(No Model.)

J. M. TEAHEN & W. E. FRENCH.

SELF CLOSING FAUCET.

No. 557,720. Patented Apr. 7, 1896.

FIG-1-

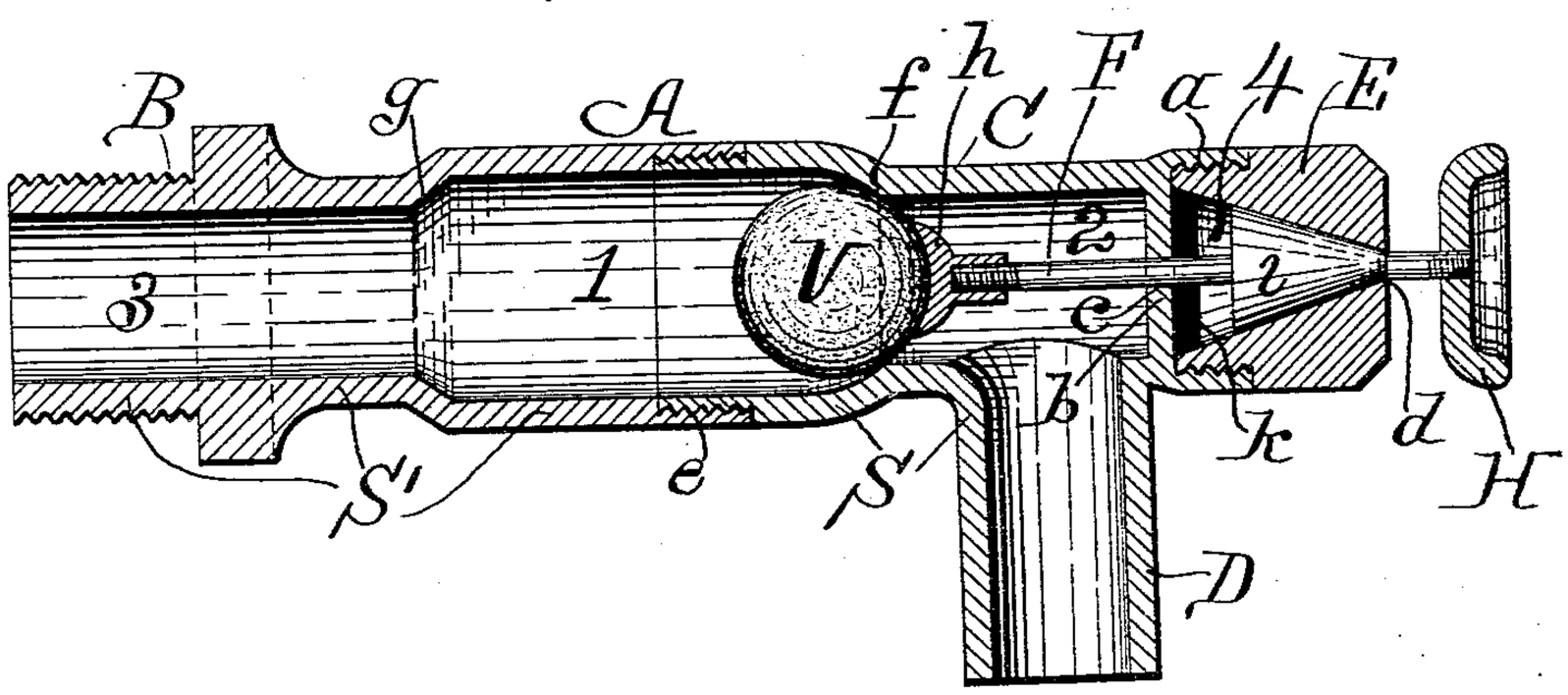
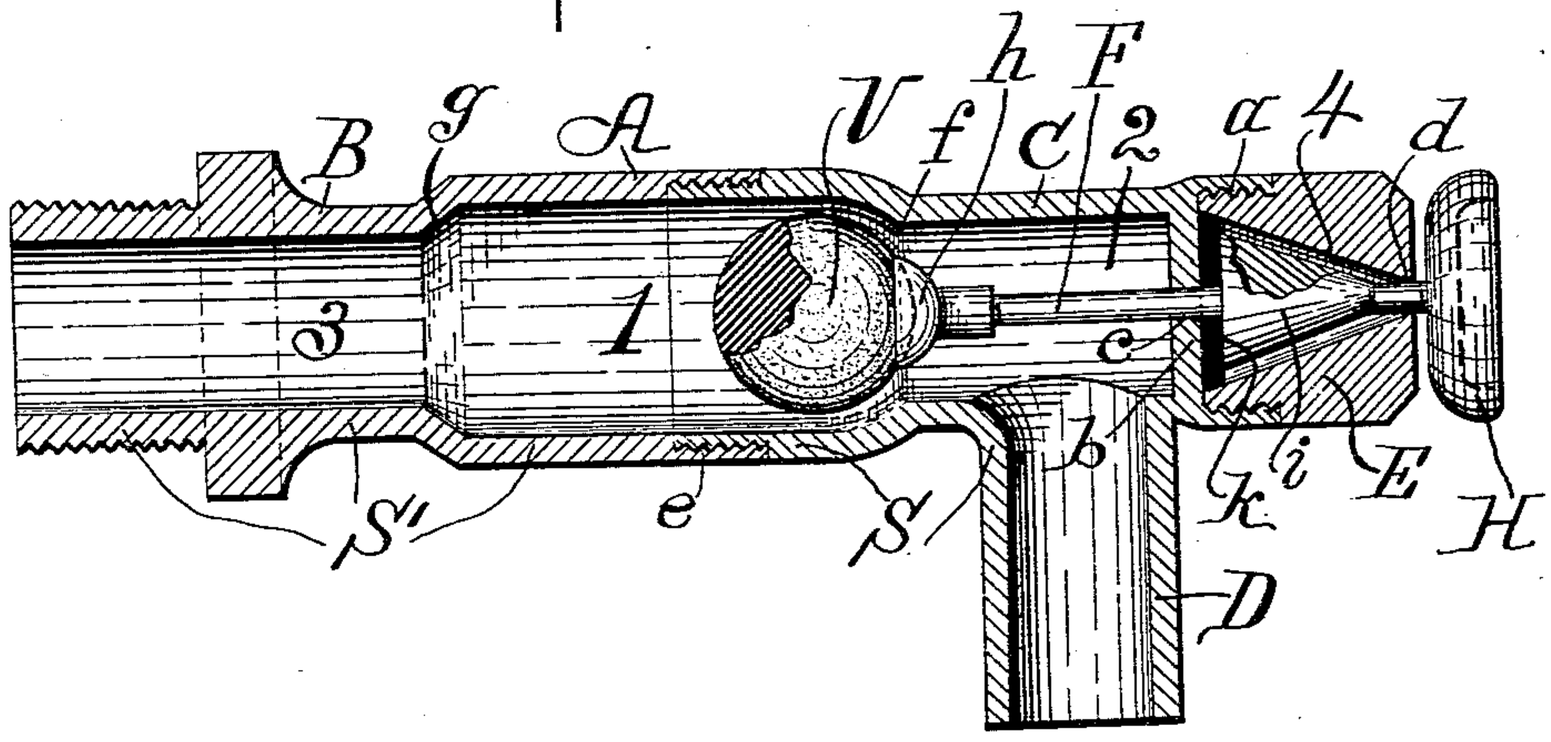


FIG-2-



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES M. TEAHEN AND WILLIAM E. FRENCH, OF SYRACUSE, NEW YORK; SAID TEAHEN ASSIGNOR TO SAMUEL H. FRENCH, OF AUBURN, NEW YORK.

SELF-CLOSING FAUCET.

SPECIFICATION forming part of Letters Patent No. 557,720, dated April 7, 1896.

Application filed May 16, 1895. Serial No. 549,513. (No model.)

To all whom it may concern:

Be it known that we, JAMES M. TEAHEN and WILLIAM E. FRENCH, citizens of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Self-Closing Faucets; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of our self-closing faucet as appearing when closed, the valve fitting its seat; and Fig. 2 is a like sectional view of our device, illustrating the same opened, the valve being away from its seat, thus permitting the passage outward of water or other fluid.

Similar letters and figures of reference denote corresponding parts.

Our invention has reference to that class of faucets for regulating the discharge or flow of water, &c., commonly denominated "self-closing faucets," and obviously embracing in said classification bibbs, basin-cocks, and other forms of faucets designated as "self-closing," and wherein, through different operating means, the flow of fluid is checked through automatic or analogous action.

The intent and purpose of our invention is the production of a faucet of the class specified embodying a simplified and satisfactory construction, positive and effective in its operation, and comparatively inexpensive of manufacture, while more particularly the object of our invention is the formation of a faucet of new and novel construction, in which the closing of the valve is instantaneously effected by fluid-pressure and opened by depression or inward thrust of a stem operating the valve member.

Furthermore, the prime and all-important object we have in view is the producing of a self-closing faucet, utilizing a spherical body as its valve member, a conical-chambered stuffing-box, a conical-like guard upon the valve-manipulating stem, and in the dispensing of a spring or springs for the faucet's working.

Our invention consists in the novel features of construction, arrangement, operation, and adaptability hereinafter described, and specifically set forth in the claim.

Referring to the drawings herewith, A denotes the tubular body portion of our faucet, B the threaded and shouldered tubular end or rear extremity extending longitudinally from the swelled body aforesaid, C the cylindrical neck leading longitudinally forward from the body A, and provided laterally with a spout or nose D at a substantial right angle thereto, the said neck portion C having forwardly and longitudinally ahead a stuffing-box E. Said stuffing-box is screwed to the forward protuberant portion of the neck C, as at *a*, and the remainder of our faucet structure is formed in two sections or parts S and S′, their meeting threaded ends screwing tightly together, as at *e*, at a point about midway the length of what constitutes the swelled body A when the two parts S S′ are united.

1 indicates the cylindrical chamber of the body portion; 2, the moderately-contracted chamber of the neck ahead thereof and opening into the discharge-spout, and *b* indicates a partition which practically terminates the neck C just forward of spout, which transverse partition has centrally a small circular opening *c*. Rearwardly the chamber 1 of the body communicates with the contracted chamber 3 of the threaded extremity B aforementioned. The chamber 4 of the stuffing-box E is of a cone or funnel like shape, its apex or contracted end terminating centrally the forward face of the stuffing-box casting in such manner that a circular opening *d* is thereat assured of a diameter practically similar to that of the opening *c* in the partition *b*, forming the inward boundary of the expanded end of the chamber of the stuffing-box.

The forward contraction of the body A creates an annular and curvilinear valve-seat *f*, wherein is adapted to fit a spherical body—by choice solid—and preferably constructed of india-rubber or other elastic substance, and this body, as is obvious, forming a spherical valve member V, movably located in the chamber 1 of the body of our faucet. Any possibility of said spherical member escaping rearwardly in the event of the water or other fluid

being shut off from passage through the supply-pipe whereto our faucet may be connected or from other causes is absolutely prevented by reason that the rear contraction of the body portion A of our shell is such as presents an opening of sufficiently less diameter than the movable sphere as precludes its passage out, said ring-like barrier or shoulder being denoted by the letter *g*.

The water or other fluid pressure being on the faucet, it is evident that normally the spherical valve V will fit snugly into its seat *f*, effectually preventing discharge of the fluid through the spout.

By having the spherical body slightly elastic or resilient the accommodating of its periphery to any inequalities that might exist in its seat *f* is assured; and, being preferably comparatively light, expeditious movement thereof is attainable.

F denotes an actuating stem or rod for the propulsion and holding of the spherical valve a requisite distance away from its seat to permit of the discharge of fluid under pressure out the spout of our faucet, the globular valve-body being, as shown, of such slightly less diameter than the diameter of the chamber 1 as will insure of sufficient flow of fluid past it when away from engagement with its seat. This stem, disposed longitudinally central the neck and stuffing-box parts of our faucet structure, is provided at its inner end with a valve-displacer *h*, suitably attached, which concave or cup-shaped member is of a diameter smaller than the chamber of the neck and of a very small size as compared to that of the globular valve body or plug.

Normally—that is to say, when the ball V is against its seat, shutting the outflow of water—the displacer *h* lies forwardly of the ball-valve contactingly or minutely removed. From the displacer the stem F passes centrally forward through the opening *c* in the partition *b*, and within the conical chamber of the stuffing-box is enlarged or provided with an enlargement *i* of solid construction and of a cone or funnel like shape exteriorly, the stem continuing on outward from the apex of the guard and of a diameter to allow its passage through the opening *d* in the forward face of the stuffing-box. Said short section of the stem F ends in a handle H, preferably of concaved-disk shape, suitably secured in place.

Erected against the enlarged inward face of the conical chamber 4 is a disk-like washer K, filling that end of the chamber circumferentially and suitably hugging the valve-opening stem F when same passes centrally through it by a suitable aperture. By choice this washer is composed of india-rubber or other elastic and compressible material.

As may be perceived, the instanding expanded end of the conical guard *i* is of abbreviated or curtailed length as compared with the length longitudinally of its inclosing chamber, whereby when the valve to the faucet is closed the guard snugly fits forwardly the chamber, and when the valve is retained open, by a person's pressing inward and holding of the stem F, the flat circular face of the guard bears against the elastic washer K, compressing and expanding same and insuring such closure on the stem thereat as must absolutely preclude any escape of fluid through the opening *c* of the partition into or through the stuffing-box E. Obviously said washer K may be flat, concave, or convex, or of any ordinary form, our intention being the utilization of any satisfactory washer.

Of course, when so wished, the washer may be dispensed with, although we deem it advisable that a washer—and an elastic one—of some character should be employed to guard against any infinitesimal leakage which the guard alone might fail to prevent if bearing against an unyielding surface, such as the partition *b*.

Although in the drawings we illustrate our faucet as being disposed horizontally, it is apparent that it may be disposed vertically or inclinedly as desired, the operation of our device being alike irrespective of its position, a flow of water or other fluid thereto, under pressure, alone being essential.

Evidently, should the spherical valve or other internal working parts of our device become worn or otherwise damaged the same may readily and cheaply be replaced by new ones.

No springs of any nature are necessitated in our construction, and under requisite fluid-pressure the action of the globular body V is efficient and positive. While, preferably, our spherical valve-body V is entirely free and independent from the displacer *h*, except when brought in contact therewith, yet obviously it may be permanently secured to said displacer if we so wish. Normally, under the pressure of the water or other fluid entering the faucet from its supply-pipe, the ball-shaped valve is impelled and retained in its seat, and absolutely preventing flow of water past it and out the spout.

To permit of the flow of the fluid from the faucet, the actuating-stem is, by a person's hand, pushed slightly inward, propelling the globular valve rearwardly out of its seat into the swelled chamber 1, and retaining it as long as desired in such position as necessarily permits of the flow of sufficient fluid past it, and into the chamber Q of the neck, thence discharging out of the spout or nose D.

The flow of fluid is regulated as to quantity—a large or a small stream—according to how far the person may press the valve-opening stem inward, in Fig. 2 of the drawings the valve supposedly being shown in that position requisite to permit of the flow past it of a full-sized stream.

Necessarily, upon the release of pressure inwardly upon the stem by the operator, the valve-body is forced by the fluid-pressure into its seat and propelling the displacer, stem, and attached parts forwardly to the position

clearly delineated in Fig. 1 of the drawings, wherein the valve is shown closed.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination, in a device of the class described, of a cylindrical ball-carrying chamber terminating forwardly in a valve-seat whose opening communicates with a discharge-spout, a spherical valve-acting body movably disposed within the aforesaid chamber and capable under fluid-pressure of occupying the valve-seat, a concaved-face valve displacer or pusher located forward of the globular valve-body and adapted to impinge the same, an actuating-stem leading from the displacer centrally and longitudinally forward and entering by an orifice a cone-shaped stuffing-chamber whose apex portion terminates in an orifice opening out of the forward end of the stuffing-box, a conical-like guard connected to the actuating-stem and longitudinally movable therewith in the stuffing-chamber, said guard being of less length than the chamber it occupies, the stem continuing from its apex and passing through the forward orifice of the box terminating in a suitable handle, and a washer or packing located circumferentially about the actuating-stem of the displacer at the rear enlarged portion of the stuffing-box chamber, all arranged substantially as described and for the purposes set forth.

In testimony whereof we affix our signatures, in presence of two witnesses, this 23d day of March, 1895.

JAMES M. TEAHEN. [L. S.]
WILLIAM E. FRENCH. [L. S.]

Witnesses:
WM. C. RAYMOND,
MRS. E. J. RIES.