J. L. PEAKE.

STOP VALVE.

No. 113,337. Patented Apr. 4, 1871.

Fig. 1.

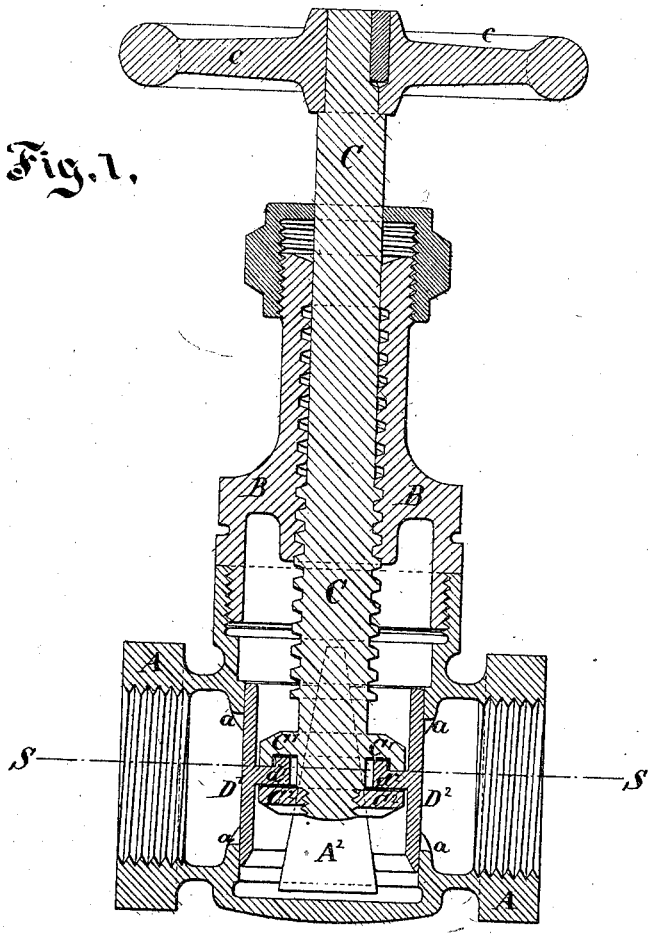
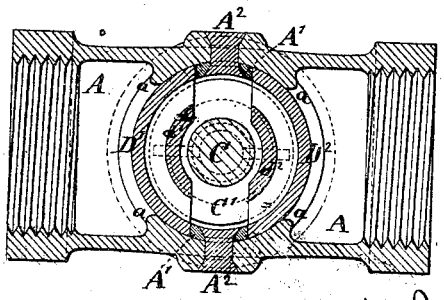


Fig. 2.



Witnesses,

A. Hoermann.

Josephine Booth

Inventor,

John L. Peake

by his attys

T. V. Peterson.

United States Patent Office.

JOHN L. PEAKE, OF NEW YORK, N. Y.

Letters Patent No. 113,337, dated April 4, 1871.

IMPROVEMENT IN STOP-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN L. PEAKE, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Stop-Valves.

I employ two or more slide gates made in separate pieces peculiarly connected to the screw, and wedged apart by wedges fixed on the inside of the casing, against the faces of which the edges of the gates apply. The lower edges of these gates are sharpened so as to cut their way into any dirt which may lodge in the space below, and I provide a liberal space in which such dislodged dirt may lie during the time while the valve is shut. On the opening of the valve the current of water, steam, or other fluid dislodges and washes away the dirt.

In cases where, as usual, the fluid is received on one side and discharged on the opposite side, there may be but two of these gates, one covering the receiving and the other the discharging side; but I can, in large valves of this class, divide the receiving-orifices into two or more, and the discharging-orifice, being similarly divided, I can employ a corresponding number of separate gates with the fixed wedges to drive them outward as they descend. In cases where there are three or more separate pipes or corresponding connections it is proper to provide always a corresponding number of these separate gates.

The nearest previous approximations to my construction have employed elastic cylindrical gates extending nearly around in one piece, with a fixed wedge received in the opening. Such construction requires a delicate adaptation of the elasticity and strength to fulfill the conditions required, and the action is, at the best, imperfectly distributed. When the wedge opens the springy cylindrical gate, it induces a kind of side movement around a large portion of the periphery, and, whether this is greatly resisted by friction or not, it is certain to induce unequal pressure and wear of the surfaces. Along lines a little distant from the wedges the pressure will be very great, while opposite to the wedges it will be almost inappreciable.

My invention induces a nearly perfect distribution of the pressure and wear.

I will proceed to describe what I consider the best means of carrying out the invention.

The accompanying drawing forms a part of this specification.

Figure 1 is a central vertical section.

Figure 2 is a horizontal section on the line S S in fig. 1.

Similar letters of reference indicate like parts in both the figures.

A is the casting which forms the main casing. It is internally threaded to receive pipes at opposite sides, and to receive the proper-threaded cap B at the upper side, which has a suitable internal thread and stuffing-boxes to carry the partially-threaded and partially-smooth screw-stem C with its hand-wheel *c*.

The lower end of the screw C carries a lipped collar, C^1, which is adapted, by the aid of a nut, C^2, to take hold of lipped internal projections from the gates and compel them to rise and sink with the screw, while they are at liberty to move outward and inward within moderate limits.

A^1 A^1 are tapering wedges, accurately finished by machinery or otherwise, and secured in the positions represented by rivets A^2 A^2.

Internal lips or extended surfaces *a* are provided around the orifices, which communicate with the pipe-nozzles on each side.

D^1 D^2 are separate gates, nicely turned or otherwise nicely finished to a cylindrical surface on the exterior, and provided with lipped internal projections d^1 d^2, adapted to be engaged by the lipped projections on the screw, as represented. The edges of the gates D^1 D^2 are finished in a planing-machine, or otherwise, so as to present true surfaces.

Now, when the screw C is adjusted to hold the gates D^1 D^2 at a proper elevation, the passage from one pipe to the other is open, and the steam or other fluid moves freely through the structure. Under these conditions the gates D^1 D^2 yield slightly by the play afforded at their connection with the screw C, and there is no appreciable friction to retard their ascent or descent.

When, by the turning of the screw C, the gates are depressed, they maintain the same condition, slightly deflected by the current of water across their lower edges until they approach their lowest positions. Then their edges begin to be guided forcibly by the wedges A^1. These press them strongly and evenly outward against the seats *a*, and at length the further turning of the screw C is arrested by the resistance due to the forcible pressing of these gates D^1 D^2 against the faces *a* by the action of the wedges A^1 A^1.

The connections d^1 d^2 are at about the middle heights of the gates D^1 D^2. The screw C, with its nut C^2, extends a little below these, leaving a large empty space within and above the lower edges of the gates. This space is ample to accommodate any sand, scales of rust, or other foreign matter, which I denominate by the collective term "dirt," which may have gathered from any cause in the bottom of the structure. In cases where water loaded with foreign matter has moved at a very moderate rate through the structure for a long time, it may chance that the entire cavity below the passages is filled with densely-packed earthy or mineral matter. This might interfere with the descent of the gates except for the sharpening of their

lower edges and the ample space provided for the dislodging of such foreign material adjacent to the surfaces *a*. The stuff thus dislodged by the sharp edges and crowded inward toward the axial line of the screw C, rests there until the gates D^1 D^2 are again lifted, when it will be immediately washed or driven away, if there is any considerable force in the motion of the fluid.

I have shown the wedges A^1 as joined to the part A by separate rivets. They may be joined by riveting (or similarly upsetting) projections formed on either of the parts, and made to apply in corresponding holes in the other. I believe it possible, with suitable tools, to finish the edges of the wedges with perfection and form the wedges A^1 in one piece with the casing A.

In cases where, from any cause, the gates D^1, &c., are not forced perfectly home against the adjacent surface by the wedges A^1, my valve packs itself, by the pressure of the steam or other fluid on its interior. This is effected by reason of the ready yielding of the parts D^1 D^2 realatively to each other and to the operating stem C. The steam or other fluid meeting the first gate presses it a little inward and fills the interior of the valve to a tension about equal to that in the receiving-pipe. But the pressure thereby induced in the interior of the valve, to wit, in the space within the gates, induces a pressing home of the other gate, that which is on the discharging side, and makes the valve serve as tightly as ever.

I claim—

1. The two wedges A^1 A^1, arranged to serve, as represented, relatively to the two gates D^1 D^2, formed in distinct pieces loosely locked or connected to the operating stem C, and caused to operate relatively to the water-passages and to the surfaces *a*, as herein set forth.

2. The gates D^1 D^2, made with the lower edges thin and sharp, so as to cut into and dislodge any accumulation of solid matter in the cavity at the base and allow it to be retained in the space provided below the connection to the stem C, and be carried away by the current on opening the valve, as set forth.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

JOHN L. PEAKE.

Witnesses:

THOMAS D. STETSON,

C. C. LIVINGS.