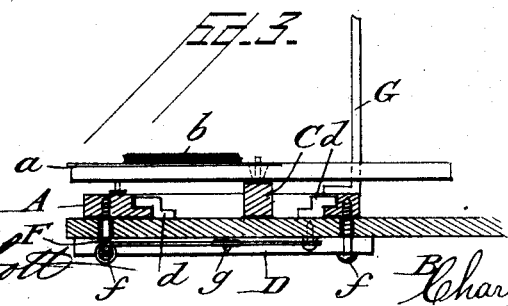
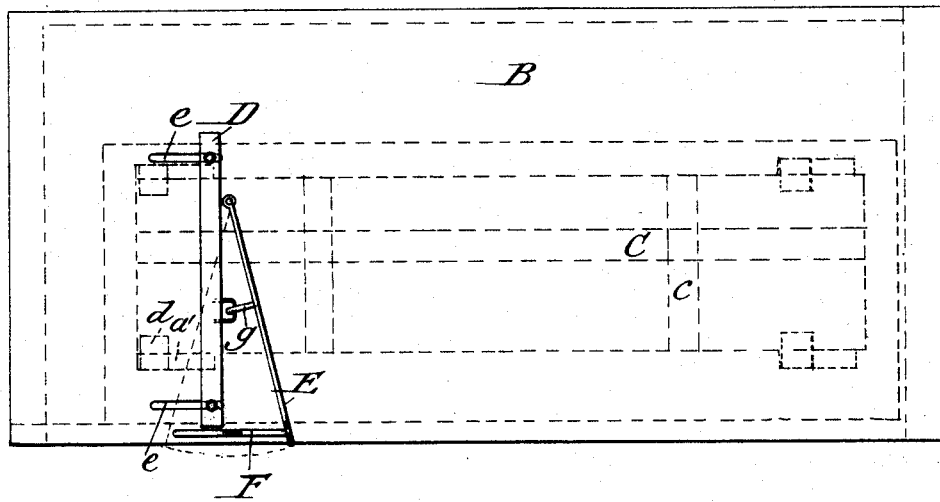
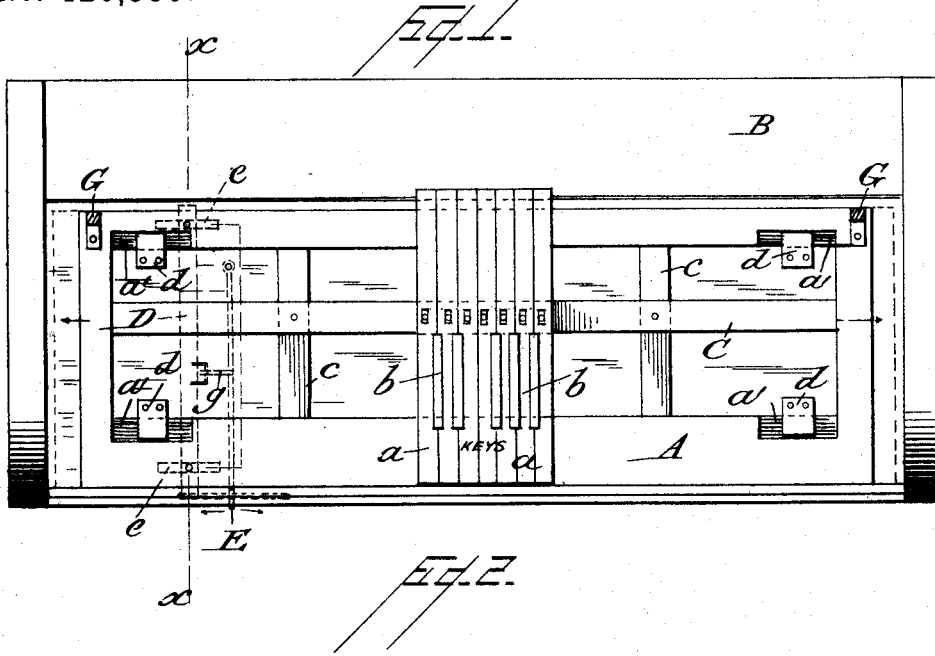


C. M. RICHARDS.
TRANSPOSING KEY BOARD.

No. 420,359.

Patented Jan. 28, 1890.



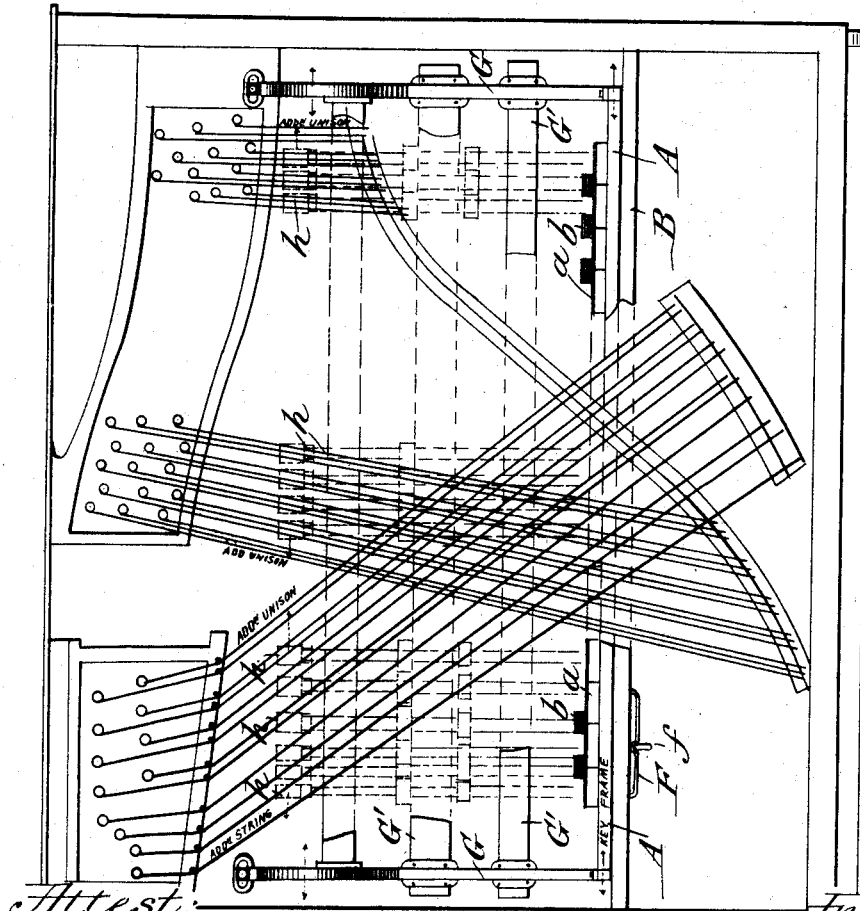
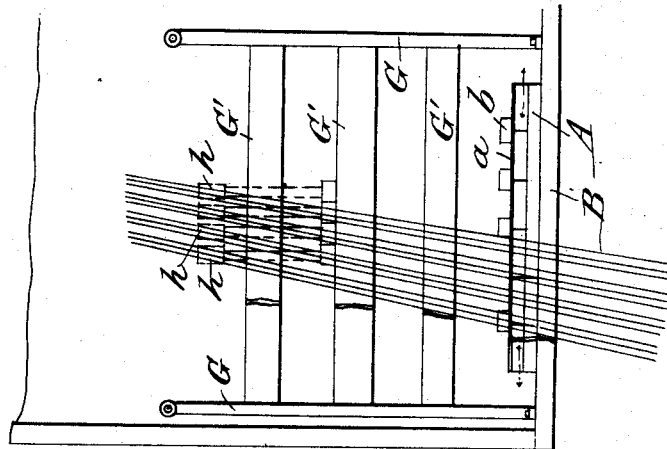
Attest:
J. H. Schott
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UNITED STATES PATENT OFFICE.

CHARLES M. RICHARDS, OF FORT SCOTT, KANSAS.

TRANSPOSING KEY-BOARD.

SPECIFICATION forming part of Letters Patent No. 420,359, dated January 28, 1890.

Application filed August 30, 1889. Serial No. 322,424. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. RICHARDS, a citizen of the United States, residing at Fort Scott, in the county of Bourbon and State of Kansas, have invented certain new and useful Improvements in Shifting and Transposing Key-Boards; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to improvements in the construction of pianos, organs, melodeons, and other musical instruments, and it relates particularly to a shifting and transposing key-board or action for use in said instruments, the object thereof being to provide a simple and efficient means for properly, readily, and accurately changing the pitch of the tone of an instrument at any time when such change of pitch may be desirable or needful—as, for instance, during the rendition of a varied musical programme, when it may be necessary to cause the pitch of the instrument to harmonize at different times with the different wind-instruments and also with the vocal quality of different singers, said change of pitch to the extent of a tone and semitone or other intervals, as the case may be, or any other kinds of change from concert-pitch to opera-pitch, &c., being accomplished by a trifling displacement of the key-board or action without increasing the tension of the wires and without the necessity of obliging the instrument to undergo the troublesome, tedious, and laborious operation of tuning every time the pitch is to be regulated; and the invention consists in the construction, arrangement, and combination of parts, substantially as will be described and then claimed.

In the annexed drawings I have illustrated one example of my invention in order to clearly explain the same.

In said drawings, Figure 1 is a top plan view of my improved shifting and transposing key-board. Fig. 2 is a bottom plan view of the same. Fig. 3 is a transverse section of the same on the line *x x* of Fig. 1. Fig. 4 is a front elevation of the motion-works of an upright piano, showing the strings, hammers, action-frame, key-frame, &c., and also indi-

cating additional unisons that may be employed and showing the action-frame connected to the key-board and adapted to shift therewith. Fig. 5 is a partial elevation similar to Fig. 4, but showing the action-frame disconnected from the key-board and showing the hammers stationary and not arranged to shift when the key-board shifts.

Similar letters of reference designate corresponding parts throughout all the different figures of the drawings.

In the drawings I have represented my invention as applied to an upright piano. Although my invention may perhaps be best adapted for this style of piano-forte, yet I do not wish it to be understood that I am restricted to this alone, but reserve the liberty of employing the invention in any kind of a piano, organ, melodeon, or other musical instrument where it can be arranged.

A denotes the key-board frame of the ordinary rectangular form and of suitable length and width to adapt it to be properly arranged upon the instrument-casing B.

a a a denote the white keys, and *b b* the black keys. I have shown only a few of these keys, it being unnecessary to the complete understanding of the invention to illustrate all of them. The keys are pivotally mounted on the longitudinal bar C, connected to the ends of and forming a part of the key-frame. The key-frame also includes the transverse bars *c c*. The key-frame as thus described is adapted to slide horizontally upon the instrument-casing in either direction, either to the right hand or to the left, as shown by the arrows and dotted lines in Fig. 1. In said figure the key-board is shown as occupying its normal position. When it is shifted to the left, the result will obviously be to lower the pitch of tone, and when it is shifted to the right the result will be a raising of the tone.

d d indicate guides consisting of grooved blocks secured to the casing B, which grooved blocks overlap the edges of the key-frame A at points where said key-frame is formed with depressions or recesses *a' a'*, which receive the overlapping parts of the guides *d d*. Thus these guides accurately hold the key-frame in proper place and determine not only its exact line of movement, but also the extent of its shift.

I do not wish to be confined to the precise structure of the key-board as herein explained, but reserve the liberty of varying the same to suit the exigencies of different cases.

In order to impart the shift to the key-board I make use of a leverage mechanism. An example of this is shown in the drawings. The key-frame near one end is provided with downwardly-extending projections or screws *ff*, which pass through parallel slots *ee* in the casing B. The lower ends of these screws or projections are fastened to the transverse horizontal bar D.

E represents a horizontal lever pivoted at one end to the under side of the casing B, while the other end of the lever is located near the front edge of the piano-casing, where it can be readily grasped by the hand of the player. Said lever E, at a suitable point in its length, is provided with a loop or staple *g*, which engages another loop located centrally on the transverse bar D. These loops, therefore, effect a pivotal connection between the lever and the transverse bar. It will be manifest that by moving the outer end of the lever E to the left or to the right a shift may be imparted to the key-board.

I provide the casing B near its front edge with a short bar or cleat of wood or wire F, having a central notch which receives the hand end of the lever E when the key-board is in its normal location, as shown in Fig. 1. When the lever has been shifted in one direction, it will rest at the end of this stop device, and when shifted in the other direction will rest at the other end of the said stop device. This device F therefore serves to keep the lever in proper position and prevent any inadvertent displacement thereof which might occur if there were no means for thus holding it.

The intention of my invention is either to shift the key-board alone or to shift it in connection with the other parts of the motion-works of the piano, such as the action-frame, the hammer, jacks, lifters, &c. When the key-board is connected to the action-frame, so that both may be shifted together, then it is obvious that the hammers which are carried by the action-frame will also be shifted. This construction is shown in Fig. 4. When the key-board is not connected to the action-frame, then the hammers will remain stationary, although the result of the shift will be to bring different hammers into play. This is shown in Fig. 5. In either case, however, it will be necessary to employ additional strings and unisons, although it will be evident that additional hammers will not be needed in the case where the action-frame is connected to the key-board; but only when the action-frame is stationary will additional hammers be needed for the extra unisons.

By referring to Figs. 4 and 5 the relative

arrangement of the strings, hammers, &c., of the upright piano will be clearly discerned. A detailed explanation of the same is not necessary here further than to say that the action-frame consists of the vertical end pieces G G, which are connected by the horizontal bars G' G'.

h h h denote the hammers. Additional unisons are placed at certain points where the spaces occur. These additional unisons are necessary obviously to provide a complete scale where the action occupies the second position when shifted to the right or the second position when shifted to the left.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a piano, organ, or other musical instrument, a shifting and transposing key-board, in combination with suitable guides, the ordinary and extra unisons, and a device for imparting the shift motion to the key-board, substantially as described.

2. The herein-described shifting and transposing key-board, consisting of the horizontal key-frame, the instrument-casing supporting it, the ordinary and extra unisons, the guides on the casing for said key-frame, and a lever connected to the frame for shifting it, substantially as specified.

3. The combination of the key-board, the guides therefor, the action-frame connected to the key-board, and a lever connected to the key-board for shifting it, substantially as described.

4. The combination of the key-board, the guide-blocks therefor, the hand-lever connected to the key-board for shifting it, and the stop device for regulating the extent of movement of said lever, as specified.

5. In combination with the ordinary and the extra unisons and the ordinary and the extra hammers and other parts of the shifting key-board, the guides therefor, and an operating-lever and stop, substantially as described.

6. The combination of the key-board, the slotted instrument-casing supporting it, the guide-blocks on the casing for said board, the downward projections on the board passing through the slotted casing and carrying a bar, the lever pivoted to the casing and to said bar, and the indented rod for determining the movement of the lever, as specified.

7. The combination of the key-frame A, having recesses *a'*, the instrument-casing B, supporting it, the guides *d d*, the lever E, and the cleat or bar F, all arranged substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES M. RICHARDS.

Witnesses:

FRED E. TASKER,
WM. L. BOYDEN.