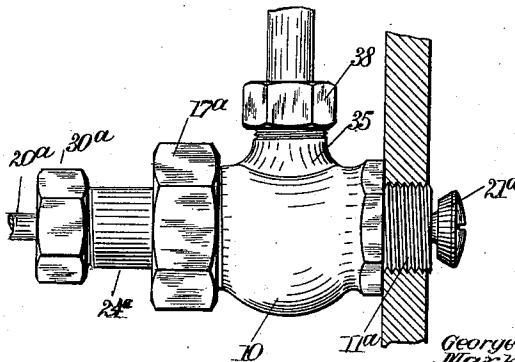
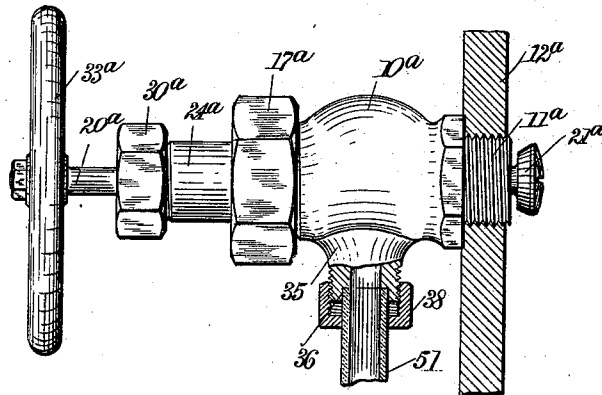
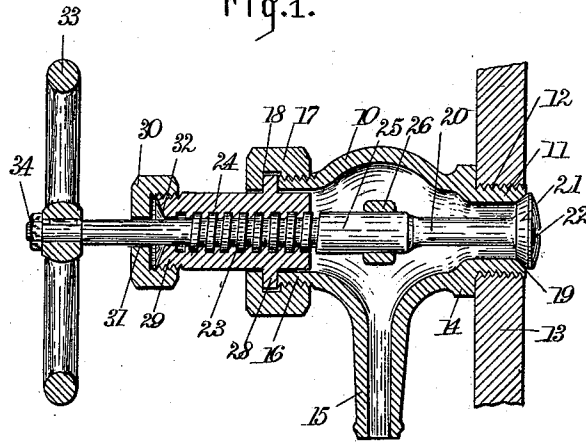
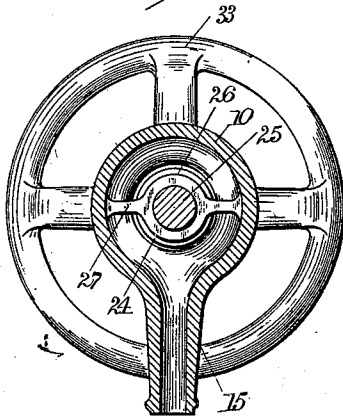


GAGE COCK.
APPLICATION FILED MAY 18, 1911.

Patented Jan. 9, 1912.



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GAGE-COCK.

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Specification of Letters Patent.

Patented Jan. 9, 1912.

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To all whom it may concern:

Be it known that we, GEORGE L. TILLOTSON and MARKS H. NICHOLAS, citizens of the United States, and both residents of Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Gage-Cock, of which the following is a full, clear, and exact description.

This invention relates to gage cocks for use with the gage glasses of steam boilers and for other like purposes, and has reference more particularly to a device of this class which comprises a valve body adapted to be mounted upon a boiler wall, and having a valve seat at the inside of the boiler wall, a valve stem having a valve member arranged to cooperate with said seat, and a sleeve associated with said body and having threaded engagement with said valve stem.

The object of the invention is to provide a simple, strong and durable cock which can be used with the gage glasses of steam boilers, and for other like purposes, which is so constructed that if the controlling threads of the valve stem are stripped or otherwise injured, the pressure of steam in the boiler or other pressure against the valve member will tend to hold the latter seated, *i. e.*, closed, which, when opened tends to break away any scale or sediment forming about the valve seat and the valve member, which can be easily opened and rendered accessible for purposes of repair and replacement, which will normally drain, and will be scoured and cleaned by the steam or water passing through it, and which can be opened while the boiler is under steam pressure, as the valve member will be maintained in a seated or closed position upon the valve seat, by the pressure in the boiler.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a longitudinal section of an embodiment of our invention showing the

same applied to a steam boiler, and serving as a drain cock; Fig. 2 is a vertical section of the cock; and Fig. 3 is a partial, vertical section of two cocks of modified form used in combination with a gage glass, certain of the parts being broken away.

Before proceeding to a more detailed explanation of our invention, it should be clearly understood that while the device is particularly useful as a gage cock, that is, in combination with a gage glass, for use with steam boilers, or for similar purposes, it can also be advantageously employed for other uses, for example, as a drain cock for steam boilers or for other containers of fluids under pressure.

Certain of the details of construction shown for example herewith, form no part of the invention, and can be varied in accordance with individual preference and special conditions, without deviating from the essence of the invention, as defined in the appended claims.

Referring more particularly to the drawings, we employ a gage cock or valve body 10, fashioned from cast metal or any other suitable material, of the usual hollow form. It has at one end a reduced, threaded neck 11, by means of which it can be secured in a correspondingly threaded opening 12 of a boiler wall 13. Adjacent to the reduced neck 11, the valve body has a part 14 of hexagonal or other angular form adapted for the application of a wrench or other suitable implement to permit the body to be screwed into place or removed. In the form of the device shown in Fig. 1, the body is extended to form an outlet or escape nozzle 15. This form of the device is employed when it is intended for use as a drain cock or for like purposes. At the end of the body remote from the reduced neck 11, is a second reduced and threaded neck 16, upon which can be screwed a correspondingly threaded retaining nut or ring 17 having an internal, annular groove 18 for a purpose which will appear hereinafter.

At the inner rim of the reduced neck 11 is formed a valve seat 19 of any suitable form. A valve stem 20 extends through the valve body and has at the inner end a valve

member 21 formed to rest against the seat 19. The valve member 21 has a slot or kerf 22, so that it can be suitably manipulated in re-grinding the valve seat if such operation becomes necessary. Intermediate its ends, the valve stem has a part 23 provided with suitable threads, for example, with square threads, which is received in a corresponding, internally threaded sleeve 24. The end portions of the valve stem are of reduced diameter. Adjacent to the threaded part, the valve stem has a part 25 of diameter equal to the external diameter of the threads, which is received in a bearing 26 located within the valve body, and connected therewith by means of integral arms or connections 27, so that the valve stem is centrally positioned with regard to the valve body, and is movably held in place.

The sleeve 24 has a radially extended flange 28 which extends into the annular groove 18 and is clamped against the rim of the body extension 16, by means of the retaining nut 17. The outer end 29 of the sleeve is threaded to receive a corresponding, internally threaded gland nut 30, which has a central opening 31 through which the valve stem extends. The end face 32 of the sleeve is inwardly beveled, so that if desired, suitable packing material (not shown), can be located between the end of the sleeve and the gland nut. At the outer end, the valve stem carries the usual hand wheel 33, held in place by a retaining nut 34. The hand wheel permits the manipulation of the valve in the customary manner.

In the modified application of the invention, shown in Fig. 3, we employ two valve members, the bodies 10^a of which are similar to that of the previously described element. They likewise have reduced necks 11^a for attachment to a boiler shell 12^a, and each is provided with a retaining nut 17^a, a sleeve 24^a and a gland nut 30^a. The valve stem 20^a has at one end a hand wheel 33^a and at the other end a valve member 21^a corresponding to the member 21. The escape outlets or nozzles 35 are however, externally threaded, and provided with annular grooves 36 in the rims, to receive a glass tube 37, held in place by suitable packing nuts 38. The device as described, constitutes a gage glass used for determining the water level in steam boilers, or for other like purposes.

We prefer to employ a so-called "left hand" thread upon the valve stem, so that each cock or feed valve can be manipulated to open or close it in the usual manner. By providing the valve member 21 at the inner end of the stem, the valve will tend normally to seat or close under the influence of the pressure in the boiler or other container. Consequently, if the threads should be accidentally stripped or otherwise injured upon the valve stem, no dangerous escape of fluid

or steam could result. Furthermore, the valve can be taken apart for purposes of repair or replacement, by removing the gland nut 30, the retaining nut 17, and the sleeve 24, while pressure is maintained in the boiler. The part 26 will hold the valve stem in its normal position, concentric with the valve body. Should scale or other incrustation accumulate about the valve seat and the valve member, this can be easily broken away through the opening of the valve, by turning the stem in the proper direction. Furthermore, the rush of steam or fluid through the valve body, and the escape nozzle or the gage glass, when the valve is open will tend to clear the body of undesirable accumulations.

Having thus described our invention, we claim as new, and desire to secure by Letters Patent:—

1. A device of the class described, comprising a valve member adapted to be mounted upon a boiler wall and having a valve seat and a threaded neck, a retaining nut mounted upon said threaded neck and having an annular groove, an internally threaded sleeve having a laterally extended flange received in said groove and clamped by said nut against said neck, and a valve stem extending through said sleeve and having a valve member adapted to engage at said seat.

2. A device of the class described, comprising a valve body having a neck for the attachment of said body to a boiler wall, said neck having at the end a valve seat, said body having at the other end a threaded neck, a retaining nut removably mounted upon said last-mentioned neck, and having an annular groove, an internally threaded sleeve having a flange and extending through said retaining nut, whereby said flange is clamped between the end of said last-mentioned neck and said retaining nut, and is received in said groove, a gland nut at the end of said sleeve, a threaded stem extending through said sleeve and having at the end a valve member adapted to cooperate with said valve seat, and means for manipulating said valve stem.

3. A device of the class described, comprising a valve body having a reduced neck for the attachment of said body to a boiler wall, said neck being adapted to extend through the boiler wall and having at the end a valve seat, said body having at the other end a threaded neck, a retaining nut removably mounted upon said threaded neck and having an annular groove, an internally threaded sleeve having a flange and extending through said retaining nut whereby said flange is clamped between the end of said threaded neck and said retaining nut and is received in said groove, a gland nut at the end of said sleeve, a threaded

stem extending through said sleeve and said gland nut and having at one end a valve member adapted to cooperate with said valve seat, and a hand wheel at the other end of said valve stem, said valve body having means whereby it can be associated with a gage glass.

In testimony whereof we have signed our

names to this specification in the presence of two subscribing witnesses.

GEORGE LEMUEL TILLOTSON.
MARKS HAROLD NICHOLAS.

Witnesses:

RALPH L. NICHUNE,
ROSS SUAREK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."