Aug. 26, 1941. C. WANTZ 2,253,831

GAS COCK

Filed Feb. 20, 1939

Fig. 1.

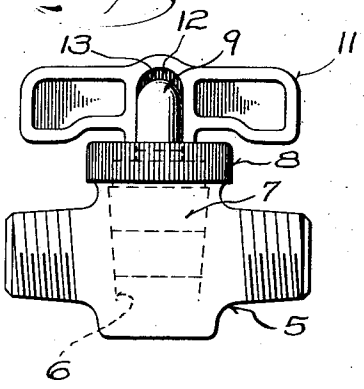


Fig. 2.

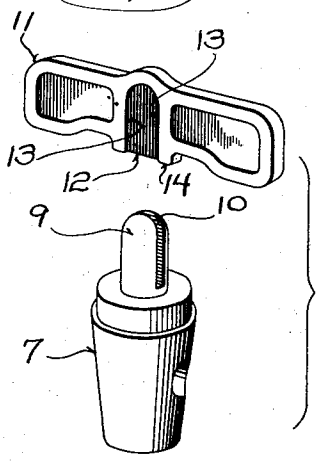


Fig. 3.

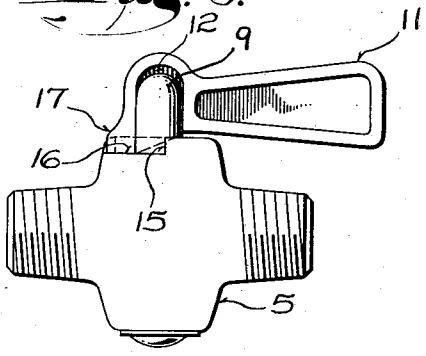


Fig. 4.

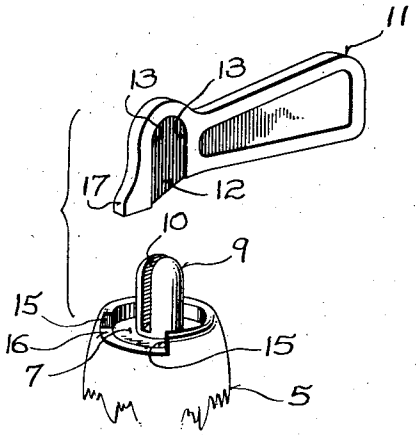
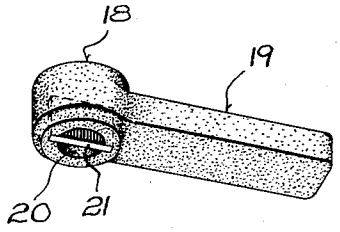


Fig. 5.



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GAS COCK

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Application February 20, 1939, Serial No. 257,429

4 Claims. (Cl. 251—150)

This invention relates to gas cocks, and has as an object to provide an improved manner of detachably mounting the handle or actuator on the stem of the rotatable plug.

More specifically, it is an object of this invention to provide improved means for detachably securing an actuator to the rotatable plug, which is so constructed that the application of a downward or inward force onto the plug through the actuator is precluded.

Another object of this invention is to so mount the actuator on the stem of the plug that part of the actuator coacts with stationary stops on the body of the valve to define the limits of rotation of the plug.

With the above and other objects in view which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinatfer described, and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawing illustrates several complete examples of the physical embodiment of the invention constructed in accordance with the best modes so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side view of a gas cock illustrating the application of this invention thereto;

Figure 2 is a perspective view of the plug and actuator shown disassembled from each other and from the body of the gas cock;

Figure 3 is a side view of a gas cock illustrating a slightly modified embodiment of the invention;

Figure 4 is a perspective view of the actuator and upper end portion of the structure shown in Figure 3; and

Figure 5 is a perspective view of another form of actuator.

Referring now particularly to the accompanying drawing in which like numerals indicate like parts, the numeral 5 designates the body of a gas cock having a tapered bore 6 in which a plug 7 is rotatably mounted. As is customary, the plug 7 has a transverse port through which communication is established between the inlet and outlet of the body upon turning of the plug to a predetermined position.

The plug is held in place by a cap 8 threaded onto the upper end of the body, this cap being bored to permit a stem 9 projecting up from the large diameter end of the plug to extend above the cap. The stem 9 is longitudinally slotted, as at 10, and for a purpose to be hereinafter described, the inner closed end of the slot lies beneath the level of the outer surface of the cap 8.

An actuator 11 is attached to the upwardly projecting stem by having a web portion 12 frictionally engaged in the slot 10. Preferably, the spaced fingers into which the stem is divided by the slot 10 are pressed together so that they grip the opposite sides of the web 12 with a resilient spring tension.

The portions of the actuator adjacent to the web are thicker than the web so that shoulders or abutments 13 are formed along the edges of the web to contact the side edges of the slot 10 and hold the actuator against lateral displacement with respect to the stem.

It is to be observed that the length of the web 12 is greater than the length of the stem projecting above the outer face of the cap 8, and that the bottom edge 14 of the actuator rides on the outer face of the cap 8, and consequently, does not touch the closed end of the slot, which, as stated, lies beneath the level of the outer face of the cap. In this manner, the application of an inward force onto the stem, and consequently, the rotatable plug through the medium of the actuator, is prevented. This guards against the possibility of intentionally or accidentally freezing the plug in its bore.

While the structure shown has the bottom edge of the slot lying beneath the plane of the top surface of the cap 8, it is obvious that any construction in which the actuator receives support from the upper portion of the body or its cap and prevents the application of downward force from the actuator to the plug, may be employed. Hence, in the embodiment shown in Figure 1, the plane of contact between the actuator and the cap may be beneath the level of the top of the cap, on the same level, as shown, or above this level.

While the actuator shown in Figure 1 is in the form of a key having oppositely extending wings, the specific shape of the actuator is not important; and for some special purposes, as in floor furnaces, the actuator may consist of an elongated rod. The manner of attachment, however, is the same, that is, the engaging parts of the actuator and plug comprise a web and two spaced spring fingers frictionally gripping the web.

In that form of the invention illustrated in Figures 1 and 2, the limits of rotation of the plug

are defined by stop means (not shown) enclosed within the cap 8.

In valves of the type illustrated in Figure 3, which do not have a cap at the large diameter end of the bore in the body, and in which the limits of rotation are defined by a stop carried by the plug and engageable with the ends 15 of a segmental cut 16 in the upper end of the body, the actuator may be constructed to provide the stem carried stop.

To this end, the actuator has its portion 17 at one edge of its web 12 longer than its opposite portion to project into the segmental cut or opening 16 and engage the shoulders or abutments 15 formed by the ends of the cut. In all other respects, this embodiment of the invention is like that illustrated in Figures 1 and 2.

For added beauty, the actuator may be molded from a thermoplastic and constructed as shown in Figure 5. As here shown, the actuator constitutes a hub portion 18 and an arm or lever 19 molded integrally therewith with the hub portion having a round hole 20 in its undersurface to receive the stem 9. A web 21 is embedded in the hub portion and extends diametrically across the hole 20 to engage in the slot 10 of the stem.

As in the embodiments of the invention previously described, the hole 20 is deep enough to preclude the application of downward force onto the stem and thus obviates the possibility of having the plug mechanically frozen by intentional or accidental downward force on the actuator.

From the foregoing description taken in connection with the accompanying drawing, it will be readily apparent that this invention provides a simple but highly practical manner of assembling an actuator with the rotatable plug of a gas cock.

What I claim as my invention is:

1. In a gas cock: a body having a tapered bore the large diameter end of which is open, said body having a segmental notch at said large diameter open end of the bore defining a plurality of stop abutments; a tapered plug rotatable in the tapered bore; a stem on the large diameter end of the plug projecting from the mouth of the bore and having an open longitudinal slot providing a pair of resilient fingers; an actuator having a web disposed in said slot and yieldingly gripped by said fingers to hold the actuator drivingly assembled with the stem; spaced shoulders on at least one side of the actuator engaged with opposite sides of the stem to hold the actuator against angular displacement with respect to the step; and a part on the actuator projecting into the segmental notch in the body and engageable with the stop abutments formed by the ends of said notch to limit rotation of the actuator, said part abutting the bottom of said notch to limit movement of the actuator toward the plug and thereby preclude the application of inward force from the actuator onto the plug.

2. In a gas cock: a body having a tapered bore; a tapered plug rotatable in said bore; a stem on the large diameter end of the plug extending outwardly beyond the adjacent portion of the body; a flat supporting surface on the adjacent portion of the body lying in a plane normal to the axis of the plug; the stem having an open longitudinal slot in its outer end providing a pair of opposite spring fingers; a one piece substantially flat actuator for the plug, said actuator having opposite substantially channel shaped recesses in its opposite side faces opening to one edge thereof and cooperating to provide longitudinal guideways for said spring fingers and a web adapted to be frictionally clamped between said spring fingers for detachably holding the actuator drivingly connected with the plug; and an abutment on said edge of the actuator engageable with said supporting surface to hold the web of the actuator from contacting the bottom of the slot in the end of the stem and thereby preclude the transmission of inward force from the actuator onto the plug.

3. In a gas cock; a body having a tapered bore; a tapered plug rotatable in said bore; a stem on the large diameter end of the plug extending outwardly beyond the adjacent portion of the body; a flat supporting surface on the adjacent portion of the body lying in a plane normal to the axis of the plug; the stem having an open longitudinal slot in its outer end providing a pair of opposite spring fingers; a one piece substantially flat actuator for the plug, said actuator having spaced apart abutments on at least one face thereof to define a web therebetween adapted to fit between the spring fingers with the abutments engaging opposite sides of the stem to constrain the actuator to assembling and disassembling motion coaxially of the stem; and an abutment on said edge of the actuator engageable with said supporting surface to hold the web of the actuator from contacting the bottom of the slot in the end of the stem and thereby preclude the transmission of inward force from the actuator onto the plug.

4. In a gas cock: a body having a tapered bore the large diameter end of which is open, said body having a segmental notch at said large diameter open end of the bore defining a plurality of stop abutments; a tapered plug rotatable in the tapered bore; a stem on the large diameter end of the plug projecting from the mouth of the bore and having an open longitudinal slot providing a pair of resilient fingers; an actuator having spaced apart shoulders on at least one face thereof to define a web therebetween adapted to be resiliently clamped between the spring fingers with the shoulders engaging opposite sides of the stem to constrain the actuator to assembling and disassembling motion coaxially of the stem; and a part on the actuator projecting into the segmental notch in the body and engageable with the stop abutments formed by the ends of said notch to limit rotation of the actuator, said part abutting the bottom of said notch to limit movement of the actuator toward the plug and thereby preclude the application of inward force from the actuator onto the plug.

CLARENCE WANTZ.

CERTIFICATE OF CORRECTION.

Patent No. 2,253,831. August 26, 1941.

CLARENCE WANTZ.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, first column, line 55, claim 1, for the word "step" read --stem--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 30th day of September, A. D. 1941.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)