

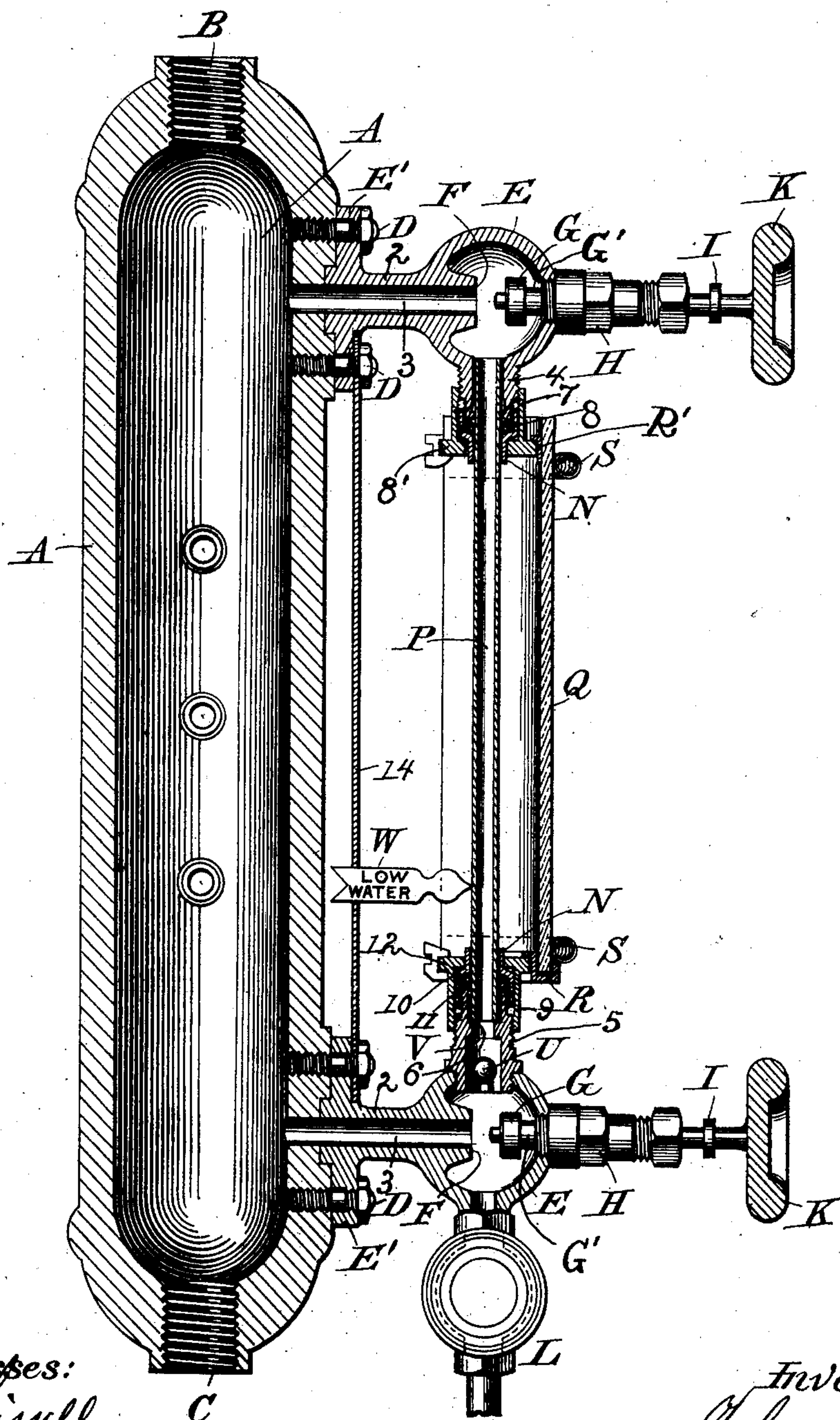
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J. ENGLER.

WATER GAGE AND COLUMN OF STEAM BOILERS.

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WATER GAGE AND COLUMN OF STEAM-BOILERS.

No. 827,002.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN ENGLER, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Improvement for a Water Gage and Column of a Steam-Boiler, of which the following is a specification.

This invention relates to water-gage fittings, one object being to provide a device of the nature stated wherein the parts are so constructed and arranged as to produce an even or unobstructed flow of water from the column of a steam-boiler to the water-gage.

Another object resides in the provision of a water-gage embodying such characteristics as to facilitate adjustment of the valves associated therewith and to also indicate the position of the valves with respect to their seats.

A still further object is to provide against accidental discharge of water from the boiler and the flying of glass in the event of bursting of the gage.

The accompanying drawing illustrates a vertical sectional view of one embodiment of the invention.

Referring now more particularly to the accompanying drawing, the reference character A indicates the water-column, provided at its top with a steam-inlet B and at its bottom with a water-inlet C.

The letter E designates upper and lower globular valve-casings, each provided with a stem 2, having a flange E' at one end, through which may be passed suitable bolts D to secure the valve-casings to the column A. These valve-casings are connected up with the water-column in such manner as to relieve the water-gage of strain, and each of the aforesaid stems 2 is provided with a longitudinal passage 3, communicating with the water-column and the corresponding casing E. The passages 3, with their stems 2, are prolonged to protrude into the valve-casings E to form in each of said casings a valve-seat F for coöperation with the corresponding valve-disk G, which latter are mounted upon suitable stems G' and are in the form of changeable or removable washers and not provided with pins or fingers, thereby resulting in an unobstructed passage from the water-column to the glass gage P by way of said globular valve-casings to produce a true level of the water of the boiler in the water-

gage. The said valve-stems G' protrude through the globular valve-casings and are provided with the bonnets H and the hand operating-wheels K, there being a small collar I on each stem to indicate the position of the valve-disks with respect to the corresponding valve-seats.

The globular valve-seats may be of any size, but preferably of such proportions as to provide a chamber for the reception of sediment to such an extent as to prevent the sediment to collect and obstruct the said passages between the water-column and the water-gage. If the sediment should tend to clog up or obstruct the said passage, it may be blown off by the blow-off valve L.

The upper globular valve E has a depending exteriorly-screw-threaded bushing 4, arranged to aline with the detachable exteriorly-threaded bushing 5, fitted to the lower globular valve-casing for the reception of the glass gage-tube P, the latter being loosely fitted in said bushings and resting upon the internal annular shoulder 6 of the lower bushing 5. There is a second upper bushing 7, embracing the gage-tube and provided with internal threads for working fit upon the exterior threads of the aforesaid upper bushing 4, said upper bushings being so constructed and arranged as to provide a space between them for the reception of the upper cup-shaped gland N, in which latter is disposed the packing-ring 8. This second bushing 7 is provided with an exterior annular flange or shoulder 8' for a purpose presently explained. There is also a second lower bushing 9, interiorly screw-threaded for working fit upon the aforesaid lower bushing 5, there being a space between them for the reception of the inverted cup-shaped gland 10, in which latter is arranged the packing-ring 11. This second lower bushing 9 is provided with an external annular shoulder 12 for the support of a suitable bracket R, designed to coöperate with an upper bracket R', supported upon the aforesaid annular shoulder 8' of the second upper bushing to receive the safety-glass Q, which is preferably semicircular in cross-section and which is held firmly in the aforesaid brackets R and R' by means of the helical or other springs S.

It will thus be seen that, if the gage-tube should burst, the wire-glass shield Q would prevent the particles thereof from being thrown or scattered in various directions,

thereby preventing possible injury to the engineer and others. If the gage should burst, the flow of water should be stopped immediately to prevent other damage and which I accomplish automatically by providing the aforesaid first-named lower bushing 5 with a second internal shoulder V, forming a seat for the ball-valve U, which rests normally upon the supporting-bars 13. Thus the said bushing 5 constitutes a valve-chamber.

When the device is in working condition, the ball-valve U remains in its normal position; but upon bursting of the gage the pressure of the water in the boiler will force the same upwardly against its seat, and thereby cut off the discharge of the water. Under normal conditions, or even in the event of breakage of the water-gage, the aforesaid packing-rings, being confined between the respective sets of bushings, will not tend to or actually corrode the threads of the bushings or become squeezed out of place when the bushings are taken up upon their threads.

Secured against the outer faces of the flanges E' of the stems 2 of the globular valve-casings E by means of certain of the stud-bolts D and disposed, preferably, parallel with the water-gage tube P is a strip of metal 14, to which is secured in any suitable manner an arrow W to indicate the low-water mark.

What is claimed is—

1. A water-gage fitting having a globular portion, a tubular stem connected with said portion and having a flange adapted for attachment to a boiler, said stem being prolonged within said tubular portion and forming a valve-seat, a valve-stem longitudinally movable through said globular portion opposite to said tubular stem, a valve carried by said valve-stem adapted to engage said valve-seat, and a flange upon the external portion

of said valve-stem adapted to indicate the position of said valve relatively to its seat.

2. A water-gage fitting including a valve-casing, a tubular stem connected with said casing and adapted for connection with a boiler, said stem extending into said casing and forming a seat, and a valve arranged for cooperation with said seat.

3. A water-gage fitting including a valve-casing, a tubular stem connected with said casing and adapted for connection with a boiler, said stem extending into said casing and forming a valve-seat, a valve arranged for cooperation with said seat, and means arranged exteriorly of the casing to indicate the position of the valve with respect to its seat.

4. In a boiler, valve-casings arranged exteriorly thereof and having communication therewith, each valve-casing having a seat projecting thereinto, a valve for cooperation with each seat, a gage-tube connecting the valve-casings, means constructed and arranged to automatically cut off the flow of water to the gage-tube in the event of breakage of the latter, and a shield mounted adjacent the gage-tube.

5. A water-gage fitting including a valve-casing having a seat arranged therein, a valve-disk cooperating with said seat, a pair of overlapping bushings having communication with the valve-casing, a water-gage tube fitted in said bushings and having communication with the valve-casing, a gland embracing said gage-tube and having a portion arranged between said bushings, and a packing-ring disposed within said gland.

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