(No Model.)

J. HOWES.

FAUCET.

No. 256,481. Patented Apr. 18, 1882.

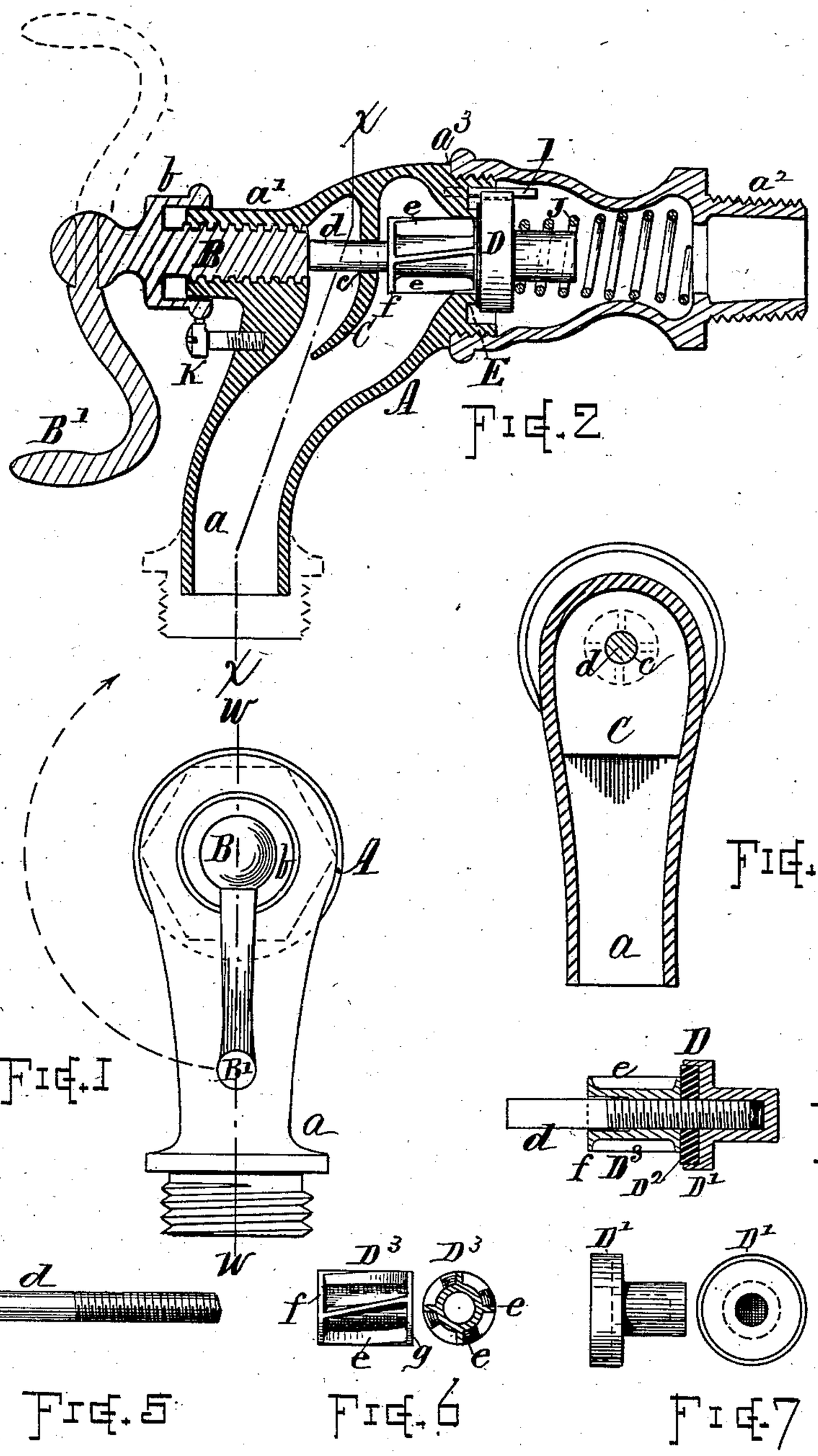

FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

FIG. 6

FIG. 7

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JOHN HOWES, OF WORCESTER, MASSACHUSETTS.

FAUCET.

SPECIFICATION forming part of Letters Patent No. 256,481, dated April 18, 1882.

Application filed November 10, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOWES, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Faucets; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My present invention has for its object the construction of a faucet in such manner as to avoid friction and wear, and to make a faucet which shall operate with ease and convenience while being efficient and durable in use and convenient to manufacture. For the attainment of these objects I construct the faucet as illustrated in the accompanying drawings and herein described, the particular features claimed being definitely specified.

In the drawings, Figure 1 represents a front view of a faucet constructed in accordance with my invention. Fig. 2 is a longitudinal vertical section of the same in direction of line *w w*, Fig. 1. Fig. 3 is a transverse section at the position of line *x x*, Fig. 2. Fig. 4 is a longitudinal section through the valve, and Figs. 5, 6, and 7 show details of construction of the several parts of the valve.

In reference to the construction, A denotes the body or shell of the faucet, made with a bib or spout, *a*, and a forward projecting boss, *a'*, in line with the main axis, and also with a suitable nipple, a^2, for attachment to the service-pipe. This shell is preferably made in two parts connected as shown at a^3.

At the front is a spindle, B, for operating the faucet. Said spindle is arranged through the axis of the boss *a'*, and is fitted thereto with a screw-thread, so as to move inward or outward when it is turned. It is provided at its outer end with a crank, B', or means for its operation, and also with a cap-ferrule, *b*, that extends over the projection or boss, making a neat finish therewith.

Within the body of the faucet, at a short distance from the end of the spindle, I arrange a plate or apron, C, formed integral with the casting of the shell and extending transversely across the internal space or opening in the upper part thereof, with its lower edge directed toward the outlet or channel of the bib, which connects with the chambers at both front and rear of the apron C, as shown. This apron serves for breaking the force and deflecting the stream of water downward, and the water as it flows past the lower edge of the apron produces a partial vacuum within the forward chamber, and any water that may leak into the said chamber around the valve-stem is caused to pass down into the bib, the pressure of water thus being removed from the head space or chamber, so that it will not impinge against the end of the spindle B and surface adjacent thereto, or force the water to leak out at the joint around the spindle B.

The valve D, formed and arranged as illustrated, is fitted to work against the water-pressure side of the seat E, said seat being located within the body A and constructed as shown. The stem *d* of the valve extends through a close-fitting opening, *c*, in the apron C, in line with the spindle or screw B, and terminates at a position near the end thereof, to be acted upon by the inward movement of said spindle B, the spindle and stem being independent pieces.

Curved flanges *e* are formed on the central part of the valve-piece, the diameter of which is similar to the diameter of the opening through the seat E, and a rim or disk, *f*, is formed around the stem, near the apron C, for turning the water outward or away from the spindle-opening.

The valve is preferably composed of several pieces, as illustrated in Figs. 4, 5, 6, and 7, wherein the detail of construction is shown.

D' is the head, recessed for the packing-ring D^2 and screw-threaded for the stem *d*, which is threaded for about one-half (more or less) of its length.

D^3 is a hub or body bearing the curved flanges or ribs *e*, and having end disks, *f g*, also with a central opening, screw-threaded to match the stem throughout part of its length, and counterbored to larger size for the balance of the distance.

The valve is put together, as shown in Fig. 4, with the packing ring or disk clamped be-

tween the parts D′ and D³, the stem *d* serving as the holding-bolt. The proper length of stem *d* to fit the spindle B is adjusted by means of the screw-thread in the hub D³, and when properly adjusted the part D′ is screwed on and acts as a check-nut against said hub, clamping the packing and firmly binding the parts from looseness.

A pin or spline, I, is arranged to engage a slot or groove in the valve-head to prevent any rotative movement of the valve, and the curved form of the ribs *e* gives a rotative strain as the water passes through, thus pressing the side of the groove against the spline I in a fixed direction and preventing vibration and rattling of the parts by the action of the water flowing through the faucet.

A spring, J, of coiled wire may, if desired, be arranged, as shown, for retaining the valve to its seat. This, however, is not essential to the perfect working of the faucet, except, perhaps, where several faucets are on a single line of pipe, and a back-pressure or vacuum action may occur by the sudden opening of a lower faucet, drawing the water away from one at a higher level. A stop screw or pin, K, is arranged to arrest the movement of the crank or handle B′ when the valve is relieved from its action, and to prevent the spindle from being unscrewed from the boss *a′* by careless operators.

The stop K is so arranged that the lug on the rim of the screw-cap B will strike the head of the stop-screw K only at a single position. Thus while the stop prevents the screw-spindle B from turning back beyond the point necessary to close the valve, it permits it to turn forward to the cap or shoulder when opening the valve wide, as when using a hose. This is effected by making the catch on the head of the stop-screw K of such width that the gain or pitch of the screw-threads on the spindle B will carry the lug past the side of the stop K when the screw-spindle is turned inward.

The valve is opened by swinging upward the crank B′, as per dotted lines, Figs. 1 and 2. This screws inward the spindle B, which presses back the stem *d* and forces the face of the valve away from the seat, allowing the water to pass through. Then when the crank is dropped the force on the stem is removed and the pressure of the water closes the valve.

In case a hose is used on the bib *a* the spindle can be turned until the shoulder within the ferrule *b* strikes the end of the boss *a′*, thus making a tight joint between the head of the ferrule and the boss *a′* to resist any tendency to leakage around the spindle by reason of back-pressure in the hose. With the open bib *a* the disk *f* and apron C prevent any tendency of the water to be forced out around said spindle B. No packing is required excepting the face of the valve, and all parts operate with the greatest ease and without appreciable friction and wear.

I do not herein make claim broadly to a faucet in which the valve is forced inward from the seat by means of a screw acting against the end of the valve-stem, as I am aware that such feature has heretofore been employed.

As certain features of my improvements in faucets have been described and claimed in my application for separate Letters Patent bearing even date herewith, it will be understood that I do not include herein such features of invention as form the subject-matter of the claims embraced in my said accompanying application.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The shell or body A, having the valve-seat, curved bib, and spindle-boss located as shown, and provided with the deflecting-apron C, cast integral with said shell and extending laterally across the interior with its lower edge directed toward the channel of the bib, as shown and described.

2. The combination, with the shell A, having the valve-seat E, screw-threaded boss *a′*, and bib *a*, and provided with the deflecting-apron C, arranged as shown, of the valve D, having a series of ribs fitted to and guided in the opening of the valve-seat, the stem *d*, passing through and guided by said apron, and the screw-threaded spindle B, with the head or cap *b*, and crank-handle B′, as and for the purposes set forth.

3. The valve constructed of the recessed head-piece D′, the center or hub D³, with ribs or flanges *e* and end disks, *f g*, the packing-ring D², and the screw-threaded stem *d*, all combined, adjusted, and secured together in the manner shown and described.

4. The combination, with the valve-seat E and valve D, provided with interlocking lugs and grooves or means for preventing rotation of the valve upon its seat, of the shank or hub D³, having a series of curved or spirally-twisted ribs, *e*, substantially as and for the purpose set forth.

5. The combination, with the valve D, provided with the guiding and supporting stem *d*, passing through the apron C, of the hub D³, provided with the rim-flange *f*, as shown, and for the purpose set forth.

6. In combination with the shell A, having the bib *a* and projecting boss *a′*, the valve-operating spindle or screw B, having a cap-ferrule, *b*, fitting onto the end of said boss, as and for the purpose set forth.

7. The combination, with the shell A and screw-spindle B, of the stop K, adapted for engaging a lug on the spindle cap or head and arresting outward action of said spindle at a given position, while permitting inward action thereof to the full limit of said screw, substantially as set forth.

Witness my hand this 5th day of November, A. D. 1881.

JOHN HOWES.

Witnesses:
CHAS. H. BURLEIGH,
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