2 Sheets—Sheet 1.

R. E. LETTON.

REED ORGAN ACTIONS.

No. 190,228. Patented May 1, 1877.

Fig. 1.

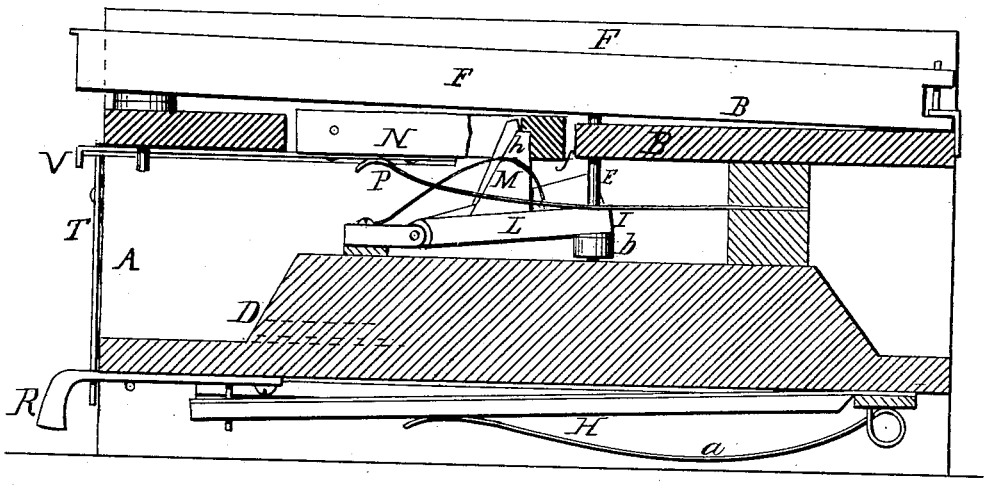
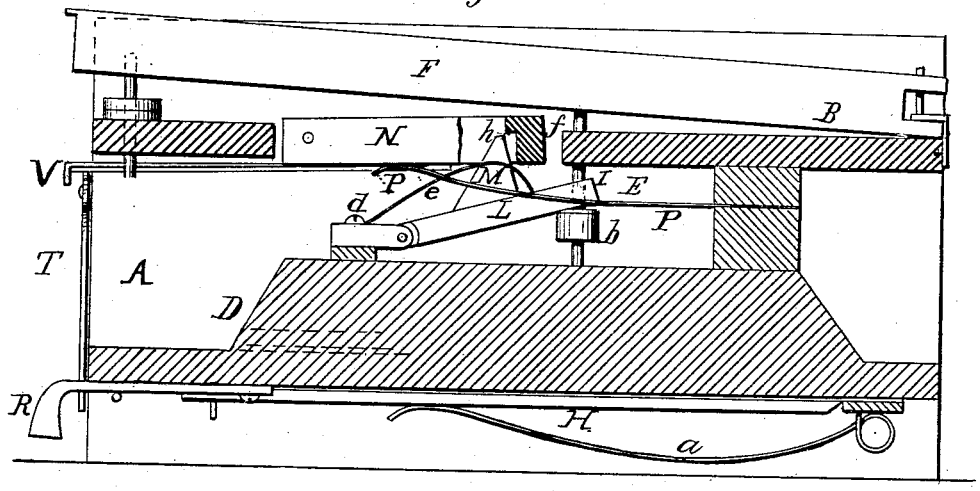


Fig. 2.



Witnesses
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Chas. O'Gill

Inventor
Raphael E. Letton
by his Attys.
Cox & Cox.

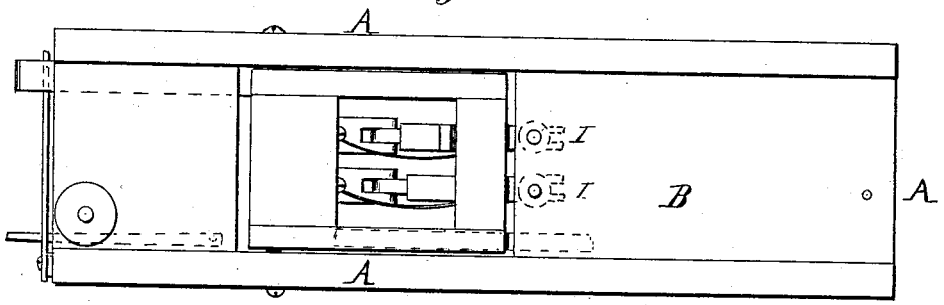
2 Sheets—Sheet 2.

R. E. LETTON.

REED ORGAN ACTIONS.

No. 190,228. Patented May 1, 1877.

Fig. 3.



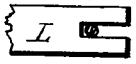
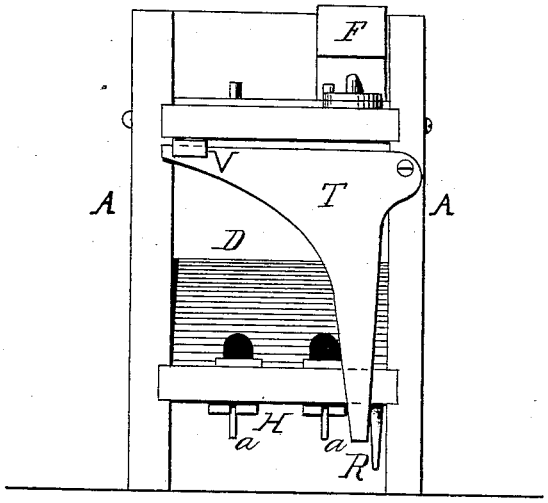


Fig. 5.

Fig. 4.



Witnesses;
Greenville Lewis
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UNITED STATES PATENT OFFICE.

RAPHAEL E. LETTON, OF QUINCY, ILLINOIS.

IMPROVEMENT IN REED-ORGAN ACTIONS.

Specification forming part of Letters Patent No. **190,223**, dated May 1, 1877; application filed October 18, 1876.

To all whom it may concern:

Be it known that I, RAPHAEL E. LETTON, of Quincy, in the county of Adams and State of Illinois, have invented a new and useful Improvement in Reed-Organ Actions, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to certain improvements in reed-organs and analogous wind-instruments; and consists in the devices hereinafter fully described.

The object of the invention is to provide an action-frame which shall so operate a jack that the corresponding key being depressed it may be retained in that position, and any other key or keys played, as desired.

Figure 1 is an interior view of the device with one side broken off, and with the action-frame depressed. Fig. 2 is a like view with the action-frame elevated. Fig. 3 is a top view of a device embodying the elements of the invention. Fig. 4 is an end view of same, and Fig. 5 is a detached view of a portion of the action-frame.

In the accompanying drawings, A represents the vertical sides or ends of the case of the instrument, provided with the board B, through which, and also through the reed-board D, works the sticker-pin E, its upper end being in contact with the lower surface of the key F, its lower with the upper surface of the reed-valve H, which, being provided with the spring *a*, gives the sticker-pin an upward elastic bearing. Thus, when the key F is struck, the sticker-pin is depressed and the reed speaks, the pin reassuming its normal position when the pressure upon the key is relieved. At about its center the sticker-pin has rigidly secured thereto the button *b*, upon the upper surface of which rests the lower surface of the forked arms I of the jack L, the sticker-pin passing through and having free vertical movement in said fork, which forms the rear end of the jack L. From the point where the fork I rests upon the button *b*, the jack L, when at rest, inclines downward, being reduced to a tongue at its front end, which is pivoted in the pivot-stand *d*, secured near the front of the reed-board D. The jack has a slight elastic downward tension (to keep the fork in contact with the button) through the spring *e*. This is of much less power than the reed-valve spring, and operates upon the upper surface of the jack, having its fixed end secured to the pivot-stand *d*. Upon the upper portion of the jack L is secured the stud or standard M, its front face inclined and its rear face vertical. Now, it is plain that when the jack is depressed the upper part of the stud M is thrown slightly rearward of the vertical plane in which its rear face stands when the jack is elevated, thus placing the top of the stud farther back than when the stud is not depressed.

Between the sides A of the instrument is provided the action-frame N, preferably pivoted near its front, and consisting of an open rectangular frame, which has an upward action through the spring P, (the front of which bears upon the under side of the frame,) its rear being fixed securely in any desired place.

The rear bar *f* of the action-frame extends above, and parallel to, the rear part of the jacks between the forks and studs, the lower front part of the bar *f* having a recess, *h*, to permit the stud to move under the bar when advanced by the depression of the jack, the bar *f* being of such width that when depressed it shall pass down in rear of all of the studs not so advanced without affecting them; hence, so long as a stud is erect or out of action it is not touched by the frame when it is descending or held down.

Now, therefore, when the key is struck and the jack depressed, the upper surface of the stud is thrown directly under that part of the bar *f* of the action-frame above the recess; hence, the action-frame being depressed, the jack having been first pressed down, the under side of the front of the bar *f* comes in contact with the top of the stud, holding it down as long as the action-frame is retained in its depressed position. At the same time the action-frame clears all the other studs, so that all of the other jacks remain unaffected, leaving the sticker-pins thereof erect, and permitting their keys to be played and reeds sounded, as desired.

For the purpose of operating the action-frame a knee-pedal, R, is pivoted at its rear end to the under side of the instrument, its front end being in proper relation to the key-

board. On one side of the knee-pedal R is placed the lower extremity of the bell-crank T, pivoted at its angle to the instrument, and having its opposite arm extending across the front of the same to a point below the front end of the arm V, the rear of which is rigidly secured to the action-frame. In order to depress or hold down the frame it is only necessary to move the pedal or hold it when moved, the pedal regaining its normal position when the pressure is relieved, owing to the spring P of the action-frame.

The operation of the above is as follows: The key F is struck; this forces down the sticker-pin, opening the reed-valve of the reed, which thereupon speaks, allowing the spring *e* to operate. This depresses the jack L, the fork of which acts upon the upper surface of the button *b*. The movement of the jack L advances the rear of the stud M, bringing its upper end under the front of the lower surface of the bar *f* of the action-frame N, which being then depressed by the movement of the pedal, the jack, and consequently the sticker-pin, is held down, the reed speaking as long as the pedal continues to retain the action-frame depressed; but it is plain that as only the stud on the depressed jack is thrown under the action-frame, none of the others are affected by the descent of the frame, so that their sticker-pins remain erect, no other reed being affected save that corresponding to the jack depressed, and hence any or all of the other reeds may be sounded until the pedal is released, which being done the action-frame at once resumes its normal position.

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

1. In an organ or other analogous wind-instrument, a pivoted jack having a stud, which, when the jack is depressed, is, and when elevated is not, beneath a device capable of vertical movement, substantially as specified

2. In an organ or other analogous wind-instrument, a pivoted jack, through the end of which the sticker-pin has a free movement, and provided with a stud to engage the key, substantially as set forth.

3. The action-frame N, provided with the recess *h*, substantially as set forth.

4. The action-frame N, pivoted to the case of the instrument, and provided with a spring arranged to give it an upward tension, substantially as set forth.

5. The jack L, forked at its rear extremity, pivoted at its front extremity, and provided with the stud M on its upper surface, as set forth.

6. The jack L, provided with the stud M, and having an aperture at its end to receive the sticker-pin, substantially as set forth.

In testimony that I claim the foregoing improvement in reed-organ actions, as above described, I have hereunto set my hand this 10th day of October, 1876.

RAPHAEL ERBYNO LETTON.

Witnesses:

HENRY ROOT,

JOHN M. KREITZ.