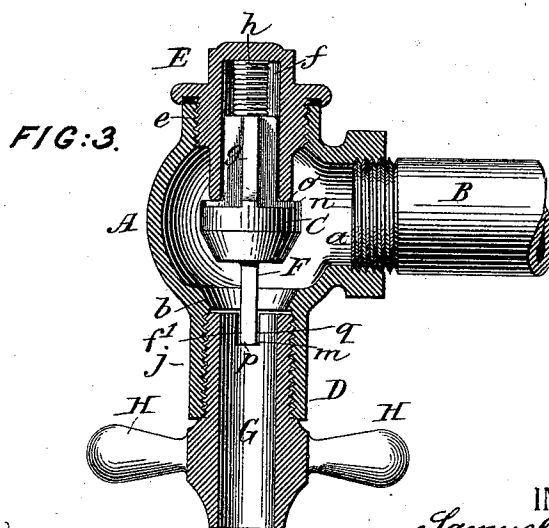
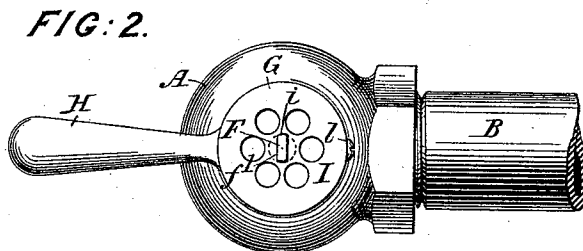
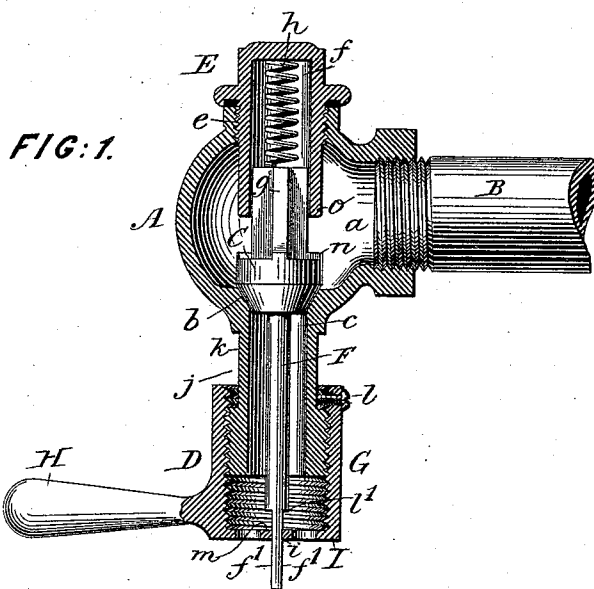


(No Model.)

S. F. GOLD.
VALVE.

No. 485,626.

Patented Nov. 8, 1892.



WITNESSES:
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UNITED STATES PATENT OFFICE.

SAMUEL F. GOLD, OF ENGLEWOOD, NEW JERSEY.

VALVE.

SPECIFICATION forming part of Letters Patent No. 485,626, dated November 8, 1892.

Application filed March 17, 1892. Serial No. 425,222. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL F. GOLD, a citizen of the United States, residing at Englewood, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Valves, of which the following is a specification.

This invention relates to valves, and more particularly to that class of valves in which the valve proper is freely movable toward and from its seat, but is controlled by a screw-threaded handle, to which it is connected in such manner that the manipulation of the handle will cause the valve to rotate on its seat prior to its opening.

This invention aims to provide an improved valve of this character which will be simple in construction, in which the valve proper can act freely as a check-valve to relieve reverse pressure and can be readily controlled to open the valve, and in which the automatic grinding of the valve proper on its seat will take place at every manipulation of its operating-handle and so keep it tight.

To this end in carrying out my invention in its preferred form, which is as applied to faucet-valves, I construct the valve-shell with a seat and a screw-threaded outlet beyond the latter, and I provide the valve proper, seating on the ingress side of said seat, with an upper guiding-wing engaged by a guide carried by the casing and with a lower tail passing through the seat, and I provide a tubular sleeve constituting a handle for operating the valve proper, arranged at the egress side of said seat, having screw-threads engaging those of said outlet and a recess engaging said tail, said valve proper and said handle being constructed to permit independent longitudinal movement of said parts and to prevent their relative rotative movement, whereby when said handle is manipulated to operate the valve the valve proper is rotated on its seat prior to opening during the opening operation and is likewise rotated after closing in the closing operation.

In the accompanying drawings, which illustrate my invention as applied to a faucet-valve such as would be used in an ordinary kitchen, Figure 1 is a vertical axial section of the valve in its preferred form. Fig. 2 is an under side plan thereof; and Fig. 3 is a sec-

tion similar to Fig. 1, but showing a modification.

Referring to the drawings, let A indicate the valve-shell; B, the inlet-pipe therefor; C, the valve proper, and D the handle for operating the valve. The valve-shell A may be of any suitable construction, that shown having a globe-like ingress-chamber *a*, a valve-seat *b*, (shown in this instance as a conical seat,) an outlet or egress aperture *c* at the egress side of the seat, and a screw-threaded opening *e* axially above the seat. A cap E, having internal cavity *f*, screws into the hole *e* for closing it and depends into the shell to serve as a guide for the valve proper.

The valve proper C may be of any suitable construction which will serve to seat against and close the opening through the seat *b* and yet move bodily away therefrom in operation. According to my invention it is constructed with reciprocal shoulders adapted to engage with corresponding shoulders on its operating-handle D and constructed to permit its independent longitudinal movement relatively to the latter, but to lock it thereto against independent rotative movement. Preferably this is accomplished by constructing the valve proper with a tail F at the egress side of the seat *b*, on which are formed flat faces *f' f'*, adapted to be engaged by the handle D. At its other end the valve proper C is preferably constructed with upwardly-extending guiding-wings *g*, entering the cavity *f* of the cap E and traveling therein during the operation of the valve, whereby the valve proper is guided during its movement. The valve proper is free to move longitudinally toward and from its seat, whereby it serves as a check-valve, and in order to prevent its too-free movement in this manner I prefer to provide a compression-spring *h* within the cavity in the cap E and acting against the wings *g* to force the valve to its seat.

According to my invention the operating-handle should be rotatively connected to the valve-shell by screw-threaded connection and should have reciprocal shoulders engaging those of the valve proper and constructed to cause the latter to rotate with the handle during the manipulation thereof, but to permit the independent longitudinal movement of the valve proper away from its seat. In the

construction shown in Figs. 1 and 2 the handle D consists of a tubular sleeve G, having a projecting handle H, a perforated lower end I, a recess *z*, adapted to receive the tail F of the valve proper and having sides constituting shoulders for engagement with the shoulders *f' f'* of said tail. In this construction the sleeve G is shown as internally screw-threaded, and the valve-shell A is shown as constructed with an outlet cavity or aperture consisting of an externally-screw-threaded tubular extension *j* beyond the seat *b*, which is embraced by the sleeve G, the screw-threads of the latter engaging with said external screw-threads. Preferably the extension *j* is reduced in size at *k*, and a stop-screw *l* is tapped into the sleeve G opposite this reduced portion and serves as a stop to prevent the separation of the sleeve from the shell during the ordinary use of the valve.

The handle D is constructed to have a vertical movement under screw-thread connection with the shell A in excess of that necessary to the opening and closing of the valve proper, whereby when the handle is rotated to operate the valve it causes the valve proper to rotate to a greater extent on its seat *b* than would be the case if this excessive movement were not provided for. This provision insures an extensive automatic grinding of the valve, since in use the handle will be ordinarily rotated from the extreme open position to the extreme closed position by the user.

For raising the valve C from its seat by means of the handle D the respective parts are constructed with shoulders adapted to abut during the movement of the handle toward the valve proper and when so abutting to cause the latter to move from its seat with the continuation of such movement of the handle. In the construction shown in Figs. 1 and 2 this is provided for by constructing abutting shoulders *l'* on the tail F of the valve, which shoulders rest on the face *m* of the perforated end I of the sleeve G when the latter has been moved sufficiently toward the valve. If when these parts are in engagement the movement of the sleeve is continued, the valve C will be carried therewith and lifted from its seat until its stops *n* abut against the lower end *o* of the cap E, whereupon the further movement of the valve C and its handle D in this direction will be prevented and the valve will be fully open. To close the valve, its handle D will be turned in the opposite direction, and as it is thereby caused to move outwardly the valve proper C will follow it until seated, whereupon its outward movement will be stopped, while continued rotation of the handle will cause the latter to move outwardly until it is stopped by its stop-screw *l*, the valve proper C rotating with it during such continued movement by reason of the engagement of the faces *f' f'* with the recess *z*.

In operation the valve proper C will normally rest freely on its seat *b* under the ten-

sion of spring *h* and will act as a check-valve in case of reversed pressure. When the valve is to be operated, its handle D will be rotated in the direction to open or close it, being usually turned to the extreme position in each instance, and during such manipulation the valve proper will be caused to rotate with every movement of the handle. To grind the valve without unseating it, its handle D will be oscillated about the extreme closed position.

It will be seen that my invention provides a simple valve which will be automatically ground when operated and which by reason of its rotation during operation will serve to prevent the lodging of sediment on its seat and to prevent the accumulation of obstructions in the paths of its guiding-wings.

It will be understood that my invention is not limited to precise details of construction hereinbefore described, as these may be modified without departing from its essential features.

Fig. 3 shows a modification of my invention, in which the tail F of the valve proper C is constructed as a short flat tail passing through the valve-seat *b*, having side faces *f'* and square end *p*, and the handle D consists of an exteriorly-threaded sleeve G, engaging internal screw-threads on the extension *j*, constructed with projecting handles H H, open at its lower end and having a notch *q* in its upper end, constituting a recess to receive the tail F, the side walls of this notch engaging the flat sides of the tail and the bottom of the notch serving as a stop *m* for abutting against the end *p* of the tail as the handle is screwed toward the valve to open it. The parts are here shown in the position occupied when the valve is fully opened.

What I claim is, in valves, the following-defined novel features and combinations, substantially as hereinbefore set forth, namely:

1. In a valve, the valve-shell having a seat and a screw-threaded extension beyond said seat, in combination with a valve proper seating on the ingress side of said seat and a handle for operating said valve proper, arranged at the egress side thereof, having screw-threads engaging those of said extension and constructed when rotated to move relatively to said valve proper, the latter and said handle having reciprocal shoulders engaging each with the other and constructed to permit independent longitudinal movement of said parts and to lock them together rotatively, whereby when said handle is manipulated said valve proper is rotated on its seat prior to the operation of the valve.

2. In a valve, the valve-shell having a seat and a screw-threaded extension beyond said seat, in combination with a valve proper seating on the ingress side of said seat, having a tail passing therethrough, and a handle at the egress side of said valve proper, having screw-threads engaging those of said extension, constructed with a recess engaging said tail, and

adapted when rotated to operate the valve, said tail and recess constructed to lock said valve proper and handle together rotatively and to permit their relative longitudinal movement, whereby when said handle is manipulated said valve proper is rotated on its seat prior to the operation of the valve.

3. In a valve, the valve-shell having a seat and a screw-threaded outlet, in combination with a valve proper seating against said seat, having a tail F, constructed with flat faces f' , and a tubular sleeve at the egress side of said seat, having screw-threads engaging those of said outlet, having a recess i , adapted to receive said tail and having flat sides adapted to engage said faces f' , and constructed when rotated to rotate said valve proper and to move said valve proper to operate the valve, and constructed internally as a discharge-conduit for the valve.

4. In a valve, the valve-shell having a seat and a screw-threaded outlet beyond said seat, in combination with a valve proper seating on the ingress side of said seat, a tubular sleeve constituting a passage through said outlet, and a handle for operating said plunger, arranged at the egress side of said seat, having screw-threads engaging those of said outlet and constructed when rotated to move

relatively to said valve proper, said plunger and sleeve having reciprocal shoulders adapted to engage with the other and constructed to permit independent longitudinal movement of said parts and to prevent their relative rotative movement, whereby when manipulated said sleeve rotates said valve proper prior to opening the valve and thereafter serves as a discharge for the latter.

5. In a valve, the combination, with the shell A, having seat b and threaded extension j , of the cap E, the sleeve G, screwed to said extension j , constructed with the perforated lower end I, having the recess i and face m , and the valve proper C, having guiding-wings g , entering and guided by said cap and constructed with tail F, having shoulders l' , adapted to be engaged by said face m , and faces f' , entering and engaged by said recess i , substantially as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

SAMUEL F. GOLD.

Witnesses:

GEORGE H. FRASER.

CHARLES K. FRASER.