C. C. WALWORTH.
Valve.

No. 212,875. Patented Mar. 4, 1879.

Fig. 1.

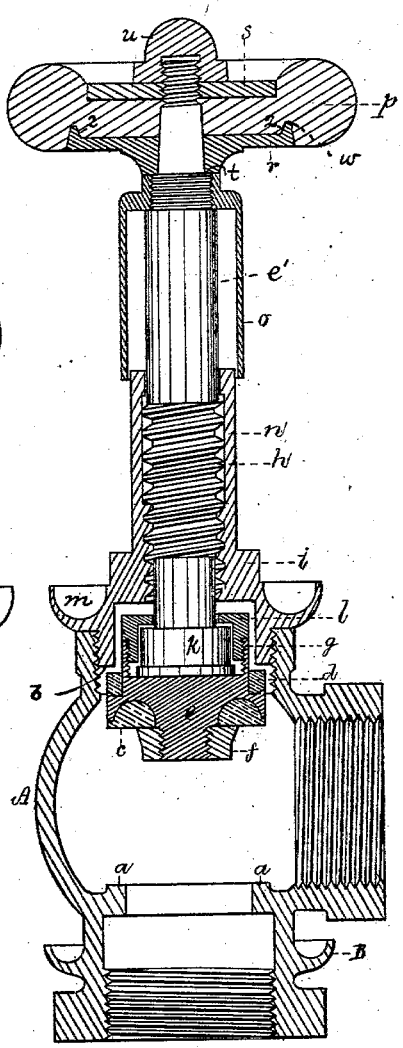
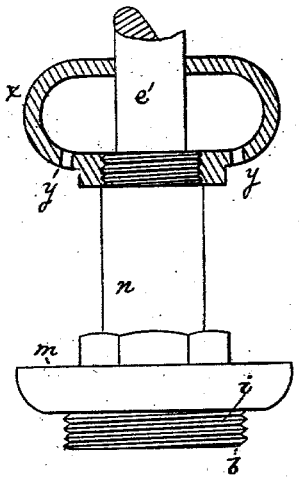


Fig. 2.



Witnesses.

Jos. P. Livermore
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UNITED STATES PATENT OFFICE.

CALEB C. WALWORTH, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN VALVES.

Specification forming part of Letters Patent No. **212,875**, dated March 4, 1879; application filed January 13, 1879.

To all whom it may concern:

Be it known that I, CALEB C. WALWORTH, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Valves, of which the following description, in connection with the accompanying drawings, is a specification.

My invention relates to a valve, and is shown in a valve so constructed that the stuffing-box for the stem is done away with.

The valve-stem has a double-faced valve adapted to close upon a seat at the bottom and one at the top of the valve-case, as shown in the drawings, the upper valve-face, when not closed upon the seat, permitting the passage of regulated quantities of steam from the valve-case about the stem, and between it and the sleeve or tubular part attached to the valve-nut, the said steam entering a hood, which, attached to the stem and rising and falling with it, deflects the steam downward from the valve-handle, permitting the water of condensation to drop into an evaporating-cup which forms part of the valve-nut.

Figure 1 represents, in vertical section, a valve embodying my invention, the valve-stem being in elevation; and Fig. 2 is a modification thereof.

In this valve the case A and open evaporating-cup B are as in my Patent No. 206,373, to which reference may be had.

The valve-case has two seats, *a b*, to be closed by the valve-washers *c d*, they being attached to the valve-head *e* by means, the first, of a nut, *f*, and the second one, *d*, is placed about a tubular projection, *g*, at the top of the head *e*.

The valve-stem *e'*, provided with a screw-threaded part, *h*, which enters a threaded part of the valve-nut *i*, has an enlarged end, *k*, which, entered into the tubular portion *g* of the valve-head, is connected loosely therewith by a union, *l*, the threads of which enter and engage with threads at the inner surface of the said projection *g*.

The valve-nut *i* has upon its upper side an open evaporating-cup, *m*, and above the cup a sleeve, *n*, the upper end of which, although forming a guide for the valve-stem, has between it and the valve-stem sufficient space to permit the passage of steam from the valve-case upward between the stem and sleeve, and thence into the hood *o*, which, made like an inverted cup or cylinder, is secured to the valve-stem. Steam so passes upward from the case into the hood when the upper valve-face is depressed from contact with its seat *b*. This is very desirable, specially when the valve is used in connection with steam-radiators wherein it is desired to moisten the atmosphere in a room or to let out the air from the radiator or pipes when steam is first admitted. This hood prevents steam from rising in contact with the handle, and diverts all water of condensation downward into the open evaporating-cup *m*, from which it is rapidly evaporated by the heat of the nut. Any overflow from the cup *m* will be caught by the cup B at the base of the case.

By forming the cup upon the nut of the valve, it is obvious that this improved valve-stem and nut and attached parts may be readily applied to valves of ordinary construction.

This nut, it will be observed, has upon and forming part of it the upper valve-seat, *b*.

It is evident that when the valve is in contact with the upper seat, *b*, all communication through the valve-nut between the interior of the valve-case and the outside is cut off, thereby dispensing with the stuffing-box about the valve-stem, which is necessary in valves of ordinary construction.

The handle *p*, composed of wood turned to proper shape, and preferably thinner at its center than at its edges, is held at the upper end of the valve-stem between two strengthening-disks, *r s*, the lower one, *r*, having a square or other than round opening, and having its seat upon a shoulder, *t*, of the stem, the upper disk being held firmly in position with the handle and lower disk upon the stem by means of a nut, *u*.

The lower disk, *r*, has about it a flange, *w*, the inner wall of which, as at 2, has its face inclined toward the center of the stem, to thereby, as it is pressed into the wooden handle or into a groove therein, hold the handle firmly between the disks, holding it with a pressure exerted toward its center, and lessening the tendency of the handle to be split or to check.

In the modification, Fig. 2, I have shown the

valve-sleeve as provided with an external thread, upon which is screwed a chambered cap, *x*, or hood, which, at its upper part, fits the valve-stem. This chamber may be filled with any fibrous material, asbestus being preferred, because of its great durability. The lower portion of this cap has openings *y*, to permit steam and water of condensation to pass out into the open evaporating-cup of the nut. The fibrous material does not form a packing, but merely serves to prevent the rush of steam toward the handle.

The devices herein described for attaching the handle to the stem are not herein claimed, as they will form the subject-matter of another application.

I claim—

1. In a valve, a case provided with two independent seats, *a b*, the working-faces of which face each the other, combined with a single valve-head provided with two faces, to co-operate with the working-faces of the two seats, the combination being as described, to permit the seat *a* to be fully open when the valve-head is at or near seat *b*, substantially as set forth.

2. In a steam-valve, the valve-case and sleeve or projection in which the valve-stem moves loosely, combined with the valve-stem, and hood which embraces the valve-stem, and its guiding-sleeve, the lower portion of the hood being open for the exit of steam from the hood, substantially as described.

3. The combination, with the valve-case, of a removable valve-nut provided with an external evaporating-cup, substantially as and for the purpose described.

4. The valve-nut provided with the valve-seat, an evaporating-cup, and a sleeve to receive the stem of the valve loosely, substantially as described.

5. In a steam-valve, the combination, with the removable valve-nut provided with an external evaporating-cup, of the valve-case with an evaporating-cup at its base, substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CALEB C. WALWORTH.

Witnesses:
G. W. GREGORY,
N. E. WHITNEY.