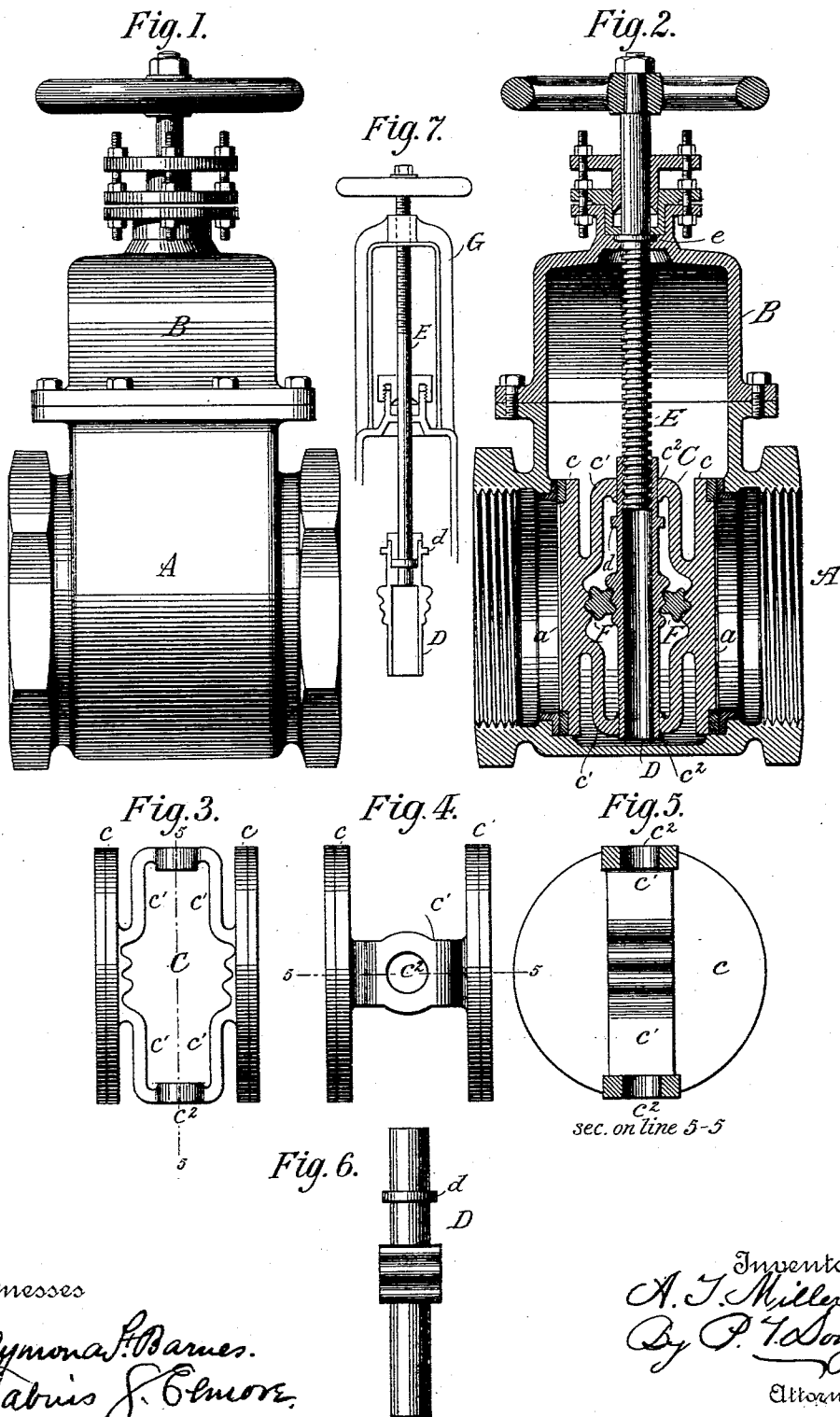


(No Model.)

A. T. MILLER.
VALVE.

No. 476,668.

Patented June 7, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

ALLEN TRIMBLE MILLER, OF DAYTON, OHIO, ASSIGNOR TO GEORGE F. KUHN,
WILLIAM N. KUHN, AND HARRY B. KUHN, OF SAME PLACE.

VALVE.

SPECIFICATION forming part of Letters Patent No. 476,668, dated June 7, 1892.

Application filed July 31, 1891. Serial No. 401,299. (No model.)

To all whom it may concern:

Be it known that I, ALLEN TRIMBLE MILLER, of Dayton, county of Montgomery, and State of Ohio, have invented a new and useful Improvement in Valves, of which the following is a specification.

This invention relates to that class of straightway stop-valves which are commonly known as "sliding-gate valves," in which the valve proper slides inward and outward between two opposing seats or throats in a direction at right angles to the flow of the fluid.

The aim of the invention is to provide a simple, cheap, and reliable construction, which will admit of the valve being easily and positively adjusted and of its being forced firmly against its seats.

In the accompanying drawings, Figure 1 is a side elevation of my valve. Fig. 2 is a longitudinal vertical axial section of the same. Fig. 3 is a side elevation of the gate or valve proper. Fig. 4 is a top plan view of the same. Fig. 5 is a vertical section on the line 5 5 of Fig. 3. Fig. 6 is a side view of the nut. Fig. 7 is a view of a modification.

Referring to the drawings, A represents the body or shell of the valve, having a straight passage therethrough, with two annular seats or throats *a a* at opposite sides.

B is a hood or dome bolted over and around an opening in the top of the body, in order to admit of the valve proper being drawn upward therein, as usual in this class of valves.

C represents the valve proper, consisting of two parallel disks *c c*, connected at the top and bottom by the intermediate curved arms *c'*, which are ordinarily cast integral therewith, and each of which is provided with a central opening *c²*.

D represents an upright tubular nut seated between the valve-disks, with its ends seated in the openings *c²* of the respective arms. This nut is free to slide endwise to a limited extent through the arms but is provided near one end with a collar *d*, which, acting against the inside of one arm, lifts the valve positively upward, as hereinafter explained.

E represents a pendent screw projected through a gland or stuffing-box into the valve-body and screwed into the nut D, the screw

being provided near one end with a collar *e*, by which longitudinal motion is prevented.

F F are two toothed or ribbed rollers seated between the opposite flattened sides of the nut and the rear faces of the valve disks, which are provided with corresponding teeth to engage the rollers. The toothed surfaces are inclined from the perpendicular so that as the nut moves endwise the rollers will act with a wedging effect between it and the disks, so as to spread the latter apart and force them tightly against the seats or throats.

The operation is as follows: When the screw is turned in the proper direction, it lowers the nut, which in turn lowers the valve between the seats or throats. When the valve has reached its lowest position, so that farther advance is impossible, the continued rotation of the screw urges the nut downward in relation to the valve, the effect of which is to turn the rollers downward until they have wedged the disks *c c* firmly to their seats. When the motion of the screw is reversed, the first action is to raise the nut and turn the rollers so that they permit the arms *c'* to draw the disks together, clear of the seats, after which the collar *d* of the nut, encountering the upper arm of the valve, lifts the valve into the hood or chamber. It will be observed that the arms *c'* serve the several purposes of holding the disks in their proper relations, of drawing them toward each other and away from their sides when relieved from the pressure of the rollers, and of preventing the rotation of the nut.

While I prefer, as above stated, to cast the arms integral with the disks, it will of course be understood that they may be separately constructed and thereafter united in any suitable manner.

By the employment of the rollers I am enabled not only to simplify the construction but also to do away with sliding friction between the parts, so that the valve may be operated with ease and the disks seated tightly against their seats.

Instead of employing a tubular nut to actuate the rollers and operating the nut by means of a screw within the dome, the latter may, as shown in Fig. 7, be provided on its

exterior with an upright yoke G, having its top horizontal portion threaded interiorly to receive the screw E, in which case the roller-actuating member D is swiveled on the lower end of the screw-rod E.

5 Having thus described my invention, what I claim is—

1. In a stop-valve, the body, with its opposing seats, in combination with the valve-disks 10 and their connecting arms, the nut, the screw to operate the nut, and the rollers seated between the nut and the disks, substantially as described and shown.

2. In combination with the valve-body, the 15 two disks and their elastic arms with openings therein, a nut provided with roller *d*, and with the toothed surfaces, the screw engaging said nut, and the toothed rollers seated between the nut and the valve-disks, substantially as shown.

20 3. In a valve, the combination of two valve-disks and expansible connections between them, with an intermediate sliding member

and rollers seated between said member and the disks and acting against the inclined surfaces thereon, whereby the movement of the member in relation to the disks is caused to effect their separation.

4. In a stop-valve, the body, with its opposing seats, in combination with the valve-disks 30 and their connecting arms, the rollers F, the roller-actuating member, and means for operating the same, substantially as described.

5. In a stop-valve, a valve proper consisting of two disks and an elastic supporting 35 and connecting arm, in combination with a movable sustaining and spreading device passing through the elastic arm and acting between the disks.

In testimony whereof I hereunto set my 40 hand this 16th day of July, 1891, in the presence of two attesting witnesses.

ALLEN TRIMBLE MILLER.

Witnesses:

JOHN M. NUTT,
B. KUHN.