I. TOW.

DETACHABLE KEYBOARD FOR TRANSPOSING MUSIC ON PIANOS.

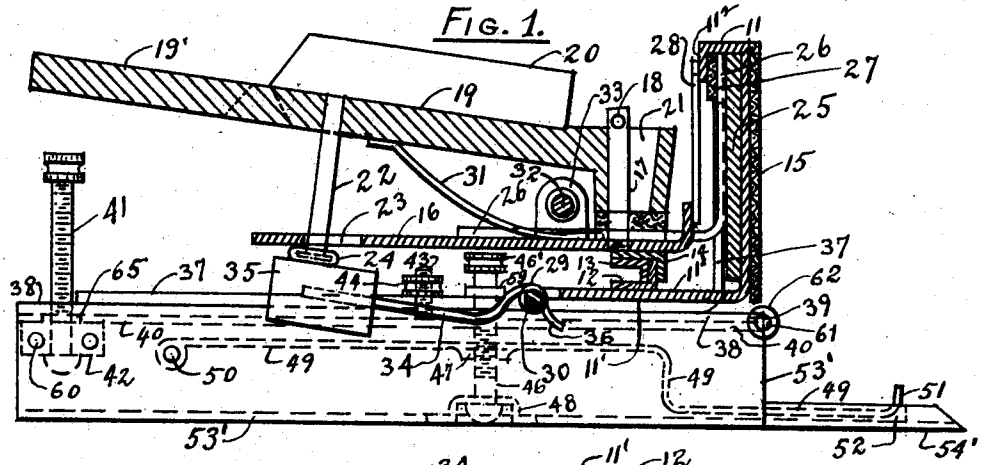
APPLICATION FILED FEB. 12, 1921.

1,392,883.

Patented Oct. 4, 1921.

2 SHEETS—SHEET 1.

FIG. 1.



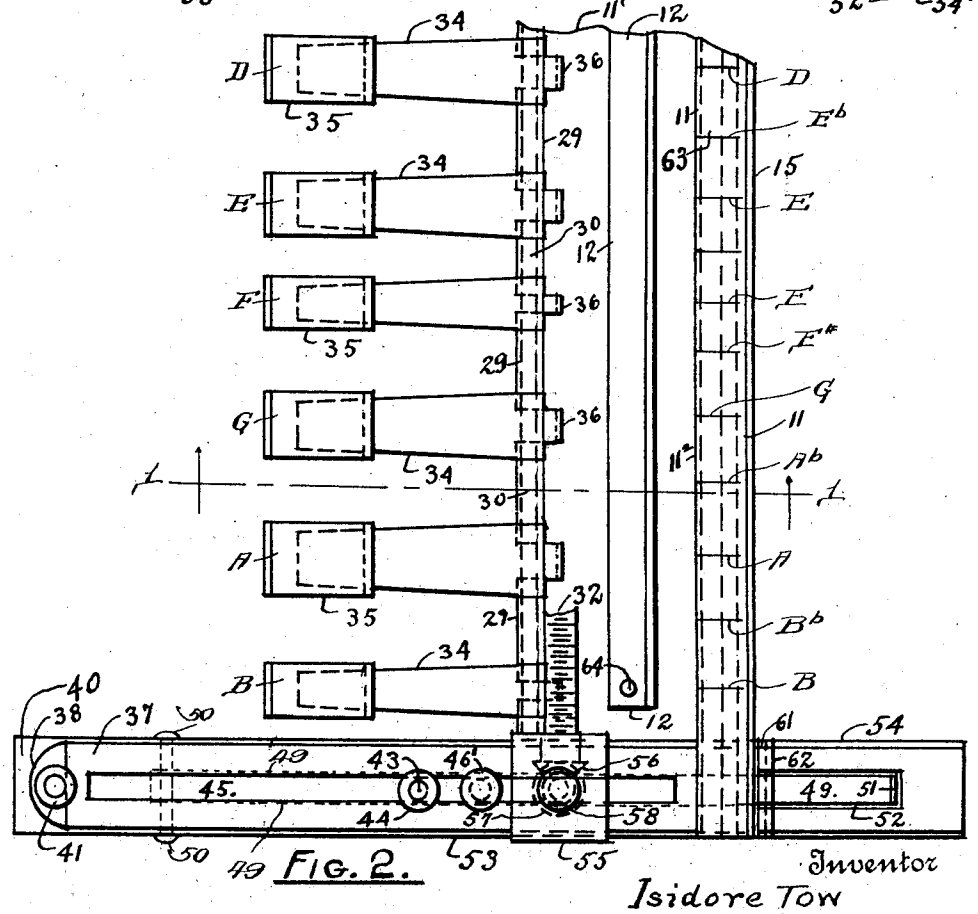


FIG. 2.

Inventor

Isidore Tow

By his Attorney

Israel Benjamins.

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2 SHEETS—SHEET 2.

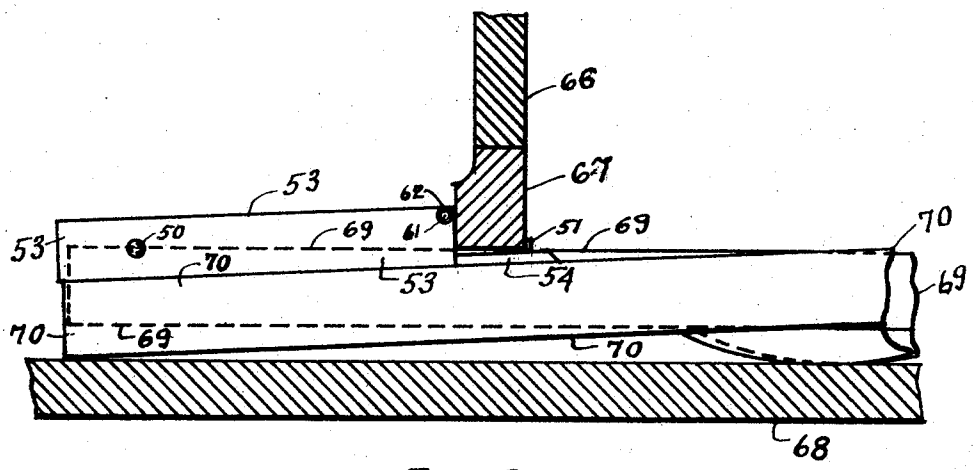


FIG. 3.

INVENTOR

Isidore Tow

BY HIS ATTORNEY

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UNITED STATES PATENT OFFICE.

ISIDORE TOW, OF NEW YORK, N. Y.

DETACHABLE KEYBOARD FOR TRANSPOSING MUSIC ON PIANOS.

1,392,883. Specification of Letters Patent. **Patented Oct. 4, 1921.**

Application filed February 12, 1921. Serial No. 444,456.

To all whom it may concern:

Be it known that I, ISIDORE TOW, a citizen of the United States, residing at 1335 Washington Ave., New York, in the county of Bronx and State of New York, have invented a new and useful Detachable Keyboard for Transposing Music on Pianos, of which the following is a specification.

The objects of my improvement are:

First: To provide a means for transposing music on pianos, which may be detached from or attached to any piano at will and be portable.

Second: To have said transposing means convenient to handle and easy to attach to and detach from any piano.

Third: To enable said transposing means to transpose to all musical keys, major or minor.

Fourth: To have said transposing means simple, durable and inexpensive.

I attain these objects by the detachable keyboard illustrated in the accompanying drawings or by any mechanical equivalent or obvious modification of the same.

In the drawings Figure 1 is a section on the line A—B of Fig. 2; Fig. 2 is a plan of the stationary lower part or frame of my detachable keyboard. Fig. 3 is a view partly in elevation, partly in section, showing the box 53, hereinafter described, in position on the depressed end key of the piano.

Similar numerals refer to similar parts throughout the several views.

11 designates the stationary frame of my detachable keyboard for transposing music on pianos; said frame contains the vertical web or beam 11, and the horizontal flange 11′ at the lower end of said frame 11 has the rail or track 12 secured thereto by means of the rivet or screw 64.

13—14 is one of a pair of carriers, shown in Fig. 1 as built up of the angle bars 13 and 14 by means of suitable fastenings, which are omitted for the sake of clearness; these carriers have each a groove on its underside adapted to slidably fit the vertical web or ridge on the track 12, as shown in Fig. 1.

Said carriers 13—14 are secured to the underside of the bridge 16, which rests thereon and is parallel or nearly so to the substantially horizontal flange 11′ of the frame 11, and it extends almost but not quite through the entire length of said frame 11, which has its ends secured to the boxes 53 and 53′ of which the box 53 is shown in Fig. 2, and 53′ is shown in Fig. 1, and which have at their rear the extensions 54 and 54′ respectively.

Said boxes 53 and 53′ serve as supports for the frame 11, and they are adapted to fit over the end keys of any piano, and the extensions 54 and 54′ may be inserted into the openings formed in the front 67—66 of the piano over the end keys 70 when the latter are depressed until they touch the bottom 68 of the keybox, as shown in Fig. 3; the boxes 53 and 53′ with their extensions 54 and 54′ are then secured in place, if desired, by means of the tongues 49, which terminate at their rear ends in the spurs 51, which tongues are pivotally connected to said boxes, inside thereof by means of the pins 50, as shown in Fig. 1, and they are provided with the nuts 47 and clamp screws 46, one of which is shown in Fig. 1 as having its lower end anchored in the base 48, and they are provided with the collars 59 above the tops of said boxes 53 and 53′.

By turning the caps 46′ of said screws 46, the tongues 49 may be raised and pressed against the tops of said openings in the front 67—66 of the piano, thereby securing said boxes 53 and 53′ in place; the spurs 51 aid to prevent the disengagement of said extensions 54 and 54′ from said openings; 52 is a groove in the upper surface of each of said extensions 53 and 53′ for the ends of said tongues 49 to rest therein.

Said boxes 53 and 53′ are secured to said frame 11 by means of the angle plates 37, which may have their vertical flanges secured to the stiffening bar 25 of said frame 11 on the front or inside thereof; the rear or outer side of said frame 11 may be covered with a coat of felting 15 to prevent scratching of the front 67 of the piano.

The horizontal flange of each of said angles 37 is shown in Fig. 2 as having therein the slot 45, whereby it is adapted to slide on the stud 43, which is secured to the upper plate 38 of each of said boxes 53 and 53′, and it may be retained in position by means of the nut 44; this enables the boxes 53 and

53′ with their extensions 54 and 54′ to be moved to the left in the drawings, when my detachable keyboard is to be packed up for portability, until said extensions are well under the frame 11.

Said upper plate 38 is pivotally connected to the lower plate 40 of each box by means of the hinges 39 consisting each of the pin 61 and the socket 62.

The leveling screws 41 pass each through a tapped hole in the plate 38, and it extends through an opening in the plate 40 into the interior of each box 53 and 53′, where it is anchored in the pivotal bearing 42, which is secured to each of said boxes by means of the screws 60; the collar 65 is secured to said screw 41 above said bearing 42.

By turning the screws 41 the plate 38 may be turned around the pivot 39 into any required angular position with relation to the plate 40 of the boxes 53 and 53′, thereby causing the front edge of the flange 11′ of the frame 11 to be raised or lowered as may be required; as the end keys of the piano on which said boxes 53 and 53′ rest, may not always, when depressed, be inclined the same angular degree or amount.

The above described clamp-screws 46 pass freely through the slots 45 in the plates 37 and through an opening in each of the plates 38 and 40, whereby the adjustment of the angular position of the boxes 53 and 53′ does not interfere with said clamp screws 46, nor is it interfered with by them.

The box 53 has mounted thereon the housing 55 inclosing a pair of bevel gears 56 and 57, the former being connected to the horizontal lead screw 32 and the latter to the vertical operating rod 58, by means of which said lead screw may be turned; said operating rod 58 extends through the top of said housing 55.

Said lead screw 32 actuates the nut 33, which is secured to the traveling bridge 16, which carries the set of white keys 19 and black keys 20 of usual design.

The joint or knuckle of each of said keys has therein an oblong opening 21, which incloses the post 17, which is at its lower end secured to the bridge 16, as shown in Fig. 1; the upper ends of said posts 17 are connected by means of the horizontal binding rod 18, against which the tops of said knuckles or joints are abutting; the openings 21 of said knuckles are long enough to permit an ample degree of oscillation for said keys.

The under side of said knuckles is padded on said bridge with felting or some other soft material.

19′ is the tip of each of said keys 19.

Each key 19 and 20 is normally kept in position by means of the plate spring 31, which is secured at its lower end to said bridge 16, and it has the key resting on its upper end, thereby permitting the key to slide thereon when said key is depressed by the fingers of the pianist.

Each of said keys 19 and 20 has secured thereto the rod 22, which extends through one of the slots 23 in said bridge 16 and has at its lower end the shoe 24 which may be made of soft rubber or any other suitable material.

The rods 22 are all of the same length to permit the ready traveling of the bridge 16 over the keyboard of the piano, and the shoes 24 at the lower ends of said rods are close to the upper surface of the black keys of the piano, which they are adapted to actuate, when the keys on the bridge 16 are depressed by the pianist.

To reach the white keys of the piano, I provide the filler blocks 35, which may be made of felting or some other soft material, and each filler block is secured to the front end of one of the strips 34, which is pivotally connected at its rear end to one of the bearings 29 at the front edge of the flange 11′ by means of the rod 20.

The rear ends of said strips 34 have also the form of the bearing 29, and each of these bearings has the spur 36 extending rearwardly therefrom and adapted to abut against the under side of the flange 11′ of the frame 11 when said filler block is in its lowest position, thereby preventing the undue dropping of said filler blocks when said frame 11 is off the piano.

Each of said filler blocks rests on a white key 69 of the piano, and the tops of the filler blocks are on the same level with the tops of the black keys of the piano.

The rods 22 actuate the white keys 69 of the piano through said filler blocks 35, and said rods are carefully spaced, so as not to actuate more than one key at a time.

To keep the front of the bridge 16 from tilting forward, I provide the angle plates 26, the horizontal part of each of which is secured to the bridge 16, and the vertical part has its upper edge in sliding contact with the inside of the flange 11^2 of the frame 11, with the strip of felting 27 interposed therebetween.

Said angle plates 26 pass through notches or slits in the vertical flange of the bridge 16, which has the pointer 28 secured thereto on the rear thereof.

The upper end of said pointer is close to the flange 11^2 and top of the frame 11, which have the index lines 63 of all the musical keys marked thereon.

It is evident that when it is necessary to transpose to a certain musical key, all the pianist has to do is to move the bridge 16 by means of the operating rod 58 and the lead screw 32 until the pointer 28 reaches the required index line on the flange 11^2 and top of the frame 11; the movable set

of keys 19—20 is then played on from the notes as usual, and the music will be higher or lower to the extent that the set of movable keys is displaced with relation to the stationary or piano keys.

To make my detachable keyboard more convenient in handling, especially when carried abroad, I propose to make the frame 11 and the bridge 16 in multiple sections, which may readily be folded up for packing into a case and assembled again for attaching to any piano whenever required.

The sections may be joined together by suitable splicing bars and interlocked by proper pins and notches on said splicing bars and in the sections.

Many changes could be made in the details of my detachable keyboard for transposing music on pianos without departing from the main scope of my invention; I do not, therefore, restrict myself to the details as shown in the drawings; but I intend to include also all mechanical equivalents and reasonably obvious modifications of the same within the scope of my invention.

What I claim as my invention, and desire to secure by Letters Patent is:

1. In a detachable keyboard for transposing music on pianos, a stationary frame adapted to extend over the keyboard of a piano, a bridge slidably connected to said frame, a set of keys on said bridge, adapted to actuate the piano keys, and a means for raising or lowering the front edge of said frame, thereby adjusting the proper angle of inclination of said frame to said piano.

2. In a detachable keyboard for transposing music on pianos, a pair of supporting members adapted to fit over the end keys of a piano, and having extensions adapted to be inserted into the openings formed in the front of the piano over said end keys, when the latter are depressed, a stationary frame connected at its ends to said members, a bridge, slidably connected to said frame, and a set of keys on said bridge adapted to actuate the piano keys.

3. In a detachable keyboard for transposing music on pianos, a stationary frame adapted to extend over the keyboard of a piano, a substantially horizontal flange on said frame, a track mounted on said flange, multiple carriers in sliding contact with said track, a bridge mounted on said carriers and a set of keys on said bridge adapted to actuate the piano keys.

4. In a detachable keyboard for transposing music on pianos, a stationary frame adapted to extend over the keyboard of a piano, a bridge slidably connected to said frame, a set of keys on said bridge, springs for supporting said keys, suitable slots in said bridge opposite the underside of said keys, rods connected to said bridge keys, said rods extending through said slots and shoes of soft material at the lower ends of said rods, below said slots, said rods with said shoes being adapted to actuate the piano keys when the bridge keys are depressed, and said shoes being adapted to abut against the under side of the bridge, thereby limiting the upward thrust of said keys by said springs.

5. In a detachable keyboard for transposing music on pianos a stationary frame adapted to extend over the keyboard of a piano, a bridge slidably connected to said frame, a set of keys on said bridge, rods connected to said bridge keys, said rods being of substantially the same length and their lower ends normally reaching down almost to the surface of the black keys of the piano, filler-blocks of soft material over the white keys of the piano under said rods, connecting strips secured at their front ends to said filler blocks and at their rear ends pivotally connected to the front edge of said frame and spurs at the rear ends of said strips adapted to abut against the under side of said frame, thereby limiting the drop or inclination of said strips when said frame is off the piano.

6. In a detachable keyboard for transposing music on pianos a pair of supporting members adapted to fit over the end keys of a piano and having extensions adapted to be inserted into the openings formed in the front of the piano over said end keys, when the latter are depressed, a stationary frame connected at its ends to said members, said frame comprising a vertical beam and a horizontal flange at the lower edge thereof, said vertical beam terminating at its upper edge in an inner flange, a bridge slidably connected to said frame, a set of keys on said bridge adapted to actuate the piano keys, one or more angle plates connected at their horizontal webs to said bridge and having their vertical webs in sliding contact with said inner flange, thereby keeping the front of the bridge from tilting forward.

7. In a detachable keyboard for transposing music on pianos a pair of supporting members adapted to fit over the end keys of a piano and having extensions adapted to be inserted into the openings formed in the front of the piano over said end keys, when the latter are depressed, a stationary frame connected at its ends to said members, said frame comprising a vertical beam and a horizontal flange, a bridge slidably connected to said frame and a set of keys on said bridge adapted to actuate the piano keys.

8. In a detachable keyboard for transposing music on pianos a pair of supporting members adapted to fit over the end keys of a piano and having extensions adapted to be inserted into the openings formed in

the front of the piano over said end keys, when the latter are depressed, a stationary frame, connected at its ends to said members, a means for slidably connecting said members with their extensions to said frame transversely thereto to facilitate the packing up of the detachable keyboard, a means for normally keeping said members in place with relation to said frame, a bridge slidably connected to said frame and a set of keys on said bridge adapted to actuate the piano keys.

ISIDORE TOW.