

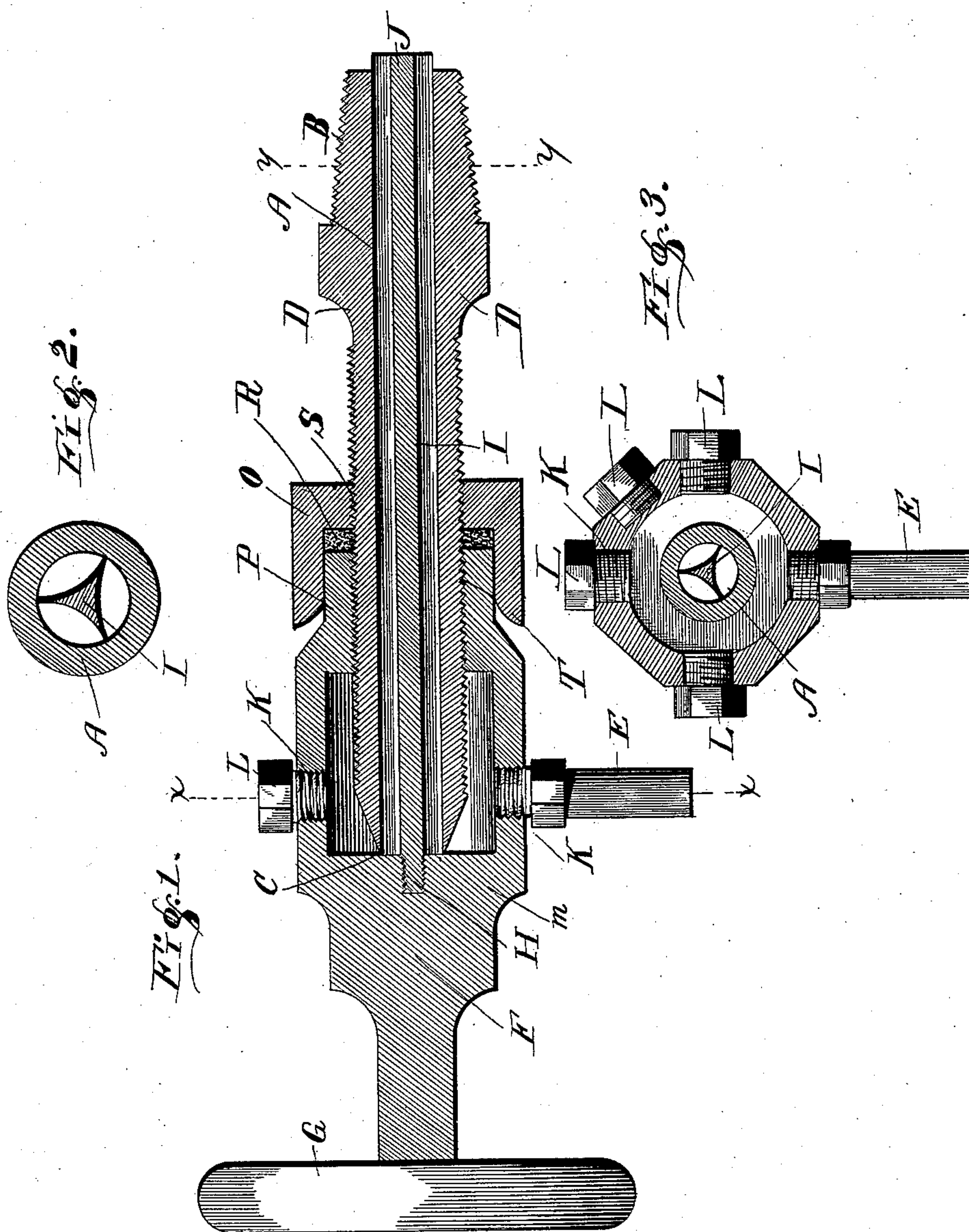
(No Model.)

J. F. SHAW & J. O. TOOLE.

GAGE COCK.

No. 362,546.

Patented May 10, 1887.



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GAGE-COCK.

SPECIFICATION forming part of Letters Patent No. 362,546, dated May 10, 1887.

Application filed February 12, 1887. Serial No. 227,395. (No model.)

To all whom it may concern:

Be it known that we, JOHN F. SHAW and JAMES O. TOOLE, citizens of the United States, residing at Girardville, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Gage-Cocks; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to gage-cocks which are adapted for fluids confined under pressure, and are particularly designed to be applied to locomotives and steam-boilers generally.

The object of the invention is to simplify and improve the construction generally of this class of devices, and to devise a construction, in short, which will be simple and compact in arrangement, economical in cost, and easy to manage and not liable to get out of repair.

With these ends in view we have devised the simple and novel construction which we will now describe, referring by letter to the accompanying drawings, in which—

Figure 1 is a central longitudinal section of our gage-cock. Fig. 2 is a sectional view on the line X X of Fig. 1, and Fig. 3 is a sectional view on the line Y Y of Fig. 1.

The device is composed of two parts, principally—namely, a tube and body portion—in addition to which there are set-screws to control the flow of water or steam, an improved valve located outside of the boiler and formed at the end of the tube, and adapted to act in opposition to the body and cut its own seat therein, and a cleaning device attached to the body and adapted to work through the tube, whereby the latter is kept clean and free from sediment.

In the drawings, A is the hollow tube, made with an external screw-thread, B, on the end to attach it to the boiler in the ordinary way. The other end of the tube A, which is cone-shaped, forms the valve by meeting a flat solid seating, the said seating being the body of the

gage C. The tube has a male or external thread running the full length of the tube. From within half an inch of C to the shoulder at D there is a corresponding internal thread on the body F, by which means the body F is screwed onto the tube A after the tube is fastened to the boiler.

E is the water-pipe or outlet-tube.

G is the handle, attached to the body in the usual way, for the purpose of turning the body F, thereby opening the valve at C and allowing the steam or water to come in through the hollow tube A and out of the tube E.

I is a scraper or cleaner. It is a three-cornered brass stem attached to the body of the gage at the center of the valve-seating H, screwing into the seat, as seen at H, and extends the whole length of the hollow tube A, from the cone at C to the inside of the boiler at J, and the stem-cleaner is made three-cornered, and hollowed out lengthwise between the corners, and of such size as to exactly fit into the hollow tube A, so that each of the three corners will scrape against the inside of the tube A every time the body is turned by the handle G to open or close the valve, thereby removing all foreign matter that may become attached to the inside of the tube A, which will be washed out by the steam or water through the waste-pipe E.

The holes K K, which are closed by the set-screws, are the same size and correspond with the waste-pipe hole, and are equal distances apart and on the same line of circumference of the body. They are intended to direct the course the water should take when leaving the waste-pipe E. Should the waste-pipe not point downward or in the direction desired by the operator when the gage is screwed into the boiler and the valve closed, or should the waste-pipe get turned toward the left by the cone cutting into the seating by the rotary action of the body in closing and opening the valve, or if, from any other cause whatever, should the waste-pipe E not point in the direction wished by the operator, he can then remove one of the set-screws L, and, taking out the waste-pipe E, place it in the hole where the set-screw came out of, and place the set-screw in the hole where the waste-pipe E came out

of, whereby the operator can cause the waste-pipe to throw the steam or water in whatever direction he may choose. One of the holes K is bored part way through the wall of the body of the gage and a set-screw placed in it for the following purpose: You will notice that the thread on the tube A is so large that it requires but a slight turn of the handle G to open the valve at C sufficiently to allow the steam or water to escape, so in case the operator only opens the valves sufficiently to allow the steam to escape the cleaner I would not move sufficiently to scrape all parts of the inside of the tube A and keep it clean. Then, providing the operator found the tube blocking, he could remove the set-screw L out of the hole that was bored but part way through, and, removing waste-pipe, could place set-screw into the place of the waste-pipe, which would prevent any steam or water from escaping, and then he could rotate the body, with the cleaner attached, all the way around two or three or as many times as he wished, thereby cleaning the tube A thoroughly, and then by removing the set-screw and replacing the waste-pipe and opening the valve the steam and water would wash out all the sediment or foreign matter.

m represents a solid nut, which is cast to and forms a part of the body of the gage, and is made by cutting that part of the body down and forming a hexagon to accommodate a wrench for the purpose that if, in the manufacture of the gage or from any other cause, the cone end of the tube A should not meet the facing at C perfectly true a wrench could be applied at *m* and the body forced on and off several times. Thereby its rotary action will cut or grind C true to the facing, making its own seating, and, as before stated, would always keep it true by the action of opening and closing the valve.

O represents a sleeve or gland acting in the capacity of a packing-box, having a thread, S, to correspond with the thread on the tube A, by which means it is screwed up against the packing R and slides over the body at P without a thread, as represented in the cut, for the purpose of preventing any little water that may come out of the thread at T, which would, however, not be sufficient to be considered an objection by most parties using gage-cocks.

The handle G is to be fastened on the body F, in the usual way that such handles are ordinarily fastened, either by screws or a bolt running through the center of the handle G into the body of the gage.

The scraper or cleaner I, previously referred to, is to be of such length as to extend from the seating of the valve all the way through and beyond the end of the tube at J into the boiler one inch or more as the thickness of the boiler-head or the wall of the vessel

may make it necessary. This is for the purpose of preventing the hole in which the gage-cock is fastened to the boiler from being closed on the inside when the water is not pure or chemicals are used to purify it, the scraper or cleaner to be attached to the body of the gage at seating H, as before stated, by screwing to seat H with a reverse or left-hand screw for the purpose of preventing it from coming loose in case the gage-cock should stand a long time without being opened and the scraper get corroded fast to tube A.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination, with the tube adapted to have one end inserted in a vessel and having the opposite end terminating in and forming a valve, of the body mounted upon the valve end of the tube and enlarged annularly opposite to the valve, forming a chamber the base of which forms a seat for the valve, and the escape-pipe communicating with said chamber, substantially as and for the purpose described.

2. A gage-cock composed of the tubular portion exteriorly threaded and terminating in a conical end forming a valve, and the chambered body portion forming a seat for the valve, in combination with the scraper attached to the body portion and extending through the tubular portion, substantially as and for the purpose set forth.

3. The combination, with the gage-cock composed of the tubular and chambered body portion, of the escape-pipe, and the plugs interchangeable with the escape-pipe, substantially as and for the purpose described.

4. The combination, with the gage-cock composed of the tubular and chambered body portions, of the escape-pipe, and the plug extending part way into the chambered portion and interchangeable with the escape-pipe, substantially as and for the purpose described.

5. The combination, with the tubular portion exteriorly threaded and the chambered body portion, of the sleeve screwed upon the tubular portion and having a portion overlapping the chambered body portion, substantially as and for the purpose described.

6. The combination of the exteriorly-threaded tubular portion, the chambered body portion, the escape-pipe, the plugs, and the scraper annular in cross-section, substantially as and for the purpose described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN F. SHAW.
JAMES O. TOOLE.

Witnesses:

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