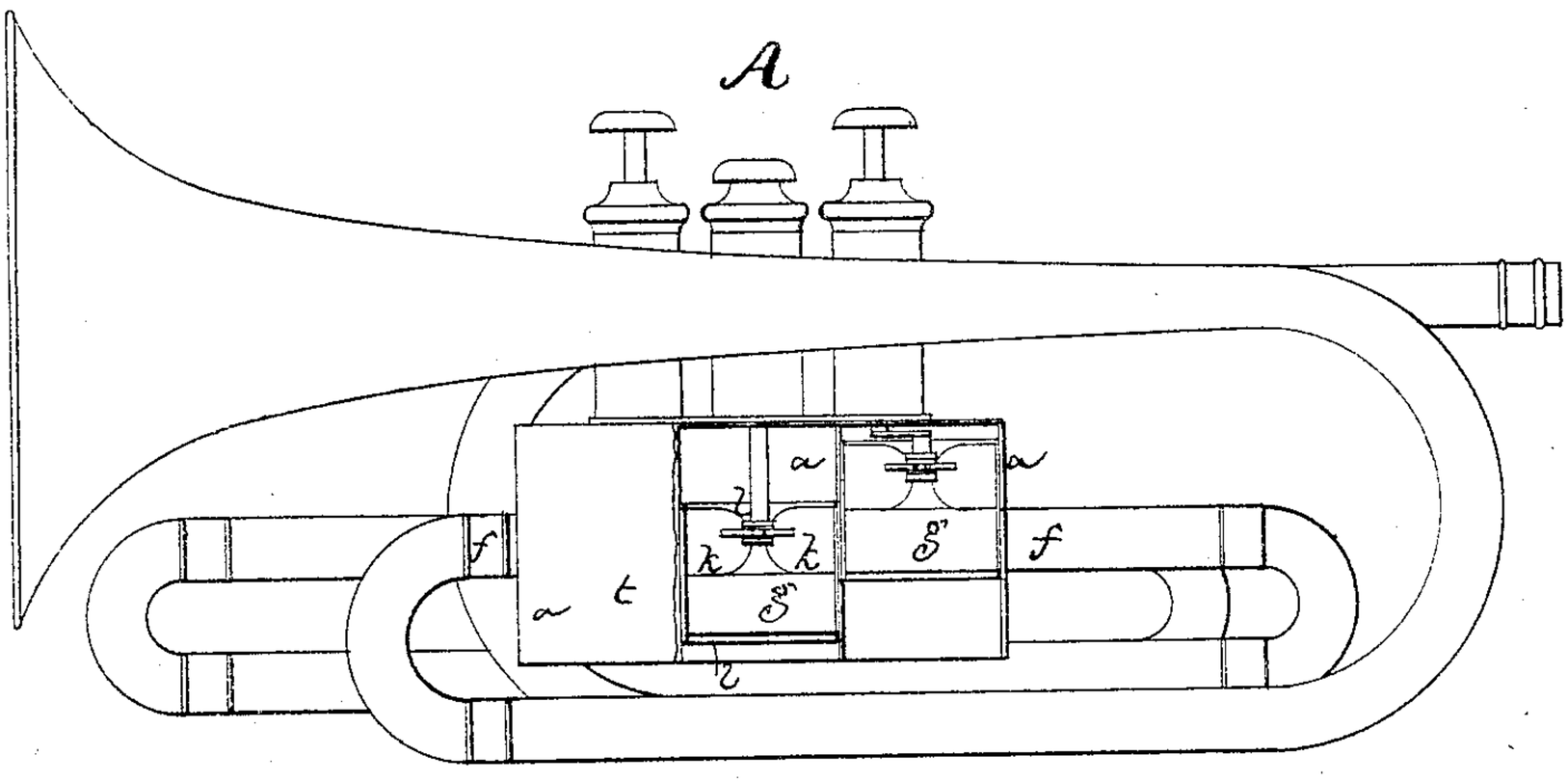
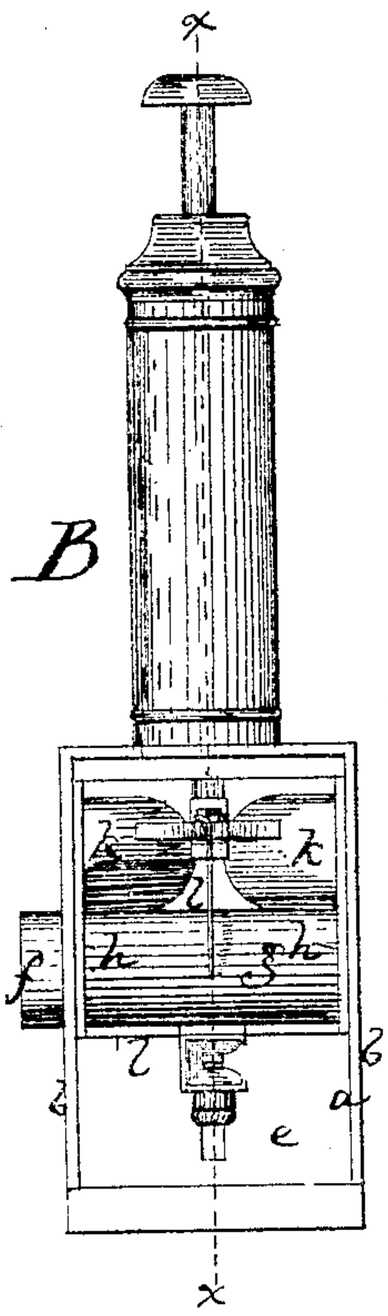
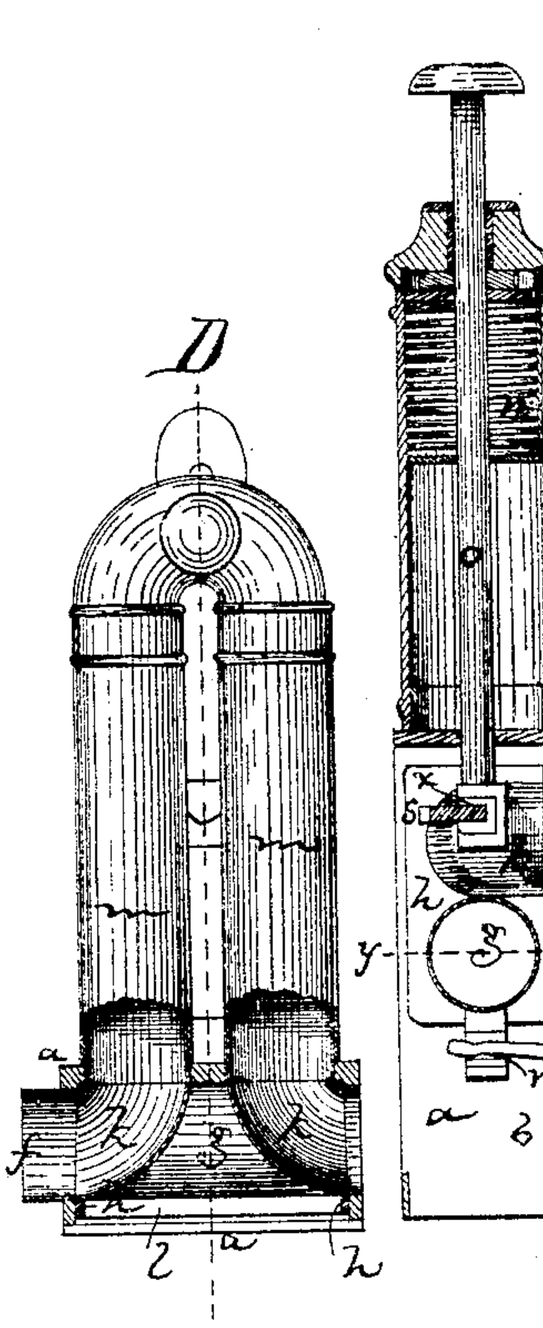
BENJAMIN F. QUINBY.

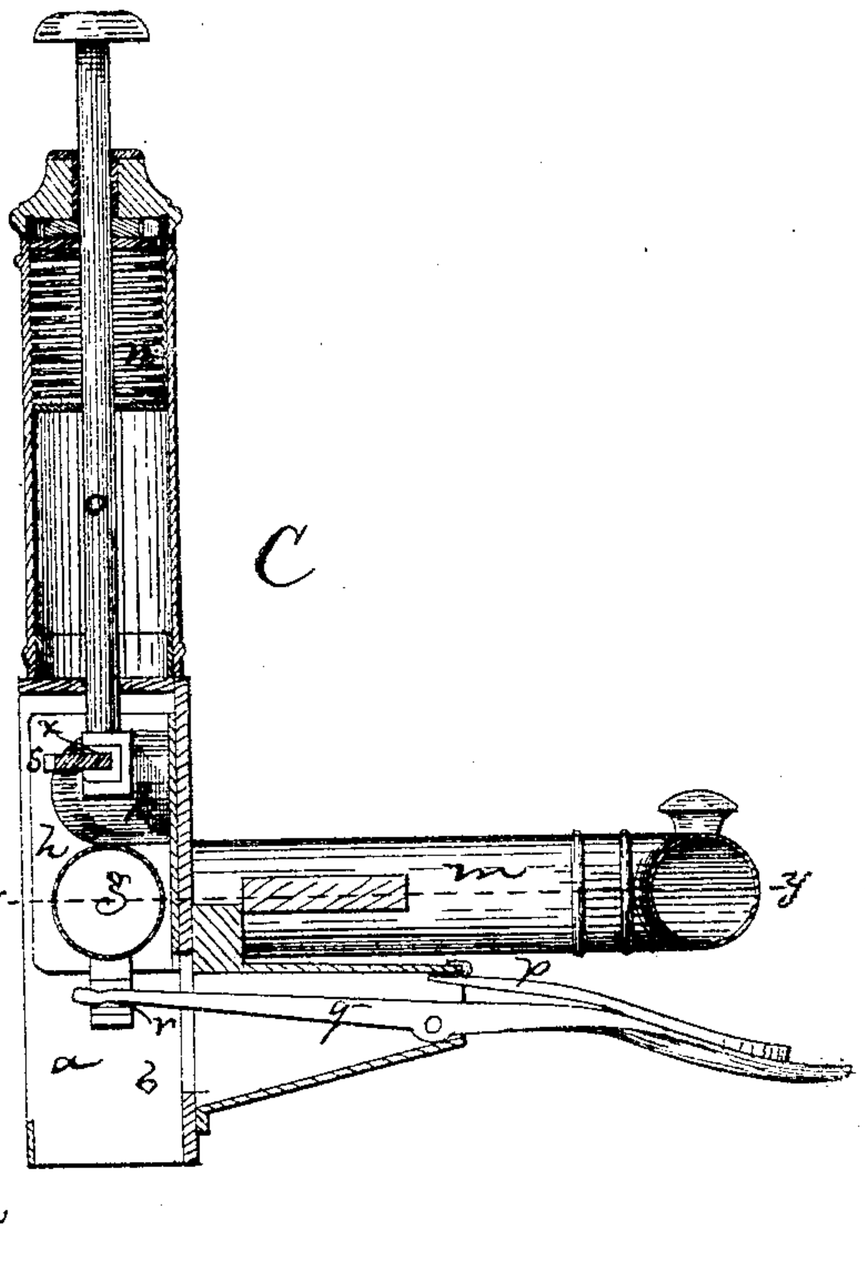
Improvement in Military Brass Instruments.

No. 125,614. Patented April 9, 1872.









Witnesses.
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By his Attys.
Crosby & Gould.

UNITED STATES PATENT OFFICE.

BENJAMIN F. QUINBY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MILITARY BRASS INSTRUMENTS.

Specification forming part of Letters Patent No. 125,614, dated April 9, 1872.

To all whom it may concern:

Be it known that I, BENJAMIN F. QUINBY, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Military-Band Instruments; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

In such wind instruments valves have long been used to produce whole and half tones by change of the wind current from an approximately direct passage to a tortuous one, and the effort has been to keep the passages as direct as possible and with the least possible contraction or change of area, and at the same time to have the mechanism as simple and effective as possible, with a maximum of durability and a minimum of liability to derangement. My valve is made to move as a slide in a valve case, in which the normal position of the valve is with the whole tone open and the half tone closed, the change from one position to the other being effected by manipulation of a lever or piston provided with a spring, so that when the lever or piston is left free, the valve will automatically shift from the half to the whole-tone position. My invention consists in making each half and full-tone valve as a slide-valve, moving in a rectilinear case, through the side walls of which case the main pipe opens, and through the rear wall of which the half-tone crook enters, the slide-valve having a straight full-tone tube normally connecting with the main tube or pipe, and held in such connection by the stress of a suitable spring, and the quarter-turn or half-tone tubes, which are carried into connection with the main tubes by the valve-operating lever or piston.

The drawing represents a valve-case and valve embodying my invention.

A shows the instrument in side elevation. B shows the valve with the whole-tone passage fully open. C is a section on the line *x x*. D is a horizontal section on the line *y y*, showing the half-tone passage open. *a* denotes the case, made substantially rectangular in form, sides *b* being preferably set slightly obtuse to the seat *e*, so that by the pressure of a slight spring the valve will be kept snugly against the seat, without liability to looseness by wear between the valve and the surfaces against which it slides. *f* denotes the stationary pipe, leading into opposite sides of the valve-case, and *g* the whole-tone valve-tube, made as a straight open-ended tube, fixed to and extending through the side plates *h* of the valve, and forming a straight passage with the pipe *f*, when in line therewith, the pipe *f* opening through the side walls *b* of the valve case. *k k* denote the half-tone valve-tubes, each made as a quarter-turn, with one end inserted in and extending through the adjacent valve-plate *h* and the other end inserted in and opening through the valve-plate *l*, these quarter-turns, by manipulation of the valve-operating piston or lever, being brought into connection with the pipe *f* at opposite sides of the case, said movement bringing their opposite open ends into line and connection with the openings through the valve-seat *e* of the half-tone bend or crook *m*, the movement of the valve in the opposite direction, or from its full-tone position, being effected by a suitable spring, *n*, applied to the piston *o* (if a piston-action) or a suitable spring, *p*, applied to the lever *q*, if a lever-action, the lever and spring being both represented as connected to the valve, to show the adaptation of either, although in practice either is used, but not both.

For the lever connection, the lever may be made and applied, as shown, its end within the valve-case extending into a cushioned fork or slit, *r;* and for the piston connection, the inner end of the piston or piston-rod may have a cushion slit, *x*, into which extends the edge of the cross-plate *s*.

It will be readily seen that these valves are not only very perfect in form, accurate in action, and easy to manipulate, but that they are exceedingly simple in construction, are easily applied and removed, and are inexpensive. The valve case is covered by a cover-plate, *t*, which may be slipped from place at any time, for inspection of all the valves, one plate serving to cover all the valve cases.

I claim—

The open and half-tone valves, made and applied substantially as shown and described.

Witnesses: BENJ. F. QUINBY.

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