(No Model.)

A. HOLMSTROM.

PIANO.

No. 477,938. Patented June 28, 1892.

Fig 1.

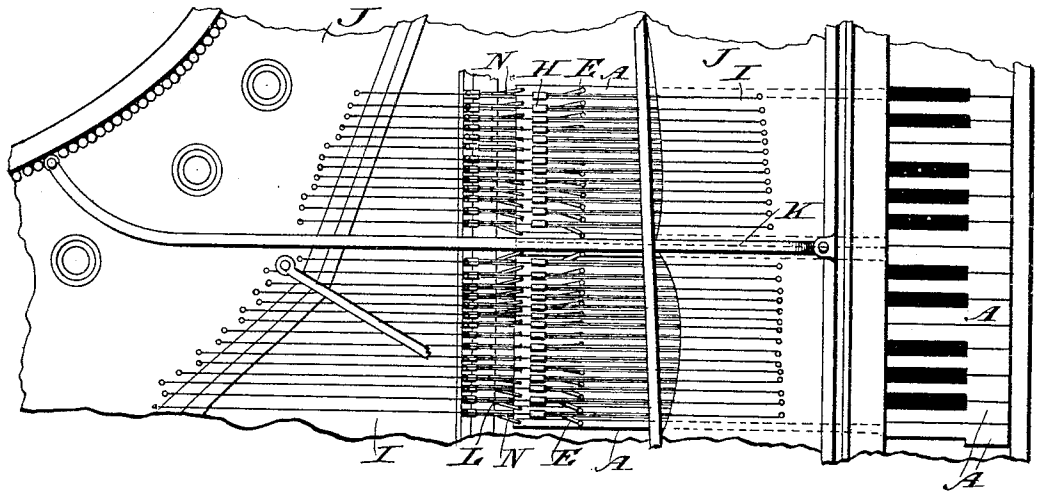


Fig 2.

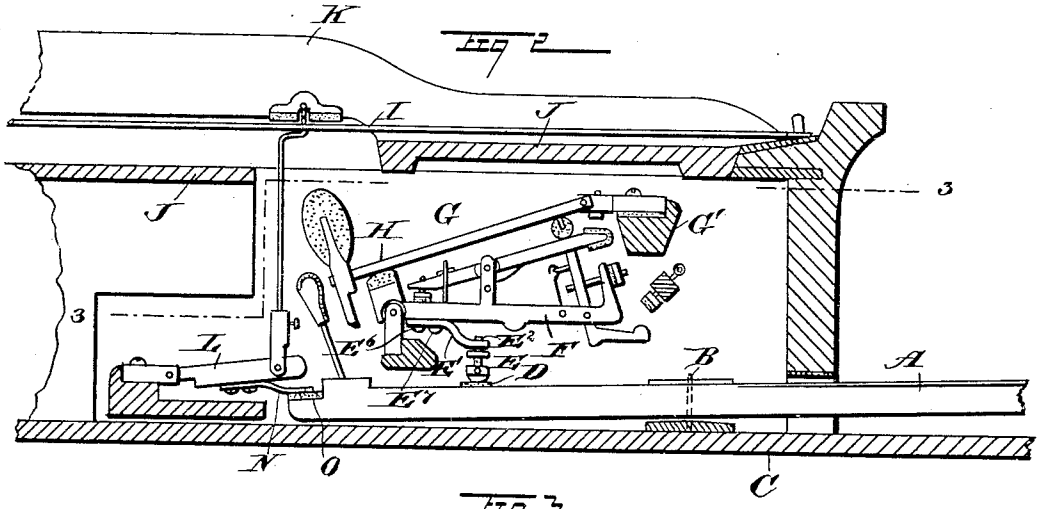
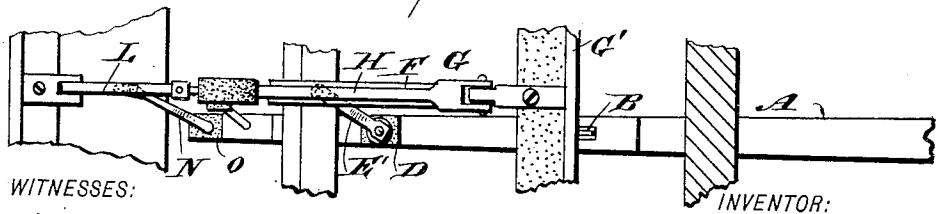


Fig 3.



WITNESSES:

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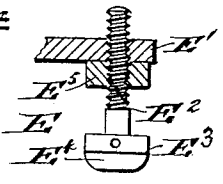
Fig 4.



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SPECIFICATION forming part of Letters Patent No. 477,938, dated June 28, 1892.

Application filed February 24, 1892. Serial No. 422,600. (No model.)

To all whom it may concern:

Be it known that I, ANDERS HOLMSTROM, of the city, county, and State of New York, have invented certain new and useful Improvements in Pianos, of which the following is a full, clear, and exact description.

The invention relates to musical instruments, such as grand and upright pianos having a movable keyboard.

The object of the invention is provide certain new and useful improvements in pianos, which permit of shifting the keyboard and at the same time make proper connection between the fixed actions and the shifted keys.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter described, and then pointed out in the claims.

Figure 1 is a plan view of the improvement as applied. Fig. 2 is an enlarged transverse section of the improvement. Fig. 3 is a sectional plan view of the same on the line 3 3 of Fig. 2, and Fig. 4 is an enlarged sectional elevation of the lifter.

In pianos as heretofore constructed the keys were bent at their inner ends to extend under the respective connections, which, owing to the strengthening-ribs of the metallic frame, are not placed equidistant apart. Thus in order to have the outer ends of the keys arranged one alongside the other and to meet at their inner ends the unequally-spaced actions it becomes necessary to bend the inner ends of the keys so as to connect with the lifters. Now in pianos having a longitudinally-adjustable keyboard—such, for instance, as shown in the Patent No. 446,289, dated February 10, 1891, and granted to me—the keys, if constructed as above described and shifted longitudinally, will not register with the corresponding lifters of the actions, owing to the different bends of the inner ends of the several successive keys.

In order to overcome this difficulty and to permit of shifting the keyboard longitudinally any desired number of tones and to then connect with the lifters in the proper manner is the object of the invention presently to be described.

All the keys A in the piano are made straight and placed one alongside the other, as plainly illustrated in Fig. 1. Each key A is pivoted at B to the frame C of the piano, and near the inner end and on top of each key is placed a pad D, of felt or other suitable material, and on which rests the lower end of the lifter E, held on the under side of the hopper-lever F of the action G. The several actions are fastened to the hopper-rail G′, and their hammers H are adapted to strike and sound the strings I, arranged across the sounding-board J of the frame C. The hammers H, in swinging to strike the strings I, pass through the usual openings in the sounding-board J, over which extend the usual transverse and longitudinal braces K of the metallic string-frame.

It will be seen by reference to Fig. 1 that the two actions G on opposite sides of any of the transverse ribs or bars K are placed farther apart than two adjacent actions between the ribs. Consequently the actions are not directly above the respective keys A. Now, in order to connect the hopper-lever F with the corresponding key A, the lifter E must extend sidewise so as to engage its key, and in case the entire keyboard is shifted the next following key will make the same proper connection with the corresponding lifter of the action.

As shown in Fig. 1, the several lifters E are extended sidewise a greater distance as they near one of the ribs K, while the lifters belonging to the actions located about midway between two adjacent transverse ribs K are in perfect alignment with the key below.

As illustrated in Figs. 2 and 3, each lifter E comprises a bar E′, attached at one end to the under side of the hopper-lever F and carrying at its free end a screw-rod E^2, formed at its lower end with a head E^3, covered by a soft material E^4, adapted to rest on top of the pad D on a corresponding key A. A jam-nut E^5 screws on the screw-rod E^2 and is adapted to abut against the under side of the bar E′, so as to lock the screw-rod E^2 in place after the latter is adjusted to the proper height to make the correct connection with the pad D.

In assembling the several parts of the piano the workman fastens the bar E′ by but a single scew E^6 to the under side of the hopper-lever F, so that this single screw forms a fulcrum for swinging the bar E′ to one side until the head E^3 of the screw-rod E^2 is in the proper place above the pad D. As previously

explained, the bars E′ of the several lifters are more or less moved sidewise to make proper connections with the keys. After this has been done a second screw E^7 is employed to securely fasten the bar E′ to the hopper-lever F, so that the bar E′ cannot change its position—that is, the angle at which it extends sidewise relative to the hopper-lever F. When the bars of the several lifters have thus been adjusted to bring the heads E^3 in alignment with the pads D of the corresponding keys A, then the keyboard can be shifted longitudinally any desired number of keys; but the heads E^3 will always be found in proper alignment relative to the corresponding key to be engaged by the latter when the key is pressed.

The connection between the inner end of each key A and the damper-lever L is made in a similar manner by a bar N, extending sidewise from the lever and fastened thereto at the under side, the free end of the bar engaging the padded end O of the respective key A.

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

1. In a piano, the combination, with a keyboard having straight keys, of actions arranged out of alignment with the said keys and a lifter for each action and comprising a bar pivotally connected with the hopper-lever of the action to permit of swinging the bar sidewise to bring its free end over the corresponding key, and means for fastening the bar in place after it is swung into proper position relative to its key, substantially as shown and described.

2. In a piano, the combination, with a keyboard having straight keys, of actions arranged out of alignment with the said keys and a lifter for each action and comprising a bar pivotally connected with the hopper-lever of the action to permit of swinging the bar sidewise to bring its free end over the corresponding key, means for fastening the bar in place after it is swung into proper position relative to its key, and a screw-rod having a head and screwing in the free end of said bar to adjust the head relative to the key, substantially as shown and described.

3. In a piano, the combination, with a keyboard having straight keys, of actions arranged out of alignment with the said keys and a lifter for each action and comprising a bar pivotally connected with the hopper-lever of the action to permit of swinging the bar sidewise to bring its free end over the corresponding key, means for fastening the bar in place after it is swung into proper position relative to its key, a screw-rod having a head and screwing in the free end of the said bar to adjust the head relative to the key, and a jam-nut to lock the said screw-rod in place after adjustment, substantially as shown and described.

4. In a piano, the combination, with a keyboard having straight keys, of a damper-lever arranged out of alignment with the corresponding key, a bar pivoted to the said lever and to permit of swinging it sidewise to bring the free end of the bar over the end of the corresponding key, and means for fastening the bar in place on the said lever after it is adjusted relative to the keyboard, substantially as shown and described.

ANDERS HOLMSTROM.

Witnesses:
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