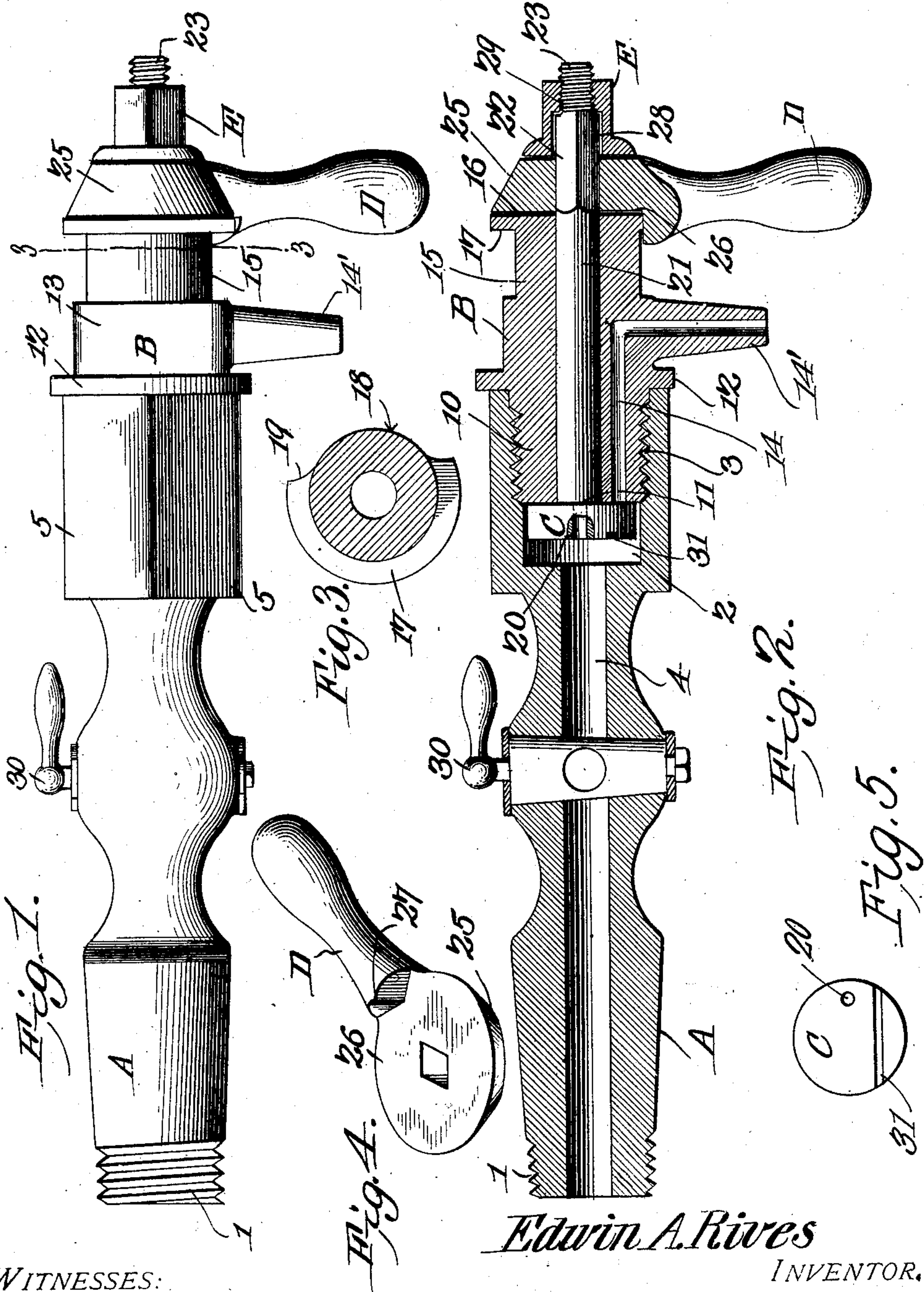


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PATENTED JULY 9, 1907.

E. A. RIVES.
GAGE COCK.

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WITNESSES:

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GAGE-COCK.

No. 859,782.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWIN A. RIVES, a citizen of the United States, residing at Greensboro, in the county of Guilford and State of North Carolina, have invented
5 a new and useful Gage-Cock, of which the following is a specification.

This invention relates to gage cocks.

The object of the invention is to provide a simple and improved device of the character specified which
10 is adapted to be easily and quickly cut off from communication with the boiler so as to permit all its working parts to be removed for the purpose of repairing or cleaning the same.

With the foregoing and other objects in view, which
15 will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed
20 can be made within the scope of the following claims without departing from the spirit of the invention or sacrificing any of its advantages.

In the accompanying drawings forming part of this specification:—Figure 1 is a side elevation of a gage
25 cock constructed in accordance with the invention. Fig. 2 is a longitudinal vertical section. Fig. 3 is a transverse section on the line 3—3 of Fig. 1. Fig. 4 is a perspective view of the handle. Fig. 5 is a front elevation of the valve.

30 Like reference numerals indicate corresponding parts in the different figures of the drawings.

The improved gage cock of this invention comprises an inner member A and an outer member B. The inner member A is provided with a threaded portion 1
35 which is adapted to be screwed into the boiler in the usual manner. Adjacent its outer end, the inner member A is provided with a socket or valve chamber 2, the outer end of which is interiorly threaded as indicated at 3. Leading into the valve chamber 2 is a
40 longitudinal passage 4 which communicates with the boiler in the usual way. The exterior wall of the valve chamber 2 is formed with a plurality of flat faces 5 which serve to produce a wrench-receiving portion with which an ordinary wrench can be engaged
45 in the operation of applying the inner member A to the boiler.

The outer member B is provided at its inner end with a threaded projection 10 which is adapted to engage the threaded outer end of the valve chamber 2
50 in the inner member A. The inner end of the threaded projection 10 is flattened as indicated at 11 to form an annular valve seat. At the rear end of the threaded projection 10 the outer member B is formed with a collar 12 which is adapted to fit against the rear end
55 of the valve chamber 2 and form a tight joint there-

with. In rear of the collar 12 the outer member B is formed with a wrench-receiving portion 13. Leading from the valve seat 11 and extending outward through the wrench-receiving portion 13 is a fluid passage 14. In rear of the wrench-receiving portion 13, the outer
60 member B is formed with a smooth cylindrical portion 15 having at the rear end thereof a smooth face 16 and a peripheral annular flange 17. The flange 17 is formed with a cut away portion or gap 18 having tangential shoulders 19 at the ends thereof. 65

Bearing against the valve seat 11 is a disk-shaped rotary valve C which is formed with a perforation 20 adapted to register with the fluid passage 14 in the outer member B. The valve C is provided with a rearwardly extending stem 21 which passes through a
70 suitable bore extending longitudinally of the outer member B. The stem 21 is round and smooth for a distance corresponding with the length of the outer member B. In rear of the smooth face 16 of the outer member B, the stem 21 is squared or irregular in shape,
75 as indicated at 22, and at the rear end it is threaded as indicated at 23.

The handle D is provided with a frusto-conical head 25 which is formed centrally with an irregular opening to receive the squared portion of the stem 21. The
80 front face 26 of the head 25 fits against the smooth rear face of the outer member B so as to turn thereon without much friction. Adjacent to the periphery of the smooth front face 26 of the head 25 is a V-shaped projection 27 which extends through the gap 18 in the
85 flange 17 of the member B and is adapted to be limited in its movement by coming in contact with the tangential shoulders 19 at the ends of the said gap.

Removably fitted upon the rear end of the valve stem 21 is a nut E, the bore of which is smooth adjacent its forward end, as indicated at 28, and threaded adjacent its rear end, as indicated at 29. As the handle D is moved back and forth to open and close the valve C, it will be obvious that said valve will wear gradually away so as to necessitate a tightening of the nut E. As
90 soon as the valve C has worn away to a sufficient extent for the squared portion 22 of the valve stem 21 to project rearwardly beyond the head 25 of the handle D, it will be apparent that when the nut E is tightened, its forward end will partly surround the squared por-
100 tion 22 of the stem 21. For this reason by providing the bore in the nut E with the smooth portion 28, it can be adjusted forward to the necessary extent even though it is caused to surround the squared portion 22.

From the foregoing description it will be apparent
105 that all the essential coöperating parts of the valve, such, for example, as the valve proper C, stem 21, valve seat 11, handle D, etc., are carried by the outer member B, so that whenever it is desired to clean or repair any of these parts, it is only necessary to apply
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a wrench to the portion 13 so as to remove the outer member B from the inner member A. In some cases, in order to prevent the inner member A from rotating with the outer member B, a second wrench can be applied to the portion 5 of the inner member A.

By reason of the fact that the valve C is located in the valve chamber 2, the pressure of the steam in the boiler is exerted against the front face of said valve so as to push it firmly against its seat and thus produce a tight fit as well as a grinding action on the valve seat. Furthermore, it will be apparent that whenever the valve wears away or becomes loose, the nut E can be tightened so as to draw it rearward against its seat.

The inner member A preferably is provided with a stop-cock 30 which can be closed whenever it is desired to remove the outer member B from the inner member A.

In some cases it is preferable to form the valve C with a groove 31 extending transversely across its front face so as to receive a screw-driver for the purpose of holding the valve steady while the wrench is applied to the nut E for the purpose of removing the same. If merely the handle D were relied upon to hold the stem steady in a case where the nut was jammed, the result would probably be that the handle would work loose upon the squared portion 22 on account of the soft metal of which these valves are generally constructed.

The improved device of this invention is strong, simple, durable and inexpensive in construction, as well as thoroughly efficient in operation.

As before explained, the improved gage cock is easily kept in working order and is so arranged that the steam can be cut off between the operating parts thereof and the boiler, so that the valve can be taken out to be cleaned and oiled, even when there is a full head of steam on the boiler. The use of the improved gage cock does not involve the usual expense of packing and grinding, as the valve is self-seating and so arranged that the steam pressure of the boiler acts to keep it closed. The seat is protected by the valve so that it cannot be cut by the escape of steam or any other substance that may be present in the steam and water used in the boiler.

As shown clearly in Fig. 2, the outlet passage 14 preferably is extended through a depending nipple 14'.

What is claimed is:

1. A gage cock comprising an inner member having a stop-cock, a wrench-receiving portion, and a valve chamber having an interiorly threaded outer end, an outer

member having a threaded projection fitted into the outer end of the valve chamber, a valve seat formed on the inner end of said threaded projection, a collar at the rear end of the threaded projection adapted to bear against the outer end of the valve chamber, a wrench-receiving portion in rear of the collar, a fluid passage leading from the valve seat and extending outward through the wrench-receiving portion, an annular flange at the rear end of the outer member formed with a gap having tangential shoulders, a valve fitted against the valve seat and having a perforation, a stem extending through the outer member and having a smooth, round portion, an irregular portion and a threaded rear end, a handle having a frusto-conical head fitted around the squared portion of the valve stem and bearing against the rear end of the outer member, and a nut fitted on the rear end of the valve stem and having the forward end of its bore smooth and the rear end of its bore threaded.

2. A gage cock comprising an inner member having a stop-cock and provided with a valve-chamber the interior walls of which are threaded, an outer member having a threaded projection engaging the threads on the walls of the valve-chamber and provided with a longitudinal bore, there being a fluid passage formed in the outer member and opening through the side walls thereof, a valve-stem seated in the longitudinal bore and provided with a squared portion defining a threaded extension, a valve carried by the opposite end of the stem and having a port formed therein adapted to register with the fluid passage, a flange extending laterally from the free end of the outer member and provided with oppositely disposed inclined stop-shoulders, an operating handle carried by the squared portion of the valve-stem and provided with oppositely disposed inclined faces adapted to engage the shoulders for limiting the movement of the handle, and a nut engaging the threads on the extension and forming a housing for the squared portion of the valve-stem.

3. A gage cock comprising an inner member having a stop-cock and provided with a valve-stem the interior walls of which are threaded, an outer member having a threaded projection engaging the threaded walls of the valve-chamber and provided with a longitudinal bore, there being a fluid passage formed in the outer member and opening through the side walls thereof, a valve-stem seated in the bore and having one end thereof provided with a squared portion defining a reduced threaded extension, a valve carried by the opposite end of the stem and provided with a port adapted to register with the steam passage, a transverse tool-receiving groove formed in the valve, a nut engaging the threaded extension and forming a housing for the squared portion of the stem, and an operating handle carried by the squared portion of the stem and interposed between the nut and outer member.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDWIN A. RIVES.

ROY H. JONES,
W. P. BEALL, Jr.