and thus permit the valve-gate to be successively ground upon the valve-seat for renewing a tight joint between the valve-body and valve-gate.

In service the gate 14 may be partially or completely elevated, as indicated by dotted lines in Fig. 2, and thus afford a straightway passage for gas or liquids through the valve-body 7.

It will be seen that by providing two oppositely-disposed pairs of notches *i* in the flange *g* of the valve-gate 14 the gate may be partially turned at different times to alter its position in the seat *a'*, and thus prevent the gate from wearing away on the sides that are rubbed by passage of liquid or gas through the valve.

At any time it is desired to regrind the valve-gate in its seat this may be readily effected while the valve-body is in place by the removal of the extension-chamber 8 from the valve-body 7 and then unscrewing the valve-stem 9 from the valve-gate. The valve-gate may now be rotated upon its seat and ground thereon to render it tight, when a replacement of parts will adapt the improved valve for renewed service.

The valve is obviously quite simple, practical in operation, cheap to produce, and very durable.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. The combination with a valve-body having a straightway passage longitudinally therethrough which is contracted near the longitudinal center, and also provided with a coniform valve-seat that crosses the passage at right angles thereto, of a cylindrical extension-chamber screwed upon a projection on the valve-body and directly above the valve-seat, opposite vertical guides in the extension-chamber, a valve-stem having a collar seated in a recess formed in the upper wall of the extension-chamber, said stem being threaded below the collar, a keeper-disk notched in the edge to pass over the guides and adapted to loosely hold the collar of the stem in its seat, a neck formation on the extension-chamber, having a packing-box thereon through which the valve-stem passes, a hand-wheel or its equivalent on the upper end of the valve-stem, and a coniform valve-gate having threaded engagement with the threaded portion of the valve-stem and adapted to close or open the passage in the valve-body.

2. The combination with a valve-body having a longitudinal straightway passage therethrough, and also provided with a coniform valve-seat at right angles with said passage, of an extension-chamber on the valve-body above the larger end of the coniform valve-seat, two opposite vertical guides in the extension-chamber, a valve-stem threaded in its lower portion that occupies the hollow valve-seat, an adjustable and securable collar on the valve-stem at or near the upper end of the thread thereon, a keeper-disk notched in the edge to pass upon the guides and adapted to loosely hold the collar in a recessed seat formed for it in the top wall of the extension-chamber, a packing-box on the upper portion of said extension-chamber, and a hand-wheel on the valve-stem above the packing-box.

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Witnesses:

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