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GRAND PIANO ACTION

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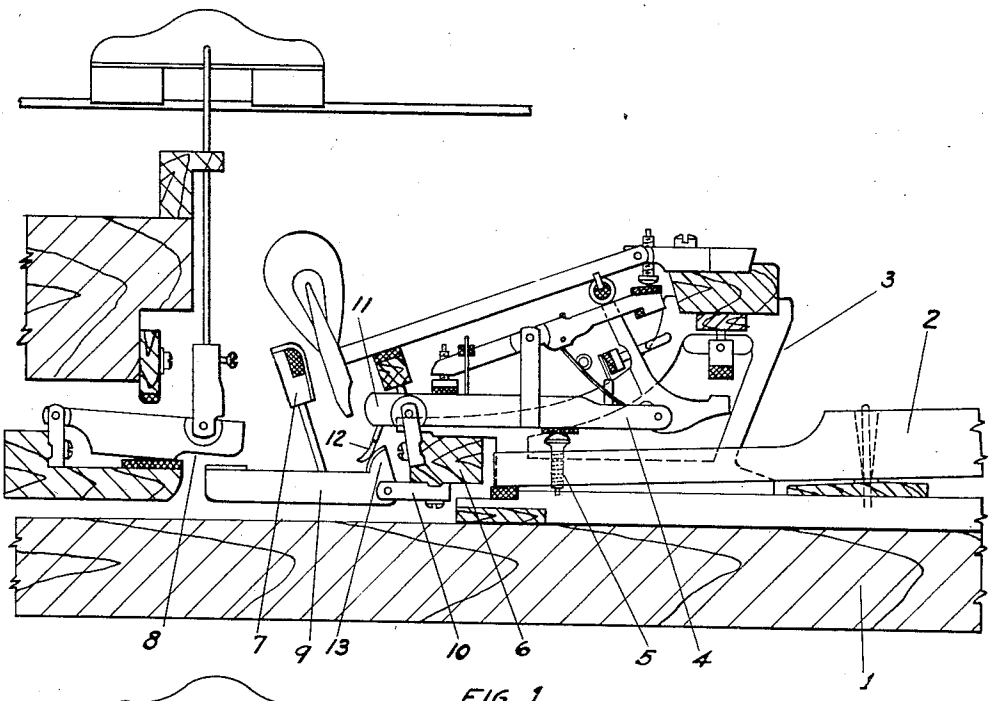


FIG. 1

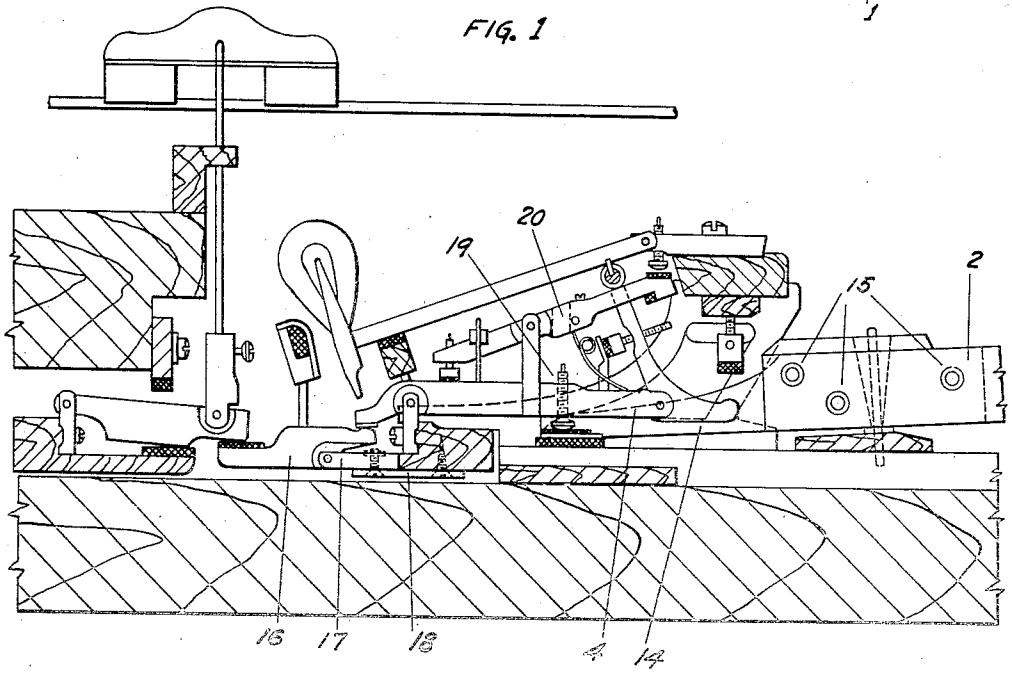


FIG. 2

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GRAND PIANO ACTION

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5 Claims. (Cl. 84—239)

Our invention has reference to grand piano actions.

The principal object of the invention is to provide an action which will occupy less depth than the conventional action, thus permitting the case of the grand piano to be of less vertical compass.

Another object is to achieve the aforesaid object without complicated mechanism and to provide an action which is similar to and can be adjusted by anyone acquainted with the conventional type of grand piano action.

Briefly, our invention contemplates the following:

(1) The divorcing of the back-check and the damper lever from the key, these parts to be operated by a wippen-actuated lever at the rear of the wippen.

(2) The use of a key whose extension behind the balance rail shall be less than usual, so as to terminate in front of the rear action rail (often called the wippen rail).

(3) The lowering of the wippen rail into the space effected by the provisions (1) and (2), and the suspension of this rail from the under side of the action brackets.

(4) The removal of the capstan block from the under side of the wippen and a reduction in the vertical compass of the rear part of the key.

(5) The provision of special means for removing lost motion between the key and the hammer.

(6) The support of the wippen-actuated lever of (1) on horizontal flanges attached to a lower part of the wippen rail.

For a disclosure in greater detail of our invention, we refer to the following parts of this specification and the drawing which form a part hereof. In the drawing,

Figure 1 is a side view of one modification of the grand piano action of our invention.

Figure 2 is a side view of another modification.

With reference to Figure 1, a grand piano keybed 1 supports a keyboard on which is an intermediately pivoted key 2. Above the rear part of the key 2 is a rather conventional grand piano action 3. It will be noted that the capstan block of the wippen 4 of the action has been removed and that the rear part of the key 2 has been reduced in vertical dimension by removing material from its upper surface. These operations permit of the lowering of the action 3, in coordination however with the following: the rear part of the key is shortened so as to extend less rearwardly than usual, this part of the key now carrying only a capstan screw 5 instead of the capstan screw and back check of the conventional grand piano key. The wippen rail 6 of the action 3 may then be lowered into the space created by the shortening of the key 2, and suspended from the under side of the action bracket so as to be located, as shown, just to the rear of the key and substantially on a level therewith.

In pursuance with the above the back-check 7 and damper mechanism 8 are operated by a rearwardly extending lever 9 of the bell-crank type. This lever is pivoted on a horizontally disposed flange 10 screwed to the under side of the rail 6 and is actuated by a rearward extension 11 of the wippen 4 carrying a downwardly directed metal spoon 12. The spoon 12 contacts the vertical member 13 of the lever 9. Supported on the horizontal part of the lever 9 is the conventional back check 7. The extreme rear portion of lever 9 operates the damper mechanism 8.

Downward motion of the front part of the key 2 raises the rear part, the capstan screw 5 attacking the wippen 4 impelling it upward to operate the action 3 and to produce a piano tone. With this, both the back-check 7 and damper mechanism 8 are operated through the intermediary including the spoon 12 and lever 9.

With the reduction in height of the action it becomes inconvenient to operate upon the capstan screw 5 from in front of the action. This screw is therefore extended below the key 2 and provided with a male head thereon. It is adjusted from underneath by removing the action from the instrument, it being understood that the rear part of the keyframe may be substantially open for this purpose.

The modification shown in Figure 2 permits of greater reduction in action height than that of Figure 1. In this, the rear part of the key 2 may be composed of a metal extension 14 of L-shaped cross-section, in the compass of which the wippen 4 may be situated. The extension 14 is attached to the wood part of the key by rivets 15. The lever 16, corresponding to the lever 9 of Figure 1, is of the first class and operates substantially as does lever 9, from a rearward extension of the wippen. Lever 16 is pivoted on a horizontal flange 17 carried on a horizontal plate 18 screwed to the wippen rail and forming a part thereof.

In the modification, Figure 2, the capstan screw 19 is regulated vertically as is the screw 5 of Figure 1. In this, however, the screw 19 is carried by the wippen and has an upward ex-

tension including a male head. It is adjusted from above through a slot-shaped hole **20** in the repetition lever.

It is seen that, according to our invention, any key 2 may be easily removed from the instrument, substantially as are conventional upright piano keys. This differs thus from the removal of conventional grand piano keys which require an extreme bending of the back check wire for removal.

Having described our invention, we claim:

1. In a grand piano action, a key frame, an intermediately pivoted playing key supported horizontally on said key frame, a bracket attached to said key frame and extending upwardly therefrom, a rail attached to said bracket so as to be located immediately and entirely behind said key and substantially on a level therewith, a flange attached to the under side of said rail and extending rearwardly therefrom, a lever pivoted intermediately on said flange and extending rearwardly and upwardly respectively therefrom, a second flange attached to said rail and extending upwardly therefrom, a wippen pivoted intermediately on said second flange so as to extend forwardly therefrom over said key, said wippen having also a rearward extension off set downwardly and bearing against the upward extension of said lever, a back-check carried on said lever for checking the back motion of the hammer of said action and a damper mechanism operated by said lever whereby an action mechanism of reduced height is provided in a grand piano and whereby a key may be readily removed from the piano, solely by geometric displacement of the key.

2. A piano action as in claim 1, wherein the rear part of said key is a metal portion of L-shaped cross-section, said wippen being partly within the compass of said metal portion and carrying a regulating screw bearing downwardly against said metal portion for adjustably locating at least said wippen with respect to said key.

3. The combination as claimed in claim 1, including regulating means between said key and said wippen for adjustably locating at least said wippen with respect to said key.

4. In combination in a grand piano, a horizontally disposed, intermediately pivoted playing key, a rail located immediately and entirely behind said key and substantially on a level therewith, an action located generally above said key, said action including a wippen pivotally connected to said rail so as to be located above said rail and to extend forwardly-rearwardly therefrom, the forward extension of said wippen overlying said key and the rearward extension of said wippen being offset downwardly, a lever pivoted behind said rail and extending rearwardly and upwardly respectively from its pivot, the rearward extension of said wippen bearing against the upward extension of said lever, means carried on said lever for checking the return motion of the hammer of said action, and a damper mechanism operated by said lever whereby an action mechanism of reduced height is provided in a grand piano and whereby a key may be readily removed from the piano, solely by geometric displacement of the key.

5. The combination as claimed in claim 4, including regulating means between said key and said wippen for adjustably locating at least said wippen with respect to said key.

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