

Water Gage.

Patented June 21, 1859.



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WATER-GAGE FOR STEAM-BOILERS.

Specification of Letters Patent No. 24,520, dated June 21, 1859.

To all whom it may concern:

Be it known that I, HUGH KELSEY MOORE, of Malden, in the county of Middlesex and State of Massachusetts, have invented an
5 Improved Single-Balanced Valve for Float Water-Gages for Steam-Boilers; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

10 Figure 1, is a side elevation, Fig. 2, a vertical, longitudinal and axial section and Fig. 3, a transverse section of the same, Fig. 4, is a top view of the bottom of the steam receiving chamber and the raised or nipple
15 valve seats thereof.

My invention or improvement has reference to the valve, known as "Hoyt's single balanced valve" (the same being the alleged
20 invention of Francis A. Hoyt, of Boston, in the State of Massachusetts), the nature of my improvement consisting in combining therewith an auxiliary steam receiving space and two or any other suitable number of
25 raised or nipple valve seats, the same being to overcome a difficulty incident, at times, to the operation of certain parts of the said Hoyt's valve apparatus, the particular advantage of my improvement with respect to
30 the same, being that it enables a much lighter float to be used within the boiler; it renders the action of the valve much more sensitive; prevents adhesion of the valve to the seats and enables a more thorough
35 and perfect fit of the valve to its seat or seats to be effected and at a trifling expense.

In the drawings, A, exhibits the valve case or main steam receiving chamber, while B, is the valve placed therein, the bottom C,
40 of the said chamber, B, constituting a support for a series of raised nipple seats, *s, s*, each of which is elevated a short distance above the said bottom C, and has a steam port *d*, extended through it so as to open a
45 communication between the receiving chamber, A, and a discharging chamber, G, arranged beneath it as shown in the drawings. The upper edge of each nipple valve seat should be made very thin or about one six-
50 tenth of an inch in thickness. By means

of such raised seats there will be formed an auxiliary steam receiving space *t*, around them and between the valve B, and the bottom, C, of the chamber, A; D, denotes the stem of the valve, it having a passage, E, 55 carried through it axially. Such stem, D, projects downward through a guide tube, F, extending from the seat, C, there being a steam passage, *a, a*, between the outer surface of the stem and the inner surface of the
60 guide tube, F. This passage, *a, a*, at its upper end, opens into the auxiliary steam space *t*. At its lower extremity, the guide tube, F, terminates in the bottom, *b*, of the steam discharging chamber, G, which sur- 65 rounds the tube, F, concentrically and has a discharge tube, *c*, leading from it.

If we suppose the stem, D, at its lower end, to be connected with the vertical rod of a float placed within a steam boiler and 70 the pipe, *e*, to lead to the steam whistle or alarm apparatus the single balanced valve will be in the condition necessary to its operation. The steam from the boiler will flow through the passages, E, and, *a*, into 75 the chamber, A, and the auxiliary steam space, *t*, and into contact with both top and bottom surfaces of the disk or valve, B, so as to nearly balance the same whenever the float may raise the valve off its nipple seats, 80 the steam will rush through the ports *d, d*, and into the chamber, G, from whence it will escape through the pipe, *e*, to the alarm whistle.

I do not claim the single balanced valve 85 apparatus, constructed with the arrangement of steam receiving and discharging chambers A, G, hollow stem or passage, E, external steam passage, *a*, and ports, *d, d*,
90 but

I claim—

Combining therewith the auxiliary steam space *t*, and the nipple or raised valve seats, *s, s*, arranged substantially as specified.

In testimony whereof I have hereunto set 95 my signature.

H. K. MOORE.

Witnesses:

F. P. HALE, Jr.,
LAURENCE LYONS.