

PIANO KEY LOCK.

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984,465.

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UNITED STATES PATENT OFFICE.

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PIANO-KEY LOCK.

984,465.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM G. BETZ, a citizen of the United States, residing at the town of Steger, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Piano-Key Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to key locks for mechanical musical instruments.

The object of the invention is to provide an economical, durable and simple device of this character, readily fitted beneath the keys of the instrument and adapted automatically to lock them when the hinged portion of the divided key-bed rail is lowered preparatory to mechanical playing, and to unlock them when the same is closed.

In general the invention comprises a rocking bar, located beneath the keys, intermediate of their forward ends and balance points, operated through levers by the hinged member of the divided key-bed rail and by a spring, so that lowering the hinged member releases the spring and causes it to rock the bar against the keys and lock them, while shutting the hinged member operates the levers to rock the bar against the force of the springs away from the plane in which the keys may oscillate during manual playing of the instrument.

It will be understood that the hinged member which extends across the front of the instrument is adapted to close the recesses in which various accent and expression levers, commonly used in mechanical players, are found, so that during mechanical playing the ends of these levers are exposed and convenient to the hand of the operator, while during manual playing they are concealed so that the external appearance in this respect does not differ from any ordinary instrument. This function of the hinged member is common to many instruments.

In the accompanying drawings, I have illustrated my invention in one of its preferred forms applied to a piano fitted with mechanism for operating it mechanically without interfering with its capacity for manual playing.

In the drawings, Figure 1 is a broken plan view of the keys and external portions of the key frame; Fig. 2 an end elevation taken on line 2 of Fig. 1 showing the parts in posi-

tion for mechanical playing, and Fig. 3 is a similar view showing the parts in position for manual playing.

A indicates the key bed, P the key frame and K the keys. On the forward end of the key bed is a divided key-bed rail R, comprising a stationary member 4 rigidly secured to the key bed, preferably integral with the key slip C, and the hinged member 5 pivotally secured to the stationary member by the winged hinges 6 pivoted at the point 7. This construction is adapted to permit the member 5 to be folded and laid back on the member 4.

In Fig. 2 the divided key rail is shown in opened position: in Fig. 3 it is shown closed. Intermediate of the forward ends and the balance points F of the keys K, and extending from side to side of the key bed beneath the keys is a rocking bar D. This bar is pivotally mounted upon the key frame B by means of the hinges 8, and is adapted to rock from a position below the top of the front rail E shown in Fig. 3 to a position in contact with the under side of the keys in their normal or quiescent position. As shown in Fig. 2 the surface of the bar, adapted to contact with the keys, is rounded and cushioned to prevent injury or jar to the keys. This cushion surface is indicated by the numeral 9.

A spring or tension device 10 secured to the key frame is adapted to force the rocking bar upward and swing it into elevated position to lock the keys. Pivoted intermediate of its ends to the front rail E at 11, is a lever 12, its rear end pivoted at 13 to the forward upper end of the bar D, and its forward end slotted at 14. Held in engagement within the slot 14 is a pin or rounded projection 15 on the rear of lever 16. Lever 16 is pivoted intermediate of its ends at 17 to member 4. The ends of this lever are curved upwardly, and the length of slot 14 and the arc of this curve are such that when the bar D is in elevated position the forward end of lever 16 projects above the top of member 4. Closing the hinged member of the key-bed rail R brings member 5 into contact with the forward end of lever 16, draws the projection 15 to the left hand end of slot 14, depresses the rear end of lever 12, and rocks bar D against the tension of spring 10 below the front rail E, thereby freeing or unlocking the keys K, while

opening the hinged member of the divided key-bed rail permits the tension of springs 10 to elevate the bar D and lock the keys, at the same time depressing the forward end of lever 12, drawing projection 15 to the right hand of slot 14 and elevating the forward end of lever 16 above the surface of the member 4. In order to hold the member 5 firmly in closed position, I provide a spring catch rigidly secured to the key slip on its forward surface, and adapted to engage the adjacent surface of the member 5 and hold it by friction firmly in position.

I am aware that many modifications of the preferred form of my invention here shown and described will suggest themselves to persons skilled in the art and I do not wish to be understood as limiting my invention thereto. But

What I claim is:

1. In a key lock for automatic pianos, a rocking bar adapted to lock and unlock the keys, a stationary key bed rail member a hinged key-bed rail member, adapted to open and close upon said stationary key-bed rail member, lever connections adapted to contact with said hinged member when the latter is closed and rock said bar to unlock the keys and a spring connected to rock said bar to lock the keys when released by the opening of said hinged member.

2. In a key lock for automatic pianos, a rocking bar beneath the keys, adapted to lock them against vertical movement when said bar is in elevated position and free them when in lowered position, a key bed rail comprising a stationary and a hinged member, the latter adapted to fold upon the former, a spring connected to hold said bar in elevated position, and levers connected to contact with said hinged member when the latter is folded upon the stationary mem-

ber and rock said bar against the force exerted by said spring to free said keys substantially as described. 45

3. In a key lock for automatic pianos, a rocking bar beneath the keys, a key-bed rail, a hinged key-bed rail member adapted to open and close a recess in the front of the instrument, lever connections between said rocking bar and member connected to rock said bar when said member is closed and a spring connected to rock said bar when said member is opened. 55

4. In a key lock for automatic pianos for mechanical musical instruments, in combination with keys, a hinged locking bar adapted to be rocked alternately to engage and disengage the keys, a hinged key-bed rail member, a spring connected to rock said bar to engage the keys, and means, operatively connected to said member, for rocking said bar against the force of said spring to disengage said keys. 65

5. In a key lock for automatic pianos for mechanical musical instruments, a rocking bar beneath the keys intermediate of their forward ends and balance points, a spring connected to swing said bar into engagement with said keys, a hinged key-bed rail member and levers pivoted intermediate of their ends and connected by a pin and slot joint, the rear end of one of said levers being pivoted to said bar and the forward end of the other projecting into the plane in which said member swings, whereby swinging said member against the forward end of said lever operates said levers to disengage said bar and keys, substantially as described. 80

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM G. BETZ.

Witnesses:

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