

No. 862,752.

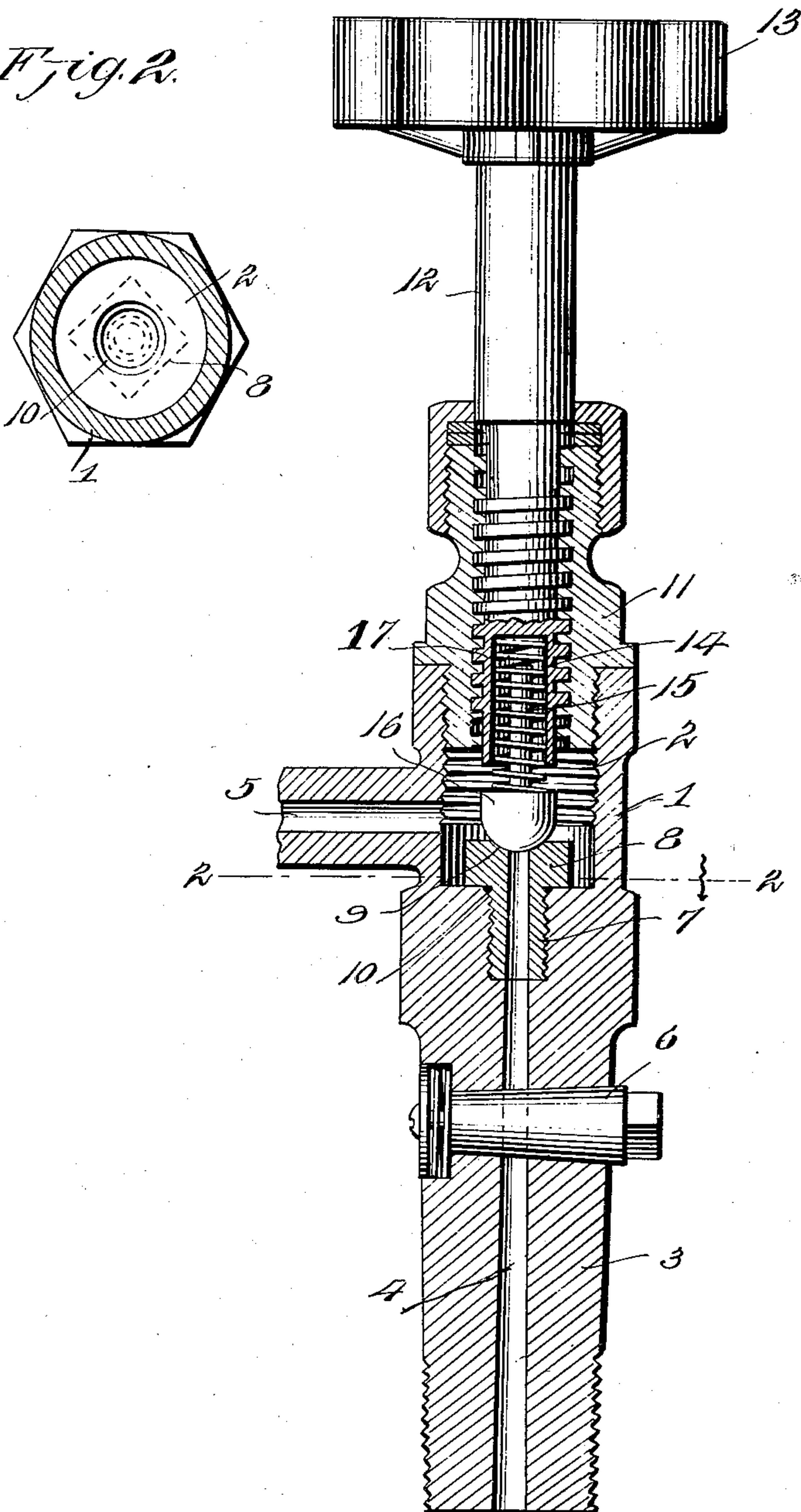
PATENTED AUG. 6, 1907.

G. PENNELL.
GAGE COCK.

APPLICATION FILED MAR. 16, 1906.

Fig. 1.

Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE PENNELL, OF BALTIMORE, MARYLAND.

GAGE-COCK.

No. 862,752.

Specification of Letters Patent.

Patented Aug. 6, 1907.

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To all whom it may concern:

Be it known that I, GEORGE PENNELL, a citizen of the United States, residing at Baltimore, in the county of Baltimore City and State of Maryland, have invented
5 new and useful Improvements in Gage-Cocks, of which the following is a specification.

This invention relates to gage cocks for steam boilers or the like, and has for its objects to produce a comparatively simple, inexpensive device of this character in
10 which the valve will be maintained in properly seated condition, one wherein the valve is movable relative to its stem, thus to permit ready removal of the valve for renewal, and one wherein liability of the valve becoming fixed in the stem socket is wholly obviated.

15 A further object of the invention is to provide a device of this class in which the valve seat may be conveniently renewed when circumstances require, one wherein the valve will be properly and normally pressed to its seat, thus to insure effective closing of the
20 valve, and one wherein the seating pressure on the valve may be regulated at will.

With these and other objects in view, the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

25 In the accompanying drawings: Figure 1 is a central, longitudinal section through the valve embodying the invention. Fig. 2 is a detail, sectional view taken on the line 2—2 of Fig. 1.

Referring to the drawings, 1 designates a valve casing
30 preferably of the form shown, having a valve chamber 2 and a tubular extension 3, the central bore 4 of which communicates with the chamber from which leads to the gage an opening or passage 5, there being extended transversely through the extension 3, which is threaded
35 at its outer end for engagement with the boiler wall, a rotary plug valve 6 adapted for closing the passage 4, the upper end of which is enlarged and internally threaded to receive the externally threaded portion or
40 shank 7 of a removable member or piece 8 disposed in the chamber 2 and having a valve seat 9, while provided at the upper end of the enlarged portion of the bore 4 and beneath the piece 8 is a second valve seat 10 for a purpose which will hereinafter appear.

Secured into the normally upper end of the body 1
45 and for closing the adjacent end of the chamber 2 is a plug 11 into which is threaded a longitudinally movable stem 12 provided at its outer end with a hand wheel 13 and at its inner end with a longitudinal chamber or recess 14 in which is centrally loosely arranged the stem 15
50 of a substantially semi-spherical valve 16 adapted to close upon the seat 9 and to be maintained in seated position by means of a spring 17 coiled upon the stem 15 within the recess 14, it being noted that the valve 16 which may also close upon the seat 10, as presently explained, will move readily to open position against the
55 action of spring 17.

In practice, the valve 16 normally closes upon the seat 9, being held in proper position on the seat by the spring 17, which will, however, permit the valve to open under the influence of steam pressure through the
60 passage 4, it being understood that when the valve is to be fixed in closed position the stem 12 is screwed inward until its inner end bears upon the rear face of the valve head 16, under which conditions the spring will be compressed within the chamber 14. When the stem
65 12 is unscrewed for releasing and permitting the valve to open the spring 17 in expanding moves the valve relative to the stem and obviates liability of the stem portion 15 becoming rust-bound, or otherwise stuck within the recess, whereby the valve is free at all times for
70 ready disconnection from the stem 12 to permit replacement of the valve, when worn, by a new one.

Should the member or piece 8 be rendered defective owing to wear or other causes, it may be conveniently removed by means of a suitable wrench, and after its re-
75 moval and pending its replacement the valve may close upon the seat 10. During the operation of removing the piece 8 which necessitates removal of the plug 11, the passage 4 may be closed by means of the valve 6 to prevent escape of steam from the boiler.
80

It may be mentioned that under the construction of gage cocks now in general use it is extremely difficult and in fact practically impossible to detach the valve from its stem in the operation of renewing the valve and this owing to the fact that the stem portions 15 of the
85 valves adhere, through an accumulation of foreign matter therearound within the recess 14, it being apparent that this objection is, under my construction, overcome owing to the provision of the spring 17, which, each time the stem 12 is manipulated for opening the valve,
90 causes relative movement of the latter to maintain the loose connection of the valve and permit its ready disengagement of the stem.

While the device as above described is designed for use as a gage cock it is apparent that the same may by
95 employing a spring 17 of appropriate strength be advantageously utilized as a safety valve, under which conditions the valve will be maintained in seated position under the action of the spring and will, under abnormal pressure within the boiler, open automatically against
100 the spring action for permitting escape of the steam to relieve high pressure in the boiler, as usual. Under such use of the valve the stem 12 may be manipulated for varying the tension on the spring, thus to regulate the boiler pressure necessary for opening the valve.
105

Having thus described my invention, what I claim is:

A device of the class described comprising a valve casing provided with a chamber and having a tubular extension presenting a passage communicating with said chamber, the passage being provided at its inner end with an inter-
110 nally threaded enlargement, a removable piece comprising a non-circular head disposed in the chamber and an externally threaded reduced shank screwed into the enlarged

portion of the passage, said piece having an opening formed longitudinally therethrough in continuation of the passage and being recessed at the inner end of said opening to form a valve seat, the inner end of the enlarged portion of the
5 passage being formed to provide a second valve seat, a valve stem screwed into the casing in axial alinement with the passage and having at its inner end a central, longitudinal bore, the valve chamber being provided with a second passage communicating therewith, a valve movably
10 arranged in the chamber and formed to fit on either of said seats for closing communication between the passages, a stem provided on the valve and extended centrally and loosely into said bore for free movement relative to the

first named stem, and a coiled spring arranged in the bore around the stem portion of the valve and to bear at 15 one end on the latter and at its upper end on the end wall of the bore, said spring being adapted to act upon the valve for causing a relative movement of the stems during opening and closing movement of the valve.

In testimony whereof, I affix my signature in presence 20 of two witnesses.

GEORGE PENNELL.

Witnesses:

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