No. 637,264. Patented Nov. 21, 1899.

H. E. JENNISON.

VALVE FOR WATER AND STEAM PIPES.

(Application filed Feb. 24, 1899.)

(No Model.)

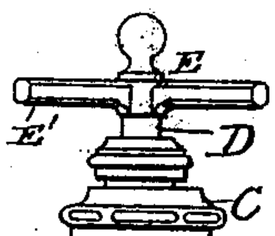


FIG. 1.

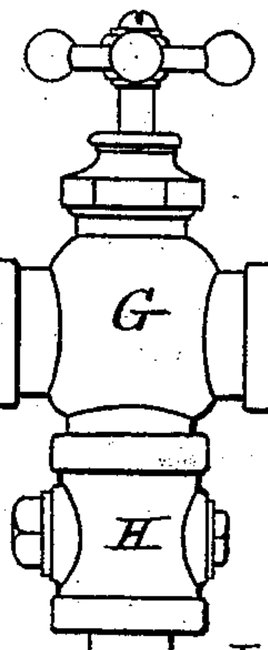


FIG. 4.

FIG. 2.

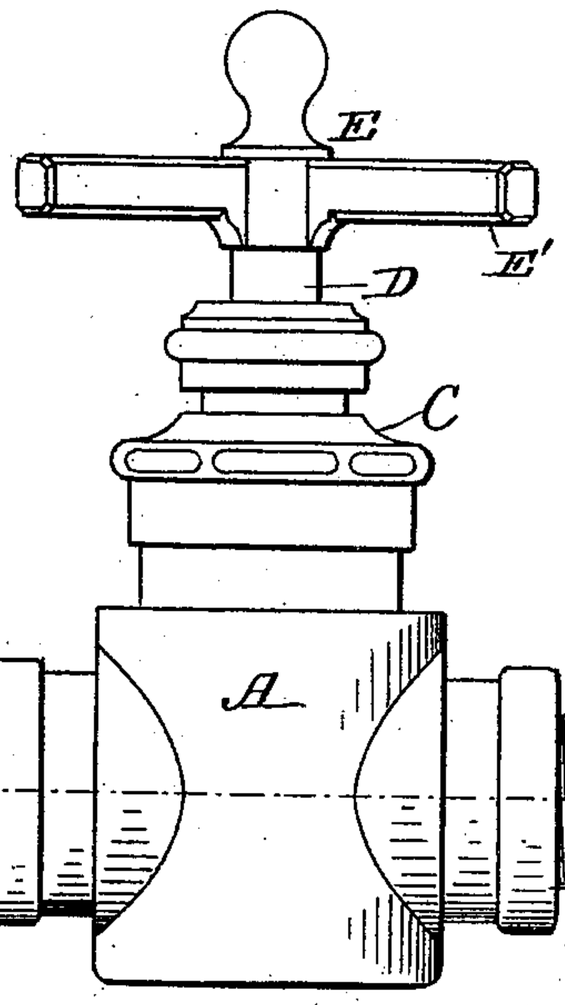
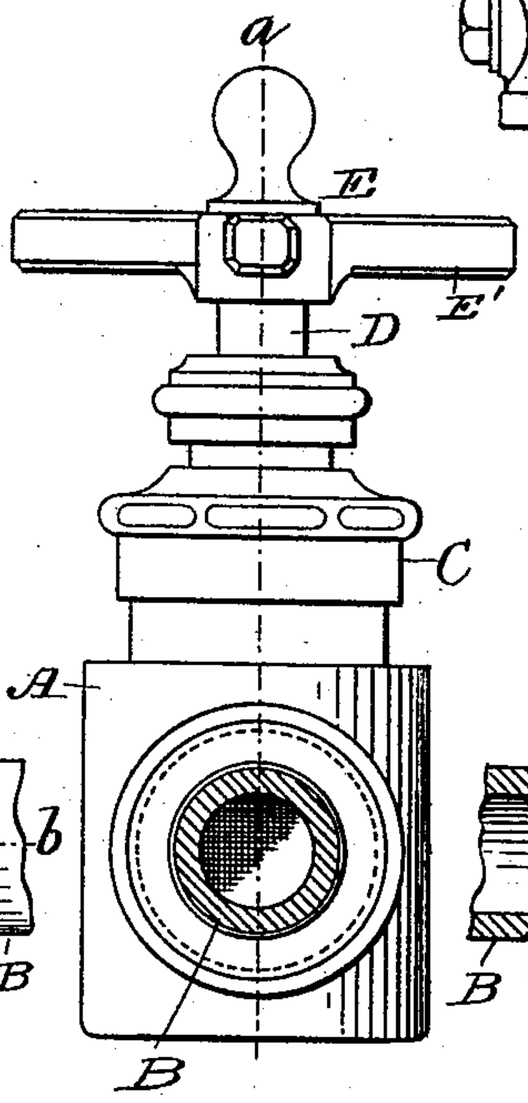


FIG. 3.



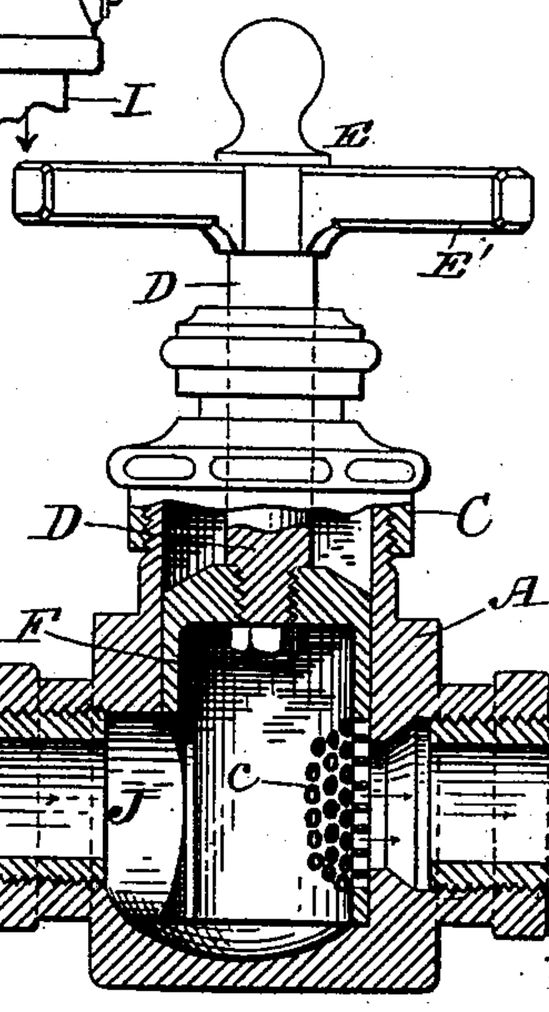


FIG. 5.

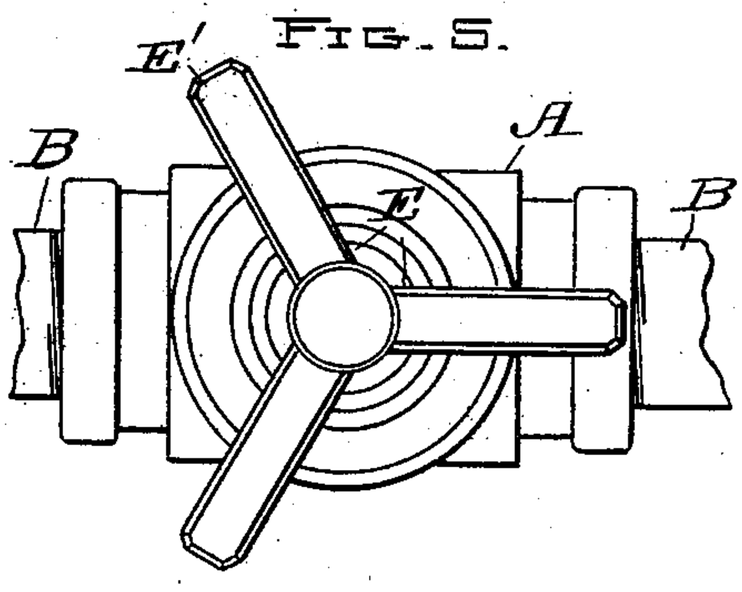


FIG. 7.

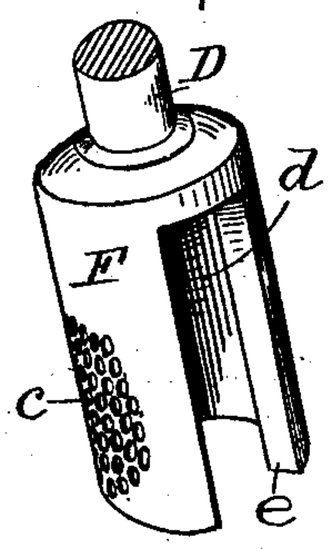
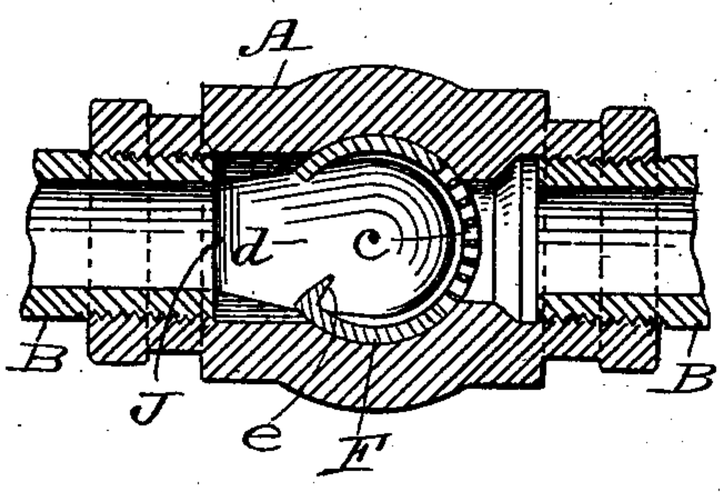


FIG. 6.



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UNITED STATES PATENT OFFICE.

HERBERT E. JENNISON, OF FITCHBURG, MASSACHUSETTS.

VALVE FOR WATER AND STEAM PIPES.

SPECIFICATION forming part of Letters Patent No. 637,264, dated November 21, 1899.

Application filed February 24, 1899. Serial No. 706,637. (No model.)

To all whom it may concern:

Be it known that I, HERBERT E. JENNISON, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented an Improved Valve for Water and Steam Pipes; 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, and in which—

Figure 1 represents a section of piping with my aforesaid valve and also a shut-off and waste cock applied thereto for the purpose of showing how my said invention may be applied and operated in practice, as will be hereinafter more fully described. Fig. 2 represents, upon an enlarged scale, a side view of the valve with a short section of the piping to which it is applied at each side thereof, all the following figures also being upon the same enlarged scale. Fig. 3 is a transverse section of said piping, showing a side view of the valve. Fig. 4 is a similar view to Fig. 2 with the improved parts of the device shown in section, said section being taken on line *a*, Fig. 3. Fig. 5 is a top or plan view of the device. Fig. 6 is a horizontal longitudinal section taken on line *b*, Fig. 2; and Fig. 7 is a detached perspective view of the slotted perforated cylinder of the device hereinafter described.

The purpose of my invention is to produce a device which when applied to water, steam, or other liquid or vapor conducting pipes shall retard and control sand, gravel, chips, or any other deposit contained therein, and thereby preventing said deposits from collecting on the seat of any attached ball-cock, faucet, stop-cock, or gate of any description used upon the system of piping.

Said invention consists in combining with the casing and operating-stem of a stop-cock and its connecting-piping a transversely-arranged slotted perforated cylinder connected with and operated by said stem, said cylinder being provided with transverse perforations upon one side covering an area of about the size of the opening in the piping, also having a transverse opening therein about the width of the diameter of said piping, whereby when said cylinder is turned by operating its stem in the usual way the perforations may be adjusted over the opening in the pipe to strain the water, steam, or other fluid or vapor passing through said piping, and thus retard any sand, gravel, or other deposits contained therein from passing through; also, whereby when said opening in the cylinder is adjusted in line with the pipe-opening the fluid or vapor may freely pass through, and also whereby when a solid portion of said cylinder is brought over the pipe-opening the flow of fluid or steam may be entirely cut off, all as will be hereinafter more fully set forth.

To enable others skilled in the art to which my invention appertains to better understand the nature and purpose thereof, I will now proceed to describe it more in detail.

As my invention is more particularly designed to be used in connection with water-pipe systems, it will be described and applied thereto in the following specification.

In the drawings, A represents the outer casing or body of my improved device, which is similar in external appearance to an ordinary stop-cock and is connected with the piping B at each side in like manner to said stop-cocks. Said casing is provided with the screw-cap C and with the stem D, provided with the operating-handle E, consisting in this instance of three transversely-projecting arms E′.

To the inner end of stem D is rigidly secured the cylinder F, previously alluded to, which is provided with the transverse perforations *c* upon one side, covering an area about the size or a little larger than the opening in piping B, as is shown in Figs. 4 and 6. Said cylinder is also provided with a transverse opening *d*, preferably at the opposite side thereof from the perforations and of about the same width or a little wider than the diameter of said pipe-opening, the remaining portions of the cylinder being preferably left solid, as is shown in the drawings, to serve as a shut-off when the cylinder is turned to bring the same over the outlet of the device. By thus constructing said cylinder F it is obvious that when it is turned to bring its perforated part over the outlet-opening in casing A the water flowing through must necessarily pass through said perforated part or strainer, and any sand, gravel, or other deposits are retarded and collected in the device, said water being thereby filtered and relieved of all such deposits prior to en-

tering the usual plumbing fixtures of the building. In consequence thereof said fixtures are constantly kept in a clean and proper working condition, and their packings and seats being thereby less rapidly worn away.

When a considerable quantity of deposit has accumulated in the device sufficient to impede the proper flow of water therethrough, the cylinder F is opened to produce a full waterway through the device by adjusting the opening *d* over the outlet in said device, thereby permitting said deposit to be expelled by said water-pressure, and to facilitate said operation the cylinder may be turned back and forth to stir up or loosen said deposit, so that it may be more readily discharged. To further facilitate said result, one or both edges of the cylinder at the side of its opening *d* may be provided with an inwardly-projecting flange *e* to catch against and more thoroughly stir up the deposit; but as said flange or flanges *e* are not an essential feature I do not limit myself to the use thereof.

Some means must naturally be provided for disposing of the deposit discharged from my improved valve before it reaches the other plumbing fixtures it is designed to protect or it will not serve the purpose described. This may be accomplished in various ways. As an illustration of one way I have shown a stop-cock G, which is also provided with a shut-off H and waste-pipe I, arranged just in advance of said valve, as is shown in Fig. 1. Prior to discharging the deposit from said valve said stop-cock G is closed to prevent the water from flowing through the main piping and the shut-off H is opened, so that it may pass out through the branch waste-pipe I, which may be conducted to any suitable point for discharging the water carrying the deposit from the valve. The valve having been thoroughly cleansed of all deposit, the cylinder F is then turned to bring the filter over the outlet thereof, the shut-off H closed, and the stop-cock G opened, when all the parts are again in proper condition for discharging the filtered water through to the various plumbing fixtures of the building.

The above operation is necessary only at long intervals or about as often as is required for cleansing an ordinary water-filter, such as is commonly used for sink supply-cocks, the frequency required for said operations being of course governed by the amount of deposit contained in the water and by the size of the valve.

In order that a free flow of water may pass through the valve when its opening *d* is adjusted over the outlet thereof, as previously described, the casing A and cylinder F are so constructed as to leave sufficient space between them on the side next to the inlet J to produce a clear waterway under and through said cylinder F, as is shown in Fig. 4.

My invention, as will be apparent, is applicable in practice to many places requiring the filtration of other liquids as well as water, and also for steam-piping for protecting the valves thereof from impairment by deposits of sand or other foreign matter between their packings and seats. It is designed, however, as previously stated, mainly for use on water-pipes and especially in connection with the ball-cocks of supply-tanks, where much trouble now exists from such foreign matter lodging between their packings and seats. It is also designed to use the devices on the supply-pipes to buildings just back of the meters commonly used for registering the supply of water thereto. By thus filtering the water before it enters said meters it is obvious that the mechanism thereof is thereby protected from damage to a large extent, and in consequence a more correct registration is obtained and said meters are less liable to get out of repair than when not thus protected from foreign matter entering the same. Therefore a large saving in cost of maintenance is effected in these as well as other plumbing fixtures.

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

1. The valve A, having piping B connected therewith and comprising the outer casing; the screw-cap thereof; the transversely-arranged, internal cylinder and its operating-stem, said cylinder being provided with a large opening or clear waterway upon one side, and perforations at or about the opposite side thereof to serve as a filter, in combination with the shut-off and waste cock G, H, also connected with piping B and waste-pipe I, substantially as and for the purpose set forth.

2. The combination of casing A, having the piping B connected therewith and also provided with the screw-cap C, with the transversely-arranged cylinder F, having a series or group of transverse perforations *c* over a portion of its circumference, and an opening *d* at another point in said circumference, and also provided with an internally-projecting flange *e;* stem D secured to the end of said cylinder F, and means for turning it, substantially as and for the purpose set forth.

3. A combined deposit-controller and shut-off cock for water and steam pipes, comprising the casing A, having the screw-cap C; the transversely-arranged cylinder F, having a series or group of perforations *c* over a portion of its circumference, and also an opening *d*, at another point in said circumference; stem D secured to the end of said cylinder F, and means for turning it, in combination with the piping B, combined shut-off and waste cock G, H, and waste-pipe I, substantially as and for the purpose set forth.

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