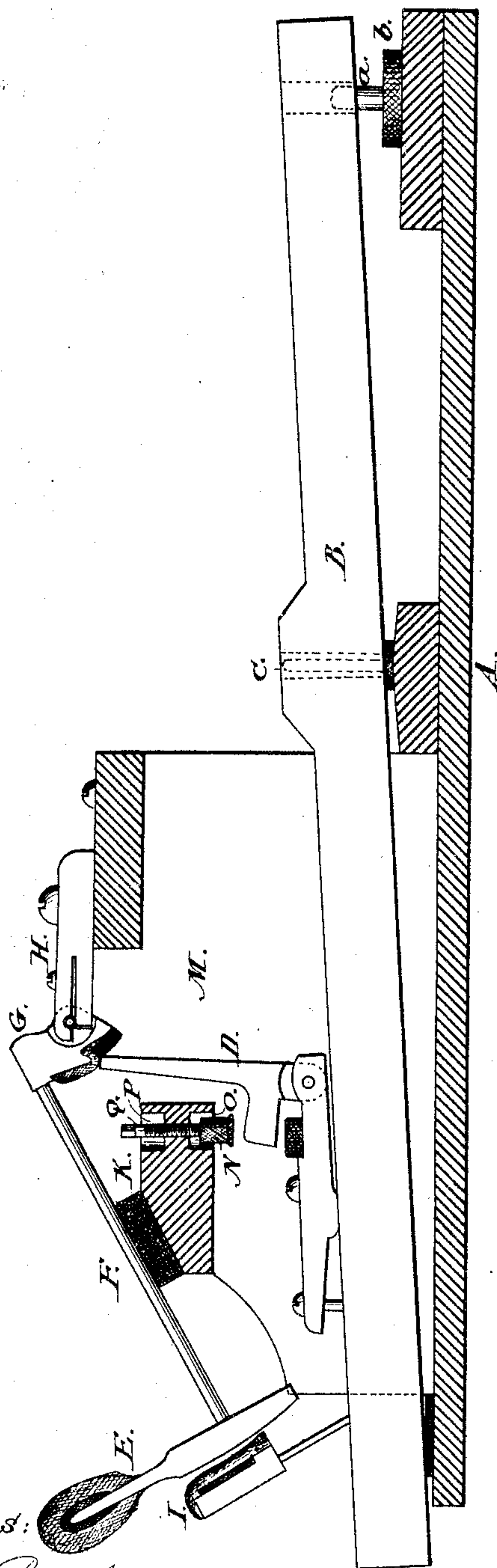


**T. KATER.**  
**Piano Action-Rails.**

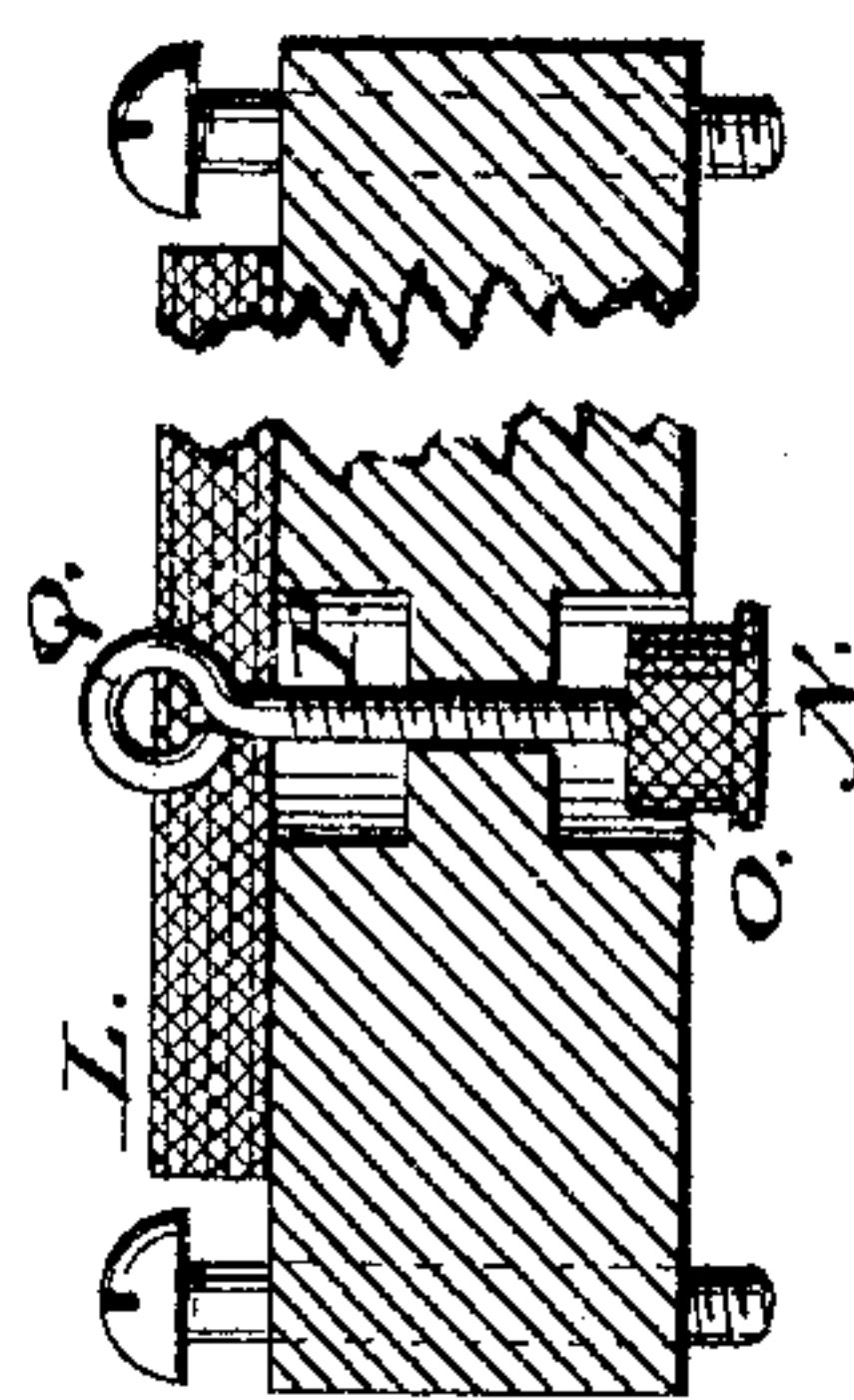
No. 146,460.

Patented Jan. 13, 1874.

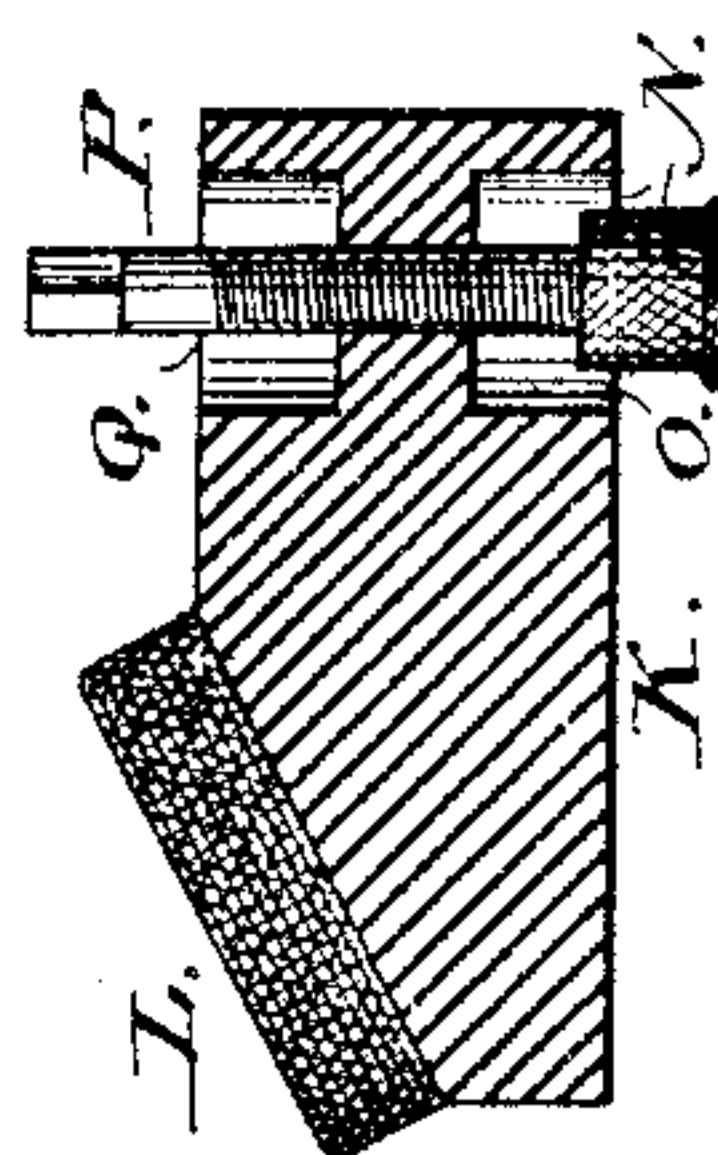
*Fig. 1.*



*Fig. 3.*



*Fig. 2.*



Witnesses:

*J. C. Bruch.*  
*A. H. Norris.*

Inventor:

*Thomas Kater.*  
*Per James L. Norris,*  
*Atty.*



# UNITED STATES PATENT OFFICE.

THOMAS KATER, OF HAMILTON, CANADA.

## IMPROVEMENT IN PIANO-ACTION RAILS.

Specification forming part of Letters Patent No. **146,460**, dated January 13, 1874; application filed December 27, 1873.

*To all whom it may concern:*

Be it known that I, THOMAS KATER, of Hamilton, in the county of Wentworth, Canada, have invented certain new and useful Improvements in Regulating-Rails for Piano-Fortes, of which the following is a specification:

This invention has for its object to improve upon the construction of the regulating-rail employed in pianos to receive the buttons or stops which serve to disengage the jacks from the hammer-butts, in order to render the same more durable than the ordinary rails, and to permit of a greater adjustment of the regulating-buttons. The invention consists in forming in the under side of the regulating-rail a series of seats or recesses, which are designed to receive the regulating-buttons, so as to enable the same to be adjusted to a greater degree for always securing uniform blows of the hammer without necessitating the cutting away of the heel of the jacks, or the application of a thinner regulating-button, which is the ordinary mode heretofore practiced for securing a like result. The invention further consists in recessing the top of the rail in line with the regulating-button seats, the regulating screws or stems passing through said seats, the object being to enable the regulating-buttons to be adjusted to their full extent by causing the adjusting key or implement usually employed to turn the regulating-screws to enter said seats or recesses. The invention also consists in providing a regulating-rail, which possesses an enlarged front edge and tapering rear edge, with a series of seats or recesses formed in the top and bottom sides of said enlarged front edge, and made separate and independent from each other, being separated by a thickness of wood, so as not to impair the strength or firmness of the regulating-rail, said recesses being designed to receive the regulating-buttons when adjusted vertically to their greatest extent in an upward direction, and the heads of the regulating-screws when turned to their full extent in a downward direction, so as to render possible a more extensive adjustment of the regulating-button.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a piano-action,

showing the relative arrangement of my improved regulating-rail. Fig. 2 is a transverse section of the regulating-rail, showing the seats and regulating-button in position. Fig. 3 is a sectional longitudinal view of the regulating-rail, showing the series of separate top and bottom recesses for the regulating-buttons and heads of the screws.

The letter A designates the frame or base piece of a piano-frame to which the keys B are pivoted at C, the front ends of the keys being combined with the pins *a* and cushions *b* in the usual manner. The action is of the ordinary construction, D representing the jack, E the hammer, F the stem, G the hammer-butt, H the butt-flange, and I the back check, which is located at the rear end of the key.

In ordinary piano-actions it is customary to employ a regulating-rail, and buttons for disengaging the jacks from the hammer-butts, and said butts are usually adjusted by a screw, so as to maintain the hammers in their proper relative positions in respect to the strings. When the buttons have reached the limit of their vertical movement by coming in contact with the under side of the regulating-rail, a further adjustment of the buttons in respect to the heels of the jacks is only possible by cutting away a portion of the latter, or by applying thinner buttons. These expedients are defective and unsatisfactory, for the heel of the jack, being repeatedly cut away, soon loses its original strength and polish.

In order to avoid the objections stated, and furthermore to furnish a regulating-rail which shall be more durable and stronger in construction than the ordinary rail, I propose to construct the rail K of a single piece, made of twice the thickness, more or less, of the ordinary rail at its front edge, the rear top portion of the rail being beveled off or cut at an angle to receive the ordinary hammer-stem cushions.

The rail itself is of the usual form or curvature to cause it to conform to the shape of the piano-frame, and is attached at its ends to the side cheeks M, and at intermediate points to the ordinary props.

By forming the rail in one solid piece, as shown, I obtain a greater strength and durability, and dispense also with the separate cushion-blocks heretofore employed. The blows of the keys transmitted by the jacks to



the regulating-rail causes the rails of the ordinary construction, which are made comparatively thin at their front edges, to jar or yield, while in my invention, the rail being made solid and thick at the point where the jacks strike the same, no such result need be apprehended, as it is perfectly rigid and non-yielding. The regulating-buttons N for limiting the upward movement of the jacks and for disengaging the same from the hammer-butts, are applied to the regulating-rail in the same general manner as heretofore practiced.

The buttons, as heretofore arranged, when adjusted to their full extent, come in contact with the under surface of the rail, when it is impossible to obtain a greater adjustment of the same without necessitating the cutting away of the heels of the jacks, or the employment of a thinner button. In my invention, however, I provide means for adjusting the buttons until their lower ends are flush with the lower surface of the regulating-rail; and this result I accomplish by forming in the base of the rail a series of seats or recesses, O, corresponding, in size and diameter with the buttons, for attaining in an effectual degree as great an adjustment of the regulating-buttons as is found necessary. The top of the regulating-rail is provided with a series of recesses, P, which are arranged in line with the button-seats, a sufficient amount of wood being left between the two seats to hold the threads of the regulating-screw employed for adjusting the button. Q represents said screw, which may be of the ordinary construction—that is, provided with an eye at its upper end for the

reception of a turning implement, or the screw may be extended and terminate in a square shank or arbor for receiving a key similar to that used for tuning pianos.

By thus providing the top seats the rail can be made thick, as described, for the implement for turning the regulating-button. Screws can be inserted into said seats in order to turn the screws to their full extent in a downward direction.

I claim as my invention—

1. A regulating-rail for pianos, provided with a series of recesses or seats in its under side to receive the regulating-buttons for securing a greater degree of adjustment in an upward direction, substantially as set forth.

2. A regulating-rail for pianos, provided with a series of seats or recesses in its upper side to receive the button-regulating screws for securing the greatest possible degree of adjustment of the same in a downward direction, substantially as described.

3. A regulating-rail for pianos, formed with an enlarged front edge, provided with a series of recesses on its top and bottom, to receive the heads and buttons of the regulating-screws, as the same are depressed or raised, substantially as described, for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of December, 1873.

THOMAS KATER.

Witnesses:

JAMES L. NORRIS,  
ALBERT H. NORRIS.