

T. HOLLAND.
Steam and Water Gage.

No. 221,919.

Patented Nov. 25, 1879.

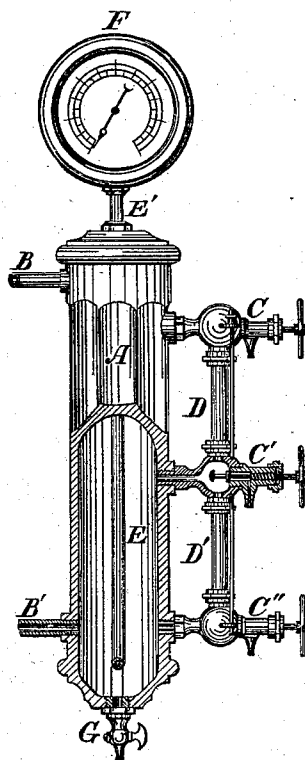


FIG. 1.

WITNESSES:

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UNITED STATES PATENT OFFICE

TIMOTHY HOLLAND, OF TROY, NEW YORK.

IMPROVEMENT IN STEAM AND WATER GAGES.

Specification forming part of Letters Patent No. **221,919**, dated November 25, 1879; application filed July 30, 1879.

To all whom it may concern:

Be it known that I, TIMOTHY HOLLAND, of the city of Troy, county of Rensselaer, and State of New York, have invented a new and useful Improvement in Steam and Water Gages, of which the following is a specification, reference being had to the accompanying drawing, in which Figure 1 is an elevation, shown partly in section.

The object of my invention is to combine the water-gage and gage-cocks with the steam-gage in such a manner that they can be inspected and operated with more ease and convenience, and that the number of holes now required in the shell of the boiler will be reduced, and also to protect the steam-gage more effectually from the action of the live steam.

To accomplish this I construct the column or cylinder A of cast-iron or other suitable material closed at top and bottom, so as to form a water and steam tight reservoir, which is connected with the boiler and supported in a vertical position by the pipes or tubes B and B', the former entering said boiler at or above high-water line, and the latter at low-water line, freely admitting both steam and water to the column, making it a component part of boiler aforesaid.

Attached to the outside of the column A and communicating with the interior of same, as shown, are the double-valved and valve-seated water-gage cocks C, C', and C'', which are connected by the glass tubes D and D', extending between them, also, as shown.

Attached to the top of column A and extending centrally downward through the same below the lowest inlet-pipe, B', is the pipe or tube E, the lower end of which is open, and which also extends sufficiently above the top of said column to admit of an ordinary steam-gage, F, being attached to upper end of same, as shown at E'.

Attached to the bottom of column is the ordinary stop-cock G. When in operation the steam and water pass freely from the boiler into the column A, and thence through the gage-cocks C, C', and C'', and into the connecting glass tubes D and D', through which the

height of water can be readily seen, which therefore answers the same purpose as the usual water-gage as long as the outer valves are closed. By screwing in spindles sufficiently to open the outer valve, but not far enough to close the inner valves, the steam and water will freely escape from said gage-cocks, so that the same may be used in like manner and for the same purpose as the ordinary gage-cocks. When necessary for any reason to shut off the connection between the water-gage and cocks and the column A, the inner valves may be closed by screwing in the spindles the entire distance, so that the inner valves rest upon the inner valve-seats.

By the extension of the pipe E below the lowest inlet-pipe, B', as shown and before described, the lower and open end of the same is always submerged as long as any water remains in the column A, so as to prevent the possibility of live steam entering said pipe E and coming in contact with the steam-gage F, in consequence of which the dial might be disfigured, being a more perfect and effectual arrangement for this purpose than the ordinary siphon now in use. The lower end of said pipe being open, as described, allows the entrance of a column of water, by the pressure of which the aforesaid gage is operated as readily as if steam were admitted.

By opening the stop-cock G at bottom of column A the same may be cleaned or blown out when found necessary.

I do not confine myself to any peculiar form of gage-cock, but select that shown in the drawing as most convenient to illustrate the nature of my invention, reserving the right to vary the same, as circumstances may require.

What I claim is—

1. The combination of the gage-cocks C, C' and C'' with the glass tubes D and D', which extend between them, respectively, above and below the central gage, C', as shown, for the purpose specified.

2. In combination with the steam-gage F and connecting-pipe E, the column or reservoir A, when so constructed and arranged in respect to the boiler and inlet-pipes B B' that the lower portion of the said column extends

below the lowest inlet-pipe, B', and forms a well or chamber, which, being charged with water when the same is above the level of the lowest gage-cock, C'', and said inlet B', remains filled when it has fallen below them and ceased to flow from boiler, as shown, for the purpose specified.

3. In combination with the steam-gage F and column A, the connecting-pipe E, when the same extends below the lowest inlet-pipe, B', as shown, for the purpose specified.

4. The combination of the steam-gage F and the pipe E with the combined gage-cocks and water-gage, all substantially as shown and described, for the objects herein set forth.

TIMOTHY HOLLAND.

Witnesses:

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