D. KENNEDY.

STRAIGHTWAY VALVE.

No. 187,231. Patented Feb. 13, 1877.

Fig. 1.

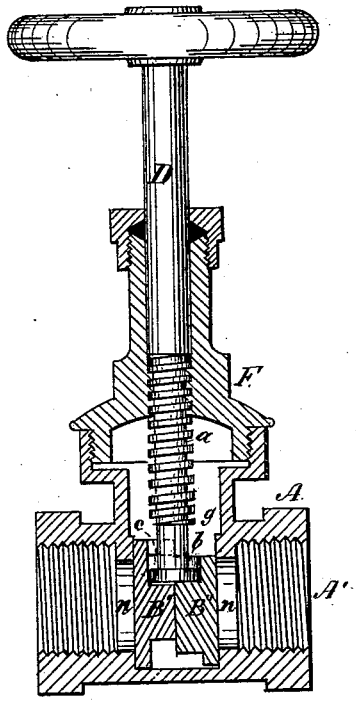


Fig. 2.

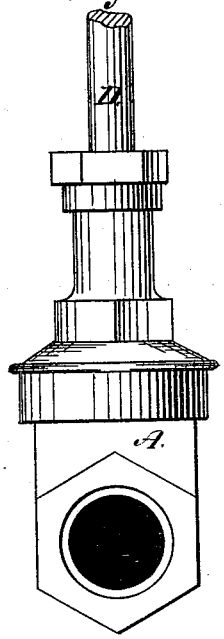


Fig. 3.

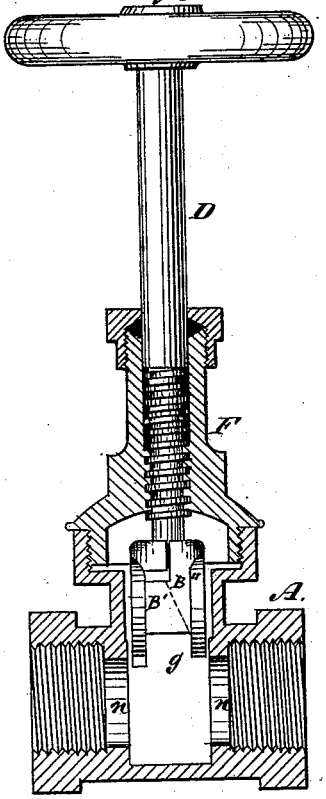


Fig. 4.

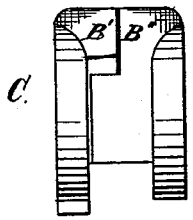


Fig. 5.

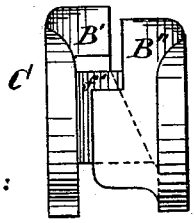


Fig. 6.

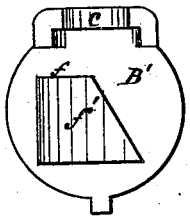


Fig. 7.

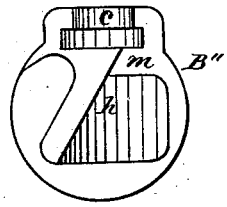
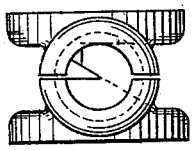


Fig. 8.



Witnesses:

Henry Eichling.
A. Wells Jr.

Inventor:

Daniel Kennedy.
per James A. Whitney
Atty.

UNITED STATES PATENT OFFICE

DANIEL KENNEDY, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN STRAIGHTWAY-VALVES.

Specification forming part of Letters Patent No. **187,231**, 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 a straightway-valve, of simple construction, in which the valve-plug shall be so expanded against two opposing valve-seats as to be snugly and firmly fitted thereto against the pressure of any liquid, however great, forced into the apparatus. And to this end the invention comprises the combination of a valve-plug of novel construction with the two opposing valve-seats aforesaid and a suitable valve-stem, the two halves or sections of the valve-plug being constructed with inclined planes acting upon each other in such manner that one section being made to move in advance of the other, as the plug is raised or lowered, will be caused to approach or recede therefrom to contract or expand the valve-plug to close the valve against the opposing valve-seats, the valve-stem being connected, by a suitable socket and rib, with the two sections of the valve-plug to move the same in the requisite relation and to the valve-seats.

Figure 1 is a longitudinal sectional view of a straightway-valve made according to my invention, with the bore or passage closed. Fig. 2 is an end view of the same. Fig. 3 is a longitudinal sectional view, showing the valve lifted to open the bore or passage. Figs. 4, 5, 6, 7, and 8 are detail views, showing the construction of the valve-plug.

A is the body of the apparatus, having the usual bore or passage A′ and the internally-threaded supporting-socket, F, which receives the valve-stem D, this valve-stem having the screw *a* screwed into the socket F to raise and lower the valve-plug, as hereinafter set forth; there being upon the lower end of the valve-stem D an annular bead or flange, *b*, which fits into the socket *c* formed in the upper halves of the sections B′ B″ of the valve plug C, this socket *c* being formed by semicircular grooves or recesses formed in the inner opposing surfaces of the upper parts of the sections B′ B″, as more fully represented in Figs. 6 and 7. The valve-plug C has a vertical movement within the chamber *g*, formed in the body A, as shown more fully in Figs. 1 and 3, the valve-seats against which the two opposite sections B′ B″ are brought, as hereinafter fully explained, being provided, as shown at *n*. The section B′ has formed upon its inner side a projection, *f*, one side of which has an inclined plane sloping laterally outward and vertically outward and downward, while the surface *f′*, at an angle thereto, slopes outward and downward, as shown more fully in Figs. 5 and 6. The inner side of the other section B″ is made of such volume that a cavity or recess, *h*, may be formed therein, the surfaces of which coincide with those of the projection *f* just hereinbefore explained, said projection fitting into said cavity, so that when the section B″, for example, is moved downward with reference to the section B′ it will receive simultaneously an outward movement away from said section B′ and a lateral movement with reference thereto.

It will be observed that the top of the enlarged inner portion of the section B″ forms a horizontal shoulder, *m*, upon which rests the lower end of the valve-stem D when the latter is attached, as hereinbefore explained, to the valve-plug. When, therefore, the valve-stem D is turned to move the valve-plug downward, the parts descend until the section B′ strikes the bottom of the chamber *g*, which done, the downward movement of that section ceases; whereupon the force exerted by the end of the valve-stem upon the shoulder *m* forces still further downward the section B″, whereupon said section is moved outward, and, by expanding the valve-plug, forces the two opposing faces of said plug firmly against the two opposing valve-seats *n*, and this with sufficient force to insure the tightness of the joints thus made against the flow or passage of liquid even under excessive or unusual pressure; the slight lateral movement moreover given to the section B′ having the result, as it were, of grinding the valve-plug B″ against its adjacent seat *n*, and insuring a closer and more firm joint between the valve-faces and the valve-seats than would otherwise be obtained. When, by a reverse movement of the valve-stem D, the same is moved upward, the rib or flange *b*, acting first upon the top of that por-