

A. ENGEL.

FAUCET.

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943,526.

Patented Dec. 14, 1909.

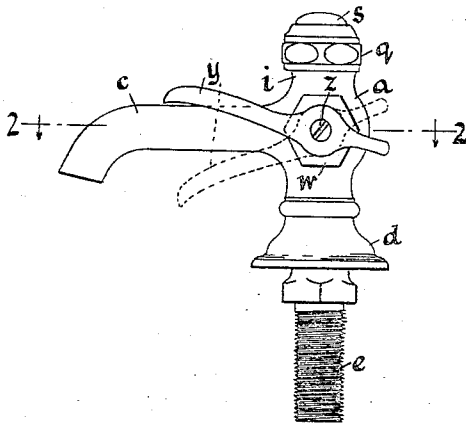


Fig. 1

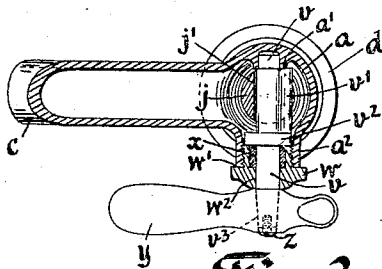


Fig. 2

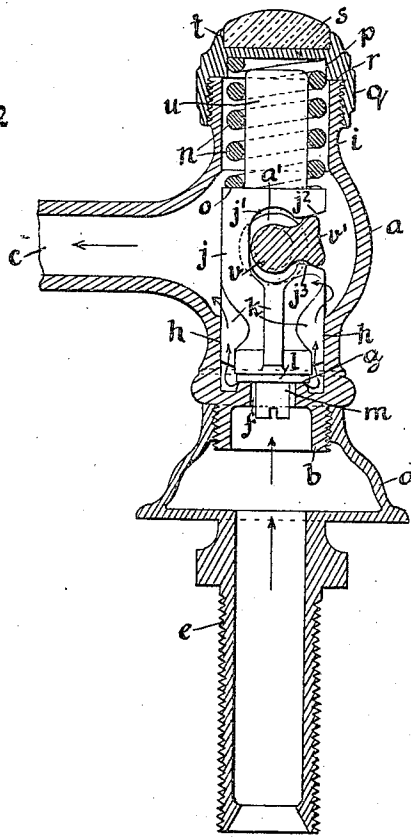


Fig. 3

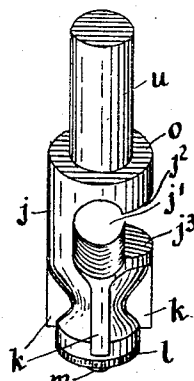


Fig. 4

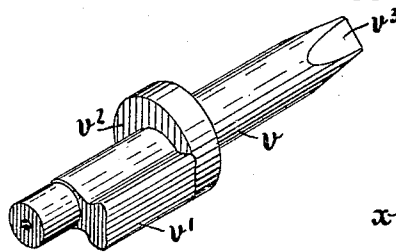


Fig. 5

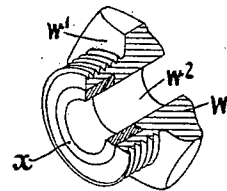


Fig. 6

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Witnesses

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UNITED STATES PATENT OFFICE.

AUGUST ENGEL, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO MILWAUKEE BRASS MANUFACTURING COMPANY, A CORPORATION OF WISCONSIN.

FAUCET.

943,526.

Specification of Letters Patent.

Patented Dec. 14, 1909.

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To all whom it may concern:

Be it known that I, AUGUST ENGEL, of Milwaukee, Wisconsin, have invented a Faucet, of which the following is a specification.

This invention consists of a side-lever self-closing faucet, of that type wherein the valve-plug is kept closed by a spring acting in opposition to the water-pressure and is raised by a lever-handle acting through a cam.

The object of the invention is to produce a faucet or valve of this type simple in construction and consisting of a few parts only, strong, durable, free from all leakage and easy to operate and repair.

My invention consists more particularly in the constructions and combinations hereinafter described and set forth in my claims. For the better understanding of my invention I have illustrated the most improved form thereof in the accompanying drawings wherein,

Figure 1 is a side elevation of the faucet; Fig. 2 is a plan section of the same on the plane 2; Fig. 3 is a longitudinal section; Figs. 4, 5 and 6 are perspectives of the valve-plug, rock-shaft and shaft-plug respectively.

In these drawings every reference letter and numeral refers always to the same part.

The faucet shown is an angle-faucet, comprising a casing *a* having a central inlet-nozzle *b* at the bottom and a spout *c* at one side. The nozzle *b* is screw-threaded into a hollow stand or pedestal *d* which is provided with a coupling nozzle *e* of any preferred pattern. This, however, is not essential to the invention. The nozzle *b* communicates with the body of the valve by a central valve-aperture *f* encircled by an annular valve-seat *g*, and the casing surrounding this valve-seat is bored concentric therewith as shown at *h*. Above the center of the casing is an open-ended extension *i* which is also preferably bored concentric with the bore *h*.

The valve-plug is shown at *j*. The lower part of the body of the plug is less in diameter than the bore *h*, in order to permit the flow of water around the valve-body to the spout *c*; and a plurality of longitudinal ribs *k* project from the sides of the plug and fit the bore *h* so as to hold the plug central.

On the bottom of the plug which forms the working-face, is secured a gasket *l* of suitable yielding impervious material such as rubber, leather, etc., by means of a screw *m*, with an elongated cylindrical head, which, as will be seen from the drawing, projects into the opening *f* and thereby acts to check the sudden flow of water therethrough when the valve is opened.

The plug *j* is held upon its seat by means of a compression-spring *n* which rests upon a shoulder *o* thereof, the upper end of said spring fitting in a circular recess *p* of a screw-cap *q*, which engages the threaded end of the boss *i*. The cap *q* has a faced shoulder *r* which may be drawn up tight against the end of the boss *i* and thereby absolutely seals it without the use of packing-material. A porcelain button *s* may be set in a recess *t* in the top of the cap *q* for containing a label such as "Hot", or "Cold", or like designation. The spring *n*, itself guided and held central by engaging the recess *p*, serves in turn as a guide for the plug *j*, whose upper end *u* fits neatly within said spring. The spring *n* will of course be made of different degrees of strength according to the pressure of water which the faucet is called upon to sustain. The plug is operated by means of a rock-shaft *v* which passes transversely across the center of the casing and through a transverse aperture *j'* in the plug *j*, and is journaled at one end in a tubular boss or socket *a'* on the inside of the casing and at the other end in a screw-plug *w* which engages in an internally threaded boss *a''* on the casing, said plug having a faced shoulder *w'* which fits tight against the faced end of the boss. The bore *w''* of the plug is made to fit neatly the shaft *v* and is countersunk on its inner end to receive an annular packing *x* which is made to extend flush with or slightly beyond the inner end of the plug. The shaft *v* carries at one side a cam-lug *v'* within the casing, which works between two faces *j''* and *j'''* on the plug *j*, and is operated to raise the valve by a lever-handle *y* mounted on the squared end *v''* of the shaft *v* and secured thereto by a screw *z* or other suitable means. The shaft *v* is provided with a collar *v''* at its handle-end within the casing and adjacent to the plug *w*, the side of this collar adjoin-

ing the plug being faced off so as to press smoothly upon the packing x ; the cam-lug v' is connected with this collar which acts as a strengthener to prevent it from breaking off. It will be observed that a depression of the handle y into the position shown in dotted lines in Fig. 1 results in oscillation of the shaft v , the raising of the cam-lug v' and the consequent raising of the valve-plug j , whereby water passes through the aperture f , between the valve-seat and plug, and around the latter to the spout c ; and on releasing the handle the spring n restores the valve-plug to its position. The valve has no sliding-joint, a form always difficult to pack and subject to leakage, but only a rotating one, and this is kept tight automatically by the action of the packing x in conjunction with the collar v^2 , for it will be seen that as soon as water is admitted to the interior of the casing, the pressure of the water will force the collar v^2 against the packing x and thereby hold it tight so that no leakage is possible around the shaft.

I have found the self-packing shaft-plug here shown to be much superior to the ordinary kind which is tightened by screw-pressure, because it is rendered invariably tight by the pressure of the water itself, while at the same time it can not be artificially tightened so as to bring unnecessary friction upon the shaft and prevent it from working properly. The packing can be readily replaced at any time with a minimum of trouble.

While I have hereinabove shown the most improved form of my invention, I wish it understood that not all of the features are essential thereto or necessarily made in the exact form shown, but various changes and modifications in the constructions as herein shown may be made without departing from the spirit of my invention, and I wish it understood therefore that the latter is not otherwise limited than by the reasonable scope of my claims.

The elongated head of the screw m , which partially fills the flow-aperture f in all positions of the plug, has a special value, as it restrains a violent flow of water in the spout when the handle is pressed, a result which is very common in ordinary basin-faucets. As is well understood by those skilled in the art, it requires under a high water-pressure only a very small valve-opening to produce an ample flow through the spout; but to reduce the flow-nozzle f to such a small size offers mechanical difficulties in casting, while on the other hand the valve-plug must be raised a sufficient distance to prevent vibration of the gasket g . This difficulty is avoided by the use of the screw m , which has the further advantage that it can be made exactly the right size desired for any given pressure.

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

1. In a valve or faucet, the combination of a body having a valve-seat and a bore of uniform cross section surrounding said valve-seat on the outer side thereof, a valve-plug resting on said seat and having guide means coöperating with said bore and opening in the direction of pressure, said plug having a shoulder and an upward extension above the same, a spring resting on said shoulder for normally maintaining said plug upon said seat, said extension fitting neatly within said spring, and means for guiding said spring, whereby the spring and extension mutually guide each other.

2. In a valve or faucet, the combination of a body or casing having an internal valve-seat, and an opening opposite said seat, a reciprocating valve-plug adapted to close said seat, guiding surfaces adapted to hold the lower end of said plug central, a removable cap closing said opening opposite the seat and having a central internal recess, and a coiled compression-spring centered in said recess and guided by the walls thereof and pressing upon said valve-plug, the upper end of said plug fitting and having frictional contact with the internal bore of said spring and being guided thereby.

3. In a valve or faucet, the combination of a body or casing and a spout leading off from an intermediate point thereof, said casing having a valve-seat at one end and an opening at the other and being provided with a cylindrical bore at each end; a reciprocating valve-plug fitting in the bore in the lower end of said casing, a coiled compression-spring fitting in the bore at the open end of said casing, and a removable cap closing the open end of said casing and forming an abutment for said spring; said plug having its upper end reduced cylindrically to fit within said spring leaving an abutment shoulder for the end of said spring at the base of the reduced portion; the upper end of said plug being guided by frictional contact with the internal bore of said spring and the outer surface of said spring being guided by the internal bore of said body or casing.

4. In a valve or faucet, the combination of a body having a valve-seat at its lower end and a bore of uniform cross section surrounding said valve-seat above the same, a valve-plug resting on said seat and opening upwardly and formed with longitudinal ribs and an annular water-space near its lower end, a spring mounted on the upper end of said plug and pressing downwardly thereon, said plug having a longitudinal slot in the middle and said plug being cut away at one side of said slot to leave bearing-surfaces j^2 and j^3 , a transverse

shaft passing through said slot and having a lateral projection thereon with two cam-faces which act on the respective surfaces j^2 and j^3 , and means for oscillating said shaft.

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5. In a valve or faucet, the combination of a body having a valve-seat at its lower end and a bore of uniform cross section surrounding said valve-seat above the same, a valve-plug resting on said seat and opening upwardly, a spring mounted on the upper end of said plug and pressing downwardly thereon, said plug having a longitudinal slot in the middle and said plug being cut away at one side of said slot to leave bearing-sur-

faces j^2 and j^3 , a transverse shaft passing through said slot and having a lateral projection thereon with two cam faces which act on the respective surfaces j^2 and j^3 , said shaft having a ring collar formed thereon at one end of said lateral projection and formed integrally therewith and serving to strengthen the same, and means for oscillating said shaft. 20

In witness whereof, I have hereunto set my hand this 16th day of July, 1908. 25

AUGUST ENGEL.

Witnesses:

AUG. J. WESLE,

EDWARD E. SCHMIDT.