

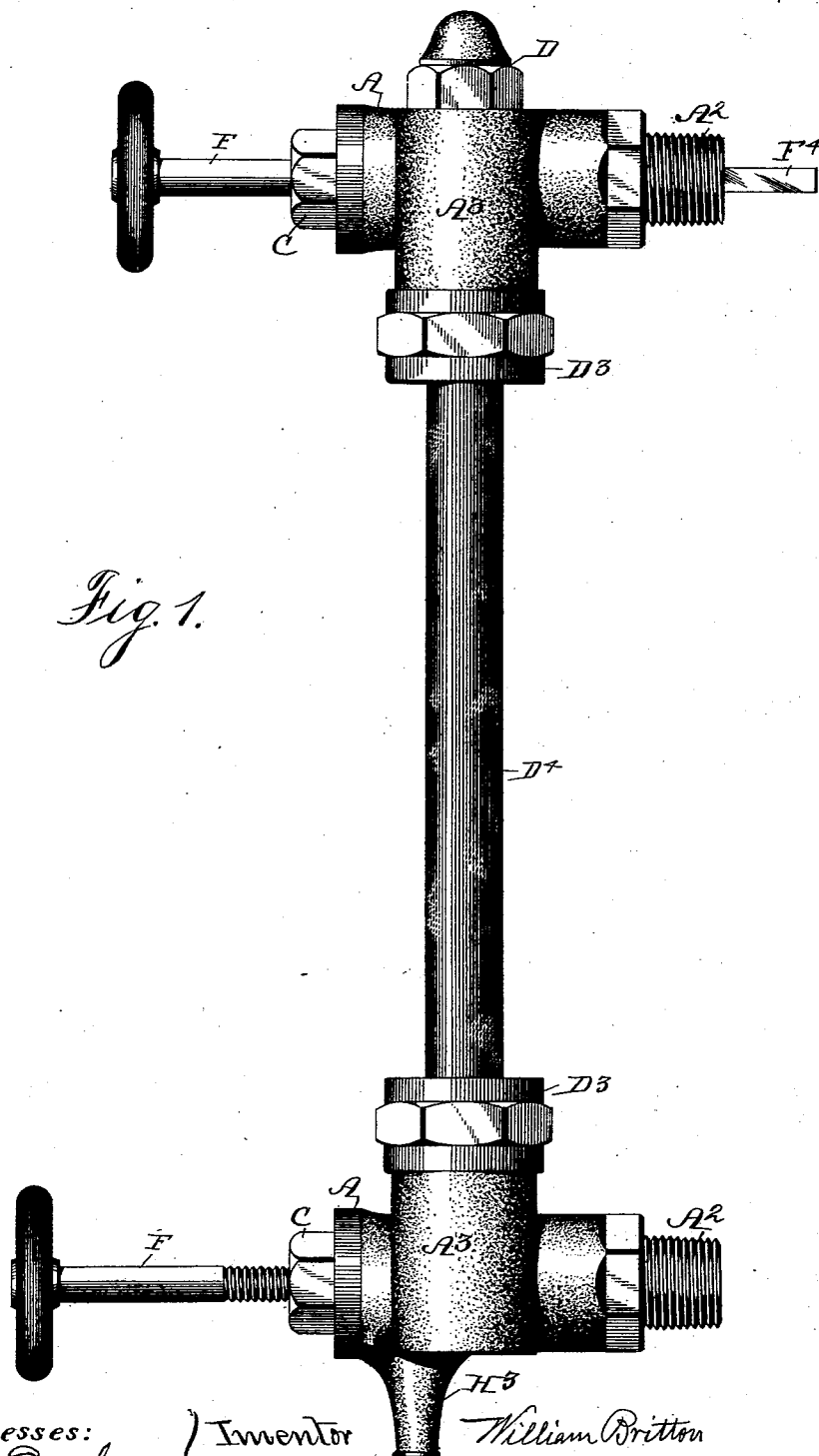
(No Model.)

3 Sheets—Sheet 1.

W. BRITTON.  
WATER GAGE.

No. 569,167.

Patented Oct. 13, 1896.



Witnesses:

W. J. Pankey,  
R. G. Orwig

Inventor

William Britton

By Thomas G. Orr, Attorney.

(No Model.)

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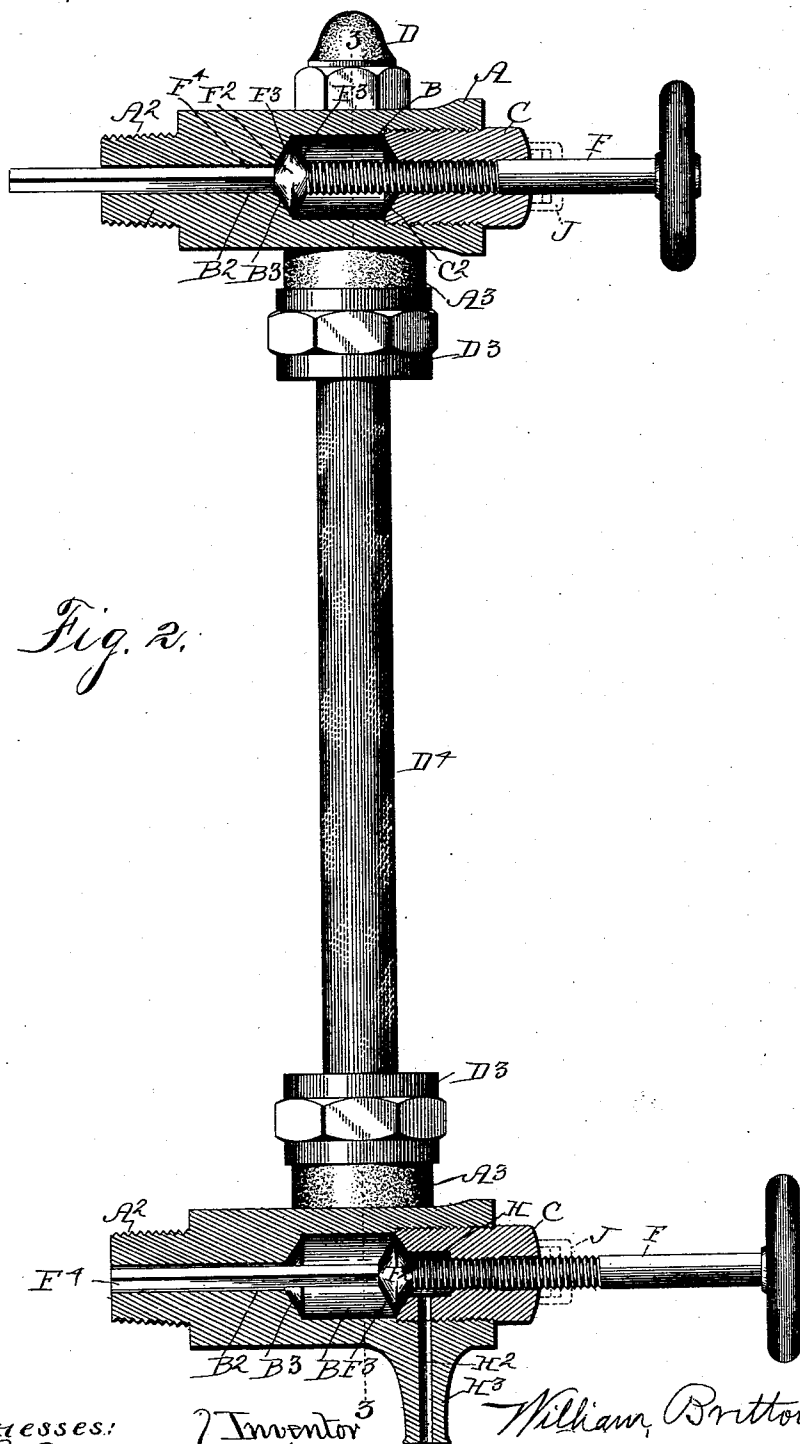


Fig. 2.

Witnesses:

W. J. Barker,  
R. C. Onig.

Inventor

William Britton

By Thomas G. Onig, Atty.

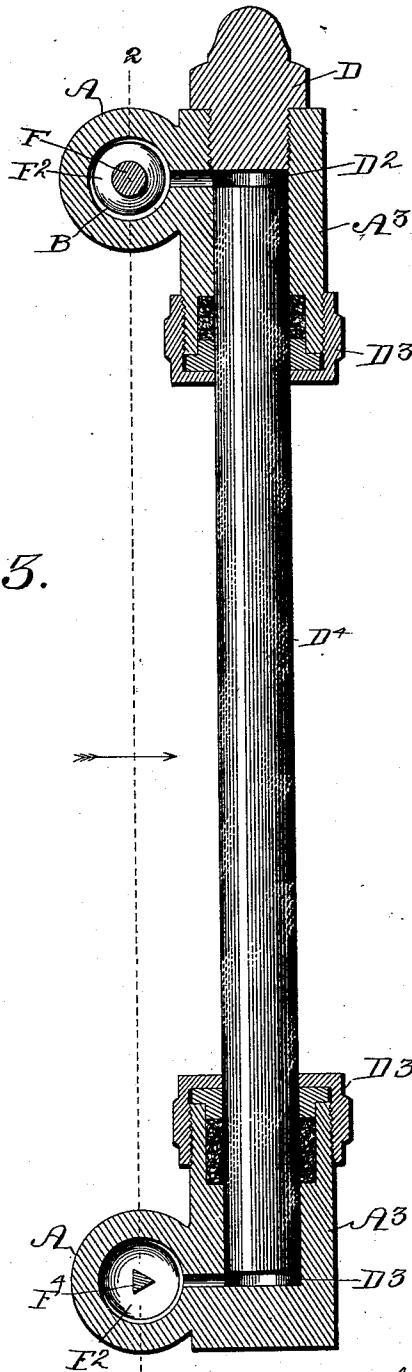
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*Fig. 5.*

Witnesses:

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*By Thomas G. (and) J. Ralph Orwig, Attys.*

# UNITED STATES PATENT OFFICE.

WILLIAM BRITTON, OF BOONE, IOWA, ASSIGNOR OF ONE-HALF TO JAMES HALBERT, OF BOONESBOROUGH, IOWA.

## WATER-GAGE.

SPECIFICATION forming part of Letters Patent No. 569,167, dated October 13, 1896.

Application filed June 24, 1895. Serial No. 553,935. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM BRITTON, a citizen of the United States of America, residing at Boone, in the county of Boone and State of Iowa, have invented an Improved Water-Gage, of which the following is a specification.

My object is to provide a cheap, simple, safe, strong, and durable water-gage for boilers, in which the valves are made steam and water tight without the use of stuffing-boxes, the passage from the boiler to the valve cleaned upon each movement of the valve and the usual petcock at the bottom of the gage dispensed with, and in which the glass tube may be inserted or removed without detaching the gage from the boiler.

My invention consists in certain details of construction, arrangement, and combination of parts, as hereinafter set forth, pointed out in my claim, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the gage applied to a portion of a boiler. Fig. 2 is a vertical longitudinal section of the same, and Fig. 3 is a transverse section through the line 3 3 of Fig. 2.

Referring to the accompanying drawings, the frame of the upper valve is seen to be composed of the horizontal cylinder A, with its end screw-threaded at A<sup>2</sup> to enter a boiler and the vertical cylinder A<sup>3</sup> fixed at right angles to the first.

The interior construction of the part A is as follows: First a comparatively large bore is made in its outer end, and this bore is internally screw-threaded. A smaller bore leads from the end of this bore and forms the valve-chamber B. A passage B<sup>2</sup> is extended rearwardly from the chamber B to the opposite end of the part A. The shoulder at the intersection of the chamber B and passage B<sup>2</sup> is countersunk at B<sup>3</sup> to form a seat for the valve.

C indicates a plug having a concentric screw-threaded bore and externally screw-threaded to enter the end of the cylinder A. The inner end of the plug is countersunk at C<sup>2</sup> to form a valve-seat.

The part A<sup>3</sup> is bored upwardly from its lower end, a cap D screwed into its top and provided with an opening D<sup>2</sup>, communicating

with the chamber B. The glass tube D<sup>2</sup> is inserted in the lower end of the part A<sup>3</sup> and the stuffing-box D<sup>3</sup> screwed into position surrounding the tube.

It is obvious that after the device is in position on a boiler a new glass may be substituted for the old one or the glass be removed for cleansing by unscrewing the cap D and raising the tube through the part A<sup>3</sup>.

F indicates the valve-stem, screw-threaded and admitted into the plug C. Near its inner end is a valve F<sup>2</sup>, having tapered faces F<sup>3</sup> on each side, designed to fit the beveled surfaces B<sup>3</sup> and C<sup>2</sup>. The inner end F<sup>4</sup> of said valve-stem is triangular in cross-section and of a size adapted to enter the passage B<sup>2</sup> and when the valve is seated at B<sup>3</sup> to extend to the rear end of the passage, thus loosening all lodgments in said passage each time the stem F is turned to operate the valve. This part F<sup>4</sup> may be flat or any other irregular shape that when turned will scrape the sides of the passage and permit the flow of water at all times.

It is obvious that when the valve is seated at B<sup>3</sup> communication with the boiler will be cut off, and when the valve is open, that is, seated at C<sup>2</sup>, the opening to the glass tube will be obstructed, and yet the escape of steam or water around the valve-stem will be prevented.

The lower valve is similar to the upper valve, as described, and therefore the same reference-symbols are used to indicate the same parts. In addition, however, to the features shown and described the lower valve has a bore H leading outwardly from the inner end of the plug C a slight distance and an opening H<sup>2</sup> extending from the bore H downwardly through the nozzle H<sup>3</sup>.

Small stuffing-boxes J are shown in Fig. 2, surrounding the valve-stems. These, however, are ordinarily dispensed with.

In practical use, assuming that it is desired to test the water, the lower valve is screwed inwardly a slight distance and the water permitted to flow around the valve from the boiler and also from the tube through the outlet. The upper valve may also be opened and closed, as before described. Should it be desirable to run off the water in the tube and cut off the connection with the boiler, the

lower valve is screwed inwardly until the valve is seated at B<sup>3</sup>. At each movement of either valve the passage from the valve to the boiler is thoroughly cleaned out, as set forth.

5 It is obvious that a perfectly tight joint is formed by the valve when in either an open or closed position, so that steam or water cannot escape around the valve-stem.

10 Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

15 A water-gage for boilers, comprising two valves, each designed to be screwed into the boiler and each having a central longitudinal opening communicating with the boiler, also

a chamber in its central portion having a valve-seat at each end, a double valve in each chamber, a lateral extension on each valve-chamber having a vertical bore communicating with the said chamber of the valve, a glass tube having its ends seated in said vertical bores means for closing the end of the lower vertical bore and a screw-plug in the top of the upper vertical bore to provide means for detaching the glass tube without disturbing either valve, substantially as and for the purposes stated.

WILLIAM BRITTON.

Witnesses:

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THOMAS G. ORWIG.