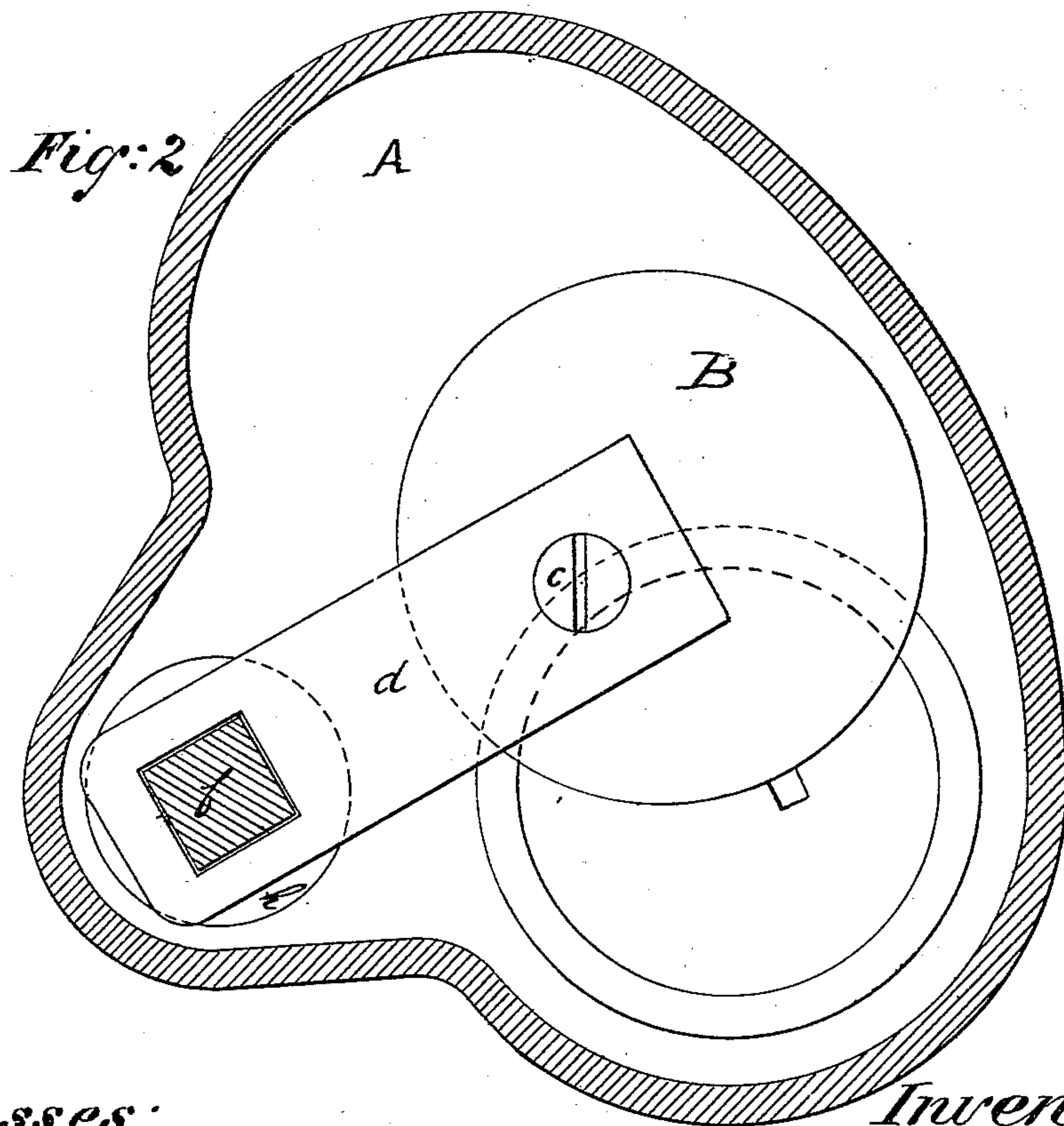
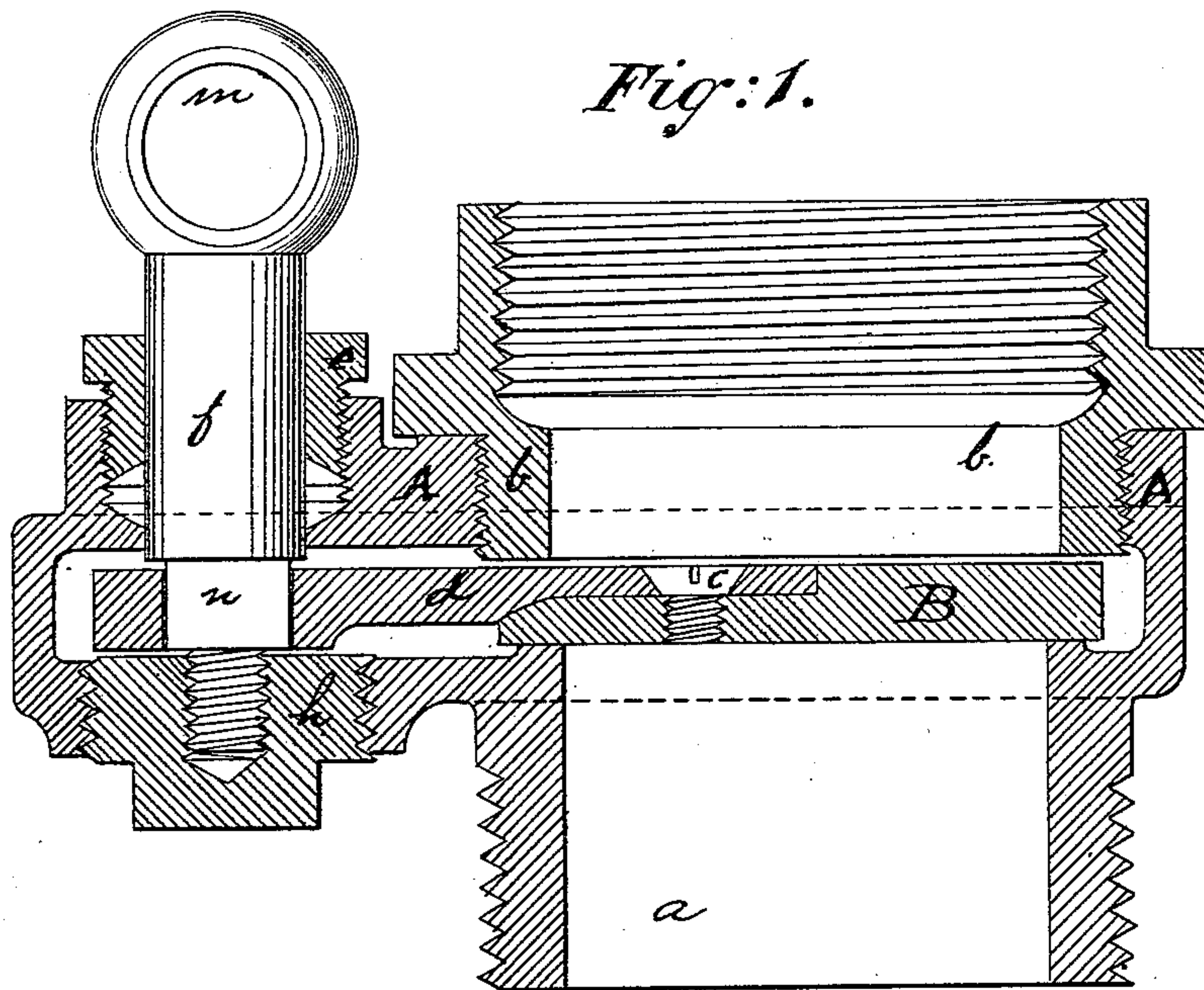


J. O. MORSE.

Stop-Valve.

No. 165,493.

Patented July 13, 1875.



Witnesses:

Henry L. Brewster
J. Vivian Johnson

Inventor:

James O. Morse

UNITED STATES PATENT OFFICE.

JAMES OTIS MORSE, OF ENGLEWOOD, NEW JERSEY.

IMPROVEMENT IN STOP-VALVES.

Specification forming part of Letters Patent No. 165,493, dated July 13, 1875; application filed May 20, 1875.

To all whom it may concern:

Be it known that I, JAMES OTIS MORSE, of Englewood, in the county of Bergen and State of New Jersey, have invented a new and useful Improvement in Valves; and I do declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure I is a vertical section, and Fig. II is a horizontal section.

Like letters indicate like parts in the several figures.

My invention relates to an improvement in the construction of that class of valves in which a straight passage is provided through the valve for the flow of the fluid. The object of my invention is to provide a valve which, for certain purposes, shall be much cheaper than the ordinary globe-valve, and which, though closed, shall not be pressed firmly against its seat when an equality of pressure exists on both sides, but will only be tight when the pressure on one side becomes greater than the pressure on the other.

Referring to the accompanying drawing, A represents the casing or body of the valve. The screwed prolongation *a* is for the attachment of a hose or other pipe, and over the orifice in which the valve, when closed, rests. This prolongation or nozzle *a* may or may not be made in one piece with the casing or body A, in which the valve B vibrates.

The form of the casing or body A permits the valve, which is operated by a lever-arm, (also within the casing of the valve,) to be moved till it is over the opening of the nozzle *a*; or, when the valve is to be thrown open, it may be swung by the operation of an outside handle till the valve-disk B is clear of the opening, and entirely within that part of the case formed to receive it when not between its seats. Directly opposite to the nozzle *a* is another screwed prolongation, *b*, which may or may not be made in one piece with the body of the valve A, and which, like *a*, is also a nozzle, thus enabling the valve-casing A to be introduced between two pipes, and providing (when the valve B is not covering the orifices of either *a* or *b*, but is moved into that part of the casing A formed to receive it when the

valve is open) a perfectly-straight passage for the fluid.

It is necessary that either *a* or *b* should be attached to the casing A by a screw or screws. It may be as shown in the drawing, where *b* is attached to the casing A. That portion of *b* which is directly over the valve-disk B is made true and smooth, and forms a seat for the valve B when the valve is pressed against it; and, in like manner, the inside of the casing A directly surrounding the opening in the nozzle *a* is formed into a seat for the valve, being slightly elevated and truly and evenly faced, so that, when the valve is pressed upon it, it shall form a bar to the passage of any fluid.

Thus it will be seen that the valve, when closed, is between two seats, and, supposing a perfect equality of pressure to exist, will only rest upon one of the seats by gravity; but, when there is an excess of pressure on either side, the valve B, being loosely attached to its spindle, will be forced against the opposite seat, and will be tightly closed.

The valve B is a simple disk of metal, having both of its sides made smooth and even, so that it may close tightly against the annular seat around the opening of either *a* or *b*. A lever, *d*, is attached to this valve, being sunk even with the surface, and having a screw, *e*, through both lever and valve.

The lever *d* has at the end farthest removed from the valve-disk a square hole cut through it. At the portion of the casing A which comes directly over this hole in the lever is a stuffing box with the ordinary gland, as seen at *e*, through which stuffing-box is passed a spindle, *f*, having a squared portion, *n*, fitting loosely the hole in the lever *d*. The lower end of the spindle *f* has a thread cut upon it; and, as some means have to be adopted to prevent the spindle from being drawn out of the box, I introduce into an opening in the casing A a plug, *h*, with a tapped hole bored from the inner surface partially through the plug, and thus, when the plug *h* is screwed into position, the spindle *f* having already passed through the stuffing-box, and its squared portion being partially in the square hole made in the lever *d*, the male thread cut upon the spindle *f* and

the female thread cut in the plug *h* will be screwed together, but will not be screwed firmly; for it is necessary that, in operating the valve, the spindle *f* should perform part of a revolution, and, in so doing, it is screwed or unscrewed to a slight extent. The spindle *f* can only revolve, having no other motion; but as it is very important that the valve *B* should be free to move from seat to seat, as occasion may require, it is always intended that the attachment of the lever *d* to the spindle *f* should be arranged in such a manner as to allow the valve *B* and the lever *d* to move together upward or downward. In the present instance I accomplish this by making the square hole in the lever *d* slightly larger than the squared portion of the spindle *f*. At *m*, in the spindle *f*, is seen, outside of the valve-casing, a ring, to which a handle may be attached. The operation is very simple; for example, were this valve attached to the lower part of a pipe running to the top of a house or other elevation, the valve is closed by simply turning through part of a revolution the spindle *f*, and if the pressure below the valve is diminished the pressure of the column of water over the valve will at once close it against the lower seat, and, when an equality of pressure is again established the

valve can be opened with very little effort. The thickness of the valve *B* should always be a little less than the distance between the seats on either side of it.

When the nozzle is removed, and the screw *c*, which makes the rigid connection between the valve *B* and lever *d*, is taken out, the opening in the valve-casing *A* should be of sufficient size to allow of the valve *B* being removed through the opening without further difficulty. Iron or brass may be used for all the parts, or the valve *B* may be of some other material. The two nozzles *a* and *b* may both be made a part of the casing *A*, but the casing itself must then be in two parts, connected by a flange, so that the valve and lever can be removed.

What I claim, and desire to secure by Letters Patent, is—

The combination of the vibrating disk, the valve-spindle upon which the said disk is loosely mounted, and the two valve-seats arranged at a greater distance apart than the thickness of the valve-disk, substantially as before set forth.

JAMES OTIS MORSE.

Witnesses:

HENRY L. BREVOORT,
SAMUEL P. BELL.