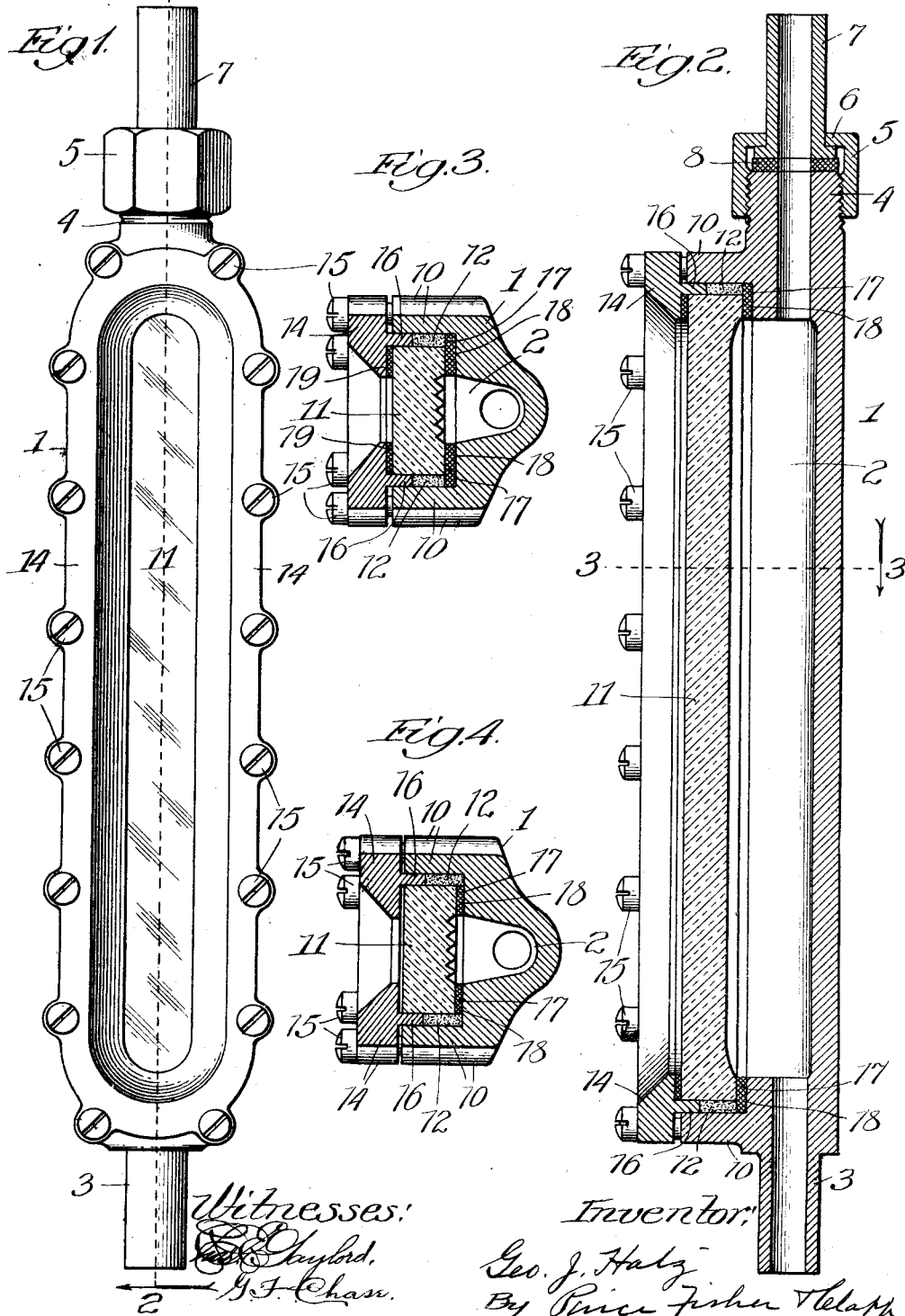


1,051,105.

Patented Jan. 21, 1913.

2 SHEETS—SHEET 1.



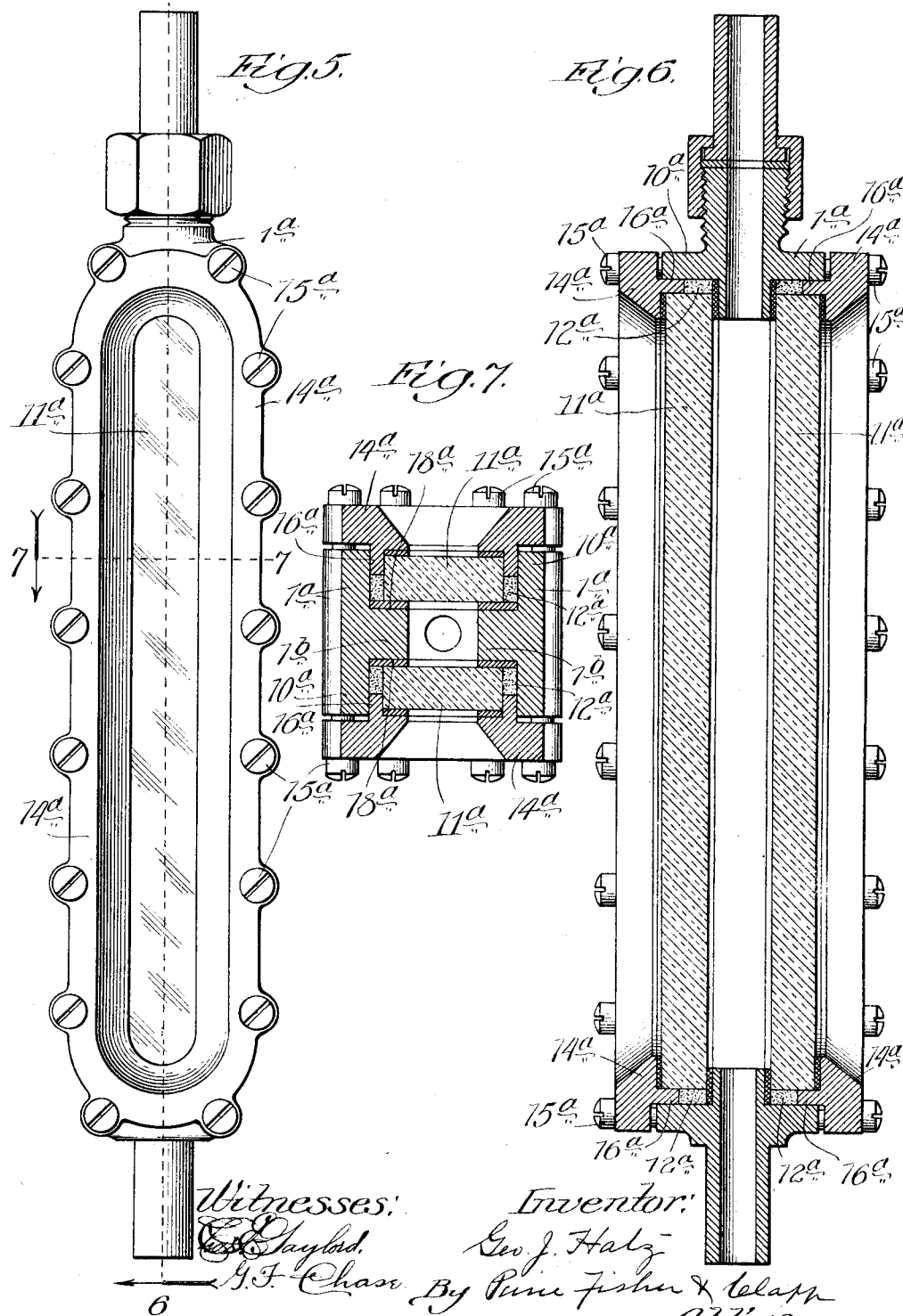
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Geo. J. Hatz
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Attys.

APPLICATION FILED JULY 15, 1912.

Patented Jan. 21, 1913.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

GEORGE J. HATZ, OF OMAHA, NEBRASKA, ASSIGNOR OF ONE-HALF TO CHARLES E. FULLER, OF OMAHA, NEBRASKA.

WATER-GAGE.

1,051,105.

Specification of Letters Patent.

Patented Jan. 21, 1913.

Application filed July 15, 1912. Serial No. 709,558.

To all whom it may concern:

Be it known that I, GEORGE J. HATZ, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Water-Gages, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My present invention has relation to that class of water gages more especially adapted for determining the height of water within steam boilers, and the object of the invention is to provide a simple, strong, light and effective construction of water gage, and in which all danger of leakage will be avoided.

The invention consists in the features of novelty hereinafter described, illustrated in the accompanying drawings and particularly pointed out in the claims at the end of this specification.

Figure 1 is a front view of a water gage embodying my invention. Fig. 2 is a view in central vertical section. Fig. 3 is a view in cross-section on line 3—3 of Fig. 2. Fig. 4 is a view showing a modified form of construction illustrated in Figs. 1, 2 and 3. Fig. 5 is a view in front elevation showing my invention applied to a duplex water gage. Fig. 6 is a view in central longitudinal section through Fig. 5. Fig. 7 is a view in cross-section on line 7—7 of Fig. 5.

The casing or metal frame 1 of my improved gage is preferably a casting formed with a channel 2 for the column of water. Preferably, the lower end of this casing 1 has cast integral therewith a plain nipple or extension 3 adapted to be inserted in the usual form of packing gland on the boiler, while the opposite end of the casing is formed with a short threaded nipple 4 to which is connected a corresponding threaded coupling 5, the inturned flange 6 of which coupling engages the outwardly flanged end of an extension 7. A gasket 8 is inserted between the extension 7 and the nipple 4. The extension 7 may be of any required length, so that the gage can be readily connected up, regardless of the exact location of the fittings.

The casing 1 is formed with a surrounding wall 10 forming a chamber to receive a sight glass 11. The interior dimensions of this

chamber are materially greater than the corresponding dimensions of the sight glass 11, so that when the parts are assembled, there will be a space between the edges of the glass and the surrounding wall 10 of the chamber to receive the packing 12.

The sight glass 11 is held in position by a cover or frame 14 through which pass screws 15 that enter threaded seats formed in the surrounding wall 10 of the casing. The cover or frame 14 extends inwardly over the chamber of the casing 1 to a slight distance beyond the edge of the sight glass 11. A compression gland 16, preferably formed integral with the cover 14, extends into the space between the edges of the sight glass 11 and the surrounding wall 10, so that as the cover is fastened in place by the screws 15, the compression gland 16 will compress the packing 12 and form a water and steam tight joint between the edges of the sight glass and the surrounding wall 10 of the casing. Preferably, a cushion strip 17 is interposed between the inner face of the sight glass 11 and the inner wall 18 of the casing, and preferably also, a similar cushion strip 19 is interposed between the outer face of the sight glass 11 and the cover 14. Inasmuch, however, as the steam and water tight joint is effected by the compression of the packing 12 between the edges of the sight glass 11 and the surrounding wall 10, it is not essential that either the cushion strip 17 or the cushion strip 19 should be employed. I deem the use of these strips desirable, however, simply to avoid direct contact between the glass and the metal of the casing. In Fig. 4 of the drawings, I have shown a construction in which one of the cushion strips, as 19 is omitted, and it will be understood that even when such strips are omitted, the lateral expansion of the packing 12 will hold the sight glass securely in place. The space between the edges of the sight glass 11 and the surrounding wall 10 forms, in effect, a stuffing box, the gland 16 serving to insure an effective compression of the packing or stuffing 12 around the edges of the glass.

By my present invention, the clamping of the inner and outer faces of the sight glass is avoided and in practice, this is a most advantageous feature, since by such means, the danger of breakage of the glass will be very materially lessened.

In Figs. 5, 6 and 7 of the drawings I have shown my invention as applied to a duplex water gage,—that is to say, a gage in which the height of a column of water may be observed from opposite sides of the gage. As, for example, by the engineer on one side of a locomotive cab and the fireman upon the opposite side. In this form of the invention, the casing or frame 1^a has a central, inwardly projecting wall 1^b extending around the interior of the casing, this wall having opposite faces 18^a and having surrounding walls 10^a projecting outwardly from the faces 18^a and forming chambers to receive the sight glasses 11^a. The dimensions of these sight glasses 11^a are less than the interior dimensions of the chambers formed by the surrounding walls 10^a, so that spaces are formed for the packing 12^a, upon opposite sides of the central wall 1^b. In this form of the invention, as in the form of the invention illustrated upon Sheet 1 of the drawings, each of the covers 14^a is attached to the body of the casing by screws 15^a, and the inner face of each of the covers 14^a is shown as formed with a compression gland or strip 16^a adapted to bear upon the packing 12^a and compress it tightly within the space between the edges of the sight glasses and the surrounding walls of the casing.

It will be observed that in both forms of the invention above described, packing will be placed around the edges of the sight glasses in sufficient quantity so that even when the cover is tightly drawn to place by its retaining screws, there will still be a space between the inner face of the cover and the surrounding wall of the casing, so that if any leakage should develop, the packing may be further compressed by tightening up the screws.

The advantages of my present invention will be readily appreciated by those familiar with this class of devices and it will be understood also that the details of the invention may be varied without departure therefrom.

So far as I am aware my invention presents the first instance of a water gage in which the sight glass is held within the frame or casing with a packing between the edges of the glass and the surrounding wall of the casing, a gland being provided for com-

pressing the packing between the outer edge of the glass and the surrounding wall of the casing or frame and plainly, the form and arrangement of the gland whereby the compression of the packing is effected, may be widely varied without departure from the spirit of the invention.

I claim as my invention:—

1. A water gage comprising a casing having a chamber to receive the sight glass, a sight glass within said chamber, said chamber being provided with a wall extending around said sight glass at a distance therefrom to form a space for packing and having an inner wall extending from said surrounding wall across said packing space and inwardly beyond the edge of said sight glass, packing interposed between the edges of the sight glass and said surrounding wall of the chamber, a retaining cover arranged to extend over said surrounding wall and across the edge of the sight glass, said cover being provided with a compression gland adapted to enter the space between the sight glass and said surrounding wall, the compression of the packing being resisted by said inner wall, and means for connecting said cover to the casing.

2. A water gage comprising a casing having a chamber to receive the sight glass, a sight glass within said chamber, said chamber being provided with a wall extending around said sight glass at a distance therefrom to form a space for packing and having an inner wall extending from said surrounding wall across said packing space and inwardly beyond the edge of said sight glass, packing interposed between the edges of the sight glass and said surrounding wall of the chamber, a cushion strip interposed between the inner face of the sight glass and said inner wall, a retaining cover arranged to extend over said surrounding wall and across the edge of the sight glass, said cover being provided with a compression gland adapted to enter the space between the sight glass and said surrounding wall, the compression of the packing being resisted by said inner wall, and means for connecting said cover to the casing.

GEORGE J. HATZ.

Witnesses:

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