(No Model.)

G. W. MILLER.

FAUCET.

No. 419,153. Patented Jan. 7, 1890.

Fig. 1

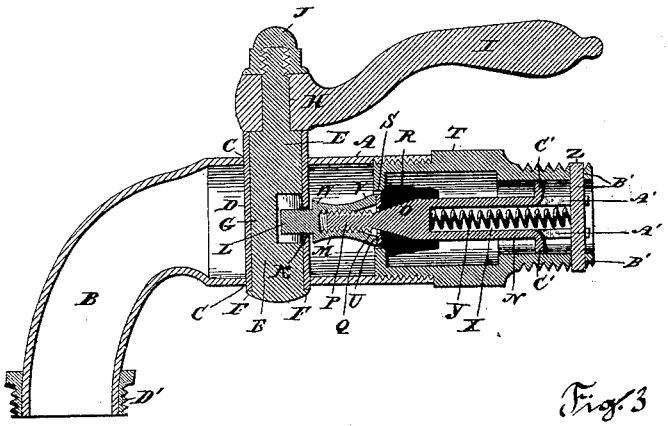


Fig. 3

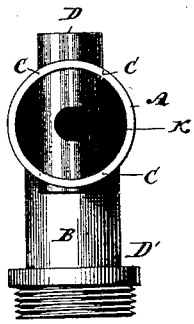


Fig. 2

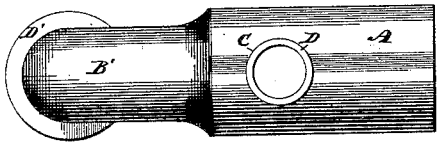


Fig. 4

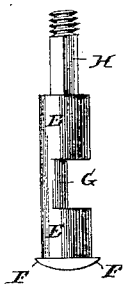
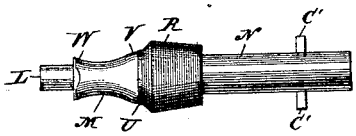


Fig. 5



Witnesses:
Chas. B. Shumway
M. S. Seeley.

Inventor.
George W. Miller
By Geo. Seymour.
Atty.

UNITED STATES PATENT OFFICE.

GEORGE W. MILLER, OF MERIDEN, CONNECTICUT.

FAUCET.

SPECIFICATION forming part of Letters Patent No. 419,153, dated January 7, 1890.

Application filed November 16, 1888. Serial No. 291,006. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MILLER, residing at Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Faucets; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in faucets, the object being to produce a light, cheap, convenient, and efficient article.

With these ends in view my invention consists in a faucet having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in vertical longitudinal section of a faucet embodying my invention. Fig. 2 is a detached plan view of the faucet body and spout. Fig. 3 is a view thereof in rear elevation. Fig. 4 is a detached view in side elevation of the operating-spindle, and Fig. 5 is a similar view of the valve-spindle.

Under my invention the body A and the spout B of the faucet are made by drawing a single piece of sheet metal into the required shape, whereby a seamless sheet-metal structure is secured. The said body is provided with two holes C, located in the same vertical line and adapting it to receive a tube or case D, which projects through such holes and stands above the upper edge of the body, into which it is secured by brazing. An operating-spindle located in part in such tube and introduced thereinto through the lower end thereof is provided with two wide bearings E E, respectively fitting into the upper and lower ends of the tube, with a shoulder F located at the outer end of the lower of the two bearings mentioned, with an eccentric G, located between such bearings, and with a stem H squared to receive the handle I and threaded to receive the nut J, by means of which the shoulder is drawn against the lower end of the tube and the handle against the upper end thereof and the friction between the tube and spindle regulated. A small circular opening K, located in the rear face of such tube in position to be in the same horizontal line with the eccentric before mentioned when the spindle is in place, receives a stem L, formed at the forward end of the adjustable part M of the valve-spindle, which consists of the said part M and the part N, such stem being adapted to fit the opening as closely as is consistent with its playing therein and to engage with the said eccentric. The part N of the valve-spindle is provided at its forward end with a taper O of forward inclination and with a screw P, located in front of the taper, which merges into it. The rear end of the part M of the spindle is provided with an opening Q, corresponding in shape to the shape of the forward end of the part N and internally threaded to receive the screw of such part, the part M being adjustable toward and away from the part N by means of the described provision for adjustment. A rubber valve R, mounted upon the forward end of the said part N of the spindle, is internally adapted to fit closely over the taper thereof, the beveled edge of its forward end being entered into the beveled valve-seat S, formed in the forward end of the valve-chest T, which is threaded to have the rear end of the faucet-body screwed onto it.

A washer U, interposed between the forward end of the valve and the rear end of the part M of the valve-spindle, is provided for protecting the valve when the parts M and N are relatively adjusted for compensation for the wear of the valve or for any other purpose. The exterior surface of the adjustable part M of the valve-spindle begins at the rear end of the part with a conical taper V, forming a centering-surface and merging at its forward end into a similar taper W of opposite pitch, forming a spreading-surface and terminating in a shoulder squared to receive a wrench and having the stem L aforesaid projecting centrally from its forward face. The rear end of the said part N is bored out to form a chamber X, to receive a spiral spring Y, which assists the water-pressure in closing the valve. The rear end of this spring is held in place by means of a pin Z, extending through slots A′ A′, formed in the opposite edges of the rear face of the said part, and through holes B′ B′, formed at opposite points in the rear end of the valve-chest.

This pin also prevents the part N of the valve-spindle from turning on its horizontal axis and the spindle from being moved at a right angle to it. Arms C′ C′, formed by turning back the metal displaced in forming the slots A′ A′, prevent the spindle from moving in the opposite direction, so that between the pin and the arms the rear end of the spindle is supported centrally in the valve-chest.

Preferably, and as herein shown, a threaded and shouldered hose-ring D′ is secured to the outer end of the spout for the attachment of a hose when desired.

Normally the operating-spindle is turned so as to permit the stem L of the valve-spindle to enter the tube, and thus allow the valve to be held upon its seat by the pressure of the water, assisted by the tension of the spring. When, however, the handle is turned forward, the eccentric will push the stem out of the tube and force the valve-spindle back in the valve-chest, and so carry the valve away from its seat. The water will now be forced over the edge of the valve into the faucet-body, the construction of the valve and seat tending to center it therein, and, being under pressure and escaping through a small opening, will shoot forward in the direction which has been given to it by the form of the opening through which it has passed. Under these conditions it will follow the centering-surface of the valve-spindle until it reaches the spreading-surface thereof, when it will be spread and thrown forward and outward. By thus directing the water first to the center of the faucet-body and then, having centered it, spreading it just behind the forward end of the valve-spindle it is kept away from the opening in, and hence out of, the tube receiving the operating-spindle, which, therefore, requires no packing.

When the valve becomes worn, as will be indicated by the leaking of the faucet, the body thereof is unscrewed from the valve-chest and removed, this being made possible by locating the valve and valve-seat in the valve-chest and by doing away with any positive connection between the valve-spindle and the operating-spindle. A wrench is now applied to the squared shoulder of the adjustable part of the valve-spindle and the part turned to force the valve upon the taper of the rear part of the spindle until the valve is sufficiently expanded to take up the wear and stop the leakage, the desired expansion of the valve taking place at its forward end, where it meets the valve-seat. The rear part of the spindle is prevented from turning while the valve is being expanded by the pin which passes through the slots at its rear end. No water escapes during the operation described, which is conducted without the bother of shutting it off, as is necessary in faucets in which the valve-chests must be disturbed to get at the valves for taking up the wear. After the leakage has been stopped the faucet-body is readily returned to its place again.

By making a seamless body and spout from sheet metal the lightness and strength of that material is secured without brazing, as is required when the body and spout are stamped out in halves and then brazed together. Moreover, a seamless sheet-metal body and spout are very readily finished and will wear much better than the brazed article, from which the finish soon wears off over the brazing.

By constructing and combining the tube and valve-operating spindle as described the packing of these parts is dispensed with and provision made for increasing or decreasing the friction under which the faucet is opened or closed, whereby this friction may be sustained at a point where it holds the spindle firmly in place against the tendency of the water-pressure to move it, and so keeps the faucet from that annoying and wearing pounding occurring in faucets not having this adaptation for frictional adjustment.

I would have it understood that I do not limit myself to the exact construction and arrangement of parts shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. A seamless faucet body and spout made from a single piece of sheet metal, the body having continuous lines and being of substantially the same diameter throughout its length, substantially as set forth.

2. A seamless faucet body and spout made from a single piece of sheet metal, in combination with a tube set into the body, extending transversely across the same, and projecting therefrom at one end, the said body having continuous lines and being of substantially the same diameter throughout its length, substantially as set forth.

3. A seamless faucet body and spout made from a single piece of sheet metal, the body having continuous lines and being of substantially the same diameter throughout its length, and the spout being of smaller diameter than the body, in combination with a tube set into the body, extending transversely across the same, and projecting therefrom at one end, substantially as set forth.

4. In a faucet, the combination, with a faucet-body, of a tube set transversely thereinto, a solid valve-operating spindle located in the said tube, a valve-spindle engaging with the valve-operating spindle through an opening in the tube, and means applied to the valve-operating spindle for regulating the friction between the same and the tube, whereby pounding is avoided, substantially as set forth.

5. In a faucet, the combination, with a fau-

cet-body, of a tube set transversely thereinto and projecting at opposite ends therefrom, a solid valve-operating spindle located in the tube and having its lower end provided with a shoulder which forms a tight joint with the edge of the lower end of the tube, and its upper end reduced to form a threaded stem, a handle applied to such stem and forming a water-tight joint with the edge of the upper end of the tube, a nut for securing the handle in place and adjusting the friction between the spindle and its bearings, and a valve-spindle engaging with the valve-operating spindle through the tube, substantially as set forth.

6. In a faucet, the combination, with a faucet-body, of a valve-chest containing a valve-seat and having the faucet-body removably secured to it, a valve-spindle mounted in the valve-chest and projecting beyond the outer end thereof, a valve mounted upon the said spindle and seating forward, adjusting mechanism applied to the said projecting end of the spindle for adjusting the valve, and valve-operating devices mounted in the faucet-body and co-operating with the valve-spindle to operate the valve, substantially as set forth.

7. In a faucet, the combination, with a faucet-body, of a tube set transversely thereinto, a valve-operating spindle located in the said tube, a valve-chest containing a valve-seat and having the faucet-body removably secured to it, a valve-spindle mounted in the valve-chest and projecting beyond the outer end thereof, a valve mounted on the spindle, and adjusting mechanism applied to the said projecting end of the spindle for adjusting the valve and engaging with the valve-operating spindle through the hole in the said transverse tube, substantially as set forth.

8. In a faucet, the combination, with a faucet-body, of a case extending transversely through the same and having a small opening between its ends, a valve-operating spindle located in the case, and a valve-spindle entering the opening in the case and provided with a centering and a spreading surface to center the water and then deflect it away from the opening in the case, whereby the water is prevented from entering the same, substantially as set forth.

9. In a faucet, the combination, with a faucet-body, of a case extending transversely through the same and having a small opening between its ends, a valve-operating spindle located in the case, a valve-chest and a valve, and a valve-spindle composed of two parts, one of which is internally threaded and adapted at its forward end to enter the opening in the case and the other part being provided at its forward end with a screw and a taper and adapted at its rear end to be supported in the valve-chest, the valve being interposed between the two parts of the spindle and expanded when they are screwed together, substantially as set forth.

10. In a faucet, the combination, with a valve-chest having a valve-seat in its forward end, of a valve located in such chest, a valve-spindle also located in the chest and carrying the valve and having its rear end chambered, a spring located in such chamber, and a pin mounted in the valve-chest and engaged with the spring to hold it in place in its chamber, substantially as set forth.

11. In a faucet, the combination, with a valve-chest, of a valve, a valve-spindle having its rear end chambered and slotted, a spring located in the chamber of the spindle, and a pin passing through the spindle where it is slotted, holding the spring in place, and entering holes formed in the opposite sides of the chest, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEO. W. MILLER.

Witnesses:
CHAS. B. SHUMWAY,
WM. J. DE MAURIAC.