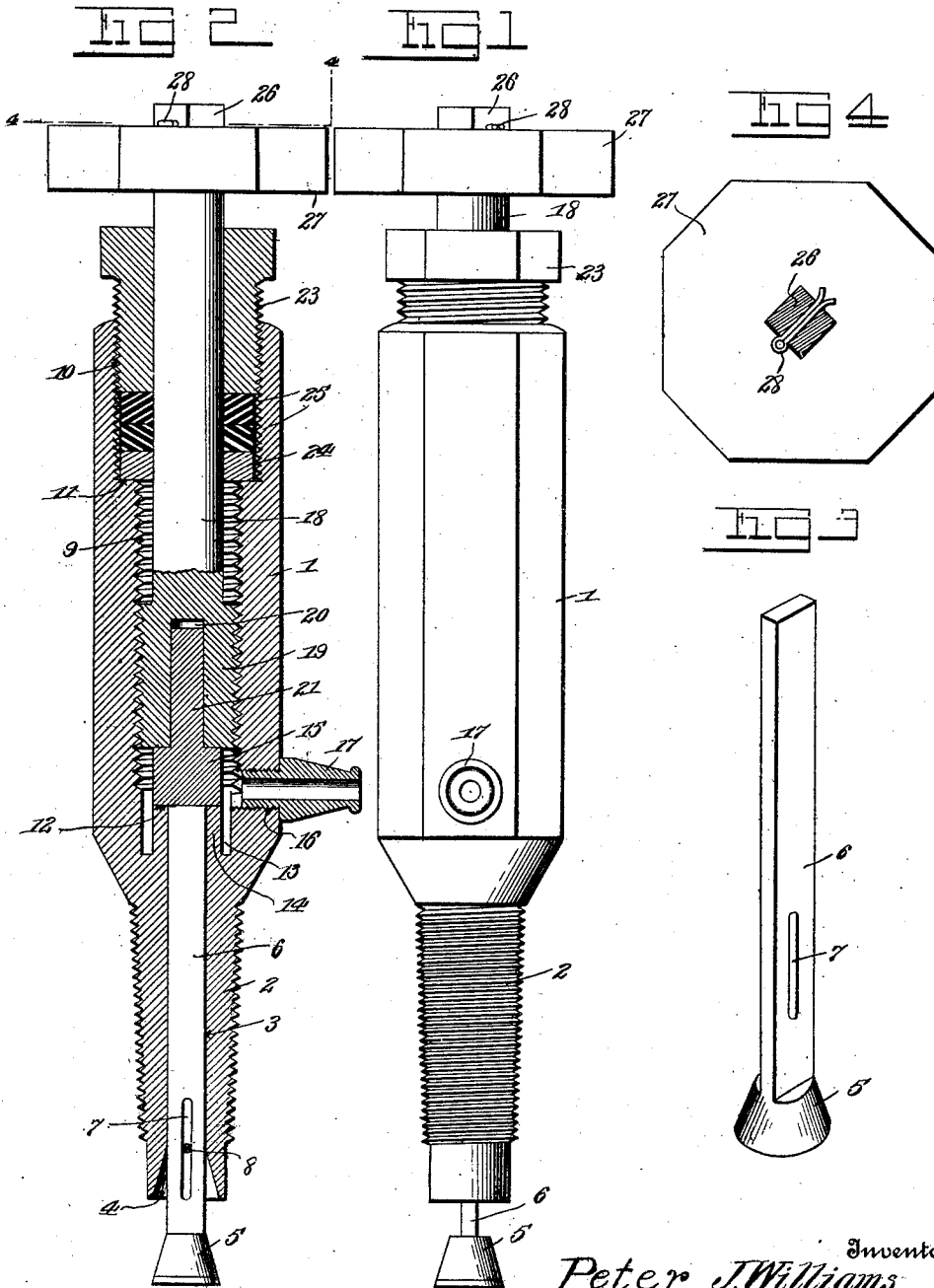


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GAGE COCK.
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990,690.

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GAGE-COCK.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PETER JOSEPH WILLIAMS, a citizen of the United States of America, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Gage-Cocks, of which the following is a specification.

This invention relates to gage cocks for locomotive and other steam boilers, and it has for its objects to produce a gage cock of simple and improved construction which shall be provided with a self-seating valve requiring no grinding and which will fit tightly upon its seat during the life of such valve.

A further object of the invention is to produce a gage cock having a self-seating valve and a check valve, the latter being normally open or adapted to be seated when the stop valve is removed.

Further objects of the invention are to simplify and improve the construction and operation of a device of the character described.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawing has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawing,—Figure 1 is a side elevation of a gage cock constructed in accordance with the invention. Fig. 2 is a longitudinal sectional view of the same taken on the line 2—2 in Fig. 1, and showing the stop valve in obstructing position. Fig. 3 is a perspective detail view showing the check valve removed. Fig. 4 is a transverse sectional view taken on the line 4—4 in Fig. 1.

The casing 1 of the improved gage cock is provided with a tapering externally threaded shank portion 2 enabling it to be conveniently connected with or attached to a boiler of any description. The main body of the casing 1 is cylindrical in shape, and it is provided with a bore extending there-

through. The inner end portion 3 of said bore, which extends through the shank portion 2, is beveled at its inner extremity to form a seat 4 for a conical check valve 5 having a flattened stem 6 that extends through the bore 3 without obstructing the latter. The valve stem 6 has a slot 7 for the passage of a pin 8 whereby the check valve is retained in position in such a manner as to enable it to move toward and from the seat 4.

The bore extending through the casing has an intermediate expanded portion 9 which is internally screw threaded, as shown, and the portion of the bore adjacent to the outer end of the casing is still further expanded and internally screw threaded, as shown at 10. It will be seen that a shoulder or offset 11 is formed intermediate the threaded portions 9 and 10, and another shoulder or offset 12 is formed intermediate the portions 9 and 3 of the bore. The offset 12 is provided with an annular groove 13 surrounding a collar portion which forms a seat 14 for the stop valve 15. Adjacent to the offset 12 is formed an aperture 16 which extends through the wall of the casing and which is internally threaded for the reception of a nozzle 17.

The stem 18 has an expanded head portion 19 which is externally threaded to engage the internally threaded portion 9 of the bore. The head 19 has a recess or socket 20 for the reception of the stem 21 of the stop valve 15, which latter consists of a cylindrical body preferably made of relatively soft metal, such as pure copper, while the casing including the valve seat is made of some relatively hard metal or alloy, such as brass. The valve stem 21 loosely engages the recess or socket 20 and simply serves to support the valve detachably with reference to the stem, whereby it is carried and adjusted. The face of the valve 15 engages the seat 14, as will be readily seen, the cylindrical body of said valve being pressed between the valve seat 14 and the head portion 19 so as to form a perfectly tight joint.

The outer expanded portion 10 of the bore serves for the reception of the packing box gland 23 which is bored for the passage of the stem. A washer 24 of brass or other metal is seated upon the shoulder 11, and between said washer and the gland 23 are interposed compressible washers 25 of gum or of any other suitable material or composition, whereby a tight joint may be formed,

said washers being compressed tightly about the stem 18 by tightening the gland 23. The outer extremity of the stem 18 has a non-circular seat 26 for the reception of a handle member 27 which consists preferably of a disk of octagonal shape so as to be readily grasped by the hand and which will also afford a seat for a wrench, whereby it may be turned when desired. A cotter pin 28 serves to secure the handle upon the seat portion 26.

From the foregoing description, taken in connection with the drawing hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The improved gage cock is capable of being very readily applied to any steam boiler. The stem 6 of the check valve 5, which is preferably made of steel, is of a length exceeding the length of that portion of the bore, 3, through which it extends. It follows that when the stop valve 15 is seated, it will project the valve stem 6 in an inward direction and unseat the check valve 5. To test the water conditions in the boiler, the stem 18 is rotated to unseat the valve 15, thus permitting water or steam to escape through the bore 3 and nozzle 17. Should it be desired for any reason to remove the stop valve, the stem 18 is turned until the valve 15 is unseated sufficiently to enable the check valve 5 to be seated. The packing gland may then be removed, after which the stem may be unscrewed from the casing, carrying with it the valve 15. This, however, will hardly be necessary except in the event of the valve 15 being actually worn out and in need of renewal. The packing gland may likewise be removed for renewal of the packing by previously unscrewing the stem 18 sufficiently to unseat the valve 15 to such an extent as to permit the check valve to be seated.

The improved gage cock may be readily manipulated by the octagonal handle, and the latter will also serve as a wrench seat whereby it may be turned occasionally if it should be found necessary or desirable in order to screw the valve 15 against its seat for the purpose of stopping any possible leakage.

The improved gage cock, as will be seen, is simple in construction, easily applied and efficient in operation. The stop valve is likewise accessible without removing the casing from the boiler or otherwise disturbing joints which must be steam tight. Thus, if the stop valve should be obstructed by im-

purities contained in the water or for any other reason, or if it became leaky, necessary examinations and repairs may very conveniently be made. It is thought, however, that leaks which are so extremely annoying where ordinary gage cocks are used will be entirely avoided by the use of the improved device.

Having thus described the invention, what is claimed as new, is:—

1. In a gage cock, a casing having a bore provided with a shoulder having an annular groove, said casing having an escape opening adjacent to the shoulder, a stem having an enlarged head operating in the threaded portion of the bore adjacent to the shoulder, said head being provided with a longitudinal recess at its inner end, a stem loosely engaging said recess and having a cylindrical valve body, the outer end of which engages the recessed head and the inner end of which seats upon that portion of the shoulder which is surrounded by the annular groove, a valve seat at the extreme inner end of the casing, a check valve engaging the seat and having a flattened stem extending through the bore and lying in the path of the cylindrical valve body carried by the movable stem, said flattened stem being provided with a longitudinal slot, and a retaining pin extending through the valve casing and through said slot.

2. In a gage cock, a casing having a bore provided with a shoulder having an annular groove, an escape opening in the casing adjacent to the shoulder, a stem having a head movably engaging a threaded portion of the bore, a valve consisting of a cylindrical body loosely connected with and carried by the head and seating upon that portion of the shoulder which is surrounded by the annular groove, said cylindrical body being compressible between the seat and the movable head, a valve seat at the inner end of the casing, a check valve engaging said seat and having a stem extending into the bore and lying in the path of the valve carried by the movable stem, a packing gland at the outer end of the casing apertured for the passage of the valve carrying stem, and a handle member of polygonal shape detachably connected with the outer end of the stem.

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

PETER JOSEPH WILLIAMS.

Witnesses:

EDWARD MARKLEY,
GEORGE FLINN.