J. H. HOLDEN.

Valve-Tremolo for Organs.

No. 204,732. Patented June 11, 1878.

Fig-1.

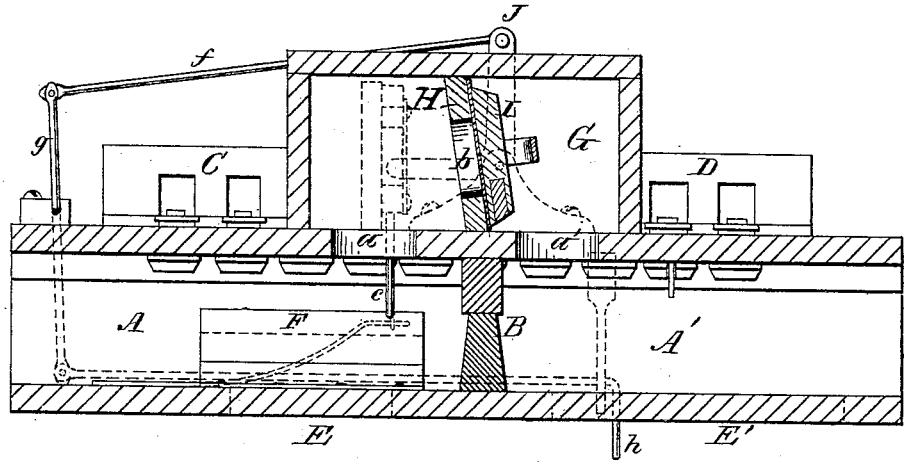
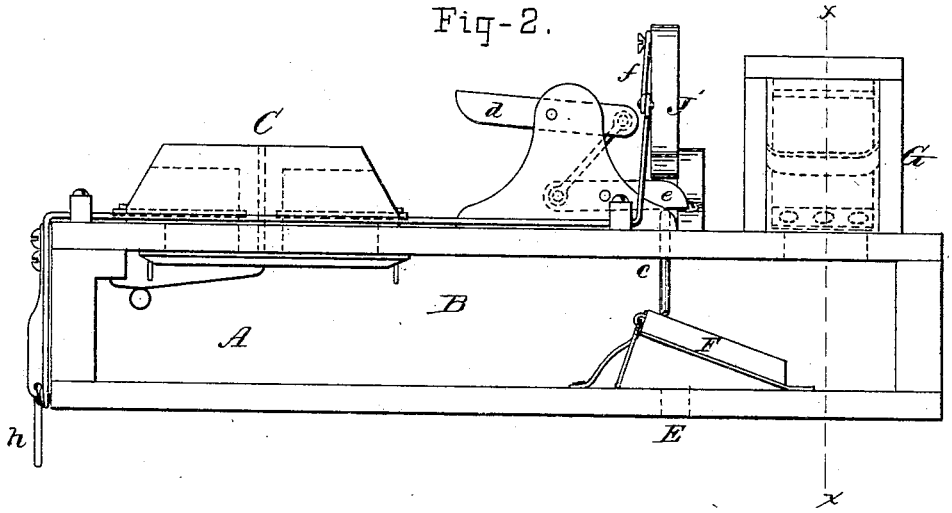


Fig-2.



ATTEST:

Arthur C. Fraser,

Walter W. Scott

INVENTOR:

James H. Holden

Per Burke & Fraser

Attorneys.

UNITED STATES PATENT OFFICE.

JAMES H. HOLDEN, OF BRATTLEBOROUGH, VERMONT, ASSIGNOR TO J. ESTEY & CO., OF SAME PLACE.

IMPROVEMENT IN VALVE-TREMOLOS FOR ORGANS.

Specification forming part of Letters Patent No. **204,732**, dated June 11, 1878; application filed January 18, 1878.

To all whom it may concern:

Be it known that I, JAMES H. HOLDEN, of Brattleborough, in the county of Windham and State of Vermont, have invented certain Improvements in Valve-Tremolos for Reed-Organs, of which the following is a specification:

Heretofore in tremolos of this character the valve has been placed in a horizontal position over the opening, and been counterbalanced by a weight. This construction is found to be objectionable because of a drumming sound that is produced by the valve when vibrated by the passing current. To avoid this unpleasant effect and render it much pleasanter and more delicate, as well as to enable the tremolo effect to be produced instantaneously, without the intervention of the stop, through the medium of a knee-lever, is the object of my present invention, which I will now describe.

In the drawings, Figure 1 is a sectional view taken through the valve-chamber in the plane of the line *x x* in Fig. 2. Fig. 2 is a side view.

A A′ is the wind-chest, divided by a partition, B, which serves to separate that portion of the chest A into which the reeds C (which are under the influence of the tremolo) open from the other part, A′, into which the other reeds, D, open. E E′ are apertures, which connect the divisions of the wind-chest with the bellows, the first of which is controlled by a valve, F, which stands normally open, but which may be closed by suitable mechanism, which will be hereinafter set forth.

G is a valve-chamber, mounted upon the wind-chest over the partition B, and communicating with the sections A A′ by means of openings *a a′*, respectively. This chamber is divided transversely by a partition, H, which stands, preferably, a little out of the vertical plane. This partition is provided with an aperture, *b*, and forms a seat for the tremolo-valve I. This valve is hinged above, and is kept up to its seat by the action of gravity. It may be "loaded" with metal, if desired, to insure its remaining closed. This, however, will depend on the angle at which the valve rests, which may be varied considerably from the vertical.

The operation is as follows: When the valve F is open, the current of air from the reeds C passes through the opening E to the bellows, in the same manner that the current from D passes through the opening E′ to the bellows; but when the valve F is closed over the aperture E, the current from the reeds C must pass through the aperture *a* into the valve-chamber G, thence through the opening *b* in the partition H, and thence through the openings *a′* and E′ to the bellows. This current causes the valve I to vibrate and produce a tremolo effect.

The mechanism for closing the valve F through the medium of a stop is of the usual kind, and consists of the tracker-pin *c* and linked levers *d e*. In addition to this, however, I provide a suitable mechanism whereby the tremolo effect may be produced during the sounding of a single note only, or for any desired length of time, without drawing the stop, the same consisting of a bell-crank lever, J, mounted on the wind-chest, the horizontal arm of which rests upon the lever *e*, and the vertical arm is linked to a rod, *f*, which, in turn, connects, through an oscillating cranked rod, *g*, with a rod, *h*, provided with a knee-lever. Thus, when the rod *h* is moved with the knee, the arm of the lever J is caused to press down and close the valve F.

Having thus described my invention, I claim—

1. In a valve-tremolo for reed-organs, the valve I, arranged with the plane of its seat vertical, or nearly so, hinged so as to close by its own weight, and free to be vibrated by a passing current, substantially as set forth.

2. In a tremolo for reed-organs, the combination of the chamber G, having two apertures, *a a′*, beneath it, opening into the wind-chest, the perforated partition H between the apertures *a a′*, and set at an angle with the cover of the chest, and the valve I, hinged

so as to cover the aperture in the partition, substantially as and for the purposes specified.

3. The combination, with the valve I, arranged as shown, of the valve F, tracker-pin *c*, lever J, and rods *f g h*, whereby the valve F may be closed with the knee and the valve I be caused to vibrate, substantially as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAMES H. HOLDEN.

Witnesses:
W. H. CHILDS,
W. J. UNDERWOOD.