July 12, 1938. A. A. DAVIDSON 2,123,526

PIANO ACTION

Filed Sept. 27, 1937

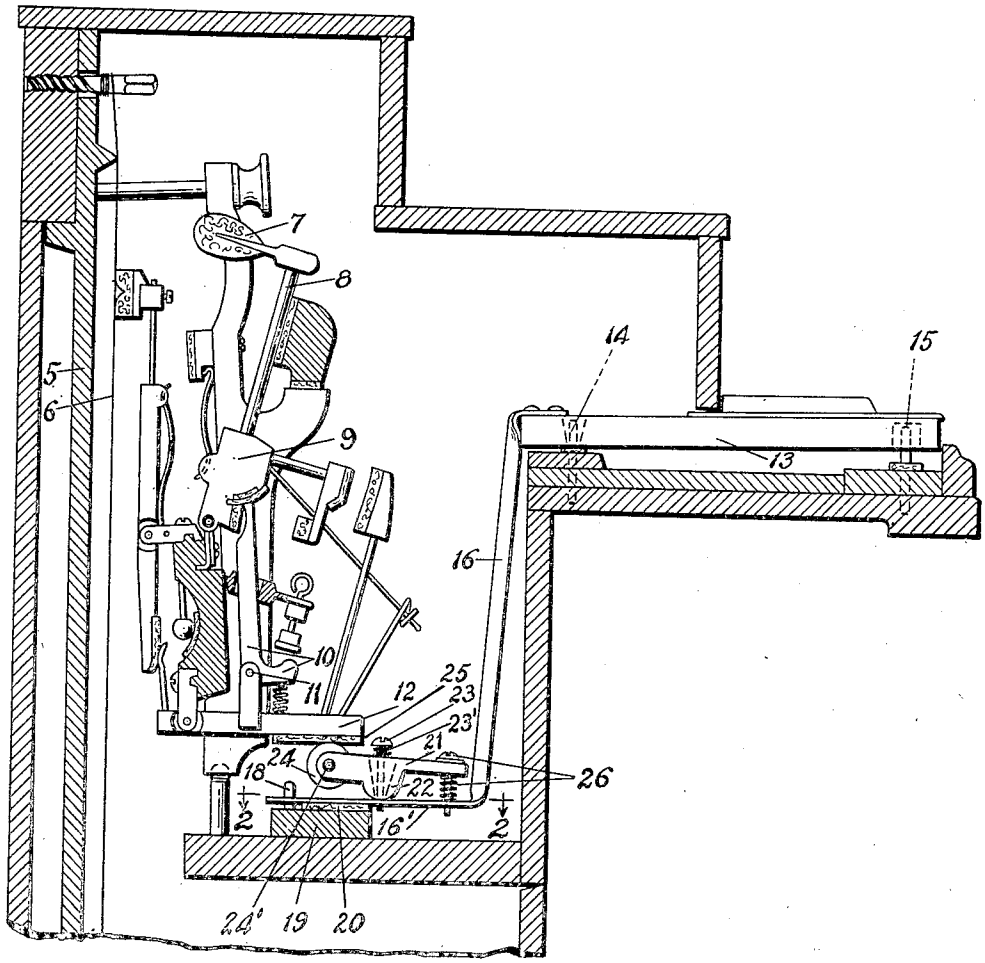

Fig. 1

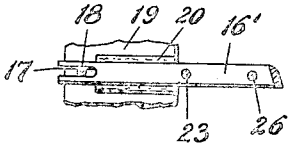

Fig. 2

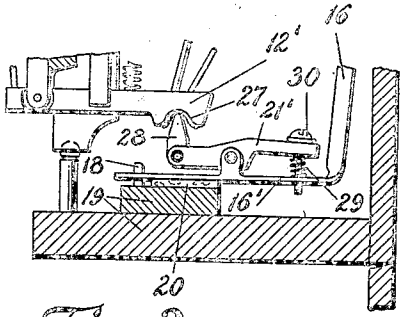

Fig. 3

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Patented July 12, 1938

2,123,526

UNITED STATES PATENT OFFICE

2,123,526

PIANO ACTION

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Application September 27, 1937, Serial No. 165,867

4 Claims. (Cl. 84—240)

In the manufacture of a certain type of piano, that is, the low, upright type, it becomes necessary to place the piano action mechanism lower down in the case, below the level of the key-board.

It is also necessary in modern pianos that greater care be used in the connections between the keys of the key-board and the hammer action, and that no friction and no drag be possible, for the keys and the key action must be very sensitive in touch and also in return to normal positions.

It is the object of my invention to overcome these objections and to provide a piano action which will be most accurate in its movements, sensitive in its response to the manipulations of the keys of the key-board, and which can be maintained in perfect alinement.

I am able to accomplish this by providing a rocker wippen lift lever, with adjustments therefor, and with anti-friction bearing means between the end of said lift lever and the wippen or jack-lifting member, thus making the action sensitive and free from drag.

In order to describe my invention, I have illustrated the same on the accompanying sheet of drawings in connection with the standard parts of a piano action, as the same are adapted to the low type of upright piano, though it will be understood that my invention can be applied to most any type of piano action where sensitiveness and quick response to manipulations is required.

Referring now in detail to the drawing, I will describe more in detail the embodiment of my invention as here illustrated:

Figure 1 is a vertical sectional view through the upper part of a low piano, showing my invention embodied therein;

Figure 2 is a horizontal sectional view, taken on line 2—2 of Figure 1 to show a detail of construction; and

Figure 3 is a modified embodiment of my invention, only the parts having to do with my invention being shown.

In the manufacture of a certain type of piano, it is the aim to have it low and this necessitates the placing of the piano action lower down in the case than in the taller pianos.

Most of the mechanism in Fig. 1 of the drawing herewith is old and well understood and need not be described in detail.

A vertical plate or member 5 carries the strings 6 in the usual manner. A hammer 7, on a stem or shank 8, with a hammer butt 9 is operable for striking the string. A jack 10, is pivotally supported, as at 11, on a wippen or jack rocker 12, and when this wippen is raised, it operates through the jack 10 and the butt of the hammer to actuate said hammer 7 against the string, all in the usual and well known manner.

The piano key is designated 13, pivotally supported in place at 14, with suitable guide pin 15 at its forward end.

In effective piano playing, it is necessary that the movements of the keys be sensitive and that there be no friction or drag, so that the keys and connections will return instantly to their normal positions. It is to improve this piano action that my invention has been worked out.

In accomplishing this, I have shown attached to the reaward end of the key 13, a metal bar 16 which is thence extended downwardly and rearwardly L-shape, as at 16' and have provided the end thereof with an open slot 17, which moves over an upstanding pin 18, set in a base or bed member 19, with a piece of felt 20 thereunder as a soft, flexible cushion support for the L-portion of said member 16, as clearly illustrated.

Pivotally mounted upon this L-portion 16' is a lift lever 21, having a fulcrum portion 22, held in place on said member 16' by means of a screw 23, with sufficient clearance to permit the rocking movement of said lever 21.

At the outer end of said lever 21 is a wippen lift roller 24, positioned to bear upwardly against a felt pad 25 on the under side of the wippen or jack rocker 12, as clearly indicated. As these felt members sometimes become worn or packed, it is necessary to provide means for adjustment for accuracy. For this purpose I have provided at the opposite end of the lever 21 a spring support with a screw, as at 26, whereby the finest adjustment can be made. Said screw 26 screws into said L-portion 16', as does also the screw 23.

The metal bar member 16 has an advantage in that it can be slightly bent at any time, if necessary, to keep the keys in perfect register and alinement. The lift roller 24 may also have the usual felt or other anti-friction bearing at 24'. A coiled spring 23' may also be placed around the screw 23, in the upper side of the lift lever 21.

Thus I have provided a sensitive, no-drag connection between the lower end of the member 6 and the wippen or jack lifting member 12, with provision for accuracy adjustments so that all parts can be maintained in proper contact and alinement and be instantly responsive to touch, or to return to normal positions.

In Fig. 3 I have shown some slight modifica-

tions to accomplish much the same result. The similar parts are similarly numbered. Instead of a straight wippen, I have provided a wippen member 12' having under its end a kind of saddle formation, with felt lining, as designated at 27, and have provided a pivoted finger 28, on the end of the lift lever, designated 21', said lift lever having under its opposite end a spring 29, and an adjustment screw 30, screwed into the L-portion 16' of the member 16.

It is to be understood that my improved features of a piano action are such as can be adapted to the standard action and is applicable thereto, thus making it possible of application to present standard actions without much reconstruction thereof and also making it possible to correct the imperfections in some standard actions with little expense compared with a complete new action.

While I have shown and described one practical embodiment of my invention, I am aware that changes in the details of construction and arrangement can be made therein without departing from the spirit thereof, and I do not, therefore, limit the invention to the showing made for explanatory purposes, except as I may be limited by the hereto appended claims.

I claim:

1. A piano action for connecting the key thereof with the hammer thereof, through the wippen, which includes a depending member connected at its upper end with the rearward end of the key, and at its lower end having an angle portion, a lever pivotally supported on said angle portion, said lever having means at one end for adjusting it, and anti-friction means interposed between the other end of said lever and said wippen, whereby the movement of said lever moves said wippen and said hammer.

2. In a piano action, the combination with a key, a hammer, and a wippen, of a member connected with the rearward end of said key and depending therefrom and having an L-portion at its lower end, a lever pivotally supported on said L-portion, said lever having screw means at one end for adjusting it up and down, and a movable element connecting the other end of said lever operatively with said wippen, whereby the movement of said lever from said key operates through said lever to move said wippen.

3. A piano action mechanism connecting the key with the hammer thereof which includes in combination: a member connected with the rearward end of said key and depending therefrom and having at its lower end an L-portion extending rearwardly, a movement transmitting lever pivotally mounted upon said L-portion, adjustment means at one end of said lever for raising or lowering it, and means at the other end of said lever for engaging and moving the hammer actuating mechanism, said means including an anti-friction roller for transmitting movement from said lever.

4. In a piano action, the combination with the key, the hammer, the jack and the wippen, of a downwardly depending member from said key having an angular portion at its lower end, a lever pivotally supported on said angular portion, intermediate its ends, spring and screw means at one end for adjusting said lever, and anti-friction means including a felt pad, interposed between the other end of said lever and said wippen, whereby key-movement is transmitted through said pivoted lever to said wippen, jack and hammer.

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