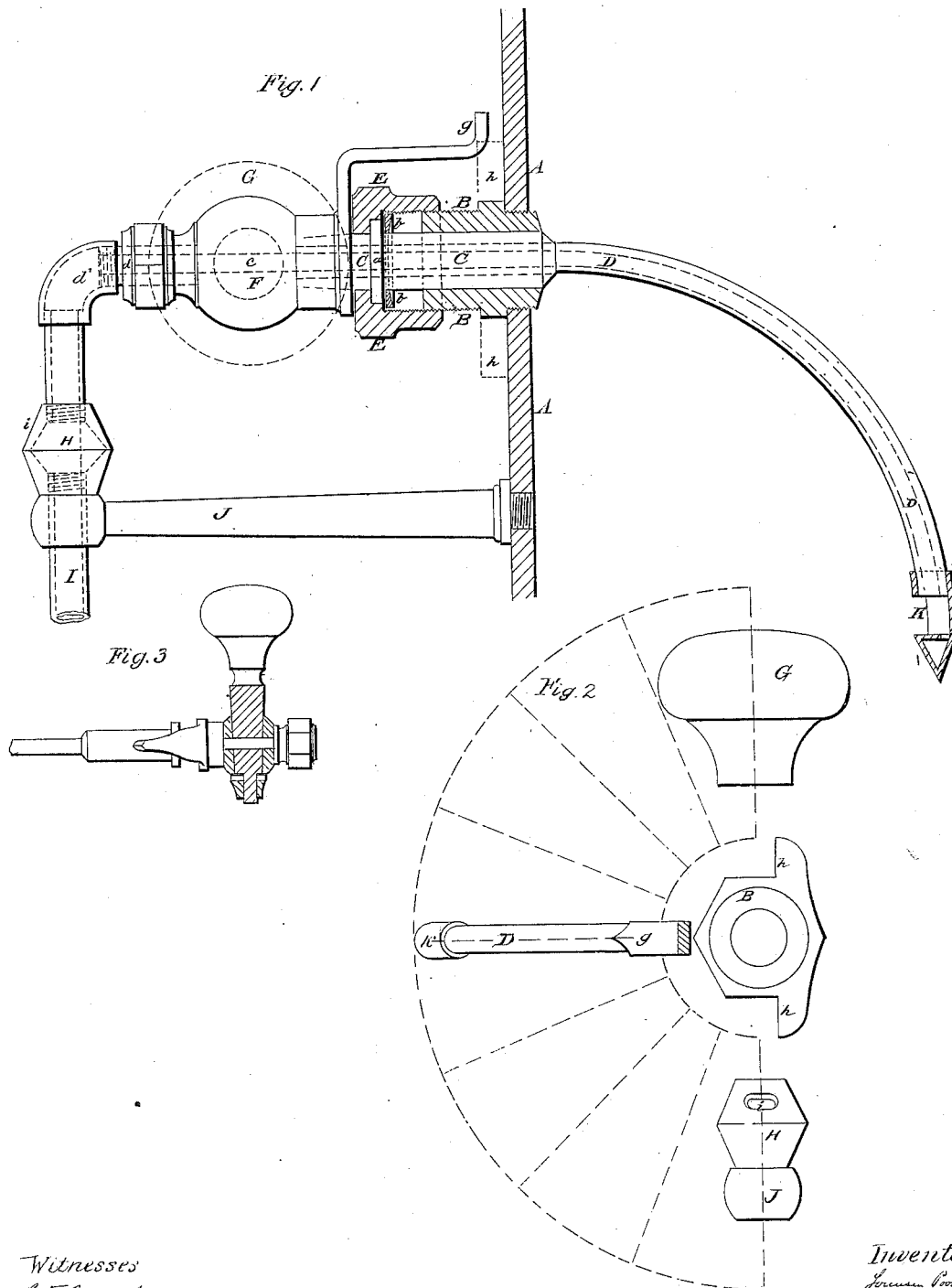


T. Poore,
Steam Gage Cock,
No. 45,856, *Patented Jan. 10, 1865.*



Witnesses
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN WATER-GAGES FOR STEAM-GENERATORS.

Specification forming part of Letters Patent No. 45,856, dated January 10, 1865.

To all whom it may concern :

Be it known that I, TOWNSEND POORE, of Scranton, county of Luzerne, and State of Pennsylvania, have invented a new and Improved Water-Gage for Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a view of my improved gage, partly in section, applied to a steam-boiler. Fig. 2 is a view in detail of parts of the gage arranged in their proper relative position. Fig. 3 is a sectional view of the gage plug and handle.

Similar letters of reference indicate corresponding parts in the three figures.

My invention relates to certain improvements on that class of gage-cocks which are so constructed that by simply turning the stem of the cock to which a pointer is attached this pointer will indicate on a scale the height of the water in the boiler. Such instruments are very desirable for many reasons, but more particularly for the reason that one cock will answer for trying the water at different heights, and thus serve the purpose of a number of common try-cocks.

The object of my invention is to so construct such instruments that they will operate in a more perfect manner than hitherto, and enable the engineer to ascertain in an instant the condition of the water in the boiler, as will be hereinafter described.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In the accompanying drawings, A represents a portion of a boiler-plate, and B is a stuffing-box, which is screwed tightly into this plate A. Through this stuffing-box passes a cylindrical plug, C, carrying on that end which enters the boiler a bent pipe, D, and receiving on its outer end a coupling-box, E, which screws over the outer end of the stuffing-box B, as shown in Fig. 1. By means of the coupling-box E, a flange, *a*, on plug C, and the packing-ring *b*, the plug C is allowed to turn freely about its own axis, and still the steam in the boiler is prevented from escaping between it and the stuffing-box B. The outer end of the plug C projects beyond the coupling-box E, when this latter is set up tightly

on the stuffing-box, and this projecting end is screwed into the tail-stock of a cock, F, so that when the latter is turned either to the right or to the left the plug C will turn with it, and the lower end of the curved pipe D thus caused to describe the arc of a circle concentric with the axis of said plug.

The plug C of the cock has an opening through it, which can be brought into line with the opening communicating with the pipe D by simply turning this plug about its own axis, and thus a communication can be made between the nozzle of the cock and the interior of the boiler for admitting of the escape of steam or water from the boiler. By grasping the handle G of the cock and turning the plug C half around the inner end of the pipe D will describe a semicircle, and may thus be elevated or depressed through a space which is equal to the diameter of such circle.

The nozzle *d* of the cock turns around the end of an elbow, *d'*, the joint being tightly packed, and the lower end of this elbow communicates with a hollow sound-globe, H, which is intended to enable the engineer to ascertain either by eye or ear what the gage discharges, it having an opening at *i* for this purpose. A drain-pipe, I, connects with the lower end of this globe H, and conducts off the waste water. The pillar or bracket J, which is secured to the boiler-plate A, is intended as a support for the outer end of the gage-cock.

To the tail-stock of the turning portion of the cock I apply an index hand or pointer, *g*, which is arranged at right angles to the handle of the cock, but in a line with the curved tube D, as shown in Figs. 1 and 2. This pointer *g* is intended to indicate the position of the end of the curved tube D, and for this purpose the lines which are indicated in red in Fig. 2 are marked off on the face of the boiler-plate. The semicircle which is described on the face of the boiler-plate should be exactly equal in its radius to the radius of the semicircle described by the inner end of the bent tube D when the plug C is turned half around, and the radial lines shown in red, Fig. 2, will then indicate the exact position of said pipe or tube D when pointed at by the hand *g*.

The handle G serves not only as a means for opening the cock and admitting water or steam to escape from the boiler, but it also

serves, by my arrangement, as a lever for turning the plug C, and thus elevating or depressing the inner end of the pipe D, at the same time moving the index-hand *g*.

In Fig. 2 I have represented two lugs, *h h*, applied to the stuffing-box B, and located one directly above the other. The object of these stops is to check the index-hand *g* at its highest or its lowest point—*i. e.*, when this hand *g* is in a vertical line either pointing upward or downward. These stops *h h* prevent the pipe D from being moved in contact with the stays in the boiler, and thus bent or otherwise injured.

On the inner end of the bent pipe D is a cylindrical-conical cup, K, one side of which is open. The object of this cup is to enable the engineer to ascertain the height of the water in a boiler when there is no pressure of steam therein. The instrument must be put into the boiler at the height it is desired to have the water when "firing up," in order that the water may be tried, if it is below that point, by means of the bucket *k*, which is partially filled at its lowest point and then suddenly thrown up to its highest point, so that its water will run down through the pipe D and escape through the cock.

The advantage of making the pipe D curved, instead of connecting it to the plug C by an abrupt angular joint, is, that I am enabled to keep the instrument free from anything

which might choke it up by removing the elbow *d'* and introducing a wire through said pipe D and plug C. By having this pipe D curved it can be readily removed from the boiler by simply unscrewing the coupling-box E.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement consisting of the cock F, plug G *e*, flanged tail-stock C, segment-pipe D, and index-hand *g*, the whole being combined and fitted to the boiler substantially as and for the purposes herein described.

2. So fitting the several parts of the apparatus together and to the boiler that the one plug G *e* answers the twofold purpose of opening or closing the cock F and of turning the segment-pipe C D to any position desired, in the manner herein described.

3. The application of a hollow perforated vessel, H, to the drain-pipe of the try-cock, substantially as described.

4. The application of a cup, K, to the inner end of the discharge-pipe D, for determining the height of water in the boiler when there is no pressure therein, substantially as described.

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Witnesses:

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