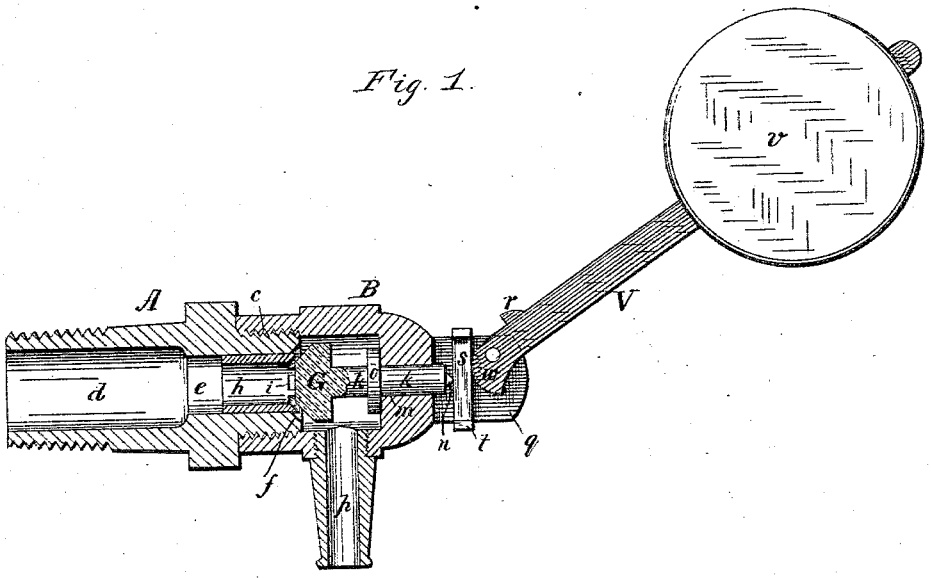
(No Model.)

T. R. BINGHAM.

GAGE COCK.

No. 305,884. Patented Sept. 30, 1884.

Fig. 1.



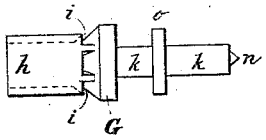


Fig. 2.

Attest:-
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UNITED STATES PATENT OFFICE.

THOMAS R. BINGHAM, OF PITTSBURG, PENNSYLVANIA.

GAGE-COCK.

SPECIFICATION forming part of Letters Patent No. 305,884, dated September 30, 1884.

Application filed November 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS R. BINGHAM, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gage-Cocks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a longitudinal section of my improved gage-cock. Fig. 2 is a side view of the valve and stem.

This invention relates to that class of steam-boiler attachments known as "gage-cocks;" and it consists in the construction and combination of parts, substantially as hereinafter fully described and claimed.

The invention comprises a formation of the valve and valve-stem such that while the valve is one adapted to close against the pressure it will be guided centrally in its movement away from and toward its seat. It further comprises a peculiar construction which guides the escaping steam or water in a direction which shall not injure or cut the valve-seat; further, an abutment or flange on the valve-stem to receive the thrust of the boiler-pressure when the valve-opening device is operated, and thus prevent the latter becoming battered; and, finally, the invention comprises certain simple and efficient opening and closing devices whereby the valve-stem is centered and given a direct axial movement in operation.

In the drawings, A designates the rear section, and B the front section, of the gage-cock, the two being united by the threaded fitting *c*, as shown. Section A has the usual threaded exterior for insertion in a boiler-head, and has the central bore, *d*, contracted to a cylindrical passage or port, *e*, which at its outer end terminates in the valve-seat *f*, as shown. G is the valve having the annular guide *h* behind it fitting in the cylindrical bore *d* of section A, so as to be capable of easy movement therein. Guide *h* is hollow and open at its rear end to admit the steam or water from the boiler, and next the valve G is constructed with two or more ports, *i*, so formed as to direct the escaping steam or water in lines substantially parallel with the faces of valve G and seat *f*. By this construction when valve G is off its seat steam or water can escape only by passing-through the annular guide *h* and ports *i*, so that guide *h* is always ready to fulfil its function of sustaining the valve on its true axis. The valve-stem *k* extends forward into section B, and protrudes through the central bore, *m*, of the latter, and terminates in the hard bearing-point *n* of agate, buck-horn, or other substance having anti-corrosive qualities.

On stem *k*, I form the flange or collar *o*, so that when the valve is full open collar *o* will rest against the section B and to a great extent prevent undue leakage or escape of steam or water through bore *m*. The escaping steam and water emerge from section B at the nozzle or port *p*, as shown.

At the front end section B branches into the two forks *q*, having their faces parallel, forming slides for the bearing-plate *s*, which is provided with top and bottom lugs, *t*, to prevent it from dropping out of place.

In the embrace of the forks *q*, I pivot the lever V, having the eccentric or cam *w* and the weight *v*, as shown. A stop-lug, *r*, on lever V engages with plate *s* when the lever V has been raised to nearly vertical, so as to prevent it coming to a position of balance or beyond, and thus I insure the gravitating action of the weight *v* at all times. In the normal condition the weight *v* will be about horizontal, the leverage then acting, by means of the cam *w*, to force the valve G to its seat *f*, in which position the gage-cock is closed. When necessary to test for level, the lever V is elevated, say, to the position shown in Fig. 1. The pressure of the cam *w* on plate *s*, and thence on stem *k*, is relieved, and the boiler-pressure forces the valve G off its seat *f*. The steam or water passes out by ports *i* and port *p*. In all positions the valve G, though it shuts against the pressure, is guided and centered, so there can be no irregular seating of the valve in operation. The cutting of the seat by the escaping contents of the boiler is avoided by guiding it past the seat in parallel direction. The collar or flange *o* plays the double

part of preventing leakage past stem *k*, and a stop for the movement of the valve and stem to prevent injury to the operating devices; or should the lever or its pivot-pin break the collar acts as a limit-stop to prevent the stem moving so far as to carry the guide *h* out of its bore *e*.

I claim as my invention—

1. In a gage-cock having its valve seating against the pressure, the combination, with conical valve G and valve-seat *f*, of the hollow guide *h* on the pressure side of the valve having inclined port or ports *i* substantially parallel with the face of said valve and seat, as set forth.

2. In a gage-cock, the combination of the bifurcated section B, protruding stem *k*, plate *s*, having lugs *t*, and pivoted weighted lever V, having cam *w*, substantially as described.

3. In a gage-cock having reciprocating stem *k*, the combination therewith of the sliding plate *s* and pivoted cam-lever V, having lug *r*, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

THOMAS R. BINGHAM.

Witnesses:

T. J. PATTERSON,

M. B. CHAPLIN.