

(No Model.)

T. F. MORRIN & J. HARLIN.
GAGE COCK.

No. 560,520.

Patented May 19, 1896.

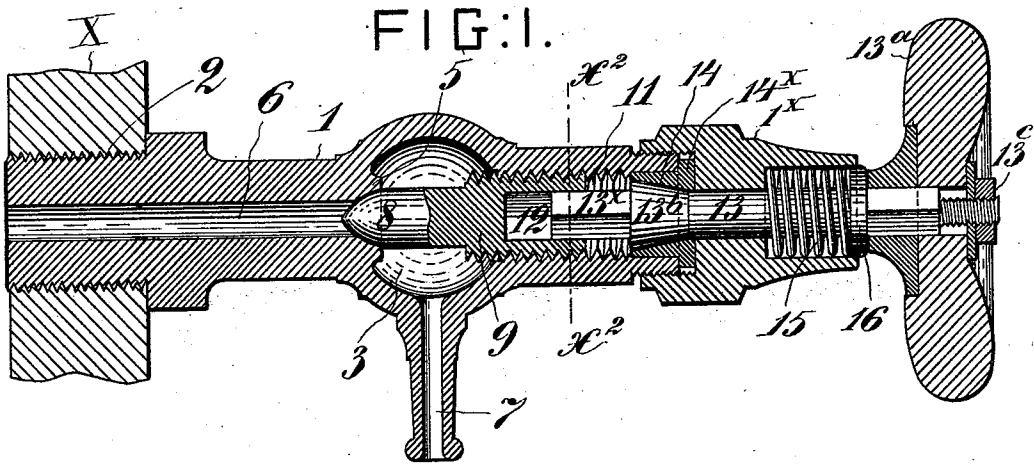


FIG:2.

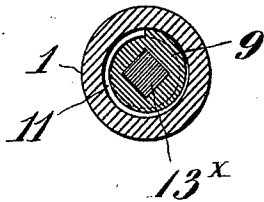


FIG:3.

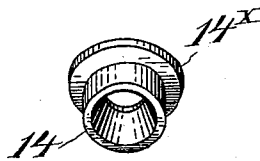
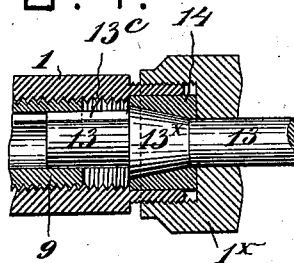


FIG:4.



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GAGE-COCK.

SPECIFICATION forming part of Letters Patent No. 560,520, dated May 19, 1896.

Application filed September 21, 1895. Serial No. 563,195. (No model.)

To all whom it may concern:

Be it known that we, THOMAS F. MORRIN, residing at Jersey City, Hudson county, New Jersey, and JOHN HARLIN, residing in the city, county, and State of New York, citizens of the United States, have invented certain new and useful Improvements in Gage-Cocks, of which the following is a specification.

Our invention relates to devices for ascertaining the level of the water in boilers, and known as "gage-cocks," and the object is to prevent the steam or hot water from escaping about the stem and operating-spindle of the valve and scalding the hand of the operator.

The invention will be fully described hereinafter, and its novel features carefully defined in the claims.

In the accompanying drawings, which illustrate an embodiment of the invention, Figure 1 is a longitudinal axial section of the gage-cock. Fig. 2 is a transverse section in the plane indicated by line $x^2 x^2$ in Fig. 1. Fig. 3 is a perspective view of the seat of the spindle-valve detached. Fig. 4 illustrates a slight modification.

1 is the casing of the main valve, which is adapted to screw into the boiler X at 2, and which contains a valve-chamber 3. In the chamber 3 is formed a valve-seat 5 at the terminus of a steam-passage 6, leading from the boiler to said chamber, and 7 is the steam-outlet nipple from said chamber.

8 is the main valve, adapted to fit into the seat 5 and provided with a screw-threaded stem 9. The screw on this stem fits a female screw 11 in the bore of the casing 1, and in the stem 9 is formed a square socket 12 to receive a square 13^x on an operating-spindle 13, rotatively mounted in an end cap 1^x on the casing 1 and provided with a suitable hand-wheel 13^a. The important object is to prevent the escape of steam or hot water about the spindle 13, and this we accomplish by the means which will now be described.

On the spindle 13 is formed a conical valve 13^b, which closes outwardly in a conical seat 14. This seat (seen detached in Fig. 3) will be made, by preference, from some antifriction metal, as Babbitt metal, used for antifriction-bearings. It is adapted to fit snugly into the outer end of the casing 1, and has a

flange 14^x, which takes over and rests on the outer end of said casing and is clamped fast between the casing and the end cap 1^x. In the outer end of the cap 1^x is a recess which contains a spring 15, embracing the spindle 13, and on this spindle is a collar 16, which bears on the spring 15 and fits into the recess in the cap. Thus the reaction of the spring on the collar draws the valve 13^b into its seat, and the rotation of the spindle, by rotating the valve in its seat, maintains a steam-tight joint between the valve and seat. By rotation of the spindle 13, through the medium of the hand-wheel thereon, the main valve and its stem are rotated, and the screw on said stem causes said valve to advance toward or recede from its seat, its movement being dependent, of course, on the direction of rotation. In order to assemble the parts, the collar 16 is made to slip on the outer end of the spindle 13, after which the hand-wheel 13^a is slipped on a squared portion of the outer end of the spindle and secured by a nut 13^c.

We do not wish to limit ourselves strictly to the construction herein shown, as it may be varied to some extent without departing materially from our invention. For example, the square socket 12 and square 13^x are in themselves known devices, and they may be substituted by any of the known devices, such as a spline and groove, for accomplishing the object sought. The flange 14^x on the seat 14 is merely a device to enable the seat to be secured in place, and other known means may be used to effect this object. Fig. 4 illustrates these modifications. In this view the socket in the stem 9 is cylindrical and has in it a longitudinal groove to receive a spline 13^c on the stem 13, and the seat 14 fits in a counter-bore in the end of the casing 1 and rests on the shoulder formed at the bottom of the same.

It will be noted that we form the female screw to receive the screw on the valve-stem in the body of the casing and not in the cap. This enables the cap and the parts connected with it to be removed, if the valve 8 be first closed, while there is steam-pressure in the boiler. This is often desirable in order to inspect the parts.

Having thus described our invention, we claim—

1. In a gage-cock, the combination with the elongated casing having in it a longitudinally-extending passage for steam and water from the boiler, a valve-chamber into which this passage opens, a valve-seat at the inner end of said passage, and a lateral outlet from the valve-chamber, of a valve in the chamber and adapted to occupy said seat, said valve having a screw-threaded stem arranged in the axis of the casing and screwing into the latter, an operating-spindle 13, rotatively mounted in the axis of the cap of the casing, the inner end of which is connected with and adapted to rotate the valve-stem, a detachable valve-seat 14, mounted in the outer end of the casing, a valve 13^b on the said spindle and occupying the seat 14, a collar on said spindle exterior to the cap of the casing, and a spring between said collar and cap adapted to draw the valve 13^b up to its seat, substantially as set forth.

2. A gage-cock comprising a casing with a valve-chamber having an inlet for steam or water from the boiler, an outlet for such steam or water, a valve to control said inlet and opening outwardly, said valve having a screw-threaded stem 9, provided with a square socket 12, a cap 1^x, adapted to screw onto the casing, a flanged, conical valve-seat, 14, clamped between the cap and the outer end of the casing, a spindle 13, rotatively mounted in said cap and having a square 13^x, which engages the socket in the valve-stem and a spindle-valve

13^b, fitting into the seat 14, a collar 16, on said spindle, and a spring, 15, in a spring-recess in the cap, said spring being adapted, by outward pressure on the collar 16, to draw the spindle-valve snugly into its seat, substantially as set forth.

3. In a gage-cock, the combination with the elongated casing having in it a passage for steam and water from the boiler, a valve-chamber into which this passage opens, a valve-seat at the inner end of said passage, a lateral outlet from said chamber, and a female screw in said casing to receive the screw-threaded stem of the valve, of the valve 8, in said chamber, said valve having a screw-threaded stem provided with a socket, a cap which screws onto the outer end of the casing, an operating-spindle rotatively mounted in said cap and axially alined with the valve 8, said spindle having its inner end detachably connected with the stem of the valve 8, a valve 13^b on said spindle, and occupying a detachable seat 14, and the said seat, clamped and held between the casing and its cap, substantially as set forth.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

THOMAS F. MORRIN.
JOHN HARLIN.

Witnesses:
HENRY CONNETT,
PETER A. ROSS.