

(No Model.)

W. CHRISTIAN.

VALVE FOR GAGE COCKS AND FAUCETS.

No. 392,539.

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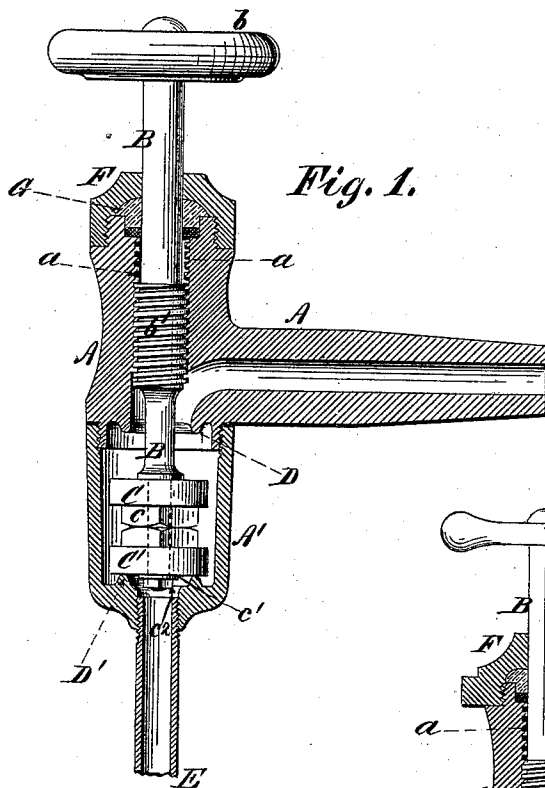


Fig. 1.

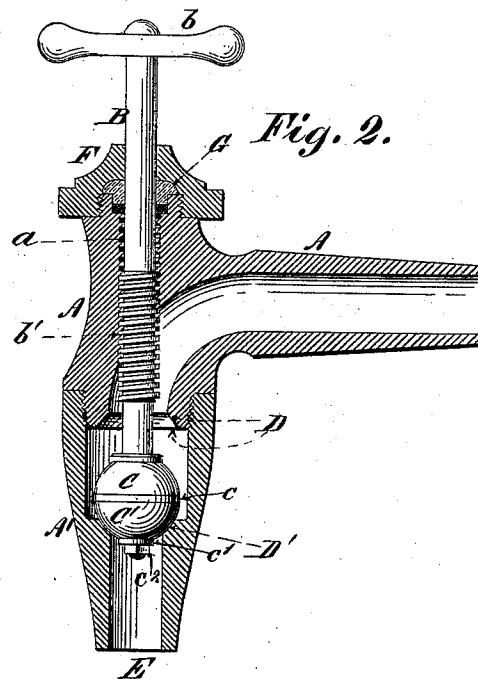
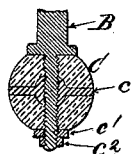


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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VALVE FOR GAGE-COCKS AND FAUCETS.

SPECIFICATION forming part of Letters Patent No. 392,539, dated November 6, 1888.

Application filed June 18, 1888. Serial No. 277,421. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CHRISTIAN, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Valves for Gage-Cocks and Faucets, which improvement is hereinafter fully set forth in this specification and accompanying drawings.

Heretofore gage-cocks and faucets have been commonly used which operate by means of a non-removable single-headed valve working within its chamber against a single seat. A non-removable double-headed valve has been also used, working in conjunction with a seat at either end of a gage-cock chamber. By a "non-removable" valve I mean a valve which cannot be removed while the gage-cock or faucet remains in service. Valves of locomotive-boiler gage-cocks are commonly made of brass filled in with Babbitt metal, and those of water-faucets either of the same or a similar material, with or without a cap of rubber.

The constructions above referred to are subject to the disadvantage of causing great inconvenience and expense in repairing the valves. For instance, when a gage-cock of a locomotive-boiler leaks, by reason of the Babbitt metal in the valve wearing away or by reason of the valve otherwise getting out of order, in order to repair it the engine is run into the roundhouse, the fire raked out, the steam blown off, the boiler refilled with cold water, and the gage-cock then taken apart, and the valve repaired. This repair cannot be effected until the boiler is cooled down, and it involves the expense of the engine lying idle for half a day or more, the loss of time of hands employed, the use of extra water, and the consumption in firing up of a new supply of wood and coal. In the case of faucets the water has to be shut off from below before the faucet can be removed and the valve repaired, and it is a matter of common experience that much inconvenience is often caused to the tenants of a house containing several families by the shutting off of the water to repair a faucet in a single apartment.

The object of my invention is to provide in a gage-cock or faucet a pair of valves, each performing all the functions of a gage-cock or faucet-valve, and both so arranged that one

can be removed and repaired while the other is in service, thus obviating the disadvantage of blowing off steam or shutting off water above referred to, and this object I accomplish by means of my invention, as hereinafter described.

The nature of my invention consists of an upper and a lower valve placed on the stem of a gage-cock or faucet whose lower chamber is detachable from its body, each valve operating against a separate seat in the valve-chamber, the lower valve being adapted to be easily removed while the upper valve is in service, and the upper valve being adapted to close against its seat and control the steam or water while the lower valve is in process of removal and repair. In ordinary service the lower valve is used, closing against the lower seat, and being subject to the wear of constant use, while the upper valve, being in reserve, meets only with the wear of occasional service. By turning the reserve valve upwardly against its seat the lower chamber can be detached and the lower valve removed.

By means of this invention repairs of the character referred to to the gage-cock of a locomotive-boiler can be made in a few minutes without putting the engine out of service and with any pressure of steam on that the boiler carries, while in cases where such repairs cannot be promptly made the reserve valve exercises all the working functions of the lower valve. So in the faucet the reserve valve regulates the water in the absence of the lower valve and prevents any interruption in the water service.

Figure 1 represents a central vertical sectional elevation of the valves of a gage-cock constructed in accordance with my invention. Fig. 2 gives a similar view of a water-faucet embodying my improvements. Fig. 3 is a view in cross-section of the valves as modified for a water-faucet with the washer between them.

In Fig. 1, A represents the body of a gage-cock, having a detachable chamber, A', said chamber unscrewing from the body with its discharge-pipe E; B, the valve-stem, upon which is seen the screw-thread *b'*, which works within the screw-thread *a* in the body A; *b*, the handle by which the stem is turned; C, the upper or reserve valve, and C' the lower and removable valve; D D', upper and lower

seats; F, cap-nut; G, gland for stuffing-box. The valves C C' are shown on the stem B, being put on the stem like a ring, and held in position by the nuts *c*, set between them, as shown, and fastened by a washer, *c'*, and jam-nut *c²* on end of stem. These valves are filled with Babbitt metal in the same way as are the ordinary valves in common use.

In Fig. 2 is shown a water-faucet with the valves C C' modified in shape to form a ball or globe, fastened by the washer and jam-nut *c' c²*, the valves being separated by the washer *c*, a screw-thread being tapped in the washer to fit a thread on the stem, as shown in Fig. 3, by means of which the upper valve is held in position while the lower valve is removed. The seats D D' are shown modified to fit these valves. Although the valves as shown in Fig. 1 are also applicable to a water-faucet, yet I prefer to construct the valves of the water-faucet as shown in Fig. 2 and to make them of rubber instead of brass or other metal, as a lighter construction than that of the gage-cock is desirable in the water-faucet.

In Fig. 3 are seen in cross-section the valves in hemispherical form as adapted to the water-faucet, with the washer *c* screw-threaded to fit the thread on the stem and held by the washer and jam-nut *c' c²*.

In the drawings a shoulder is seen on the stem, against which the upper valve rests. No detailed description of the cap-nut F and gland for stuffing-box G is necessary, as these constructions are in common use. It will be seen that the rotation of the stem by means of the handle brings into service either the valve C against the upper seat or the valve C' against the lower seat, and that when the upper valve is used the lower may be removed for repair after unscrewing the lower chamber of the gage-cock or faucet. In the gage-cock, when the valve C' is removed, the nuts *c* hold the valve C tight against the shoulder seen on the stem. In the faucet, when the valve C' is removed, the washer *c* accomplishes the same purpose. It is obvious that the nuts *c* in Fig. 1 and the washer *c* in Figs. 2 and 3 are substantially the same, merely differing in form, two nuts being used on the stem of the gage-cock to secure greater strength and one washer only being needed in the water-faucet.

I am aware that prior to my invention gage-cocks have been made having a valve which operated against two seats, one at either end

of the valve-chamber, but which could not be removed while the gage-cock was in use, and this combination I do not claim, nor does such a combination accomplish the object of my invention; but

What I do claim as new and as my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination, with the stem of a faucet having a detachable lower chamber, of an upper and a lower valve, said valves being placed on the stem like a ring and held in position by a screw-threaded washer screwed upon the stem between them, and a washer and jam-nut on end of stem, each valve bearing against a separate seat in the valve-chamber, the lower valve being adapted to be removed for repair and the upper valve being adapted to be held in reserve while the lower is in service and to operate while the lower is removed, substantially as described.

2. The combination, in a gage-cock having a detachable lower chamber, with the screw-threaded stem B, having a shoulder, as shown, and a handle, *b*, of the valves C C', held in position by the nuts *c* and washer and jam-nuts *c' c²*, the stem working within the screw-thread in the body A, each valve bearing against a separate seat in the valve-chamber, the lower valve being adapted to be removed for repair and the upper valve being adapted to be held in reserve while the lower is in service and to operate while the lower is removed, substantially as described.

3. The combination, in a faucet having a detachable lower chamber, with the screw-threaded stem B, having a shoulder, as shown, and a handle, *b*, of the valves C C', held in position by the washer *c* and the washer and jam-nut *c' c²*, the screw-threaded washer *c* holding the upper valve in place when the lower is removed, the stem working within the screw-thread in the body A, each valve bearing against a separate seat in the valve-chamber, the lower valve being adapted to be removed for repair, and the upper valve being adapted to be held in reserve while the lower is in service and to operate while the lower is removed, substantially as described.

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