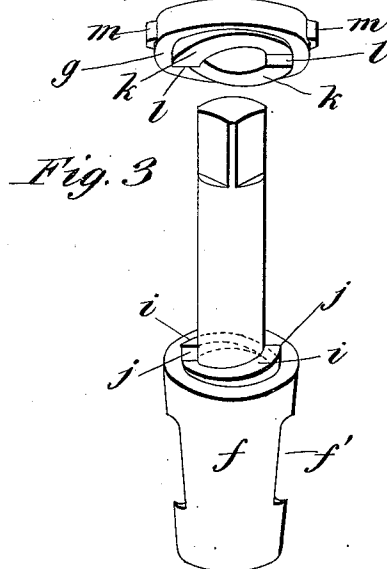
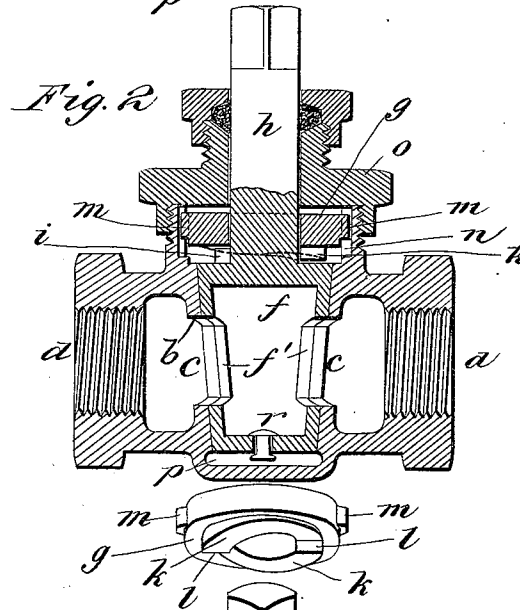
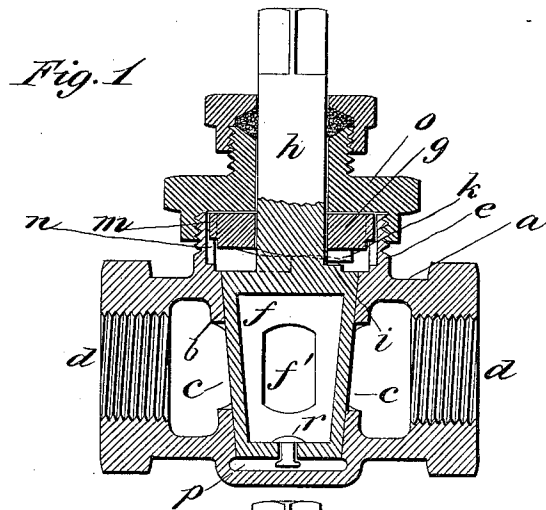


(No Model.)

W. HESTON.
VALVE.

No. 560,993.

Patented May 26, 1896.



Witnesses
J. F. Cleman
C. A. Finckel

Inventor
William Heston
by W. H. Finckel
att'y.

UNITED STATES PATENT OFFICE.

WILLIAM HESTON, OF HOMESTEAD, PENNSYLVANIA, ASSIGNOR TO THE
HOMESTEAD MANUFACTURING COMPANY, LIMITED, OF SAME PLACE.

VALVE.

SPECIFICATION forming part of Letters Patent No. 560,993, dated May 26, 1896.

Application filed September 16, 1895. Serial No. 562,664. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HESTON, a citizen of the United States, residing at Homestead, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Valves, of which the following is a full, clear, and exact description.

This invention relates to plug-valves, turning plugs, cocks, faucets, globe-valves, and other similar valves.

The object of this invention is to provide means for insuring the retention of the valve proper upon its seat and for regulating the opening and closing of the valve by limiting the rotation or throw of the plug.

That wherein the invention consists will be understood best by stating it in connection with a turning plug or valve. There is interposed between the plug and the valve cap or casing a floating or loose collar or other device which coöperates with the plug through the intervention of a ratchet, clutch, or equivalent interlocking mechanism of any approved sort in such manner that in rotating or turning the plug in a direction to close the valve the said collar will be caused to move from the plug and its upper surface to come into contact with the casing or cap and thereby lock the plug in closed position and against further rotation in that direction, and in turning the plug in the opposite direction to open the valve the said collar will be free to be moved toward the plug and the plug freed to turn without being raised from its seat, thereby avoiding friction, and by the reverse action of the interlocking mechanism said collar will move toward the plug and interlock therewith and so limit the rotation of the plug and thus secure it in full open position.

Having thus stated the principle of my invention, I will proceed now to describe the best mode in which I have contemplated applying that principle, and then will particularly point out and distinctly claim the part, improvement, or combination which I claim as my invention.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a longitudinal section, the valve being in

the closed position. Fig. 2 is a longitudinal section, the valve being in the open position; and Fig. 3 is a perspective view of the plug and its attached collar, the parts being dis- assembled.

a is the valve casing or shell; *b*, the plug-seat therein, having the straightway ports *c c* in alinement with the inlet and outlet nipples *d*, and also having the top opening *e* for the insertion and removal of the tapering plug *f* and the floating or loose collar *g*.

The plug *f* is provided with straightway ports *f'* and a stem *h*, or other means by which it may be rotated, and its head is provided with the projecting inclines or cam-faces *i*, which terminate in abutments *j*.

The collar *g*, in the instance herein shown, is loosely fitted about the stem *h* and is free to move longitudinally thereof, and said collar is provided upon its lower face with cam-faces *k* and abutments *l*, complementary to and coacting with the projecting inclines or cam-faces and abutments of the plug in the operation of the valve. The collar *g* is provided also on its periphery with lugs or projections *m*, which engage grooves *n* in the valve-casing, whereby said collar is secured against rotation in the valve-casing, while allowed to move back and forth therein relatively to the plug.

The valve-plug and the locking-collar are held in place in the casing by any suitable cap *o*, applied over the opening *e*. The cam-faces and their abutments constitute a clutch or ratchet in their function and operation, and hence I esteem as within the principle of my invention any clutch, ratchet, or other interlocking device which has the capacity of that described.

In Patent No. 543,693 the casing is provided with a leakage-pocket *p*, and the plug is provided with a check-valve *r*, and I have incorporated these features in the valve illustrated in the accompanying drawings, and have so lettered the corresponding parts.

The operation is as follows: Supposing the valve to be in the open position, as shown in Fig. 2, and it is desired to close the valve, the plug is turned in the proper direction, and, in so turning, the cam-faces of the rotating plug are caused to ride upon those of the

non-rotating collar, and thereby the collar is moved from the plug and its upper surface is brought into contact with the retaining-cap or the casing, and the plug is locked to its seat in closed position. When it is desired to open the valve, the plug is turned in the opposite direction, and the collar thereby is instantly released from contact with the cap or casing and the plug relieved of friction, and upon further turning the plug in the same direction its cam-faces by this retrograde movement permit the collar to move toward the plug until the abutments come into contact, thereby limiting and arresting the movement of the valve-plug and thus securing the valve in open position.

It is obvious from the foregoing that my invention is comprehensive, on the one hand, of any medium for effecting such a coöperation of the floating collar and turning plug as will cause the collar to recede from the plug when it is desired to close the valve and to approach toward the plug when it is desired to open the valve, thereby relieving the plug of undue friction and making it easy to operate and so greatly increasing its life or durability. The invention includes, also, on the other hand, the use of the interlocking cams or inclines for effecting the two movements of the collar.

It will be observed that the invention embodies an internally-arranged automatic plug-locking device.

I am aware of Patents Nos. 543,692, 543,693, and 543,694, wherein a traveling nut is applied to the plug's stem for purposes similar to my floating collar and interlocking mechanism. Some of the advantages of the present invention over the traveling nut are that the parts may be cast and finished with little machining, thus reducing the first cost, and they may be more readily assembled.

What I claim is—

1. In a valve, the combination of a valve-casing, a plug, a non-rotating floating collar, and inclines interposed between the plug and collar and forming part of each, and coöperating to forcibly seat the plug in closing and to arrest its undue movement in opening the valve, substantially as described.

2. In a valve, the combination of a valve-casing, a plug, and a non-rotating floating collar interposed between the plug and the casing, and having cam projections coöper-

ating with complementary members on the plug as the plug is rotated, to effect the rise and fall of the said collar in the opening and closing of the valve, the said collar coming into contact with the casing and thereby having its further movement away from the plug arrested in the act of closing the valve whereby the plug is forcibly seated, and receding from the casing and approaching the plug in the act of opening the valve, whereby the plug is eased off its seat, substantially as described.

3. In a valve, the combination of a valve-casing, a plug, a non-rotating floating collar and complementary interlocking inclines arranged upon the plug and collar, the said inclines riding upon one another as the plug is rotated to close the valve, and forcibly seating it, and interlocking when the plug is open to prevent undue motion in the same direction, substantially as described.

4. In a valve, the combination of a valve-casing, a plug, a non-rotating floating collar and a clutch mechanism interposed between the adjacent faces of the collar and plug and interlocking to arrest further movement of the plug in the same direction when it is opened, substantially as described.

5. A valve-casing, a plug therein provided upon its head with a suitable number of cam-faces, and a loose collar movable toward and from the plug, and means to restrain it from rotating, the said collar also being provided with a suitable number of cam-faces coacting with the cam-faces on the plug, to force the plug to its seat in closing the valve, substantially as described.

6. A valve-casing, a plug therein provided upon its head with a suitable number of cam-faces and abutments, and a non-rotating loose collar also provided with a suitable number of cam-faces and abutments coacting with the cam-faces and abutments on the plug, to insure the locking of the plug in closing the valve and to limit the rotation of the plug in opening the valve, respectively, substantially as described.

In testimony whereof I have hereunto set my hand this 13th day of September, A. D. 1895.

WILLIAM HESTON.

Witnesses:

FREDERICK SCHUCHMAN,
WM. H. FINCKEL.