D. KENNEDY.

STRAIGHTWAY VALVE.

No. 187,230. Patented Feb. 13, 1877.

Fig. 1.

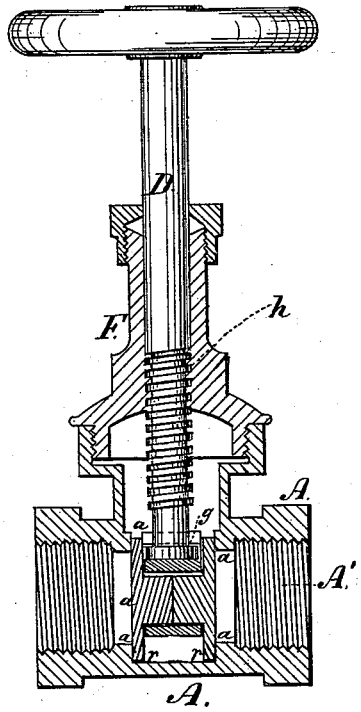


Fig. 2.

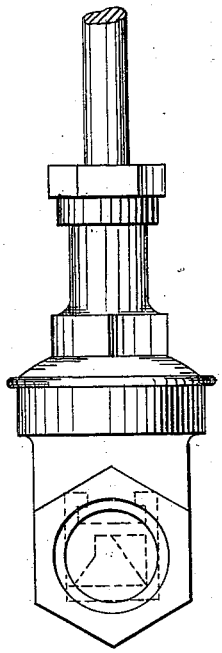


Fig. 3.

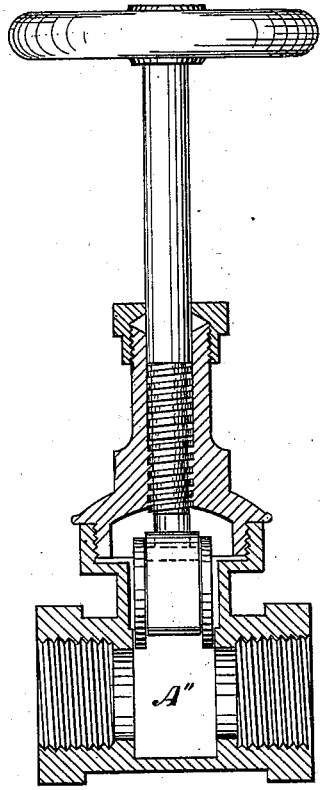


Fig. 4.

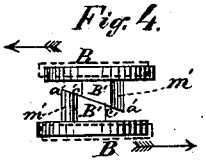


Fig. 5.

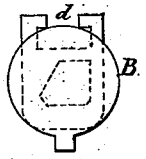


Fig. 6.

Fig. 7.

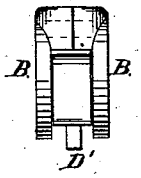


Fig. 8.

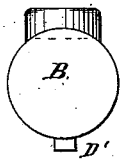


Fig. 9.

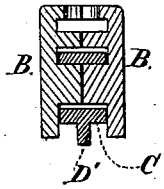
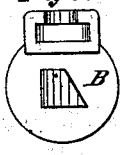


Fig. 10.



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per James A Whitney.

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UNITED STATES PATENT OFFICE.

DANIEL KENNEDY, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN STRAIGHTWAY-VALVES.

Specification forming part of Letters Patent No. **187,230**, dated February 13, 1877; application filed December 13, 1876.

To all whom it may concern:

Be it known that I, DANIEL KENNEDY, of the city of Brooklyn, county of Kings, and State of New York, have invented an Improvement in Straightway-Valves, of which the following is a specification:

The object of this invention is to provide an expanding valve, which, when brought to its place to close the straightway of the valve, shall be jammed upon two opposing valve-seats in such manner as to be snugly closed thereon, and thereby rendered tight against the passage of fluids, even under extreme pressure.

To this end my invention comprises a novel combination, with two opposite valve-seats, of two valve-sections, constructed with lugs or projections having peculiarly-inclined surfaces, and an actuating-yoke, to operate by its vertical movement the two valve-sections with reference to each other, in such manner that when the valve is brought downward to its place to close the straightway the two sections shall be automatically moved outward and jammed to their seats, as hereinbefore indicated; and when the actuating-piece is moved upward with reference to said sections their inclined planes shall be caused to move upon each other in such manner as to release them from their seats, so that the valve may be readily lifted or withdrawn out of the straightway.

Figure 1 is a vertical sectional view of a valve made according to my invention, with the valve brought to its place to close the bore or straightway of the device. Fig. 2 is an end view of the same. Fig. 3 is a longitudinal section with the valve lifted, to open the straightway, to permit the free passage of fluid or liquid therethrough. Figs. 4, 5, and 6 are detail views of the same. Figs. 7, 8, 9, and 10 are detail views, representing a certain modification thereof.

A is the body of the valve, the bore A′ of which does not differ from that of the ordinary straightway-valve; and this body A is constructed with the two opposing valve-seats *a*, between which is the vertical chamber A″, through which the valve hereinafter described is operated. The valve is composed of two sections, B, each side of which is provided with a projection, B′. The innermost side of each of these projections is inclined, as shown more fully in Fig. 4, in such manner that when the sections are moved laterally, as indicated by the two arrows in Fig. 4, these inclined planes will force the two sections B apart, to expand the valve, and of course when moved in opposite directions, will enable the two sections to move closer together to contract the valve. In order to provide for this lateral movement of the two sections with reference to each other a yoke, C, is provided at one side within an inclined plane, *e′ f′*, and at the other with an inclined plane, *g′ h′*, these inclined planes being in opposite directions, as shown more fully in Fig. 6. The lateral surfaces *m′* of the two projections B′ are made inclined or sloping in opposite directions, these two sloping lateral surfaces *m′* of the two projections B corresponding to the slope of the inclined planes *e′ f′* and *g′ h′* of the yoke C. This yoke C is placed astride of both of these projections B′, with one of the projections B′ having its sloping surface *m′* against the inclined plane *g′ h′*, and the other against the incline *e′ f′*, so that, the parts being of proper dimensions, the yoke C, being forced downward, will move the two sections in opposite directions, to expand the valve, as hereinbefore explained; and when moved upward the said yoke will so release the action of its two inclined planes upon the sloping surface of the two projections B′ of the sections B, as to permit the latter to reverse their movement, and thereby contract the valve. In the top of the yoke C is a socket, *d*, and in this is fitted the lower end of the valve-stem D, a projecting flange, *g*, being fitted into the socket *d* in such manner that the valve-stem may turn axially while the yoke C, and consequently the valve, (comprising the sections B,) is moving vertically. The valve-stem *d* is constructed with the thread *h* working in a suitable nut, F, provided in the upper part of the apparatus, as represented in Figs. 1, 2, and 3. By turning the valve-stem D in the requisite direction to lift the yoke C, the said yoke, operating as hereinbefore explained, releases its inclined planes from the sloping surfaces *m′* of the projections B′ of the two sections B, consti-

tuting the valve. The said sections are therefore permitted to come nearer to each other, and are consequently released from their opposing valve-seats *a*, and the continued movement of the valve-stem, by lifting the yoke C, and consequently the valve withdraws the latter away from the bore A′ of the device. When it is desired to close the valve, the stem D is turned in the opposite direction, and, of course, lowers the valves until the lower extremities *r* of the two sections B strike upon the bottom of the chamber, as hereinbefore explained. This, by preventing the farther descent of said sections, enables the inclined planes of the yoke C to press the projections B′ inward with reference to each other, which, consequently, brings the sections B farther apart after they have been brought clear across the bore A′, and by thus spreading or expanding the two sections with reference to each other the said sections are jammed firmly and snugly against the two opposing valve-seats *a*, and thereby close the bore with a tightness sufficient to suit the most extreme pressure of the fluid or liquid pressing against the same at one side or the other, as the case may be.

In Figs. 7, 8, 9, and 10 are represented the essential portions of a modification of my herein-described invention, the sole difference being that the valve-stem, instead of being connected with the top of the yoke C, is connected by a flange and socket to the upper extremities of the two sections B, while the yoke, also indicated by the reference letter C, is made separate from said stem, and provided with a downwardly-extending stud, D′, the yoke C being constructed with inclined planes, and the two sections B of the valve having the projections B′, made in the same manner as hereinbefore explained with reference to Figs. 1, 2, 3, 4, 5, and 6, and the valve itself being raised and lowered in the same manner. When, however, the valve is brought down quite across the bore A′ of the device, the stud D′ strikes against the bottom of the chamber, and moving the yoke upward causes the inclined inner surface of the projections B′ to move upon each other to expand the sections B against their valve-seats *a*, to close the bore A′, a reverse movement of the valve bringing the stud D′ away from the bottom of the chamber, and permitting the movement of the projections B′ of the sections B in a reverse direction, thereby contracting the valve to permit this easy upward movement to open the bore, this construction being a modification of that first hereinbefore explained.

What I claim as my invention is—

In a straightway-valve, the two sections B, constructed with the projections B′, having the inclined inner surfaces and the lateral sloping surfaces, in combination with the yoke C, constructed as described, and opposing valve-seats *a*, the two sections being actuated through the projections B′ by the vertical movement of the yoke with reference to said sections, the said parts being made, combined, and arranged substantially as and for the purpose herein set forth.

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