(No Model.) 2 Sheets—Sheet 1.

A. P. HOWES.

FAUCET.

No. 493,774. Patented Mar. 21, 1893.

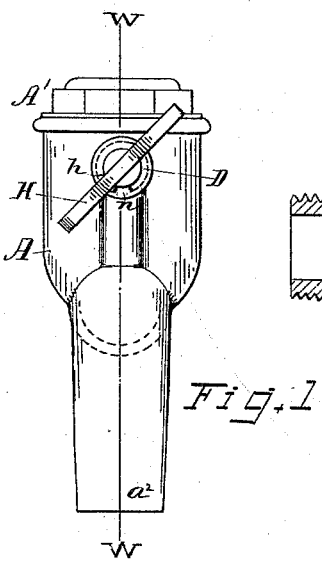

Fig. 1

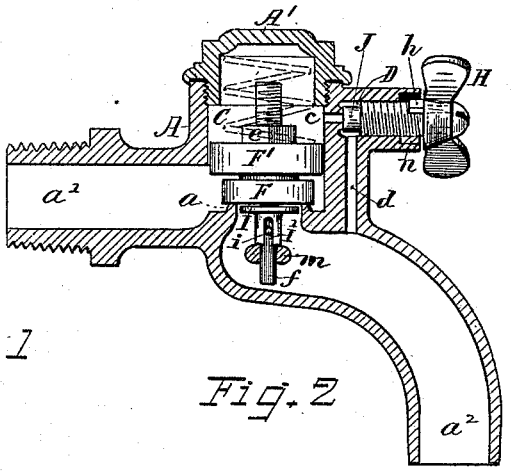

Fig. 2

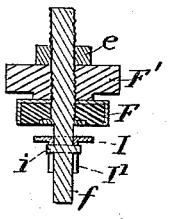

Fig. 4

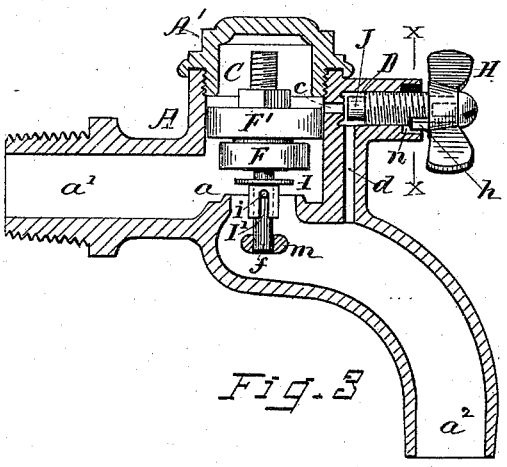

Fig. 3

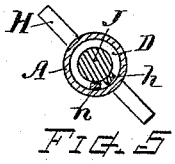

Fig. 5

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(No Model.) 2 Sheets—Sheet 2.

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FAUCET.

No. 493,774. Patented Mar. 21, 1893.

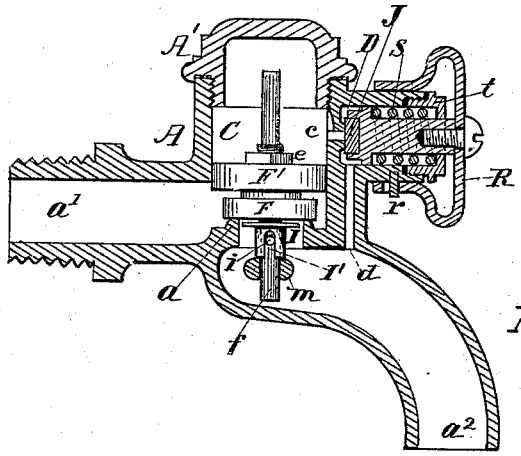

FIG. 6.

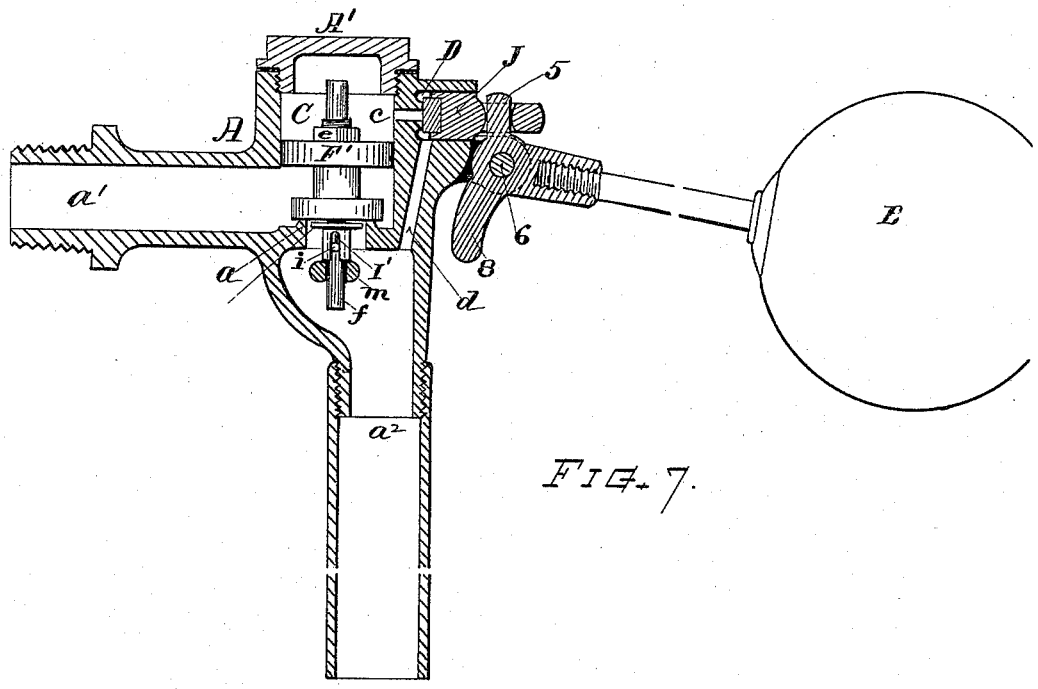

FIG. 7.

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UNITED STATES PATENT OFFICE.

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FAUCET.

SPECIFICATION forming part of Letters Patent No. 493,774, dated March 21, 1893.

Application filed March 28, 1891. Serial No. 386,817. (No model.)

To all whom it may concern:

Be it known that I, ALBERT P. HOWES, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Faucet, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my present invention is to provide a more practical and efficient faucet of that class in which the force or pressure of the water is utilized for operating the valve, by means of a piston on the valve-stem which works in a chamber having a small vent that is controlled by a supplemental valve manipulated from the exterior of the faucet.

Another object is to provide a valve having an auxiliary barrier, in combination with the water-way for partially arresting or retarding the flow of water when the valve is but slightly open, and thus affording such resistance to the flow of the water as will permit the easy opening of the valve and resist the closing action.

These objects I attain by mechanism the nature, construction and operation of which are explained in the following description; the particular subject-matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a front view of my improved faucet. Fig. 2 is a longitudinal vertical section of the same at line W W, shown with the valve closed. Fig. 3 is a similar section shown with the valve open. Fig. 4 is a vertical section of the valve puppet. Fig. 5 is a transverse section at line $x\,x$. Fig. 6 is a longitudinal section showing a modification in the operating means adapting the same for a self-closing faucet, and Fig. 7 shows a modification wherein the faucet is adapted for use as a tank supply or ball-cock.

Referring to parts, A denotes the body or shell of the faucet provided with the attaching nipple, and having the inlet passage a', the internal cylindrical chamber C with the main valve-seat a at the bottom thereof, and the delivery passage or bib a^2 leading through and below said valve-seat. The top of the chamber C is closed by a screw-cap A′ in the usual manner. The shell is provided with a relief orifice or small passage c that leads out from the upper part of said chamber C, and a supplemental valve-chamber D is provided therefor preferably at the front upper part of the shell. From said latter chamber D there is an escape passage d which preferably leads down into the delivery passage a^2; but if in any case desired the relief orifice can open to the exterior of the shell at any convenient position.

The valve-puppet is made as indicated, with the valve-pad F and piston disk F′ both rigidly secured on the stem f by a nut e screwed onto the threaded part of said stem, or otherwise, and below said valve-pad F a thin barrier-plate or disk I is arranged on the valve-stem, the hub or collar carrying said barrier-plate being slotted, as at I′, and arranged to slide on the valve-stem longitudinally. A pin i is arranged through the stem with its ends projecting into said slots for supporting the barrier-plate. This puppet is disposed in the body A with its piston-disk F′ fitting closely, but free for easy movement, within the chamber C, the valve F matching and closing onto the seat a in the direction of the flow, and the lower dependent end of the valve-stem movable within and maintained central by a perforated guide-bar m fixed across the delivery passage. The lower end of the barrier-plate hub rests on the guide-bar m when the valve is closed, so that the barrier-plate is sustained in the valve-seat-way close beneath the valve. The barrier-plate I is made of somewhat less diameter, but so as to nearly fill the passage through the seat. The pin i is at such time some way down the slot [see Fig. 2] but when the valve-stem is raised to its full height the barrier-plate is lifted by the pin i engaging the end of the slot, as shown in Fig. 3.

Within the supplemental chamber D is a valve J that closes the passway c, and said valve or its stem is provided with means whereby it can be operated from the exterior. In Figs. 1 to 5 this valve is shown fitted to the shell by a screw-thread, and a handle or thumb-head H is arranged thereon for turning it for opening and closing the controlling valve J. To prevent the screw from being turned too far a suitable stop is employed which, in the present instance, consists of a

pin or lug n fixed in the body, and a pin h fixed in the thumb-head which strikes the lug n as the head is turned about. The valve J may be operated by a screw, a lever, or a self-closing thumb pull.

In Fig. 6 a spring S is arranged on the valve-stem J and confined by a cap t so that the spring will force the valve J to its seat. The end of the stem extends through the cap and a pull knob R is attached thereto by means of which the valve J can be pulled open, and when released the spring closes the valve. A stud r fixed in the shell passes through a slot in the side of the knob and limits its range of movement and also prevents its being rotated.

In Fig. 7 the controlling valve stem is fitted with an eye for engagement with an angle lever 5 that is fulcrumed at 6 in suitable ears formed on the body A. To the other arm of said lever is attached the float or ball B for opening or closing the valve with the rise or fall of water in a tank. A depending portion 8 of the angle lever, by striking the shell, serves as a stop to prevent the ball falling too far.

In the operation of this faucet, the small valve J is opened giving vent from the chamber C through the small orifice c, and thereby relieving the pressure within said chamber. The pressure then being greater at the under side of the piston-disk F′ forces said piston-disk upward in the chamber and thus lifts the valve F from its seat a for opening the valve-way to the delivery nozzle a^2. At the first part of the valve movement, and until it is well off from its seat, the plate I remains stationary in the valve-way and serves as a barrier to prevent a sudden rush of water that would otherwise suck the valve to the seat or cause a rattling vibration of the same. When the valve and its spindle are elevated sufficiently far the pin i engages the end of the slot and its further movement lifts the barrier-plate from the valve-way. [See Fig. 3.] When the controlling valve J is closed equality of pressure is established in the chamber C and inlet a, and the valve-puppet drops by its own gravity and the pressure of water acting on the valve F and plate I, thereby closing the valve onto its seat a. The barrier being below the valve F avoids the necessity of making two accurate seating surfaces; and the leakage around or through the barrier-plate is immaterial, as it is wholly overcome when the faucet is not running by the seating of the valve itself.

I claim as my invention herein, to be secured by Letters Patent—

1. The combination, with the faucet body having the inlet and delivery passages, internal chamber C, valve seat a, relief orifice c and supplemental valve-chamber D with the escape passage d leading therefrom into the delivery passage, as shown, of the valve-puppet composed of the main valve F, the piston disk F′ fitting into said internal chamber, and carrying a barrier-disk I of less diameter than the valve-seat-circle movably arranged upon the valve-spindle within the passage below said main valve, the valve-spindle guide within the water-way below said barrier-disk, the controlling valve J for the relief orifice, and means substantially as described for manipulating said controlling-valve and for limiting the movement of the same, all substantially as and for the purpose set forth.

2. The combination, with the body having the inlet and delivery passages, the internal chamber, relief orifice c and the internally-threaded supplemental valve-chamber D, and the automatically operative piston and valve within said internal chamber, of the threaded stopper or valve for controlling said relief-orifice provided with the pin h at one side of its head, and the stop-pin or lug n fixed in the body for limiting the action of the valve, as set forth.

3. The barrier-plate I having the slotted hub mounted on the dependent end of the main valve-stem, and the pin i arranged therethrough, in combination with the main valve, the valve-seat-way and the guard-bar m in a faucet, substantially as and for the purpose set forth.

Witness my hand this 18th day of March, A. D. 1891.

ALBERT P. HOWES.

Witnesses:
CHAS. H. BURLEIGH,
ELLA P. BLENUS.