No. 857,634. PATENTED JUNE 25, 1907.

W. H. KRINER.

GAGE COCK.

APPLICATION FILED DEC. 11, 1905.

Fig. 1.

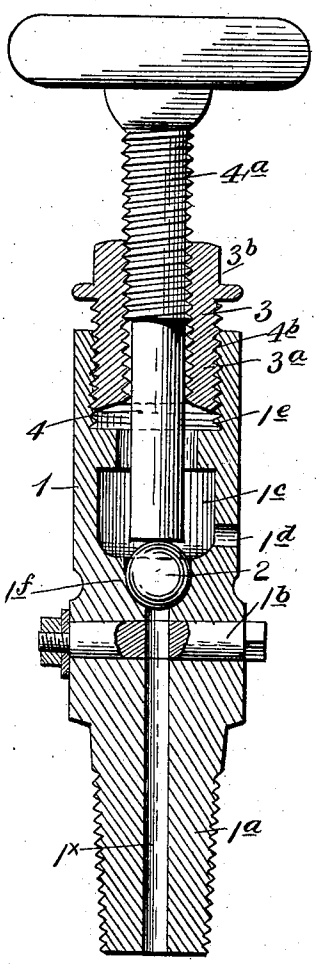


Fig. 2.

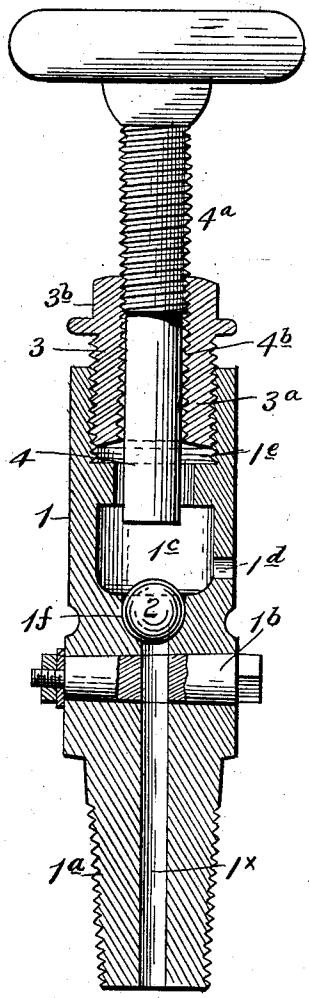
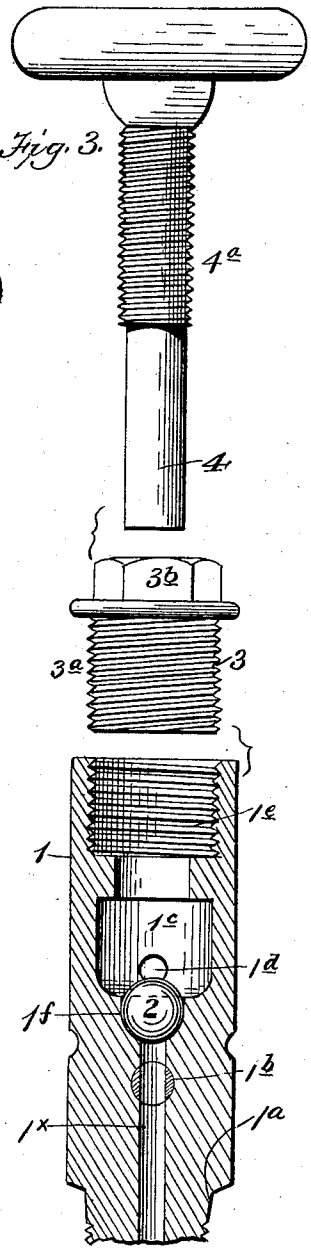


Fig. 3.



Inventor:
Wm. H. Kriner.

Witnesses:
Carl F. McKinney.
J. M. Wister

By Lane Baggaley & Co
Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM H. KRINER, OF HAGERSTOWN, MARYLAND.

GAGE-COCK.

No. 857,634. Specification of Letters Patent. Patented June 25, 1907.

Application filed December 11, 1905. Serial No. 291,347.

To all whom it may concern:

Be it known that I, WILLIAM H. KRINER, a citizen of the United States, residing at Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Gage-Cocks, of which the following is a specification.

My invention relates to improvements in what may be termed gage-cocks.

It has for its object to provide for the effective and ready seating of the valve and facility in making necessary repairs, and to suitably control the valve in effecting the opening and closing operation; also to provide for the ready removal or displacement of the valve for grinding, or rather regrinding, the valve seat as occasion may require; this being permitted when under steam-pressure and in an economic manner.

Said invention therefore consists in detailed structural features substantially as hereinafter fully disclosed and particularly pointed out by the claims.

In the accompanying drawing illustrating the preferred embodiment of my invention—Figure 1 is a sectional elevation thereof, with the valve closed. Fig. 2 is a like view showing the valve in open position. Fig. 3 is also a like view, with the respective parts disassembled and relatively disposed.

In the disclosure of my invention, I provide a primary tubular member or casting 1 adapted, by having a screw-threaded tapered end portion 1^a, to be suitably attached to a boiler at the requisite point as well understood This member or casting, whose passage $1^\times$ is transversely intersected by an apertured cylindric valve 1^b, has its said passage enlarged or chambered as at 1^c and opening out laterally through the member 1 as at 1^d for the outlet or escape of steam as presently seen, said enlargement or chamber itself terminating into a further enlargement as at 1^e, the walls of which are screw-threaded for a purpose presently noted. The chamber 1^c is rounded or concaved at its point of intersection with the passage $1^\times$ to form a seat 1^f for a spherical valve or ball 2 preferably of hardened steel to render the same highly effective for its intended purpose and opposed to the action of the steam-pressure, the latter, when released, or "opened," being permitted to move past the steam-escape or outlet 1^d, through the chamber or enlargement 1^c as presently made apparent. The screw-threaded enlargement or extension 1^e is adapted to receive a removable sleeve or nut 3 having a reduced screw-threaded extension 3^a engaging the corresponding surface of said enlargement or extension. Said sleeve or nut also has an angular formation 3^b at its outer end, for effective purchase by hand or otherwise, and is adapted to be screwed only a certain distance into the end of the member 1, with a portion of its screw-threaded surface, in addition to its headed end, standing normally beyond the latter. Said sleeve is primarily designed for the ready removal or displacement of the ball-valve when it may be required to replace the same by a new one, or it may become necessary to "bush" out or regrind the valve-seat which, as heretofore experienced, has been liable to become scratched or scarred, resulting in the formation of ruts or indentations, which would allow the steam to work its way, or escape, therethrough.

A hand-wheel equipped stem or piston 4 for forcing the valve or ball 2 to its seat or closed position, has screw-threaded connection with the nut or sleeve 3, as at 4^a, 4^b to provide for the moving or screwing in and out of said stem or piston as in closing and opening the valve. The piston or stem 4 has its valve-engaging portion unthreaded or plane and passing through the end-passage enlargement 1^e, into the initial passage-enlargement 1^c for engagement with the ball-valve 2 in effecting the seating of the latter, intermediately of the steam inlet-passage $1^\times$ and the steam-outlet 1^d as shown. As in the case of the sleeve or nut 3, with relation to the member 1, the piston or stem 4 has a portion of its screw-threaded surface standing normally beyond said sleeve or nut.

It is noted that, with the valve 1^b adjusted to closed position, the ball-valve, together with the sleeve 3 and valve-engaging stem or piston 4, may all be removed or displaced, while steam-pressure is still "on", for the ready repairing of the valve-seat or renewal of the valve as aforesaid. Also it is observed that, with the ball-valve arranged as shown, that is adapted to be retained in position, whether seated or unseated, directly by the stem or piston, the use of a spring or other additional means for holding the valve to its seat is dispensed with, while the play or movement of the valve is restricted by said stem alone; my valve being solely a ball or spherical valve ap-

plied as above disclosed to a steam-gage. It is moreover, to be especially noted that the outlet or port 1^d with respect to the enlarged chamber 1^c is such that when the spherical valve 2 is released by the turning up of the stem 4, the steam rushing in through the passage $1^\times$ and out through the port 1^d will toss the unrestrained spherical valve about in the same enlarged chamber, so that the said valve when again seated to close the passage $1^\times$ will present a new surface to said seat each time. This fact obviates the liability of a leak being developed between the valve and its seat by the condensed steam cutting a passage between the surfaces owing to the severe conditions attendant upon their use, especially when substantially the same opposing surfaces are subjected to trial and wear at all times. This feature is the essence of the improvement.

I claim:

A gage cock comprising a screw-threaded end having a central steam-passage, a body portion provided with an enlarged valve-chamber above the upper end of said steam passage, a valve-seat at the upper end of said passage, an outlet or port near the bottom of said enlarged chamber and above the valve when seated, an opening above the enlarged valve-chamber, to gain free access thereto, a screw-threaded member tapped into said opening to close the same, said screw-threaded member being provided with a screw-threaded opening through its center, a valve controlling stem tapped through the latter opening and a spherical valve adapted to play loosely in the enlarged valve-chamber, adapted to rest on the valve-seat in the bottom of the enlarged valve-chamber, and to be held securely on its seat by the lower end of the valve-controlling stem when the latter is turned down thereon.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. KRINER.

Witnesses:
ISAAC V. MOORE,
J. SCOTT BOWER.