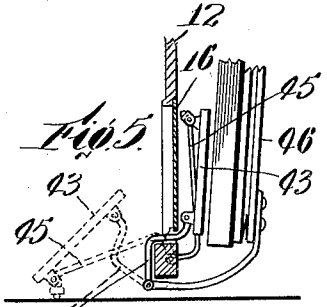
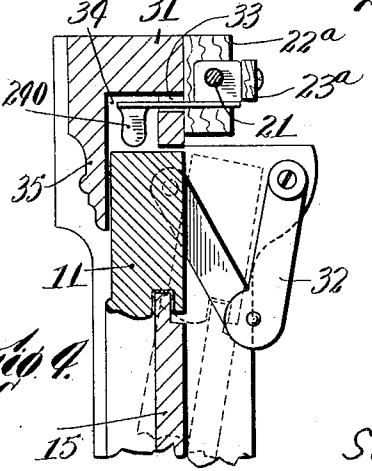
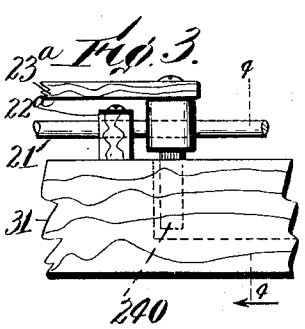
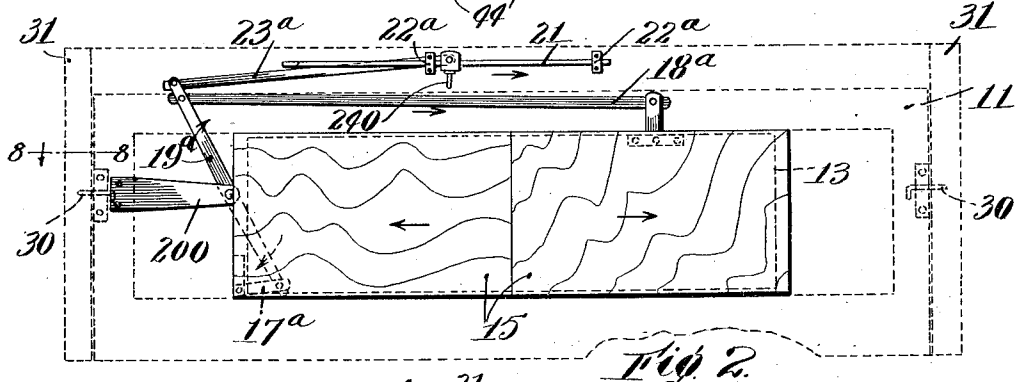
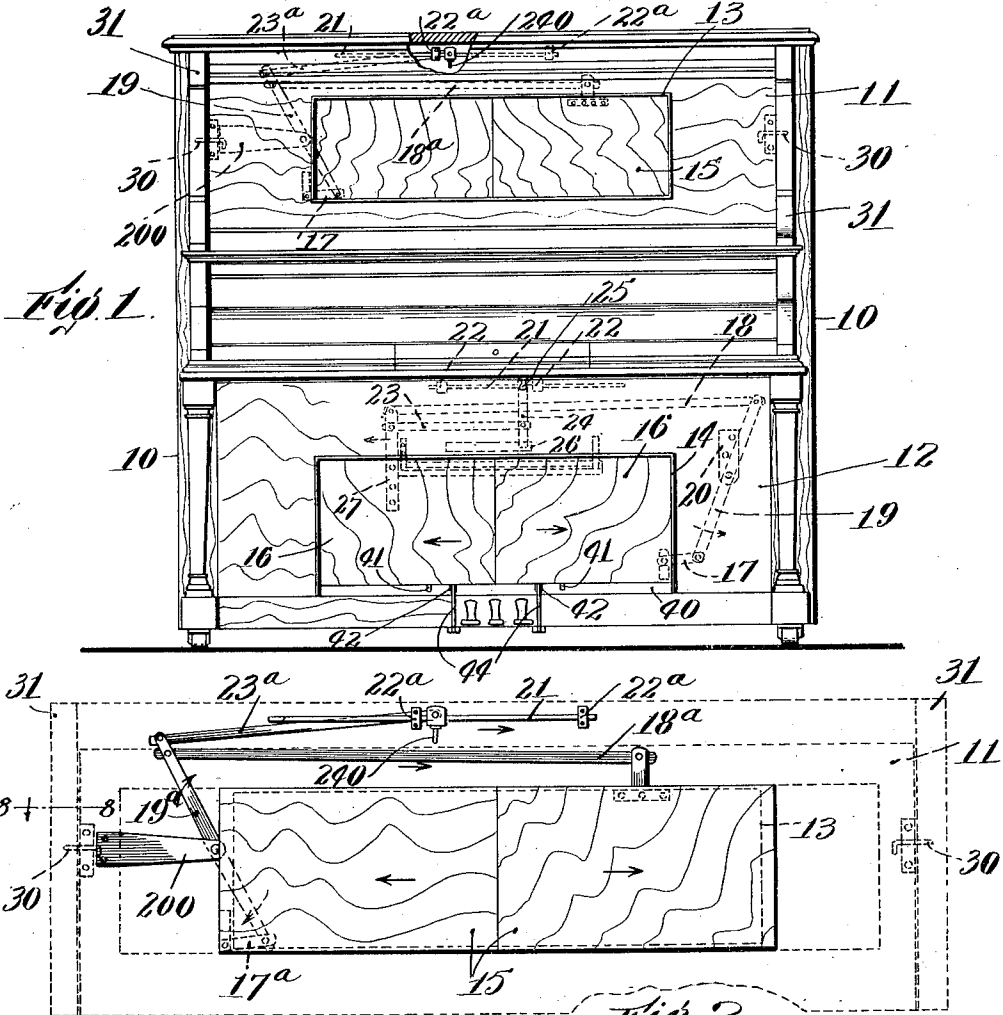


P. WELIN.  
 PANEL OPERATING MECHANISM FOR MUSICAL INSTRUMENT CASES.  
 APPLICATION FILED SEPT. 12, 1907.

1,091,175.

Patented Mar. 24, 1914.

2 SHEETS—SHEET 1.



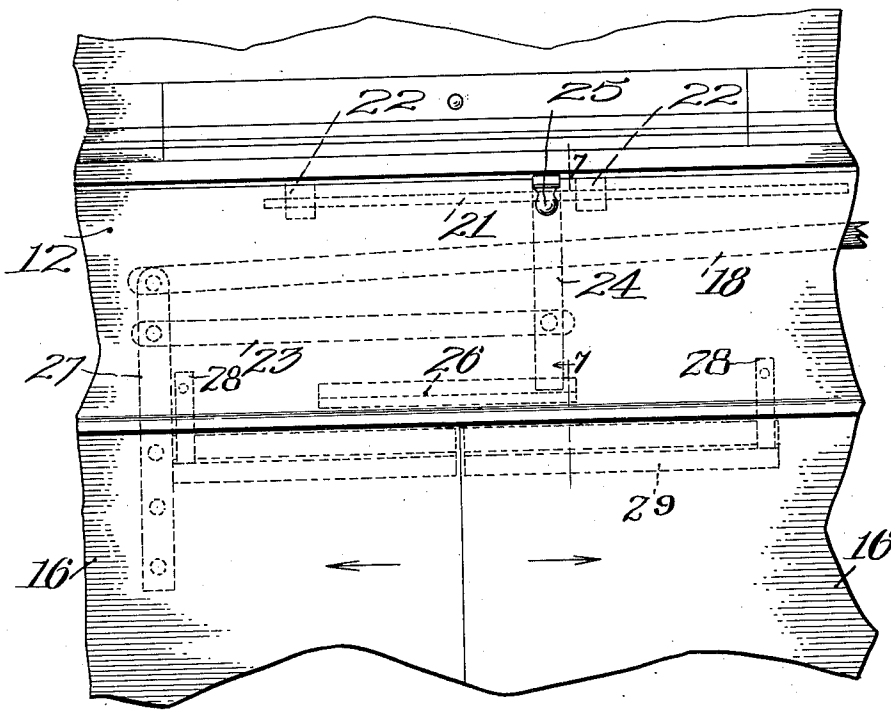
Witnesses:  
 C. F. Mason  
 E. M. Allen.

Inventor:  
 Peter Welin.  
 By Attorneys:  
 Southgate & Southgate.

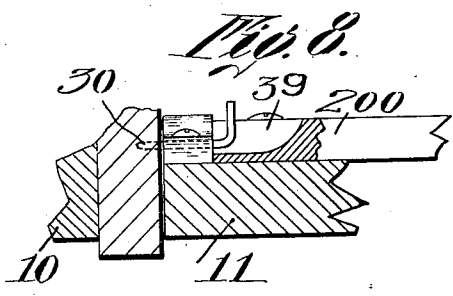
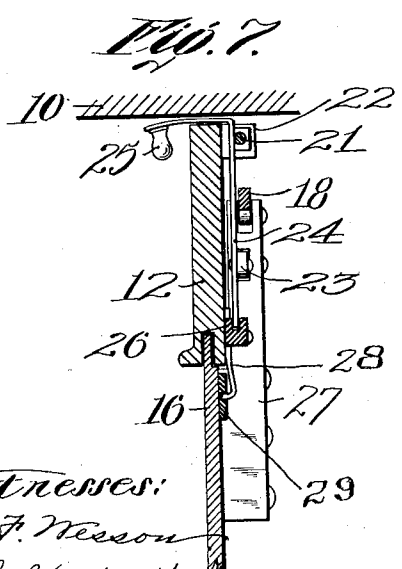
P. WELIN.  
 PANEL OPERATING MECHANISM FOR MUSICAL INSTRUMENT CASES.  
 APPLICATION FILED SEPT. 12, 1907.

1,091,175.

Patented Mar. 24, 1914.  
 2 SHEETS—SHEET 2.



*Fig. 6.*



Witnesses:  
 C. F. Nesson  
 & J. Hartnett

Inventor:  
 Peter Welin.  
 by Attorneys

Southgate & Southgate.

# UNITED STATES PATENT OFFICE.

PETER WELIN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO KRELL AUTO-GRAND PIANO CO. OF AMERICA, OF CONNERSVILLE, INDIANA, A CORPORATION OF INDIANA.

PANEL-OPERATING MECHANISM FOR MUSICAL-INSTRUMENT CASES.

1,091,175.

Specification of Letters Patent. Patented Mar. 24, 1914.

Application filed September 12, 1907. Serial No. 392,540.

*To all whom it may concern:*

Be it known that I, PETER WELIN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Panel-Operating Mechanism for Musical-Instrument Cases, of which the following is a specification.

This invention relates to cases for musical instruments and is especially applicable to that class of the same known as combination or player pianos, in which automatic playing devices are housed within the casing, and in order to operate them properly it is desirable to open the panels in the front boards above and below the key-board, but it is applicable to all kinds of cases in which it is desirable to open panels in this way.

The principal objects of the invention are to provide convenient and simple means for operating the panels in such way that when closed they will appear substantially the same as the ordinary stationary panels with which upright and other piano-cases are provided, and at the same time conceal the handles or other means by which said panels are operated.

Further objects of the invention are to provide such connections for operating the panels that they can be manipulated whether the front board on which the panels are located is stationary or tiltable, as in the case of the upper front board, and to provide for substantially concealing the pedals when they are folded within the case.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings which illustrate a preferred form of the invention, and in which—

Figure 1 is a front elevation of a combination piano case with this invention applied both to the top and the bottom boards thereof. Fig. 2 is a front view on an enlarged scale of the upper panels and connected operating mechanism showing in dotted lines the position which the front plate or board would occupy with respect thereto. Fig. 3 is a fragmentary plan of a portion of the operating mechanism of the upper panels. Fig. 4 is a sectional view of the same on the line 4—4 of Fig. 3, Fig. 5 is a vertical transverse sectional view taken near the bottom

of the instrument showing how the lower panels conceal the pedal connections both in folded and operative position. Fig. 6 is a front elevation of a portion of the instrument similar to Fig. 1 on enlarged scale. Fig. 7 is a sectional view of the same on the line 7—7 of Fig. 6, and Fig. 8 is a sectional view on enlarged scale on the line 8—8 of Fig. 2.

The invention is shown as applied to an upright combination piano case 10, which has an upper front board 11 and a lower front board 12. Both of these front boards are bodily removable from the casing and are usually secured therein by any desired detachable connections. The two front boards are provided with openings 13 and 14 respectively, these preferably being of substantially the same shape and size as the panels with which piano cases of this kind are ordinarily provided. These openings are closed by movable panels 15 and 16 respectively. In the preferred form of the invention these panels are double, that is, each one consists of two oppositely sliding members.

Referring first to the lower panels it will be seen that they are provided with a pair of links 17 and 18 pivotally connected with the panels respectively at opposite sides thereof, one at the bottom of one panel and the other at the top of the other. These links are connected to a lever 19 which is pivotally mounted on a bracket 20, which in this case is fixed directly to the back of the front board 12.

In order to provide for operating the lever, a guide rod 21 is mounted in bearings 22 on the inside of the casing, and in the present instance these bearings are located on the back of the front board 12. This rod slides in a direction parallel to that in which the panels slide. In the form shown at the bottom of Fig. 1, this link is indirectly connected with the left panel 16 through a bar 24 to which is secured a handle 25. This bar 24 is guided by a groove in the top of a cleat 26 on the back of the front board 12, and is connected by a link 23 with a bracket 27 to which the link 18 is connected. It will be observed that while all these connections are mounted on the back of the front board, the handle 25 extends over the top thereof so that it may be reached from the front. The

sliding of the rod 21 moves the left panel and swings the lever 19 which also moves the right panel in the opposite direction. The panels 16 are guided by plates 28 fixed  
 5 on the lower front board and extending down behind the panels. They are bent out at the bottom to enter grooves in horizontal cleats 29 on the back of each panel.

Referring now to the top of Fig. 1 and to Figs. 2, 3 and 4, it will be seen that links 17<sup>a</sup> and 18<sup>a</sup> are pivotally connected with the right and left-hand panels 15 at the bottom of one and at the top of the other, and that they are connected by a link 19<sup>a</sup> which is  
 15 mounted on a bracket 200. On account of the fact that the upper front board 11 is pivotally mounted by means of pivot pins 30, this bracket is connected with the front board 11 at the end of one of these pivot  
 20 pins. Each pivot pin is shown as having a bend at the inner end located in a recess 39 in the bracket 200 to permit the pin to be pulled out when desired. The sliding rod 21 is connected with the lever 19<sup>a</sup> by a  
 25 direct connection through the link 23<sup>a</sup>, thus simplifying the construction. This rod, as in the other case, is mounted in bearings 22<sup>a</sup> on the inside of the casing and slides in a direction parallel to the direction of motion  
 30 of the panels 15. The bearings 22<sup>a</sup> are mounted on a stationary frame 31 on which the pivot pins 30 are mounted, and which supports the front plate, and is removable bodily with it from the casing. In this case  
 35 it will be seen that when the front board is swung on its pivot it will be necessary for the link 23<sup>a</sup> to twist slightly, and consequently it is made of some material, either wood or thin metal which will be capable of  
 40 twisting when this motion takes place without interfering with its operation.

The position of the front plate 11 when tilted is indicated in dotted lines in Fig. 4. This figure also shows a double link 32 for  
 45 connecting it to the frame 31 and limiting this motion as indicated by the dotted lines. A handle 240 like the handle 25 projects through a slot 33 in the frame 31, but it does not project to a point where it will be  
 50 seen from the front of the instrument, being located in a recess 34 which is hidden by an overhanging molding or the like 35. This handle is accessible only when the front board is tilted back to the position shown  
 55 in dotted lines, and can be reached by inserting the fingers back of the molding 35. It will be seen that this is a very convenient location for this handle, and that it is entirely concealed not only when the front  
 60 board is closed, but also when it is open.

Referring again to the lower panels it will be seen that the bottom rail 40 with which the instrument is provided has two pairs of notches 41 and 42. The pedals 43 have  
 65 two pairs of connections or links 44 and 45,

the latter being pivoted inside the casing and extend around the bottom rail through the notches 41, when the pedals are drawn out, as indicated in dotted lines, for playing. These links are so proportioned and located  
 70 that when in this position the panels 16 slide over them in contact with the top of the bottom rail so that their inner portions are concealed by the panels. Moreover when the pedals are folded into the instrument, as indicated  
 75 in full lines in Fig. 5, the links 44 which connect them with the bellows 46 are extended upwardly over the bottom rail and through the notches 42 so that the panels may slide over them in the same way as has  
 80 been described in connection with the others, and practically everything is concealed.

While I have illustrated and described a preferred form of the invention, I am aware that many modifications may be made there-  
 85 in by any person skilled in the art, and that the same may be applied to other kinds of musical instrument cases than the one indicated in the drawings, without departing from the scope of the invention as expressed  
 90 in the claims. Therefore, I do not wish to be limited to the particular form illustrated in the drawings, but

What I do claim is:—

1. The combination with a sliding panel  
 95 and a musical instrument case, of a pivotally supported lever connected with said panel, a sliding rod, means on the case for guiding said rod to move longitudinally, means for connecting said lever with the rod, and an  
 100 operating handle on the rod.

2. The combination with a musical instrument case, of a sliding panel therefor, a lever pivotally supported on the inside of said case and connected with said panel, a  
 105 sliding rod, bearings on the inside of said case above the panel for said rod, means for connecting said lever with the rod, and an operating handle on the rod projecting through to the front of said case.  
 110

3. The combination with a musical instrument case, of a horizontally sliding panel, a front plate or board supporting said panel, means supported on the inside of said front  
 115 plate or board for operating said panel, and a handle projecting through said case connected with said operating means.

4. The combination with a musical instrument case, of a sliding panel, a front plate or board supporting said sliding panel,  
 120 means supported on the inside of the case for operating said panel, and a handle projecting through said case and movable therealong, said handle being located above the panel and extending downwardly from  
 125 the outside of said front plate or board.

5. The combination with a musical instrument case, of a bodily movable front plate or board, a sliding panel supported by said  
 130 front plate or board, means on the inside

of the case for operating said panel, and a handle projecting through the case connected with said operating means.

5 6. In a panel operating mechanism for musical instrument cases, the combination with the panel, of a link connected therewith, a pivotally supported lever connected at one end with said link, a second link connected with the other end of said lever,  
10 a rod with which the last named link is pivotally connected, and guides on the inside of the case for said rod to guide the same to move in a line parallel with the direction of motion of the panels.

15 7. In a panel operating mechanism for musical instrument cases, the combination with the case and a pair of sliding panels supported thereby, of a pair of links, one of which is pivotally connected with each of  
20 said panels, said links extending from the panels in opposite directions, one of them being connected with the panel at one side thereof, and the other with its panel at the opposite side, a lever mounted on a pivot  
25 and connected near its opposite ends with said links, whereby the motion of the lever will operate one link in one direction, and the other in the opposite direction to simultaneously open or close the panels, a sliding rod, means for connecting the lever with  
30 said sliding rod, and a handle for operating the rod.

8. The combination with a musical instrument case, of a pair of oppositely sliding  
35 panels, a front plate or board directly supporting said panels, means supported inside of said case over the panels for operating said panels simultaneously in opposite directions, and a handle projecting through  
40 said case and connected with said operating means.

9. The combination with a musical instrument case, of a pair of sliding panels, a  
45 bodily movable frame supporting said panels and provided with a slot above the panels, means supported on the inside of said frame for operating said panels, and a handle projecting through said slot and connected with said operating means.

50 10. The combination with a pair of sliding panels and a musical instrument case, of a pivotally supported lever connected with both of said panels for operating them simultaneously in opposite directions, bearings  
55 on said case, a sliding rod movable in said bearings, means for connecting the rod with said lever and an operating handle on the rod.

11. The combination with a piano case, of a front board, a sliding panel supported by  
60 said front board, operating means supported within the case and behind said front board for operating the panel, and a handle connected with said means and projecting through said case.

12. The combination with a musical instrument case, of a tilting front board, a  
65 panel supported thereby to slide thereon, a lever connected with said panel for operating the same, a support for said lever pivoted to move with said front board, a sliding rod, bearings on the stationary part of the casing for said sliding rod, and a flexible  
70 connection between said lever and sliding rod.

13. The combination with a musical instrument case, of a front plate or board pivotally mounted thereon, two panels supported  
75 by said front plate or board and capable of sliding oppositely thereon, and means on the inside of the case for operating said panels.

14. The combination with a player piano case, of a front board removably associated  
80 therewith, and provided with a pedal opening, a slidable closure for the said pedal opening, a lever pivoted to the front board, and removable therewith, and means adapted to operate the lever when the front board  
85 is in position in the case.

15. The combination with a musical instrument case, of a front plate or board centrally pivoted thereon, a panel supported  
90 by said front plate or board and capable of sliding thereon, and means on the inside of the case for operating said panel, said operating means being located in position to be exposed by the swinging of said front  
95 plate or board.

16. The combination with a musical instrument case having a front pedal opening  
100 therein, of a pair of horizontally slidable panels for closing said opening, pedal links movable through said opening, means on the inside of the case for operating said panels  
105 to slide oppositely and simultaneously, and means accessible from the front of the case above said pedal opening for operating said operating means.

In testimony whereof I have hereunto set  
110 my hand, in the presence of two subscribing witnesses.

PETER WELIN.

Witnesses:

C. FORREST WESSON,  
ALBERT E. FAY.