

L. CHASE.
Musical-Instrument.

No. 210,297.

Patented Nov. 26, 1878.

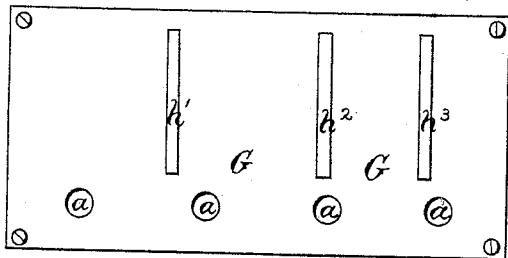


FIG. 1.

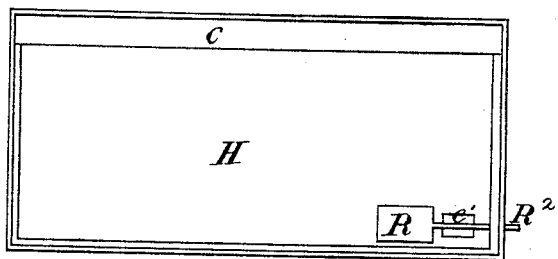


FIG. 2.

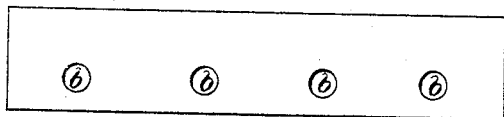


FIG. 3.

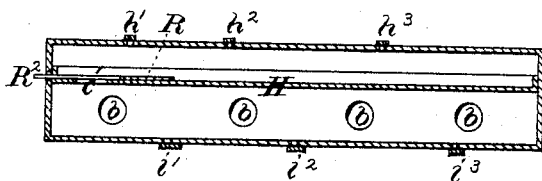


FIG. 4.

WITNESSES:

Chas. H. Simball.
Chas. F. Morrey.

INVENTOR:

Lorenzo Chase

UNITED STATES PATENT OFFICE.

LORENZO CHASE, OF PORTLAND, ASSIGNOR OF ONE-HALF HIS RIGHT TO
JAMES O. BROWN, OF BENTON, MAINE.

IMPROVEMENT IN MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. **210,297**, dated November 26, 1878; application filed
July 8, 1878.

To all whom it may concern:

Be it known that I, LORENZO CHASE, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Musical Instruments; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a full front view of my device. Figs. 2 and 3 are views of details, as set forth and designated in the body of the specification by letters. Fig. 4 is a sectional edge view of the diaphragm H, showing the valve R, with its stem R², the slots h¹ h² h³, and the flexible parchment strips i¹ i² i³, apertures b b b b, and valve-port c'.

Same letters show like parts.

The object of my invention is to increase in quantity and to improve in quality the tones of any musical instrument operated by atmospheric pressure, or currents of air acting upon reeds, pipes, wires, or their equivalents, and to at the same time produce a certainty in the quality of such tones by controlling the vibration of such instruments in all their parts.

By means of my devices, herein described, while the whole instrument, as heretofore, must partake of and respond to the vibration of any special note, I at the same time have a special base of vibrations, specially responsive to each note, in the manner following, as described, to insure the desired quality of tone in all desired particulars, and at the same time greatly increase the quantity of that tone by correlative means.

The special form of my invention, as shown in the drawing and herein described, adapts it as a removable attachment to an instrument; but it may be made a permanency without changing its character.

Means have been long sought by musical-instrument makers whereby the character of the sounds produced by their instrument, for volume, freedom from any jarring noise, smoothness, and purity, could be made a certainty and

matter of exact calculation, and to this end one part of my invention is directed.

Those familiar with such instruments, either as makers or users, have long known that in any such instruments one particular note was always superior to all the others. This I attribute to what I believe to be the fact, that what I shall designate as "the general vibration of the whole instrument" can give a good character to but one note or group of notes; and to make all equally perfect, that which I shall designate as a "special vibration" must be produced to meet the wants of each note or group of notes, and to produce such special vibration special means must be provided.

At h¹ h² h³, in Fig. 1, are seen the lines which I intend to be slots, dividing the general sounding-surface into parts so widely separated that a special or independent vibration may be imparted to each part, these slots being covered by a thin parchment-like leather or similar material, so that the air-pressure within the instrument will be retained and dust excluded, but not of such stiffness as to be the means of conveying vibration from one part to the other.

I now wish particularly to point out that as many of these divisions of sounding or vibratory surfaces may be used as desired, and in any desired part of the instrument, care being taken to adapt each division, in the particulars of size, thickness, position, and manner of attachment, to the particular note or group of notes whose action such division is designed to control.

This sectional responsive sounding-surface, in the drawing, is shown as used in connection with the re-enforcing-diaphragm H; but at G G is shown a section wherein four such systems of divided sounding-boards are used, and their number may be increased or reduced at pleasure.

It will be readily seen that such responsive surfaces may be, if desired, in the form of panels in the body of the instrument, and be constructed of wood, metal, or other material suitable to the purpose.

At R, Figs. 2 and 4, is shown the valve, with its stem R² and port c', the operation of which is as follows: When the valve is closed

over its port the air passes upward and over the re-enforcing-diaphragm H, through the opening at the top, thence downward through the opening into the bellows, when such effects are produced as have been herein described; but when the valve is changed in position, so that the air freely enters it, and passes through by the most direct way into the bellows, leaving the space above filled with dead air instead of an active current, it modifies the tone of the harmonic sections to a greater or less degree.

The drawing represents a device to be attached to the wind-chest by the apertures *a a*, near the back of an organ.

As a matter of construction the slots, as described as dividing the sections, should run crosswise of the grain of the wood, as in that way they are more easily brought to the proper pitch and give a better quality of tone.

I am aware of the patents to N. S. Buch and M. P. Berg, No. 164,900, dated June 29, 1875; to G. W. Lyon, No. 200,741, and dated February 26, 1878; and to R. Goodrich, No. 41,915, dated March 15, 1864, and I claim none of the devices therein set forth.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a musical instrument, a sectional sounding-board, the sections being adapted in size and thickness and arranged to be specially responsive to certain notes, the sections being connected by strips of parchment or other equivalent material, as shown, all in the manner and for the purposes set forth.

2. In a musical instrument, the semi-detached diaphragm H, in combination with the specially-responsive sounding boards or sections, substantially in the manner and for the purposes set forth.

3. The sectional sound-board having the sections connected together as described, viz., by strips of parchment or its equivalent, all in the manner and for the purposes set forth.

4. In a musical instrument, the combination of the sectional sound-board, as described, with the diaphragm H and valve R, substantially in the manner and for the purposes set forth.

LORENZO CHASE.

Witnesses:

D. W. SCRIBNER,
JOHN B. SMITH.