

UNITED STATES PATENT OFFICE.

HARRY F. BINGHAM, OF PITTSBURG, PENNSYLVANIA.

GAGE-COCK.

SPECIFICATION forming part of Letters Patent No. 476,222, dated May 31, 1892.

Application filed September 22, 1891. Serial No. 406,515. (No model.)

To all whom it may concern:

Be it known that I, HARRY F. BINGHAM, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gage-Cocks of that character usually applied in vertical series to steam-generators, whereby the quantity or height of water therein may be ascertained, of which the following is a specification.

Generally each gage consists of a short tube, one end of which is screwed into and through the shell of the boiler, its outer portion being fitted internally with a valve, to which is affixed a horizontally-projecting stem, that on being pushed inwardly will unseat the valve and permit an escape of steam or water under pressure, as the case may be, and thereby indicate whether the water is below or above the level of the gage.

Most contrivances of this sort have a circular-beveled valve provided with a plain stem provided with a smooth or pointed button or push-knob at its outer end, and some have been constructed with a number of vanes or wings set obliquely to the axis of the stem, with the expectation that the force of escaping water and steam would produce a rotary movement of the valve, and others have been constructed with a series of tangential and radial holes extending from a hollow portion of the valve through its periphery in hope that good results may follow. Theoretically this may seem correct, but in practice absolutely deficient, as the valve will not rotate by the action of escaping water or steam, nor produce any useful result, but, on the contrary, do much harm, for as the solid streams of gritty water and steam are given a rapid swirling motion around the stem near the valve it is soon cut away and often completely separated from the valve, leaving it entirely useless.

The object of my present invention is to overcome the aforementioned evil results and produce a gage-cock that when open will cause the escaping streams of water to be broken into a spray before coming in contact with the valve-stem, whereby all cutting and consequent weakening of the stem is wholly prevented.

Another part of my invention consists in such a construction of the parts as that a positive and certain rotary movement of the valve may at any time be produced, whether the valve be opened or closed under pressure of steam or otherwise.

The mechanical embodiment of my invention will be readily understood from the following description, taken in connection with the accompanying drawings, wherein—

Figure 1 represents a side elevation of my improved gage-cock, partly in longitudinal vertical section; Fig. 2, a transverse section of the same on line *a a*; Figs. 3, 4, and 5, fractional detailed portions of said gage-cock.

To put my invention into practice, I construct a short tube A and provide the same at one end with the usual tapering screw B for securing the same to a boiler or steam-generator and at the other end with an inside screw C for attaching a tubular cap D, which has three different-sized bores extending in the direction of its length. The outer one E forms a bearing for the valve-stem, the next F a passage for the escape of steam or water around the stem to and through the side opening H, and the larger bore L a chamber for the valve *b*, which in this case is formed in one piece with its stem *e*. The valve *b* is cylindrical and provided with a beveled face toward the stem *e*, a continuation of which in an opposite direction constitutes a tail *f*, extending inwardly beyond the valve, and around this tail *f*, a little distance from the valve *b*, is a collar or piston *g*, adapted to closely fit and move within the chamber L. This collar *g* is provided with a number of small, straight holes *k*, arranged around its axis and extending entirely through the collar in the direction of its movement.

Attached to the outer end of the stem *e* is a push-button or nut N, which prevents the valve from being pushed inwardly too far, and this nut or push-button N has on its face a number of projecting sharp-pointed spurs *s*, each arranged a little distance from the other, so that by applying the end of a "try-stick" or rod with sufficient pressure against or between the spurs and giving the same a turn in either direction the valve will be forced from its bearing and caused to rotate or

change its position to present fresh parts of surface to its seat. When the valve is pushed inwardly, the water will pass through the small holes *k* in the collar *g*, divided into several straight but solid streams, which, coming
5 in contact with the base of the valve, are broken up into a fine spray that produces no cutting or injurious effects upon the valve or stem.

10 This gage-cock is less liable to get out of order than those of different construction, less liable to leak, and may be rotated by a positive movement and ground tightly to its seat without removing any of the parts.

15 Having thus described my invention, I claim—

1. In a gage-cock, the combination of the cap and chamber therein with a valve and piston
20 holes through said piston in the line of the

valve-stem, and a tail-piece for support of the piston.

2. In a gage-cock, the combination of the cap and chamber therein with a valve-stem, a valve, a collar at the back of said valve, a
25 number of straight holes through said collar, a support for the collar, and a forked nut or push-button on the outer end of the valve-stem.

3. In a gage-cock, the combination of the
30 valve-chamber, a valve therein, and a valve-stem provided at its outer end with a push-button or nut having two or more projecting points or spurs, whereby the valve may be
rotated upon the application of inward pressure and rotative force. 35

HARRY F. BINGHAM.

Witnesses:

JOSIAH W. ELLS,
K. T. MEADE.