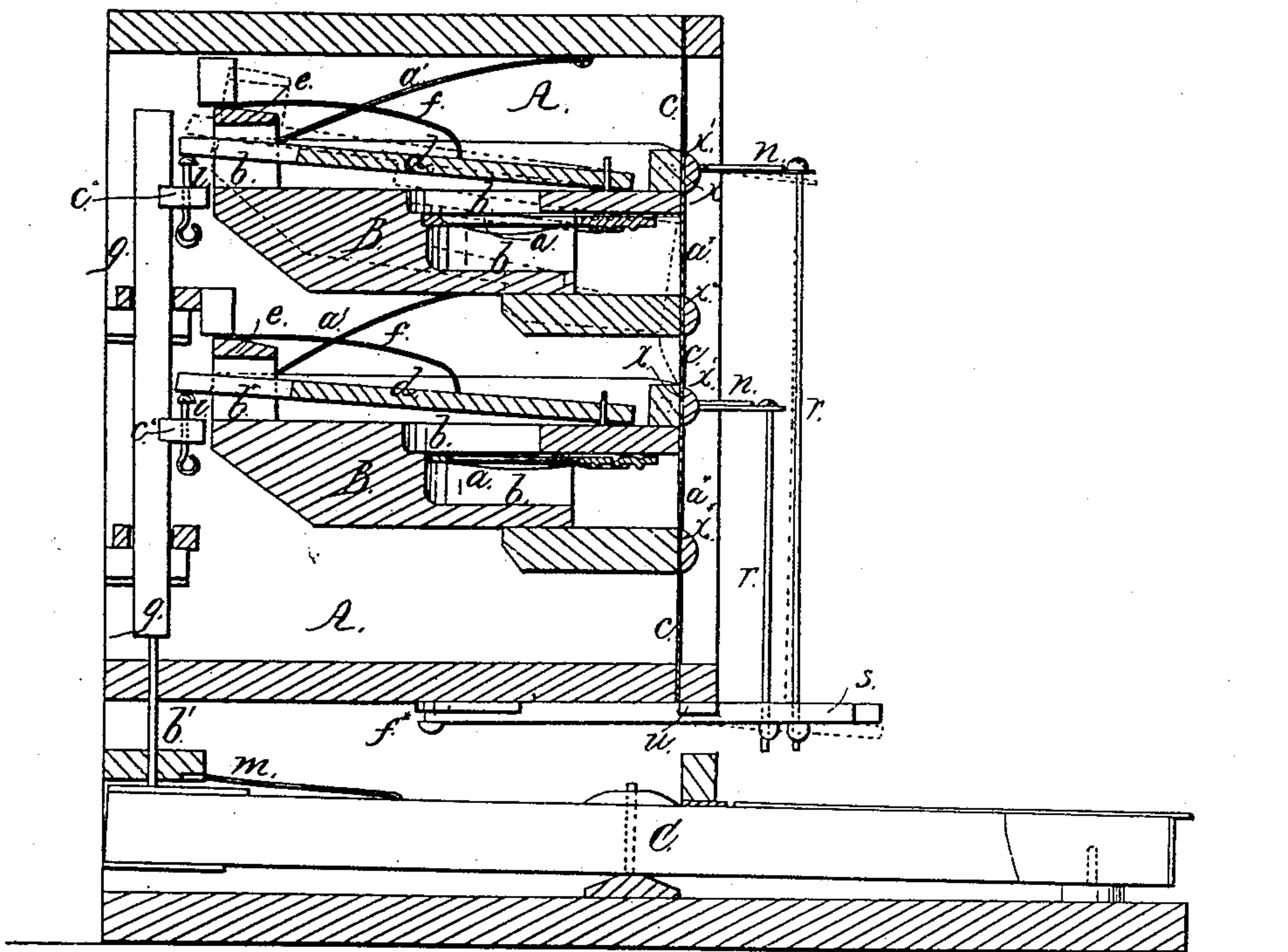


E. P. NEEDHAM.
 REED MUSICAL INSTRUMENT.

No. 78,536.

Patented June 2, 1868.



Witnesses;
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Inventor;
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United States Patent Office.

E. P. NEEDHAM, OF NEW YORK, N. Y.

Letters Patent No. 78,536, dated June 2, 1868.

IMPROVEMENT IN REED MUSICAL INSTRUMENTS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, E. P. NEEDHAM, of the city, county, and State of New York, have invented certain new and useful Improvements in Melodeons and other Reed Musical Instruments of similar character; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a portion of this specification, which is a vertical transverse section of a melodeon constructed according to my invention.

This invention consists in making the front of the exhaust-chamber of the instrument of flexible material, whereby the movement of the reed-boards is permitted without involving any complication of parts, or material increase in the expense of construction.

To enable others to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

The portion of the exhaust-chamber of the instrument within which the reed-boards B are arranged, is shown at A, and may be of any appropriate form or construction, and furnished with reeds, *a*, placed, in the usual manner, within the reed-openings *b*, provided at the front parts of the aforesaid boards. The reed-boards are attached, at their upper forward edges, to rock-shafts *x*, the ends of which are pivoted at the ends of the exhaust-chamber, as shown in dotted outline in the drawing, in such manner as to permit a tilting or rising and falling movement of the back portions of the reed-boards, the said boards being, furthermore, pressed downward by springs, *a'*. The front, *c*, of the exhaust-chamber A, is formed of sheet India-rubber or other like flexible material, impervious to air, and is attached to the rock-shafts *x*, as indicated at *x'*, and also to the lower front edge of the reed-boards, as shown at *x**, the said front being, furthermore, provided with openings at *a**, through which the wind is admitted to the reed-openings *b*. Shown at *d* are the valves over the reed-openings, the said valves being pivoted at their forward ends, and extending back beyond the rear edges of the reed-boards, through holes *b**, provided in bridge-pieces or strips *e* secured longitudinally upon the back parts of the reed-boards, the aforesaid valves being pressed down to close the reed-openings by springs *f* attached to the strips *e*, just mentioned. Arranged, one behind each vertical series of valves *d*, are lifting-rods *g*, connected, by push-pins *b'*, with the rear or inner ends of the keys C, and furnished with forwardly-projecting lugs *c**, having vertical stems *i*, which are situated, one underneath the rearwardly-extending end of one of the valves *d*, in such manner that when the reed-boards B are depressed, or in their usual or normal position, the upward movement of the rod *g* will lift the valves of the vertical series with which its stems *i* are connected, as indicated in the drawing, such lifting of the valves being, of course, produced by the downward movement of the forward or outer portion of the keys C in playing. When the keys C are released from downward pressure they, together with their lifting-rods *g*, are brought to their original position by springs *m*, acting upon their inner ends. Extending forward from the rock-shaft *x* of each of the reed-boards is an arm, *n*, connected by a rod, *r*, with a lever, *s*, the rearmost end of which is pivoted underneath the exhaust-chamber, as shown at *f**, in such manner as to be capable not only of a vertical, but of a lateral movement. Arranged at one side of each lever *s*, upon the bottom of the exhaust-chamber, is a downwardly-extending projection, *u*, the purpose of which will presently herein appear.

In using the melodeon, those of the reed-boards which it is desired to stop or "mute" are tilted or raised at their back or rear portions, as shown in red outline in the figure, by depressing the levers *s* connected therewith, the said levers being then turned laterally and brought underneath the projections *u*, adjacent thereto, so that the levers *s* are, by this means, held in their depressed position, to retain the reed-boards, with which they are connected in their lifted condition. The rear of each of the reed-boards to be "muted" being thus lifted, the back ends of the valves *d* thereof are brought out of reach of the adjacent stems *i* of the rods *g*, so as not to be acted upon by the said stems when the rods *g* are raised in playing upon the instrument, as hereinbefore explained, so that by thus bringing the required reed-boards out of the range of operation of the valve-operating mechanism connected with the keys of the instrument, the same may be "muted" without any liability to the

imperfection which, in the ordinary method of "muting," frequently occurs from the imperfect closing of the stop-valves employed to shut off the wind from the reed-openings of the reed-boards; and, furthermore, the said reed-boards may be thus "muted" by the performer with much less labor and inconvenience than are required in the manipulation of the valves just mentioned, as hitherto employed, to stop the passage of the wind through the reed-openings; while the front, *c*, to which the front edges of the reed-boards are attached, as hereinbefore explained, being flexible, the requisite movement of the reed-boards is permitted without any danger of disarranging the parts, or involving any complication in structure, or material increase in the cost of manufacture.

I do not confine myself to the particular arrangement of the reed-boards, or means of moving them out of range of the valve-operating mechanism in connection with the keys or playing-devices; but

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

The flexible front, *c*, of the exhaust-chamber *A*, in combination with the movable reed-boards, whereby the requisite movement of the said reed-boards is allowed, substantially as herein set forth.

E. P. NEEDHAM.

Witnesses:

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