

(No Model.)

2 Sheets—Sheet 1.

J. ARTHUR.

GATE VALVE.

No. 299,899.

Patented June 3, 1884.

Fig. 5.

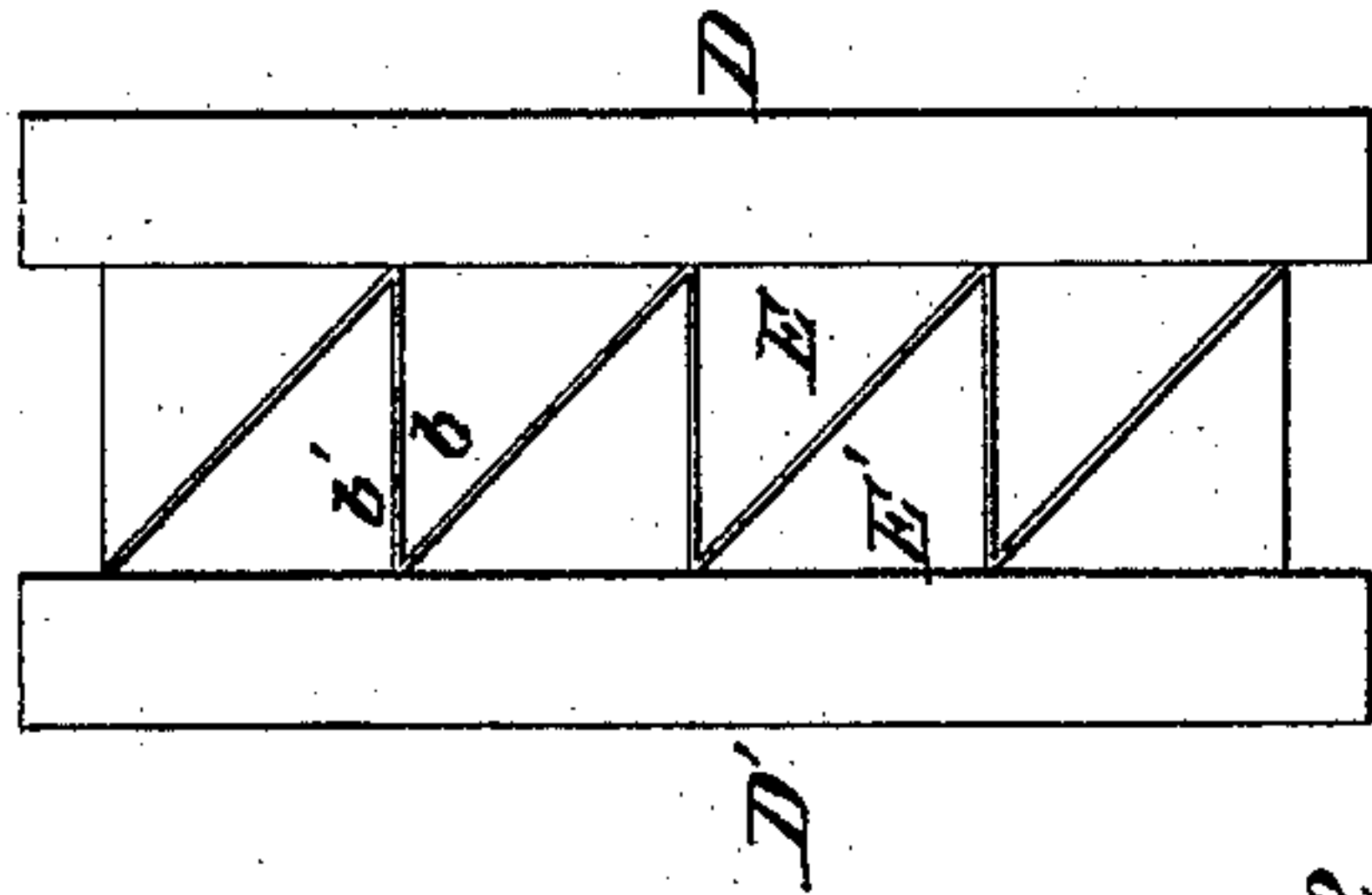


Fig. 2.

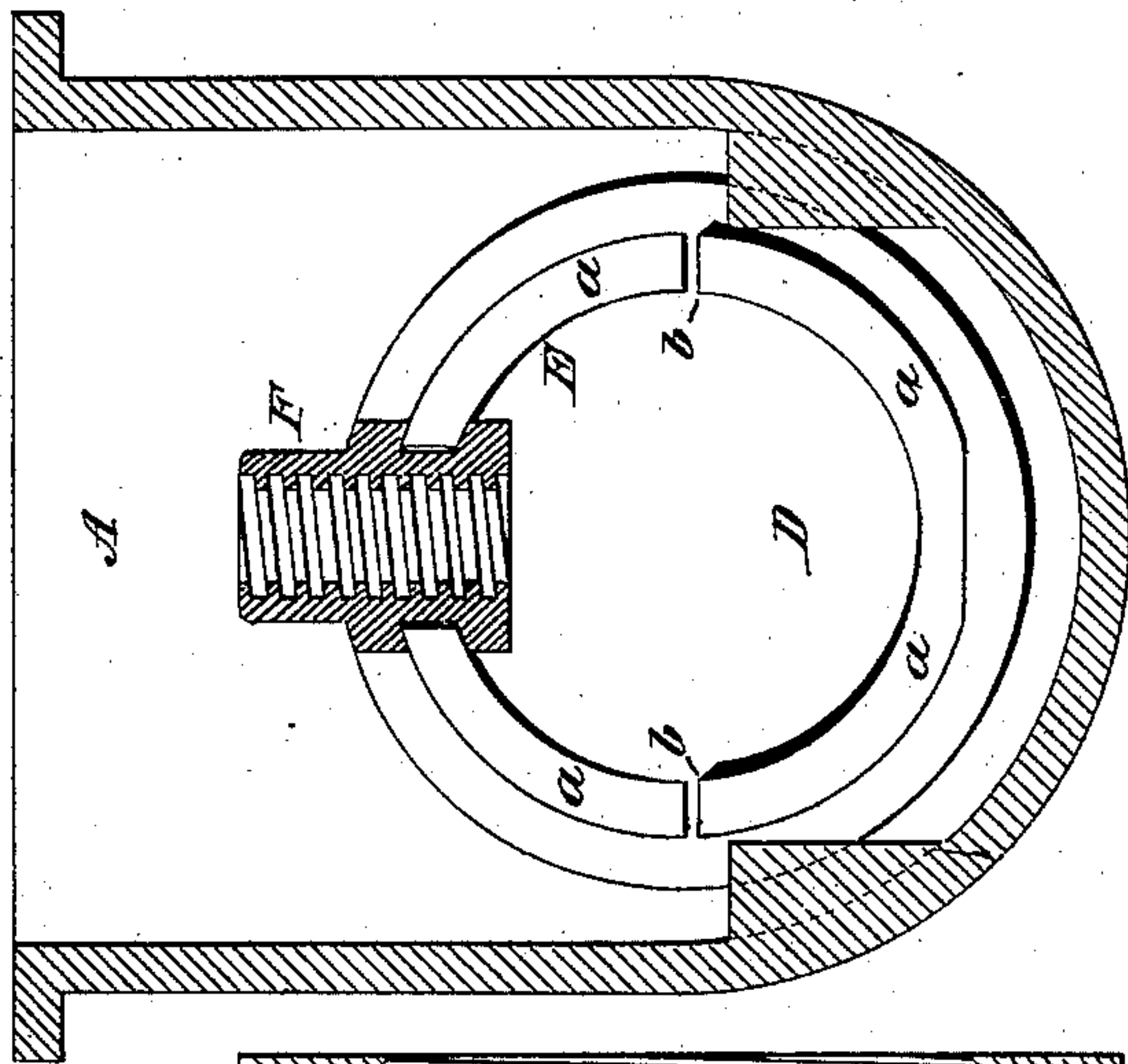


Fig. 1.

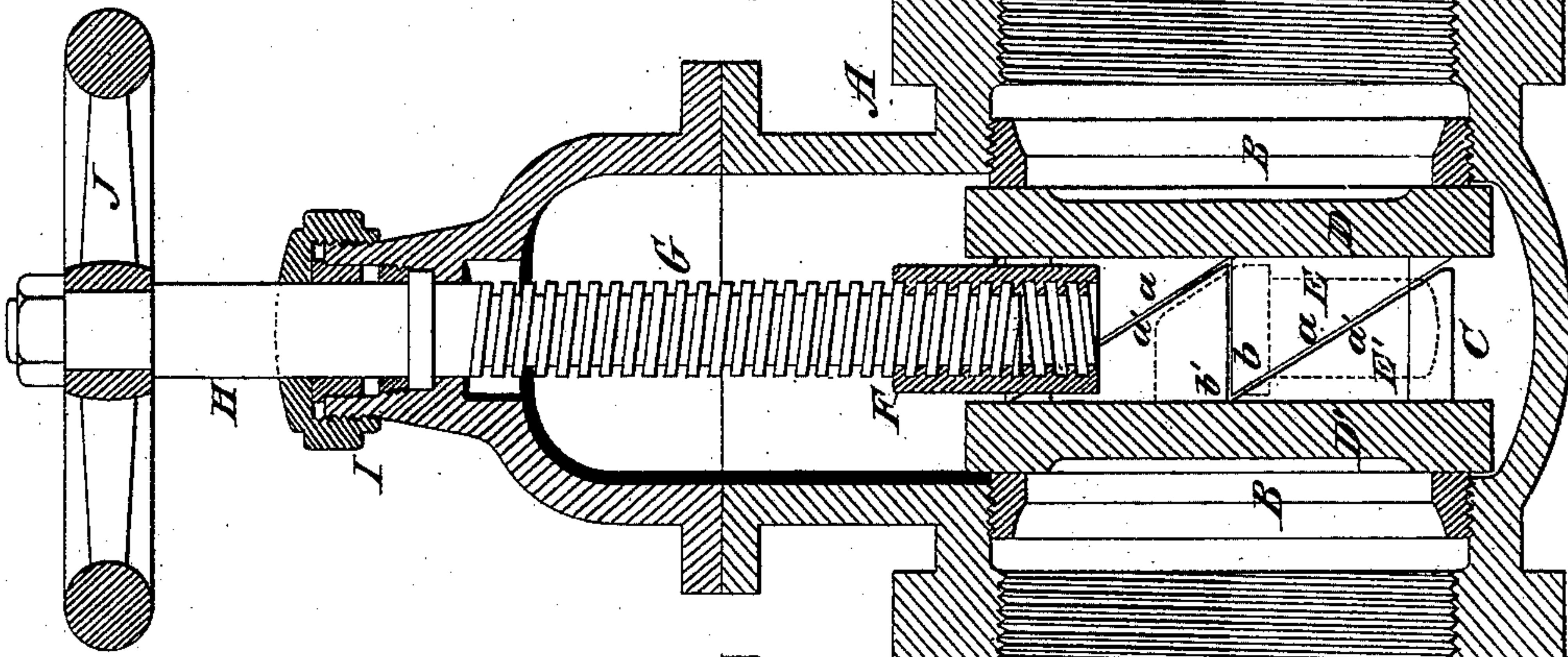


Fig. 4.

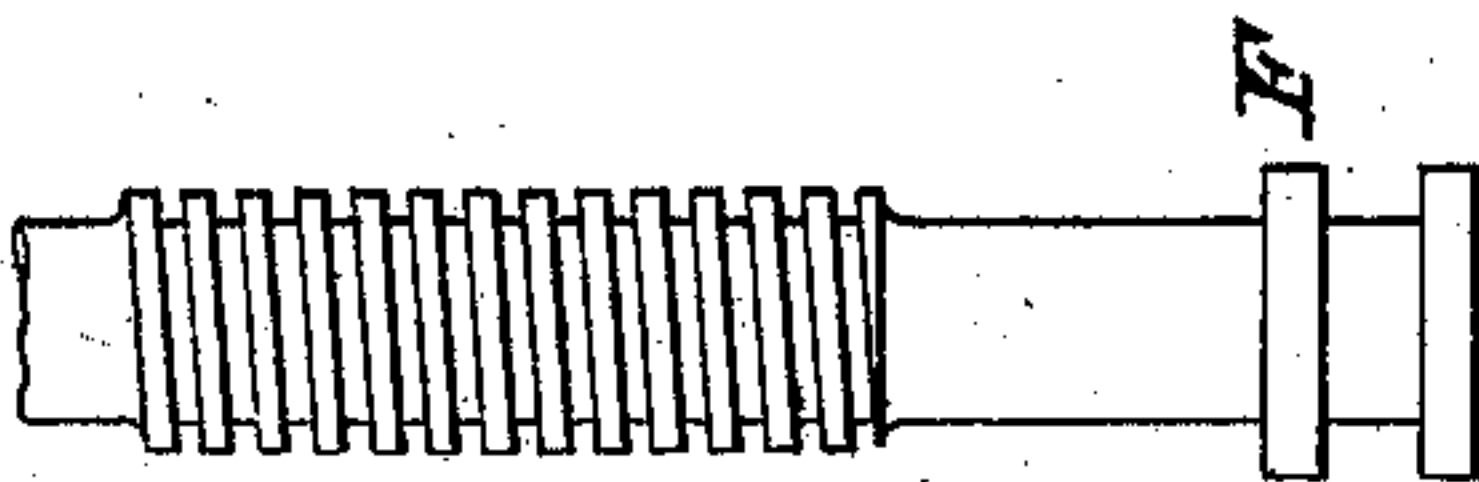
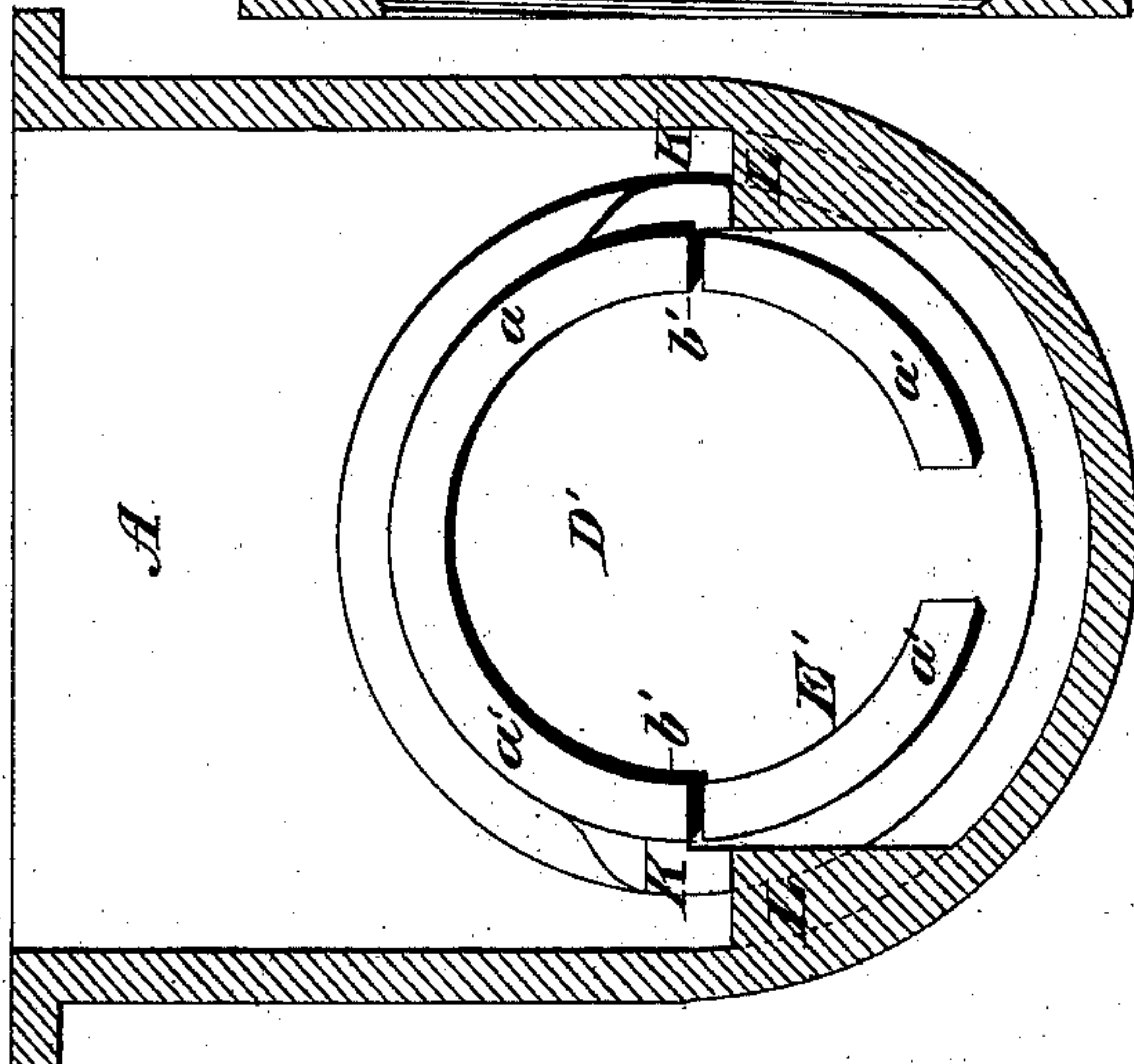


Fig. 3.



WITNESSES:
Gustave Dietrich
Wm. L. John

INVENTOR
James Arthur.
By *Geo M. Hopkins.*
ATTORNEY

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Fig. 6.

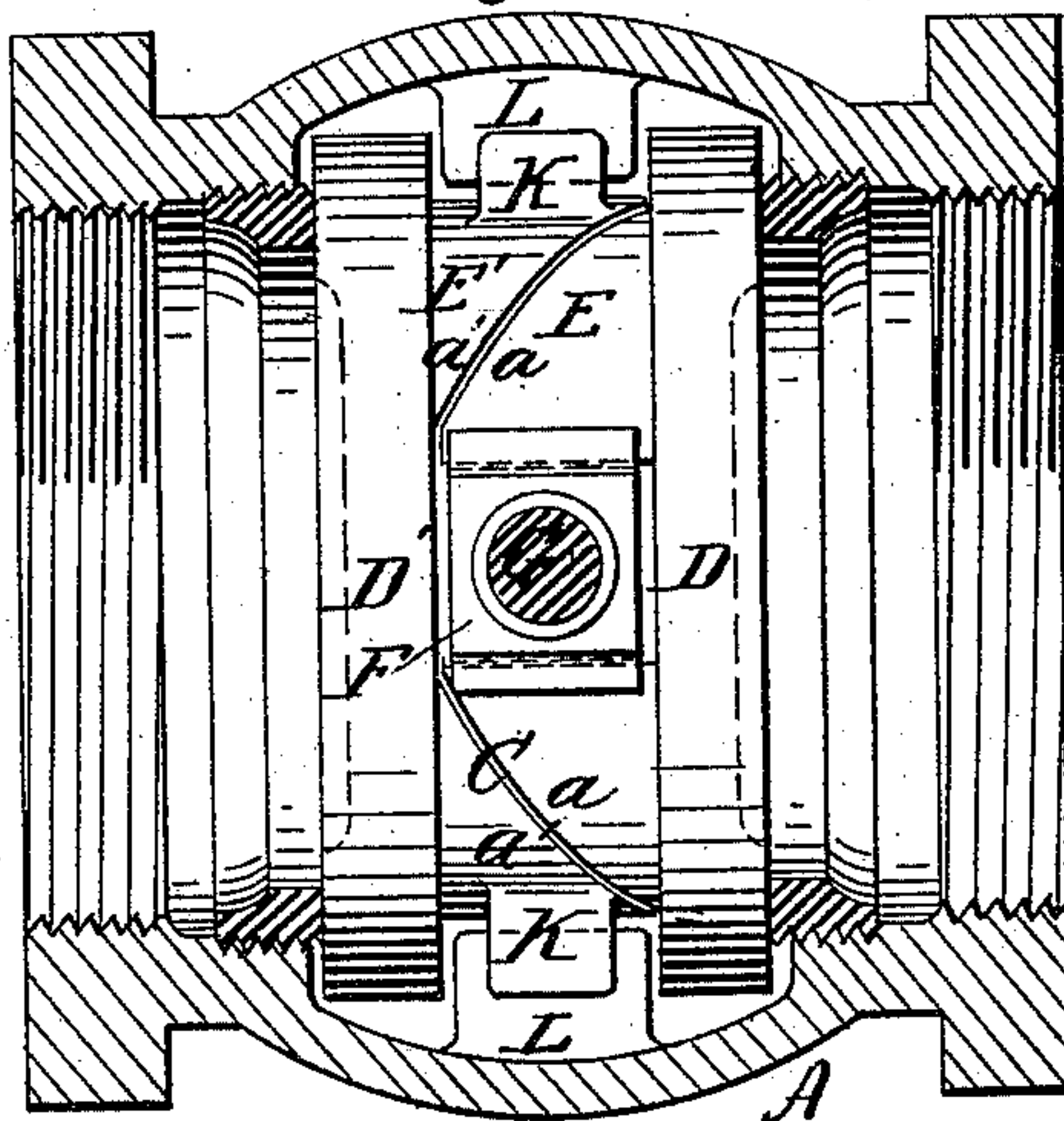
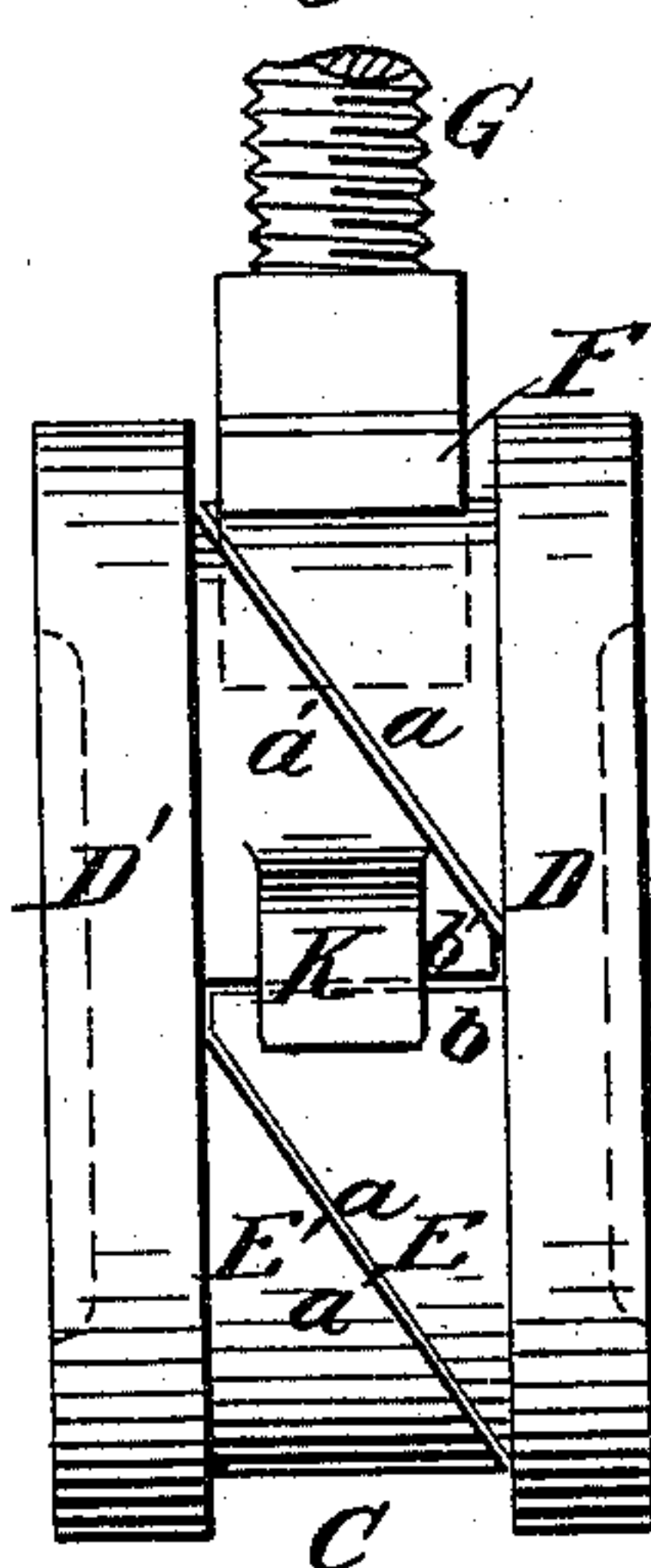


Fig. 7.



WITNESSES

WITNESSES
H. F. Parker.
H. C. Hagen.

INVENTOR:

INVENTOR:
James Arthur.
BY
Geo M. Hopkins,
ATTORNEY.

ATTORNEY.

UNITED STATES PATENT OFFICE.

JAMES ARTHUR, OF JERSEY CITY, NEW JERSEY.

GATE-VALVE.

SPECIFICATION forming part of Letters Patent No. 299,899, dated June 3, 1884.

Application filed November 6, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES ARTHUR, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Gate-Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to the class of valves known as "gate-valves" or "straight-way valves;" and it consists of two valve-disks having on their adjacent surfaces annular rims or short hollow cylinders concentric with the disks, and each cut away, forming a series of two or more parallel inclined planes, the inclined planes of one disk being oppositely arranged with respect to those of the other disk, so that the inclined planes of one half of the valve antagonize those of the opposite half.

It further consists in a doubly-flanged nut or lifter fitting in a notch in one of the rims, and receiving a screw by which the half of the valve in which the lifter is placed is moved.

It further consists in a combined stop and guide for the detached half of the valve.

The object of my invention is to cheapen this class of valves and at the same time render them more effective.

Figure 1 of the drawings is a vertical longitudinal section of my improved valve. Fig. 2 is a vertical transverse section of the same, taken through the lifter. Fig. 3 is a vertical transverse section taken through the double stop. Fig. 4 shows a right-handed screw with a doubly-flanged lifter formed on its spindle. Fig. 5 shows the arrangement of inclined planes in a large valve. Fig. 6 is a horizontal section through the valve-casing, showing the position of the valve in the casing. Fig. 7 is a side elevation of the valve without the casing.

Like parts are designated by the same letters of reference in the different figures of the drawings.

The valve-body A may be of any approved form or construction, having two parallel oppositely-arranged valve-seats, B, axially in line with each other, and separated by a space about equal to the thickness of the valve C, which is capable of sliding into the space between them.

The valve C is composed of two similar but oppositely-arranged disks, D D', having formed on their adjacent surfaces annular rims or short hollow cylinders E E', which are concentric with the disks, and are cut away, forming parallel inclined planes $a a'$, the inclined planes of one half of the valve touching those of the other half when the valve is closed, and the square shoulders $b b'$ of both halves engaging each other while the valve is being opened. The rim E of the disk D is notched at the top to receive the doubly-flanged lifter F, which receives between its flanges the said rim. The lifter F in the present case is threaded internally to receive the screw G; but it may itself be formed upon or attached to the end of a screw, as shown in Fig. 4, the latter working in a nut in the valve-casing. The screw G is formed on the spindle H, extending through the stuffing-box I in the top of the valve-casing, in the usual way. A hand-wheel, J, is secured to the upper end of the spindle H, for convenience in operating the valve. Upon diametrically-opposite sides of the rim E' on the disk D' there are stops K, which, when the valve is closed, rest on abutments L, formed on the side walls of the valve-casing A. The stops K on the disk D' also act as guides for the rim E of the disk D, receiving between them the said rim, as shown in Fig. 3, and indicated in dotted lines in Fig. 1. The rim E' of the disk D' opposite the lifter F is cut away to allow the screw G to pass through when the valve is entirely open. By turning the screw G the disk D is raised, and the inclined planes $a a'$ becoming disengaged, the valve C is made loose between its seats B. A further turning of the screw G brings the shoulders b of the disk D into engagement with the shoulders b' of the disk D', when the entire valve is lifted by the continued turning of the screw. By turning the screw in the opposite direction the entire valve is carried downward until the stops K on the disk D' strike the abutments L, when the said disk remains stationary, and the disk D is forced downward until the inclined planes a engage the inclined planes a' , when the further movement of the screw, by virtue of the engagement of the two series of inclines, forces the disks apart against their respective seats.

In large valves I may employ a greater num-

ber of inclines upon the adjacent faces of the disks, as shown in Fig. 5.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a gate-valve, the combination of two valve-disks having series of oppositely-arranged parallel inclined planes capable of engaging each other, stops for arresting the motion of one of the valve-disks, and a screw for sliding one disk upon the other, as described.

2. In a gate-valve, the combination of the valve-disk D, provided with inclined planes *a*, and adapted to receive the double-flanged lifter F, the valve-disk D', provided with inclined

planes *a'*, and having stops K, and the valve-casing A, provided with abutments L, as specified.

3. In a gate-valve, the combination, with the body A, provided with parallel seats B, of the valve-disks D D', having oppositely-arranged series of parallel inclined planes *a a'*.

4. In a gate-valve, the valve-disks D D', provided with oppositely-arranged parallel inclined planes *a a'* and shoulders *b b'*.

JAMES ARTHUR.

Witnesses:

CHAS. L. COHN,
GEO. M. HOPKINS.