(No Model.)

W. E. GRANGER.

GAGE COCK.

No. 307,294. Patented Oct. 28, 1884.

Fig 1

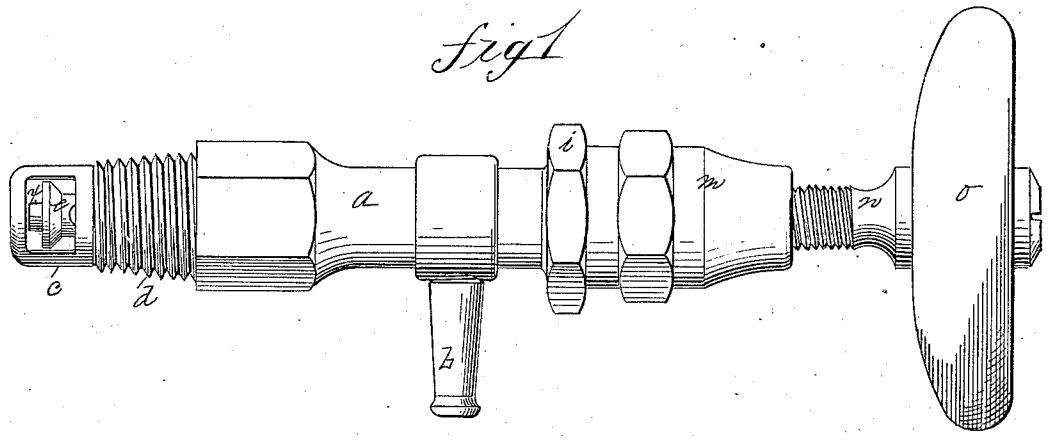


Fig 2

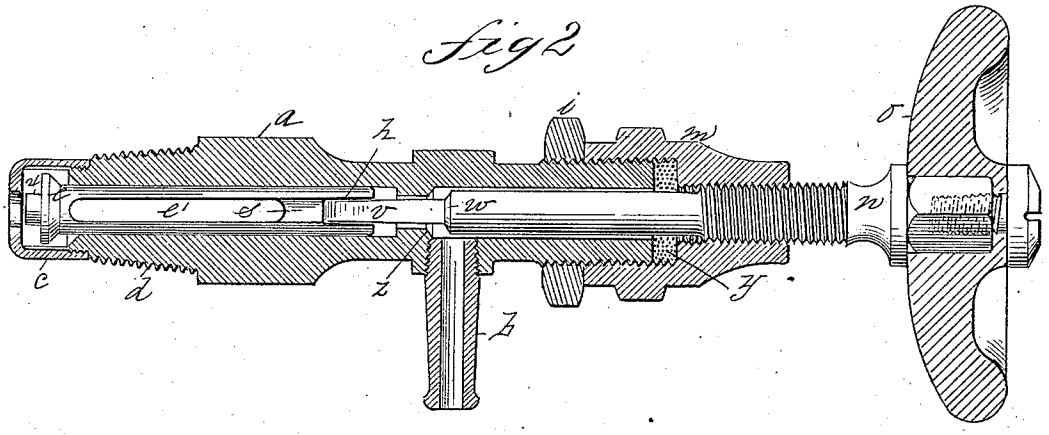


Fig 3

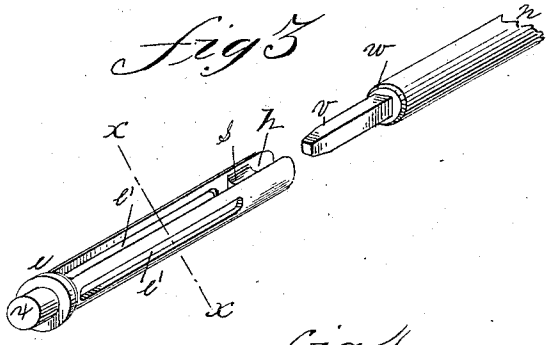
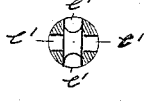


Fig 4



WITNESSES:

J. D. Garfield

W. E. Holl

INVENTOR

William E. Granger

BY

Henry A. Chapin

ATTORNEY

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM E. GRANGER, OF SPRINGFIELD, MASSACHUSETTS.

GAGE-COCK.

SPECIFICATION forming part of Letters Patent No. 307,294, dated October 28, 1884.

Application filed May 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. GRANGER, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Gage-Cocks, of which the following is a specification.

This invention relates to improvements in gage-cocks for steam-boilers, the object being to provide an improved valve and valve-spindle for such cocks, whereby the valve-chamber is, by the action of passing water and steam, kept free from sediment, and whereby, with a disconnected screw-stem and valve-spindle, the valve is caused to be rotated while it is being opened and shut.

In the drawings forming part of this specification, Figure 2 is a side elevation of a gage-cock, showing the body and wheel in section, embodying my improvements. Fig. 1 is a side view, and Figs. 3 and 4 are detail views.

In the drawings, *a* is the body of the gage-cock; *b*, the outlet. *m* is the packing-nut inclosing the packing *y*. *i* is a set-nut. *n* is the screw-stem. *e* is the valve, and *c* is a valve-yoke. The body *a* is of the usual form, having the screw *d* thereon to adapt it to be screwed into a boiler. The packing-nut *m* is screwed on the outer end of the body, and provides a receptacle for the packing *y*. The nut *m* is screw-threaded to receive the screw-stem *n*. The set-nut *i* serves to hold the nut *m* so that it cannot be shaken and moved from its proper position. A valve-yoke, *c*, having a transverse opening through it, is screwed onto the end of the body *a*, which is adapted to project inside of the boiler, and a valve-seat, *z*, is made in the body *a* just back of the outlet *b*, as well as at the end of the body, to provide a proper bearing for the valve *e*. The screw-stem *n* is made with a valve, *w*, thereon, which is adapted to be forced against the seat *z*, if desired, when valve *e* is open, and beyond said valve *w* the end of the stem has a squared extension, *v*. The form of the valve *e* and its spindle *e'* is shown in Figs. 2, 3, and 4, the latter being a section on line *x x*, Fig. 3. The valve *e* closes against the end of the body *a*, its spindle extending into the body, as shown, and being open from side to side, forming rib-connections only between the valve proper, *e*, and the block *s*, and beyond the latter the spindle extends in bifurcated form, having between its ends an opening or slot having two opposite parallel walls. A projection, *x*, extends beyond the valve *e*, to provide a suitable center to be used in grinding the valve or in turning it.

In putting the parts of the gage-cock together, as shown in Fig. 2, the stem *n* is put in and the valve *e* is placed, and the yoke *c* is then screwed on, the latter serving to limit the movement of the valve *e* away from its seat, but permitting the unobstructed flow of water or steam through the cock when valve *e* is opened.

Referring to Fig. 2, it is seen that the squared end *v* of the stem *n* enters the slot *h* between the ends of the spindle *e'* of the valve *e*. This manner of connecting said parts provides for rotating said valve and spindle when the stem *n* is turned by the hand-wheel *o* to move the valve from its seat and open the cock, thereby moving any sediment that may have collected between the said stem and valve *e*. When the valve is shut, it is forced toward its seat by the pressure in the boiler as fast as the backward movement of the stem *n* will permit, the valve and spindle turning meanwhile, and dislodging any dirt which may collect in the spindle-chamber, and they continue to turn after valve *e* becomes seated, and until the squared end *v* of the stem *n* is drawn out of the slot *h*, thus enabling the operator to rotate the valve on its seat to dislodge any obstructions between the parts without forcing the valve and injuring the latter or the seat, or both, as is often the case when some hard substance gets lodged there, and the valve is forced against its seat by the screw-power of the stem when the latter and the valve are rigidly connected together. In case valve *e*, from any cause, will not close and stop the flow of steam and water, valve *w* may be forced against the seat *z* and stop the passage.

The construction of the valve-spindle *e'* in such open form as is provided by the said rib-connections between the valve *e* and the block *s* permits the steam and water from the boiler to wash out thoroughly all dirt from the spindle and its chamber in the body each time that the valve is opened.

What I claim as my invention is—

1. In a gage-cock, the body *a*, having a valve-

seat at one end, the screw-stem *n*, having the squared end *v*, and the valve *e*, having a spindle provided with the slot *h* in its end to receive said end *v* of stem *n*, combined and operating substantially as set forth.

2. The combination, with body *a*, having external screw-thread, of yoke *c*, which screws on said body, and valve *e*, having stem *e'*, the valve having its seat in the body *a* inside the yoke, and being loosely retained between the seat and yoke, substantially as described.

3. The combination, with the body *a*, of the valve *e*, having the open spindle *e'*, provided with the block *s* and slot *h*, and the stem *n*, having the squared end *v*, substantially as set forth.

WILLIAM E. GRANGER.

Witnesses:
H. A. CHAPIN,
J. D. GARFIELD.