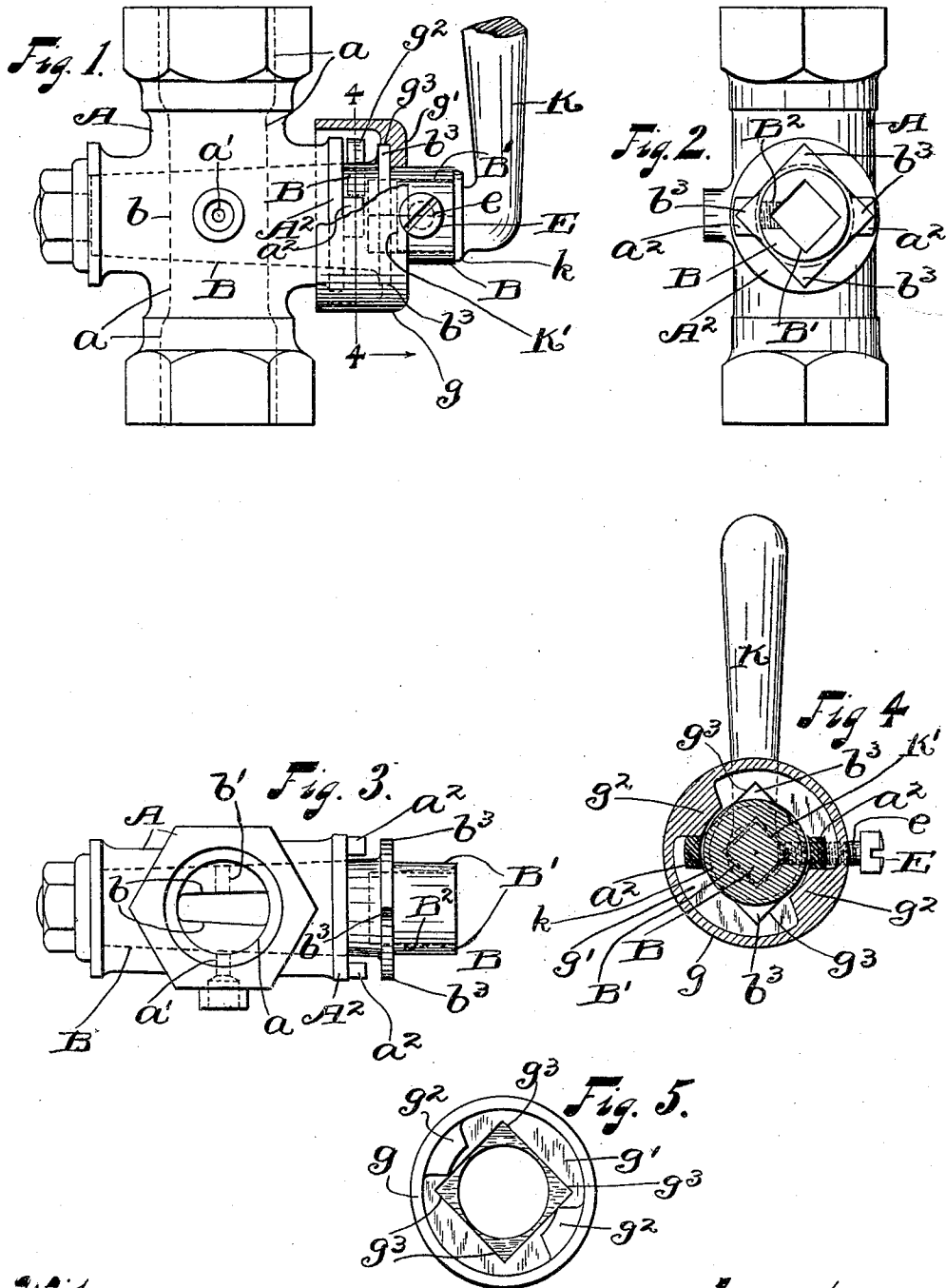


W. H. SMITH.
STOP AND WASTE COCK.
APPLICATION FILED MAY 25, 1906.

938,442.

Patented Oct. 26, 1909.



Witnesses:
Edw. Lindmueller.
Victor C. Lynch.

Inventor:
William H. Smith
By *Andrew D. Smith*
His Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM H. SMITH, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO MICHAEL F. BARRETT, OF CLEVELAND, OHIO.

STOP AND WASTE COCK.

938,442.

Specification of Letters Patent.

Patented Oct. 26, 1909.

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To all whom it may concern:

Be it known that I, WILLIAM H. SMITH, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Stop and Waste Cocks; and I 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 pertains to make and use the same.

This invention relates to improvements in stop-and-waste cocks.

The primary object of this invention is to provide a novel and meritorious simple and durable stop-and-waste cock in which, first, the component parts are readily and conveniently assembled; second, the lever-securing set-screw does not participate in the operative connection between the valve-forming plug and the sleeve which surrounds the diametrically larger end of the plug but is arranged wholly externally of the sleeve and forms a stop arranged to prevent shifting of the sleeve out of operative connection with the plug, and, third, the means for limiting the rotary movement of the sleeve and connected plug are formed by two lugs on the sleeve and a corresponding number of lugs on the body or casing and contained wholly within the sleeve.

With this object in view, and to the end of realizing other advantages hereinafter appearing, this invention consists in certain peculiarities of construction and combinations of parts hereinafter described and pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation of a stop-and-waste cock embodying my invention, and in this figure the plug-surrounding sleeve is shown partly in section, and the lever is partly broken away to reduce the size of the figure. Fig. 2 is a right-hand view relative to Fig. 1 with the sleeve as well as the plug-operating handle or lever omitted. Fig. 3 is a top plan relative to Fig. 1 with the sleeve and plug-operating lever omitted. Fig. 4 is a transverse section on line 4—4, Fig. 1, looking in the direction indicated by the arrow. Fig. 5 is an inner end view of the sleeve detached.

Referring to the drawings, A indicates the body or casing of my improved stop-and-waste cock, and B represents the valve-

forming tapering plug which is rotatably seated in the valve-casing and has a lateral port *b* adapted to establish communication between the ends of the passage-way *a* formed in and extending through the casing A. One of the side walls of the port *b* is provided with a waste-hole *b'*, and the casing A has a waste-hole *a'* formed at one side of the plug, and the arrangement of the parts is such that when the plug is in position with its waste-hole *b'* opposite one end of the passage-way *a* the port *b* of the plug shall be in communication with the hole *a'* in the casing, and when the plug is in position as shown with its port *b* in line with both ends of the passage-way *a* a free passage for water through the casing A is formed and the waste-hole' in the plug is closed by the casing. The construction and operation of the hereinbefore described parts of a stop-and-waste cock are however too well known to require further illustration and description in this specification.

The casing A is provided with an annular neck *A*² which surrounds the diametrically larger end-portion of the plug B a suitable distance from the outer extremity of the said portion of the said plug, which neck is provided at its outer end with two diametrically opposite stop-forming lugs *a*² which are arranged at opposite sides respectively of and in close proximity to the plug. The stops *a*² project toward the outer extremity of the diametrically larger end-portion of the plug preferably about one-fourth or one-fifth of the distance between the neck *A*² and the said extremity, and the said portion of the plug is provided externally centrally between the said extremity and the neck *a* with several lugs *b*³ which are spaced equidistantly circumferentially of the plug. The lugs *b*³ project laterally of the plug and are gradually reduced in size toward their free extremities. The diametrically larger end-portion of the plug is provided with a square hole or socket *B'* which extends inwardly a suitable distance from the outer extremity of the said portion of the plug. The socket-forming portion of the plug is provided with a lateral screw-threaded hole *B*² which extends from the periphery of the plug to and connects with the hole *B'* and is shown in dotted lines in Figs. 2 and 3. The screw *E* shown in Figs. 1 and 4 has its screw-threaded shank *e*

screwed into the plug at the hole B^2 and, as shown in dotted lines, Fig. 4, extends into engagement with and somewhat into the usual square lug K' which extends into the hole B' in the plug and is formed on the inner end of a handle or lever K employed in turning the plug.

A sleeve g surrounds the lug portion of the plug B and extends around the neck A^2 of the casing. The sleeve g is provided at its outer end and internally with an annular flange g' which snugly embraces the plug at the outer sides of the lugs b^3 . The flange g' is provided in its inner side with as many recesses g^3 as there are lugs b^3 formed on the plug, with the said recesses snugly engaged by the said lugs. It will be observed therefore that the flange g' is provided with interior portions which snugly embrace the lugs b^3 on the plug and consequently the sleeve is revoluble with the rotation of the plug. In other words, the flange g' is operatively connected with the plug. The sleeve g is provided internally between the outer end of the casing-neck A^2 and the lugs b^3 of the plug with two laterally and inwardly projecting lugs g^2 arranged diametrically opposite each other. The lugs g^2 project inwardly between the lugs a^2 of the neck A^2 , but as the lugs g^2 are diametrically opposite obviously one of the sleeve-lugs g^2 is arranged between the neck-lugs a^2 at one side of the plug and the other sleeve-lug g^2 is arranged between the neck-lugs a^2 at the opposite side of the plug. The lugs g^2 of the sleeve g therefore coöperate with the lugs a^2 of the neck A^2 in limiting the rotary movement of the sleeve and connected plug, and of course the plug is in position at the one or the other extremity of its rotary movement according as the sleeve is in position at the one or the other extremity of its rotary movement.

The lever K is provided with an annular flange k which overlaps the outer end of the plug.

It will be observed that the lever-securing screw e does not participate in limiting the rotary movement of the plug, but that the said screw is arranged wholly outside of the sleeve g , with its shank next externally of the outer side of the flange g' of the said sleeve, and consequently forms a stop for preventing endwise displacement of the sleeve outwardly out of operative connection with the plug. The screw e therefore positively retains the sleeve in operative connection with the plug, and the means (neck-

lugs a^2 and sleeve-lugs g^2) for limiting the rotation of the plug are contained wholly within the sleeve.

It will be observed that my improved stop-and-waste cock is simple and durable in construction and that its component parts are readily and conveniently assembled.

By the construction hereinbefore described, it will be observed that the mutually engaging lugs b^3 and recesses g^3 of the plug B , and sleeve g respectively, operate substantially as a solid connection between the sleeve and the plug so that there is no liability of the sleeve becoming operatively disengaged from the plug.

What I claim is:—

In a stop-and-waste cock, a body or casing having a neck A^2 provided with two lugs a^2 projecting longitudinally of and outwardly from the neck at diametrically opposite sides thereof; a tapering plug seated in the casing and having its diametrically larger end-portion extending through and a suitable distance beyond the outer end of the said neck, which plug has a socket in the outer end thereof and is provided externally with circumferentially spaced lugs arranged between the aforesaid lug on the casing-neck and the socket-forming portion of the plug; a sleeve g surrounding the said neck and plug and provided at its outer end and internally with an annular flange provided with a circular opening, the wall of which embraces the plug at the outer sides of the aforesaid lugs of the plug, which flange is provided on its inner side with recesses conforming to and engaged by the lugs of the plug, said sleeve being provided internally with two lugs g^2 at diametrically opposite sides thereof which coöperate with the lugs of the aforesaid neck in forming stops for limiting the turning of the plug; a lever for turning the plug, which lever is provided at its inner end with a lug which projects into the socket-forming portion of the plug, and a set-screw screwed into the plug into engagement with the lug of the handle and arranged wholly externally of the sleeve and in position to prevent endwise displacement of the sleeve out of operative connection with the plug.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

WILLIAM H. SMITH.

Witnesses:

C. H. DORER,
B. C. BROWN.