J. P. HUTCHINSON.

Automatic Water Flow Regulator.

No. 205,553. Patented July 2, 1878.

Fig 3.

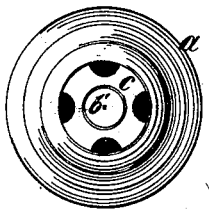


Fig 1

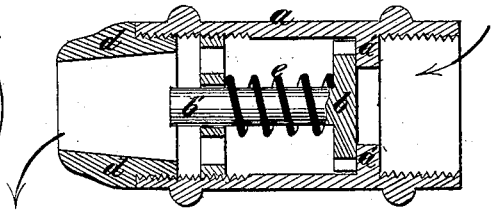


Fig 2.

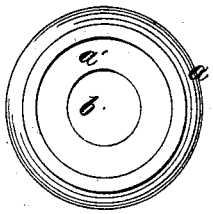


Fig 4.

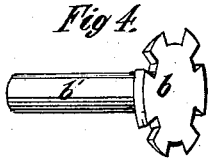


Fig 5.

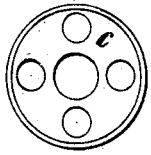
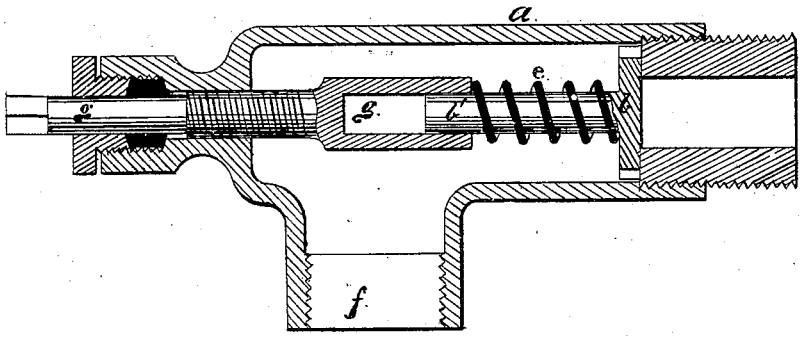


Fig 6.



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IMPROVEMENT IN AUTOMATIC WATER-FLOW REGULATORS.

Specification forming part of Letters Patent No. **205,553**, dated July 2, 1878; application filed April 17, 1878.

To all whom it may concern:

Be it known that I, JOHN P. HUTCHINSON, of the city of Brooklyn, county of Kings and State of New York, have invented a new and useful Improvement in Automatic Water-Flow Regulator Attachment for Water-Cocks, Faucets, Pipes, &c., of which the following is a specification, reference being had to the accompanying drawings, which form a part of the same.

In cities and other places where water for general use flows under pressure through pipes, it is found that it does not flow from two or more outlets at the same time, particularly if said outlets are located above each other, as in houses having several stories supplied with water through a single pipe. This fact causes great inconvenience, as the party wishing to draw water at one of the upper outlets cannot do so if the water is flowing at one of the lower outlets.

In buildings where water is conveyed by a system of pipes to various apartments or rooms, it is apt to fail to flow from a number of outlets at the same time, thereby occasioning much inconvenience, and necessitating frequently serious losses of time in waiting for the flow of water in a particular apartment while being drawn elsewhere.

The object of my invention is to obviate this annoyance by so regulating the flow from a particular outlet or outlets that water may be had at any time at other places where it is desired.

To this end the invention consists in a water-regulator attachment adapted to be secured to the mouth of a faucet or outlet of a valve, offering a resistance to the flow of water, operating by the pressure of the water solely on the side of it nearest the source of the water, and preferably comprising a cylindric shell, serving as a nozzle, a yielding disk or its equivalent, subjected to the impact of the water passing into said shell, a spring for actuating said yielding disk in such manner as to tend to close it against the pressure of the water, and an adjustable regulator-disk, supporting the spring.

In the drawings herewith, Figure 1 represents a longitudinal central section of my invention. Fig. 2 is an end view of the same, looking in the direction of the arrow. Fig. 3 is a view, looking into the other end. Fig. 4 is a view of the piston or valve detached. Fig. 5 is a view of the spring regulating or adjusting disk. Fig. 6 represents the invention as applied to water-closet valves.

Similar letters of reference in the several figures indicate like or corresponding parts.

In the drawings, *a* represents a short hollow cylinder or tube, made from any suitable material. It is provided with a screw at each end, as shown in Fig. 1, and also with a flange or shoulder, *a'*, upon its inner surface.

b is a piston, having openings in or lugs upon its periphery, to allow the water to flow around it.

b' is a piston-rod, which serves to guide the piston in its motion, and to keep a spiral spring, *e*, in position.

c is a disk, perforated with a central opening for the piston-rod to pass through, and also with other openings for the water to flow through. The periphery of this disk is provided with a screw-thread, by which it is secured to the tube *a*.

The spiral spring *e* is located between the piston *b'* and the disk *c*, and the desired tension in the spring is had by screwing the disk *c* within the tube *a*, turning it forward or backward, thus regulating or adjusting the tension in said spring.

If desired, a nozzle-piece, *d*, may be secured to the end of the tube *a*, as shown in Fig. 1.

Various modifications of the parts of my invention may be made to adapt its use to various purposes without departing from its general principle. Thus, Fig. 6 illustrates its application to a water-closet valve. In this case the tube *a* is provided with an outlet, *f*, from its side for the water.

g is a shaft, secured by means of a screw to one end of the tube *a*. The other end of the shaft *g* is made hollow, to allow the piston-rod *b'* to move into it.

The spiral spring *e* is held in place upon the rod *b'* between the piston and the shaft *g*, and the desired tension is given to it by screwing the shaft *g* forward or backward into the tube *a*, as the case may require. In this case the shaft *g* is substituted for and operates the same as the disk *c*. (Shown in Fig. 1.)

The operation of my invention is as follows: The apparatus shown in Fig. 1 is attached to the nozzle of a water-cock, faucet, pipe, or other device, by means of the screw, and when the water is allowed to flow, by means of the tap-cock or other device for that purpose, the water will press upon the face of the piston *b*, and force it backward toward the disk *c* and compress the spring *e*, thus causing an opening, through which it flows; then passing through the perforations in the disk *c*, it escapes at the outlet or nozzle *d*. By opening another outlet in the same supply-pipe for the water, the pressure of the water upon the piston is reduced, and the force of the spiral spring *e* closes, or partly closes, the opening between the piston *b* and the flange *a'*, thus reducing the amount of water flowing through the apparatus, and causing the water to flow from the other open outlet at the same time. If desired, the tension in the spring *e* may be made so great, by screwing the disk *c* down, as described, that it will entirely close the opening between the piston *b* and the flange *a'* when the pressure of the water upon the piston has been reduced by the opening of another outlet, in which case the water will flow with full pressure from the open outlet; but it is intended more generally that the tension of the spring *e* should be so adjusted that it will operate so that the water can be drawn from two or more outlets in one pipe at the same time, such as drawing water in the basement or in one of the upper stories or floors of a dwelling-house at the same time.

This invention, when properly adjusted and applied, is automatic in its operation, and will regulate the flow of water in a pipe, so that it can be drawn from one or more outlets at the (or the same) time; and when it is applied as shown in Fig. 1 it may be detached, if desired, so as to connect in its stead a hose-pipe, and get the full force of the water-pressure.

Having thus fully described the object, the nature, and the operation of my invention, I desire to claim and secure by Letters Patent—

1. A water-flow regulator attachment adapted to be secured to the mouth or outlet of a faucet or valve, serving to check the flow of water, and operating by the pressure of water solely on the side nearest the source of the water, substantially as specified.

2. A water-flow regulator attachment adapted to be secured to the mouth or outlet of a faucet or valve, and consisting of a cylindric shell, serving as a nozzle, and a movable yielding disk, capable of being set to open at variable points, and operated by the water solely on the side nearest the source of the water, to permit the escape of water, substantially as specified.

3. A water-flow regulator attachment, consisting of a cylindric shell, adapted to be secured to the mouth of a faucet and to serve as a nozzle therefor, a yielding disk, controlling the passage of water through such shell, a spring for actuating said yielding disk against the pressure of the water on the same, and an adjustable disk or its equivalent, supporting the spring, substantially as and for the purpose specified.

4. A water-flow regulator attachment comprising the combination of a cylindric shell, a yielding disk, operating in conjunction with the seat to control the flow of water, an adjustable perforated disk, arranged within the shell, in line with said yielding disk, and serving as a guide for the latter, and a spring interposed between said adjustable perforated disk and said yielding disk, so as to exert a force against the pressure of water, substantially as specified, whereby a very simple device is obtained.

5. A water-flow regulator attachment comprising the combination, with a cylindric shell, a piston-valve controlling the flow of water therein, a spring for actuating said valve, and an externally screw-threaded perforated disk, engaging with a screw-thread in the shell and adapted to be adjusted therein, substantially as specified.

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