

(No Model.)

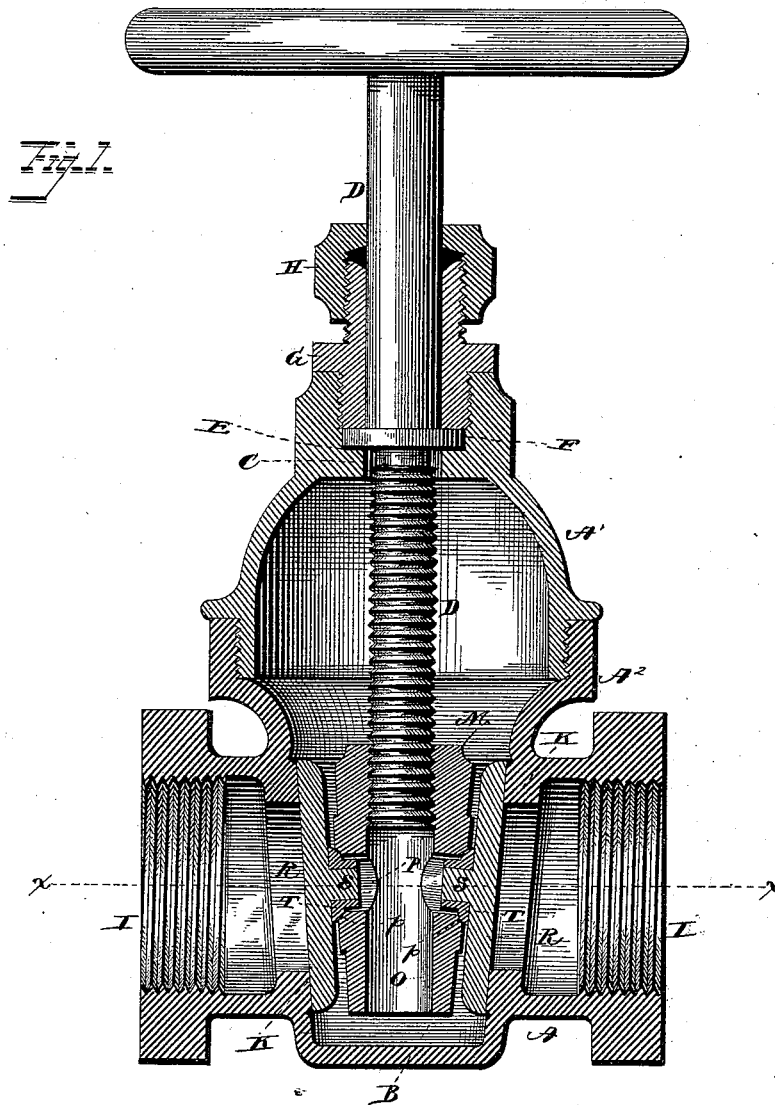
2 Sheets—Sheet 1.

J. BERRY.

STOP VALVE.

No. 348,104.

Patented Aug. 24, 1886.



Witnesses
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

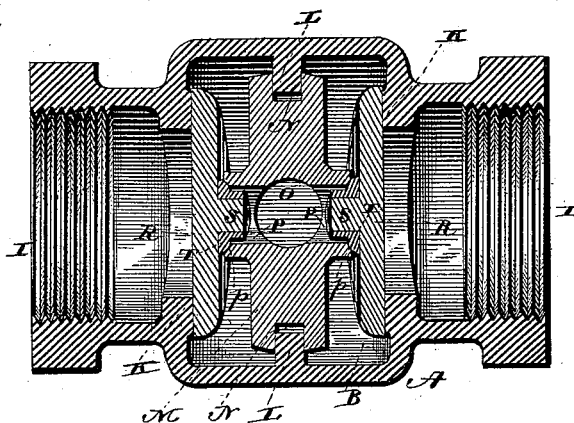


Fig. 3.

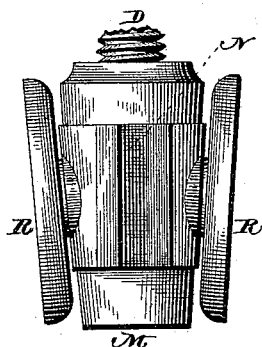


Fig. 4.

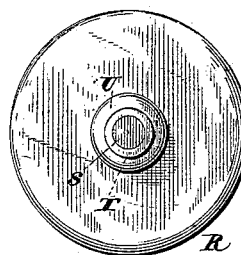
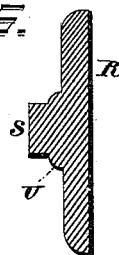


Fig. 5.



Fig. 6.



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UNITED STATES PATENT OFFICE.

JOE BERRY, OF SPRINGFIELD, MASSACHUSETTS.

STOP-VALVE.

SPECIFICATION forming part of Letters Patent No. 348,104, dated August 24, 1886.

Application filed November 21, 1884. Serial No. 148,515. (No model.)

To all whom it may concern:

Be it known that I, JOE BERRY, a subject of Her Majesty the Queen of Great Britain, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Stop-Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a vertical central section of my valve; Fig. 2, a horizontal section of the same on line *xx* of Fig. 1; Fig. 3, a detail view in side elevation of valve-head or stem-nut with its valve-disks; Fig. 4, a detail view in elevation of one of the disks with the ball formed on a bushing placed around its central stud; Fig. 5, a detail sectional view of the bushing, and Fig. 6 a detail sectional view of a disk with the ball and stud formed in one piece with the disk.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide an improvement in stop valves; and to this end it consists in the construction, arrangement, and combination of parts, as hereinafter specified.

In the drawings, A designates the valve-casing, and B the valve-chamber within the same. The upper portion, A', of this casing is preferably made separate and screwed upon or within the lower portion, A". Through the top of portion A' is the vertical passage C for the valve-stem D, enlarged at its upper end to form a shoulder, E, for a collar, F, on the valve-stem to rest upon, and screw-threaded within above such shoulder to receive the screw-plug G, centrally bored to admit the passage of the valve-stem, and bearing at its lower end upon the collar F. The collar is capable of rotation between the shoulder and plug end. With this construction the valve-stem upon which the collar is fixed can obviously be rotated freely, but is prevented from longitudinal up or down movement.

Upon the upper end of the plug is screwed a suitable packing-cap, H, surrounding the valve-stem. The upper end of the stem is provided with the usual form of head by which it can be revolved.

The lower portion of the casing is provided with the usual opposite fluid-ways, I I, opening into the valve-chamber. Around the openings of these fluid-ways into the valve-chamber are the valve-seats K K, which, as shown, are inclined inward toward each other from their upper to their lower ends. On the opposite inner sides of the valve-chamber, in a plane at right angles to the fluid-ways and between the valve-seats, are the guide-ribs L L.

The lower end of the valve-stem D is screw-threaded, as shown, and is tapped into and through the internally-threaded upper end of the nut or valve-head M. This screw nut or head is provided at its sides with grooves N N, fitting and engaging the ribs L L on the valve-chamber sides. With this construction as the valve-stem is turned the head M will be held from rotation, and will be caused to move up or down in a fixed plane between the water-way openings and valve-seats. Below the threaded portion at the upper end of the nut or head, the central passage, O, through the latter is enlarged to admit the free passage of the screw end of the valve-stem as the nut or head is raised.

The valve-head is made tapering from its upper to its lower end to conform with the downward taper of the space between the valve-seats. On the faces toward these seats it is preferably formed with upright ribs, as shown. Through these faces, at the central points thereof, are bored the openings P P, extending at right angles to the faces and into the central bore O within the head. The outer edges of these openings are concaved, the concavity being preferably spherical, as shown, so that at the outer ends of the openings are formed round or hemispherical sockets *pp*.

The valve-disks R R, which are of sufficient extent to slide over and close the fluid-way openings, and made plane on their outer faces so as to be seated properly on the valve-seats, are provided on their inner or rear faces with studs S S, projecting at right angles to the disks. Upon these studs are placed the bushings T T, which, as shown, are formed around their bases close to the disks with the rounded enlargement U, adapted to fit the rounded sockets *pp* on the valve-head. Beyond these rounded portions the bushings extend rear-

ward around the studs S S, being made preferably cylindrical and smaller than the openings P P into which they project.

Instead of having the balls for the sockets in the head made on bushings placed on studs on the valve-disks, as described, the studs and balls may be made integral with such disks. However constructed, these balls are made of such size and curvature as, while fitting the sockets on the head, to hold the valve-disks at a distance from the head, so as to allow of a slight rocking motion of the disks with relation to the head.

With the construction as set forth above and shown in the drawings, as the valve-stem is turned the valve-head will, as already indicated, always move in a fixed plane at right angles to the fluid-way openings and centrally between the valve-seats. As the head is raised, the valve-disks are slid upward over the seats to open the ways. As the head is lowered, they slide down over said seat, and because of their ball-and-socket connection with the head can and do seat themselves freely and fluid-tight against their respective seats. Each disk accommodates itself to its own seat independently of the other, so that any defect or wear of one of the disks or its seat does not interfere with the proper closing of the fluid-way opening by the other disk. In my stop-valve, as described and shown, the head is always properly guided to move the disks properly, and I do not rely upon the disks themselves as fitting against the seats to guide the head or prevent its turning as the stem is rotated to raise or lower it.

Where there is only one fluid-way to be closed, of course only one of the valve-disks is necessary, and the other is dispensed with. In such case the head operates and is guided to move in a fixed plane in the manner and by the means, as set forth hereinafter. The single valve-disk will then, by the movement of the head, be caused to slide over its seat and close the fluid-way, just as do the disks in the double-valve construction described above and shown in the drawings. With the head constructed,

operating, and guided as it is, the removal or dispensing with one of the disks would interfere in no way with the operation of the remaining one.

Having thus described my invention, what I claim is—

1. In combination with the inclined valve-seat, the vertical ribs on the sides of the casing, the valve-head, provided with grooves engaging such ribs, and the valve-disk having on its back a rounded projecting bearing engaging a rounded recess in the valve-head, and a central stud extending beyond such bearing into an opening in the head, substantially at right angles to the plane of the valve-seat, substantially as and for the purpose described.

2. In a stop-valve, in combination with the two opposite valve-seats inclined downward and inward toward each other, the valve-head between the same, provided with vertical grooves at its sides, the vertical guiding-ribs on the sides of the casing, engaging such grooves so as to guide the head in a fixed vertical plane midway between the valve-seats and the valve-plates, each having on its back a rounded projecting bearing engaging a rounded recess in the valve-head, and a stud extending beyond such bearing and entering an opening or recess in the head, substantially as described and shown.

3. In combination with the valve-head having the recess or opening and the rounded socket around the outer end of such recess, the valve plate or disk provided on its rear face with a stud, and the bushing on such stud having the rounded base portion engaging the rounded socket in the head, and the cylindrical portion surrounding the stud and projecting into the recess in the head, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of November, A. D. 1884.

JOE BERRY.

Witnesses:

ELMER P. HOWE,
W. A. SARGENT.