

(No Model.)

2 Sheets—Sheet 2.

J. DIERDORF.
PIANO.

No. 602,681.

Patented Apr. 19, 1898.

Fig. 2.

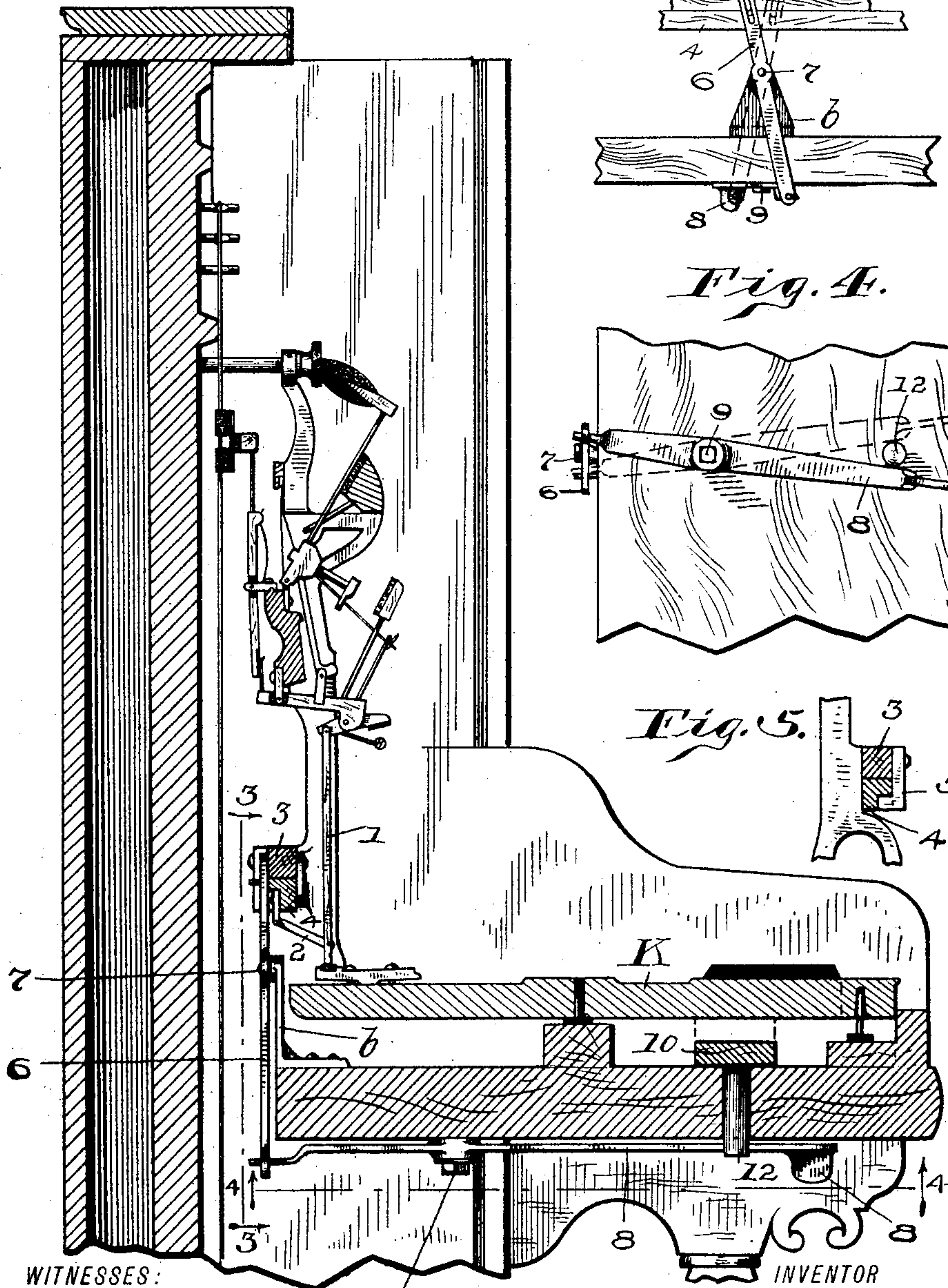
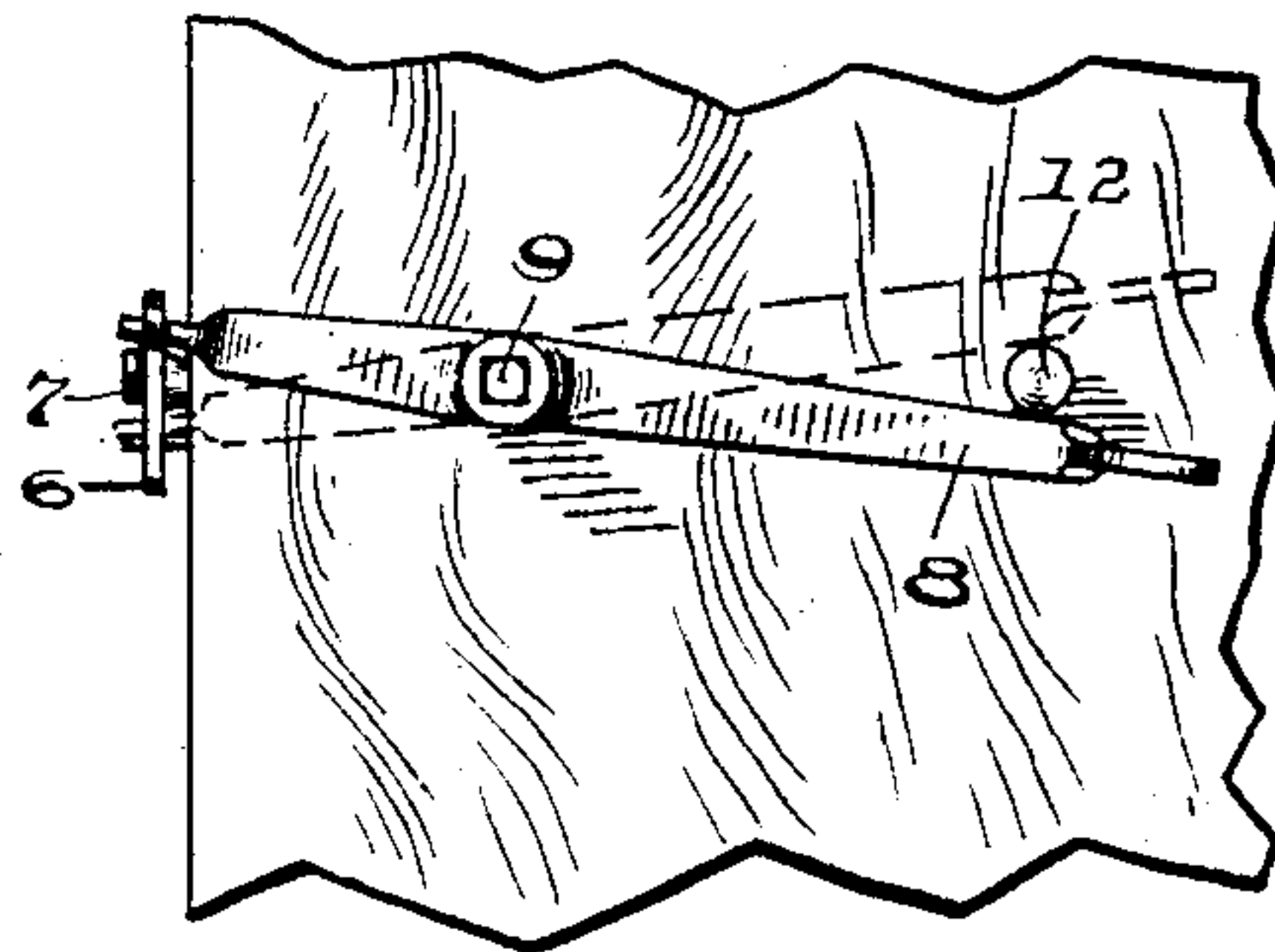


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN DIERDORF, OF INDIANAPOLIS, INDIANA.

PIANO.

SPECIFICATION forming part of Letters Patent No. 602,681, dated April 19, 1898.

Application filed October 28, 1897. Serial No. 656,687. (No model.)

To all whom it may concern:

Be it known that I, JOHN DIERDORF, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Pianos, of which the following is a specification.

Pianos for home use are commonly tuned to what is known as "international pitch." Pianos for public use are commonly tuned to what is known as "concert pitch," which is half a tone higher than the ordinary or international pitch. The changing of the pitch is a work of considerable magnitude and is only effected by a complete retuning of the piano.

The object of my invention is to provide a means by which the tone may be instantaneously changed from one pitch to the other without retuning the piano at all, so that any person, however inexperienced or unfamiliar with piano construction, may be able to change the piano from one pitch to the other as frequently as may be desired.

Said invention will hereinafter be first fully described, and the novel features then pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof and on which similar letters and figures of reference indicate similar parts, Figure 1 is a partial front elevation of the interior of an upright piano, showing, however, only a few of the hammers, rods, and levers embodied in the piano-action and a corresponding number of the strings or wires of the scale; Fig. 2, a transverse vertical sectional view as seen from the dotted line 2 2 in Fig. 1; Fig. 3, a detail elevation of the rear end of the shifting device as seen from the dotted line 3 3 in Fig. 2; Fig. 4, an under side plan view of the shifting lever and immediately adjacent parts as seen from the dotted line 4 4 in Fig. 2, and Fig. 5 a detail sectional view showing how the shifting bar is supported as seen from the dotted line 5 5 in Fig. 1. Figs. 3 and 4 are on a somewhat smaller scale than the other figures.

Except as hereinafter described, it may be understood that the piano is or may be of any ordinary or desired construction. Its frame, keyboard, scale, and action remain un-

changed, except that the scale contains one more string (or set of strings) than is usual and the action correspondingly one more hammer, with the attached rods and levers. Those rods 1, which are directly operated upon by the piano-keys, however, instead of being exactly perpendicular, as they are ordinarily placed, are inclined somewhat to one side, and instead of being laterally stationary, as they ordinarily are, they are capable of being shifted laterally just far enough so that while in one position each will be arranged to be operated by a certain key of the piano and when shifted to the other position be arranged to be operated by the adjacent key.

As is well known to persons skilled in the art, the difference between "international" or "ordinary" pitch and "concert" pitch, as they are respectively called, is approximately half a tone, and a piano is, as is also well known, so tuned that the difference in tone between any string or set of strings and the immediately-adjacent string or set of strings is also half a tone, so that by the shifting of position above described the instrument, by the same manipulation, will play half a tone higher or lower than before, according to the direction in which the shifting occurs—that is to say, suppose that the instrument is tuned to the ordinary or international pitch and it is desired for some purpose to use the piano at concert pitch. The change is effected by shifting the rods 1, so that each of them will be operated by the key next lower in the scale than the one by which it had before been operated.

In carrying out this invention I have made the following changes in the construction of the piano: Heretofore there has been a bar rigidly connected to the frame of the "action," by which the links 2 (whereby the lower ends of the rods 1 are held in place) were supported. This bar I have split into two halves, leaving the upper half 3 stationary, as before, but making the lower half 4 movable endwise a distance equal to the horizontal diameter of a piano-key. The means of supporting the shifting portion 4 is best shown in Fig. 5 and consists of a suitable clip 5, screwed fast to the portion 3 and underhanging or fitting into a groove in the lower

outer corner of the portion 4, to which, as best shown in Fig. 2, the links 2 are now connected.

I provide a vertical lever 6, mounted on a suitable pivot 7, as the immediate means of operating this shifting bar or bar portion, said pivot being carried by a bracket *b* from a suitable rigid point on the piano-frame, as best shown in Fig. 2. I also provide a horizontal lever 8, carried from a pivot 9, also on said frame, the free end of which lever extends toward the front of the piano to a suitable point to be reached and moved by the hand of the operator while its other end engages with the lower end of the lever 6.

I have provided a leveling-bar 10, running substantially the entire length of the keyboard, which said bar is adapted to be thrown up by a push-pin 11, as shown in Fig. 1, said push-pin being preferably arranged about centrally of the piano longitudinally. This leveling-bar is shown as positioned just below the forward portions of the keys *K*; but it may obviously be arranged in any position where it is enabled to do the work of bringing the keys *K* and rods 1 into such relative positions which permits them to be shifted in relation to each other without danger of catching upon and destroying or harming each other. I have also provided a stud 12, extending down from this bar 10, of just sufficient diameter to act as a stop or lock and hold the lever 8 to either of its extreme positions, according as said lever is moved to one side or the other of said stud.

The operation of my said invention is as follows: Whenever it is desired to change the tone of the piano in the manner above described, the operator first pushes up on the push-pin 11, raising the bar 10, which comes in contact with the under sides of the forward portions of the piano-keys *K* and insures that they are all thrown up to a substantially level position, so that their inner ends shall be clear from the vertical rods 1. This also raises the stud 12 out of the path of the lever 8. The operator then shifts the lever 8 to its other position and releases the push-pin 11,

permitting the leveling-bar 10 and the stud 12 to descend to their normal position. The lever 8, through the lever 6, shifts the bar 4, and with it, of course, through the links 2, all the vertical rods 1, with the result hereinbefore fully explained.

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

1. The combination, in a piano, of the action, the keyboard, each lower member 1 of the action being connected at its upper end to the next member to swing laterally and near its lower end to a shifting bar, said lower member 1 being also somewhat inclined from a perpendicular when in operative position, and means for operating said shifting bar, substantially as set forth.

2. In a piano, the combination, of the action, the keyboard, the shifting bar 4 mounted to reciprocate in suitable supports on the frame of the piano, the levers 7 and 8 connected with said bar for operating the same, the lower members of the action being each connected to said shifting bar by a link and connected to the next member of the action by a joint which permits a sidewise swing of said lower member, said lower member being normally somewhat inclined from a perpendicular position, substantially as described and for the purposes specified.

3. The combination, in a piano, of the action, the keyboard, a shifting apparatus for the lower members of the action, a leveling-bar carrying a stop or lock and a push-pin for elevating said leveling-bar and throwing said stop or lock out of the path of the lever, while at the same time insuring the correct position of the keys for the shifting, so that the shifting operation shall not be interfered with thereby.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 25th day of October, A. D. 1897.

JOHN DIERDORF. [L. S.]

Witnesses:

CHESTER BRADFORD,
JAMES A. WALSH.