

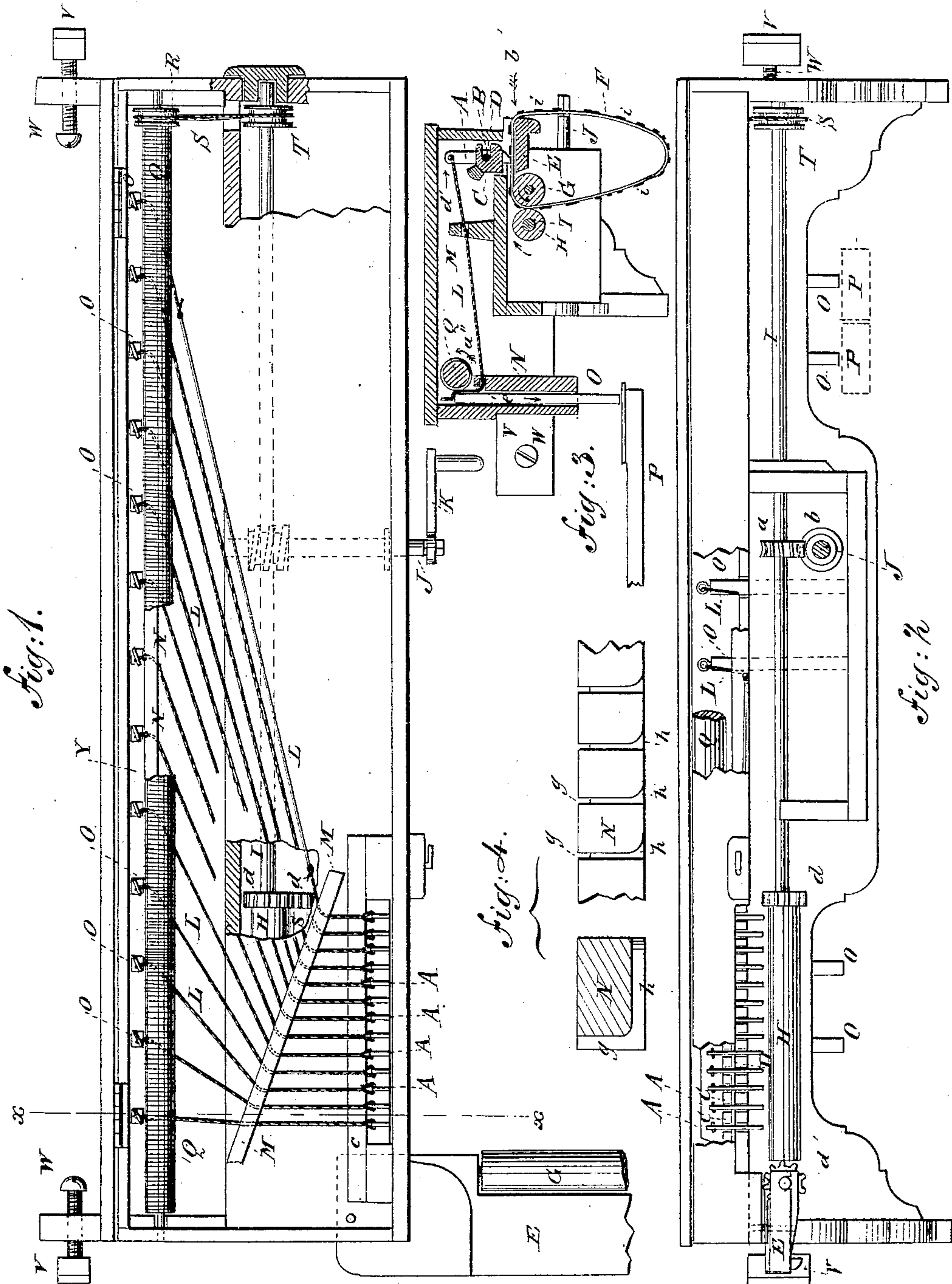
(No Model.)

C. C. REYNOLDS.

Key Board Attachment for Musical Instruments.

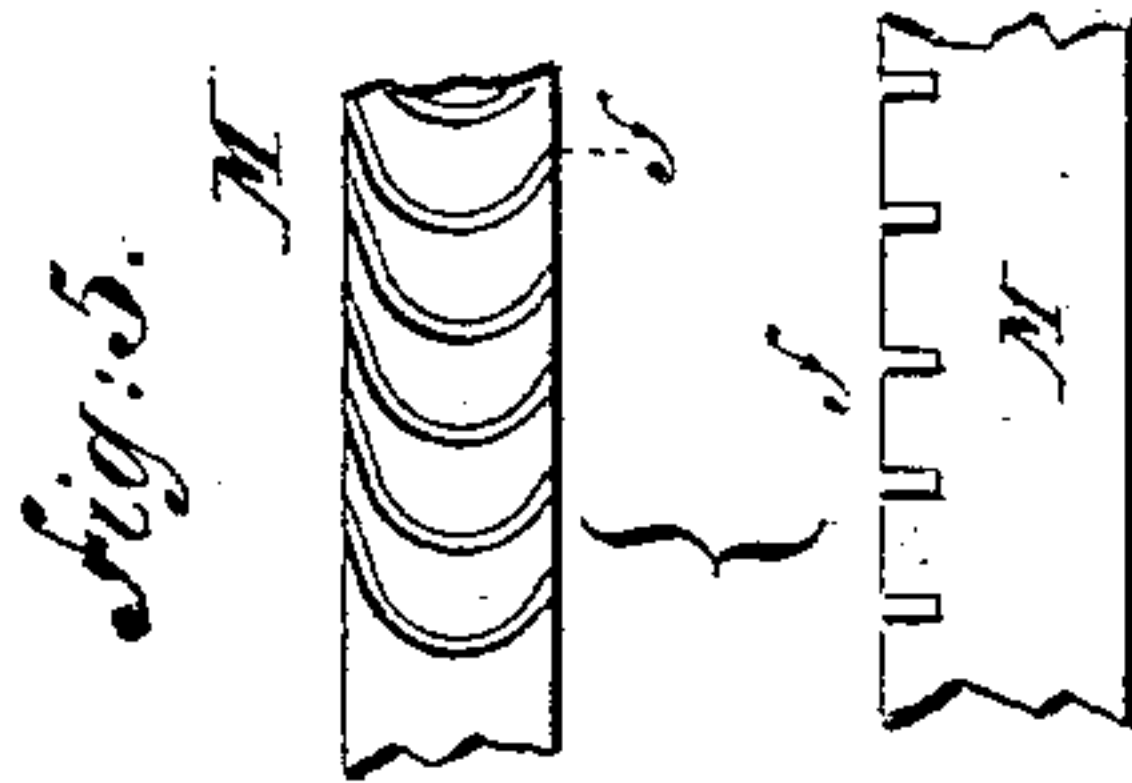
No. 231,849.

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WITNESSES:

Chas. Nieta.
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INVENTOR:

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BY *Mum & Co*
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UNITED STATES PATENT OFFICE.

CHRISTOPHER C. REYNOLDS, OF KELSEYVILLE, CALIFORNIA, ASSIGNOR TO HIMSELF AND WILLIAM G. YOUNG, OF SAME PLACE.

KEY-BOARD ATTACHMENT FOR MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 231,849, dated August 31, 1880.

Application filed June 11, 1880. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER C. REYNOLDS, of Kelseyville, in the county of Lake and State of California, have invented a new and Improved Key-Board Attachment for Musical Instruments, of which the following is a specification.

The object of my invention is to provide a new and improved attachment for the key-boards of musical instruments which is simple in construction and accurate and rapid in operation.

The invention consists in a series of levers pivoted adjacent to each other in such a manner that they can be acted upon by a moving sheet which has the notes cut out or raised and passes between two feed-rollers, which draw it under the lower ends of the above-mentioned levers, having a cord or wire attached to the upper ends, the said cords or wires passing over or through suitable bridges and being attached to the upper ends of a series of fingers resting on the keys of the instrument. By means of a crank the feed-rollers are rotated, thus moving the music-sheet as is necessary, and at the same time a roller arranged adjacent to and parallel with the row of fingers is rotated in such a manner as to assist in depressing the fingers, thereby relieving the music-sheet from undue strain.

In the accompanying drawings, Figure 1 is a plan view of my improved key-board attachment for musical instruments. Fig. 2 is a front elevation of the same. Fig. 3 is a cross-sectional elevation of the same on the line *xx*, Fig. 1. Fig. 4 is a cross-sectional elevation and view of the under side of the rear bridge. Fig. 5 is a cross-sectional elevation and plan of the front bridge.

Similar letters of reference indicate corresponding parts.

A series of levers, A A, rounded or curved at the lower ends, are pivoted in a bar, C, which is provided with a recess or cut for each lever. In the case shown the bar C is provided with a longitudinal groove, B, in the side, and a rod, D, in said groove passes through all the levers A A, thus pivoting or hinging them in said bar; but in place of this the levers may be pivoted in any other desired

or suitable manner. The said levers should be pivoted in such a manner that the fulcrum is below the center. The lower ends of the levers A touch the upper surface of the music-rack E, hinged or pivoted in such a manner that it can be drawn out, as shown in Fig. 1, to receive the notes, and can then be pushed back to its place, as shown in Fig. 3, whereby the note-sheet F is held between the feed-roller G, pivoted on the rack and forming the edge of the same, and the feed-roller H, mounted on a shaft, I, which is actuated by means of a worm-wheel, *a*, rotated by a worm, *b*, on a shaft, J, provided with a crank, K.

The feed-rollers G and H are covered with some flexible material, so as not to injure the notes and move the note-sheet forward regularly and uniformly, and are provided with spur-wheels *d d*, which engage with each other, so that the roller G rotates with the roller H.

Cords or wires L L are attached to the upper ends of the levers A, pass through or over the front bridge, M, and through or under the rear bridge, N, and are then attached to the upper ends of a series of fingers, O O, resting on the keys P P of the musical instrument.

The fingers O O pass through and are guided in a bar, Y, attached to the inner side of the rear wall of my improved attachment, and notched according to the position and size of the keys, which vary in the several kinds of instruments made.

The front bridge, M, consists of a rail, of wood, metal, or other suitable material, provided with a series of grooves, *f*, having a greater or less curvature, according to the angle the cord or wire forms at the bridge.

The rear bridge, N, consists of a rail provided with vertical grooves *g* on the back and a continuation, *h*, of said groove on the lower side, which continuation is curved at the ends to suit the inclination of the cords or wires.

A roller, Q, which may be plain or covered with rubber, leather, or other like suitable material, is pivoted parallel to and in contact with the rows of fingers O O. A pulley, R, is mounted on the end of said roller Q, and is connected, by means of a belt, S, with the pulley T on the shaft I in such a manner as to cause it to rotate toward the rear of the at-

attachment, as indicated by the arrow *a''*, Fig. 3. The within-described attachment is secured above the key-board by means of felted or cushioned blocks V, which are pressed against the key-board frame by means of screws W, or the attachment may be secured above the key-board in any other suitable manner.

The operation is as follows: The rack E is drawn out, the note-sheet F is placed on the same, and the rack is then closed, so that the note-sheet is between the feed-rollers G and H. The crank K is then turned from left to right, causing the feed-rollers to rotate in the direction of their arrows, whereby the note-sheet moves in the direction of the arrow *b'*. The projections *i* of the note-sheet F come in contact with the lower end of the lever A, and push it along, whereby the upper end of said lever moves in the direction of the arrow *d'*, drawing the cord or wire L in the same direction; but if the cord moves in the above direction the finger O, to which it is attached, will descend, as indicated by the arrow *e'*, and consequently depresses the key P, thereby producing the desired sound. The key remains depressed as long as the lever A is held by the projection *i* of the note-sheet F, and consequently the projections must be arranged according to the time desired in regard to position and size.

The shaft or roller Q is used to depress the fingers by its action on the fingers as soon as the cords L are drawn taut, or to assist in depressing said fingers, thereby relieving the projections of the note-sheets from an undue strain. The roller Q is driven directly from the crank, independently of the note-sheet, and is intended to do the greater part of the depressing of the keys or fingers.

The reaction of the keys of the instrument is strong enough to raise the fingers O as soon as the cords L are released. A finger, O, cord L, and lever A are arranged for each key, and the rows of projections on the note-sheet F must be arranged accordingly.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A key-board attachment for musical instruments, made substantially as herein shown and described, and consisting of a series of pivoted levers acted upon by the note-sheet and connected by strings or wires with a corresponding series of fingers resting upon the keys and acted upon by a friction-roller rotated at the same time with the feed-roller, between which the note-sheet is held, whereby the keys are depressed by the action of the friction-roller and of the projections of the note-sheet on the pivoted levers connected with the fingers.

2. In a key-board attachment for musical instruments, the combination, with the fingers O O, of the roller Q, arranged to operate substantially as herein shown and described, and for the purpose set forth.

3. In a key-board attachment for musical instruments, the combination, with the hinged or pivoted rack E, of the feed-rollers G and H, spur-wheels *d d*, and shaft I, substantially as herein shown and described, and for the purpose set forth.

4. In a key-board attachment for musical instruments, the combination, with the shaft I, of the feed-rollers G and H, the pulleys R and T, belt S, and roller Q, substantially as herein shown and described, and for the purpose set forth.

5. In a key-board attachment for musical instruments, the combination, with the strings L, of the levers A, fingers O, and bridges M and N, substantially as herein shown and described, and for the purpose set forth.

6. In a key-board attachment for musical instruments, the bridge N, constructed, substantially as herein shown and described, with a vertical groove, *g*, on the rear side and a horizontal groove, *h*, on the lower side, as set forth.

CHRISTOPHER C. REYNOLDS.

Witnesses:

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