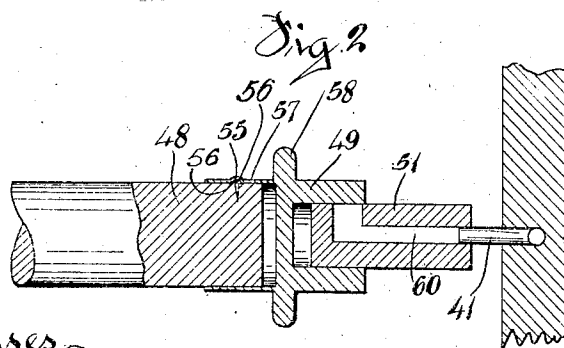
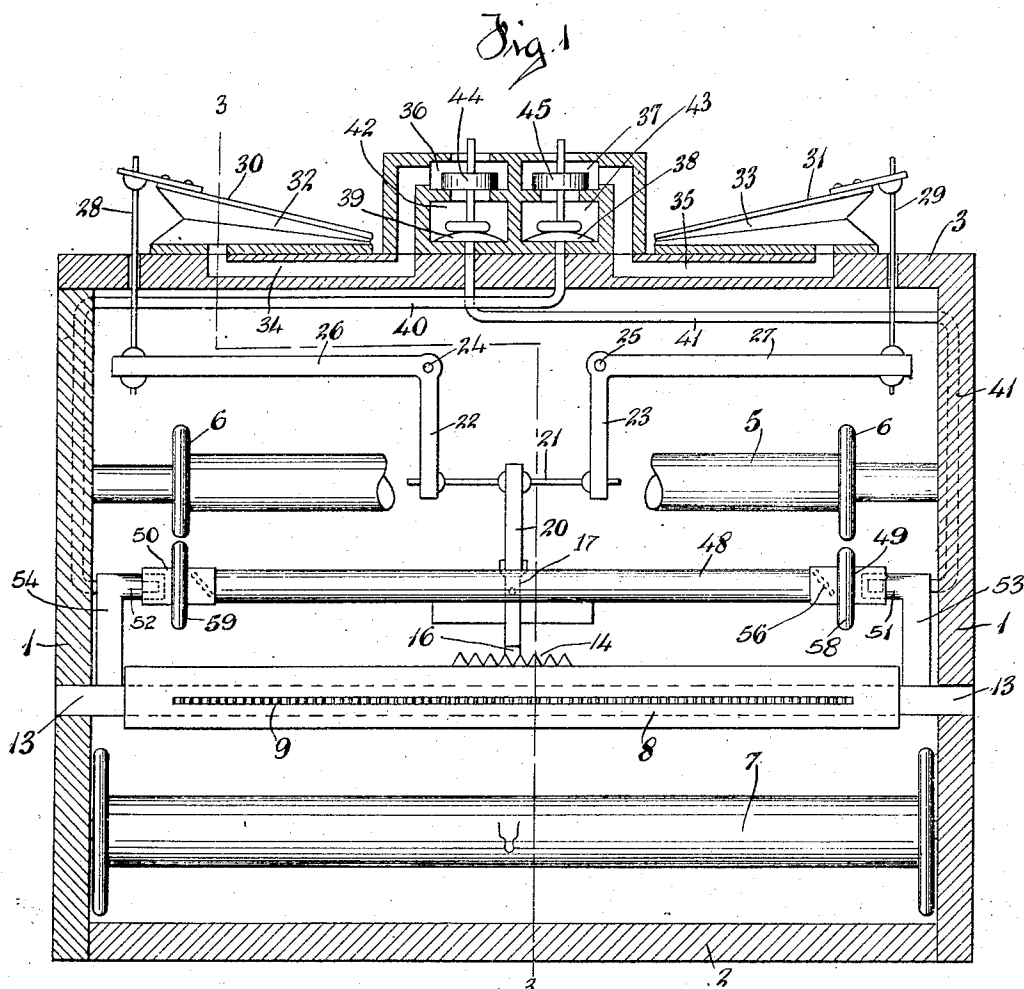


J. LEISCH.
 COMBINED TRANSPOSITION AND AUTOMATIC TRACKING DEVICE FOR PLAYER PIANOS.
 APPLICATION FILED NOV. 11, 1911.

1,062,103.

Patented May 20, 1913.

2 SHEETS—SHEET 1.



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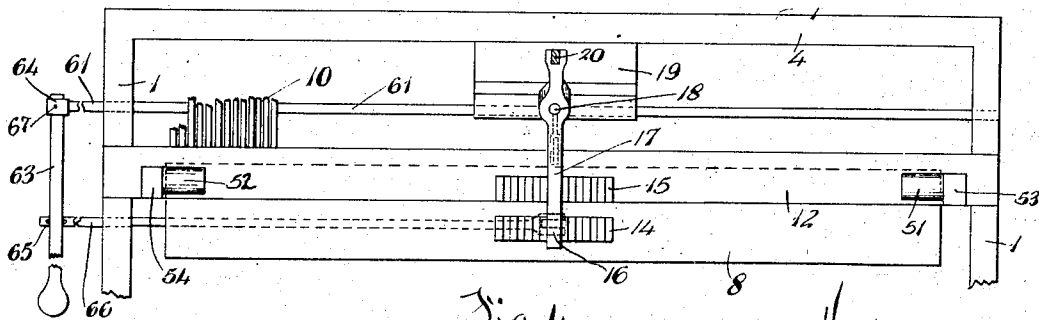
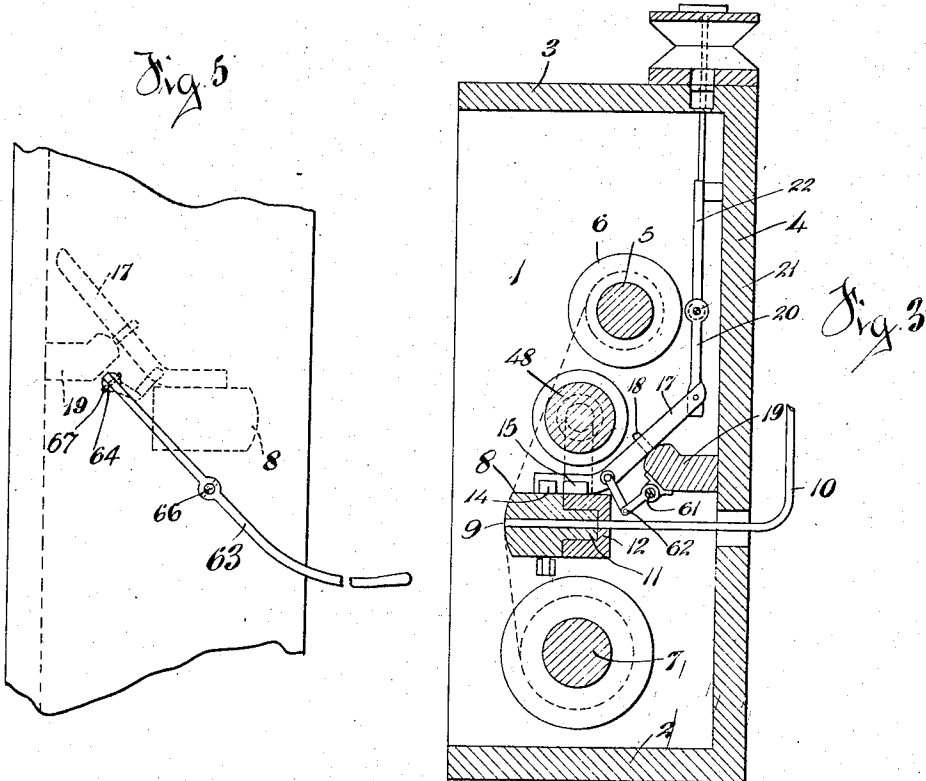
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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COMBINED TRANSPOSITION AND AUTOMATIC TRACKING DEVICE FOR PLAYER-PIANOS.

1,062,103.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed November 11, 1911. Serial No. 659,736.

To all whom it may concern:

Be it known that I, JOSEPH LEISCH, a citizen of the United States, and a resident of Tryon, in the county of Polk and State of North Carolina, have invented a certain new and useful Combined Transposition and Automatic Tracking Device for Player-Pianos, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to provide a device for the tracker boards of player pianos to automatically maintain the registration of the slots in the music roll with the openings in the tracker board, so that as the music sheet is wound from the storage roll to the receiving roll during the operation of the piano, any tendency of the sheet to travel out of alinement shall be automatically corrected.

The invention consists of that certain novel construction and arrangement of parts to be hereinafter particularly pointed out and claimed, whereby instead of applying mechanism to automatically shift the sheet, or to affect the relation of the sheet to the winding rolls, the tracker board itself is automatically shifted to maintain exact and proper registration with the slotted openings in the music sheet, and by reason of this construction, the mechanism may also be utilized for shifting the tracker board and locking it in its new position to transpose the key of the musical composition being performed, and in this way my novel apparatus is made to serve both as a transposition and as an automatic tracking device.

In the drawings, Figure 1 is a front elevation of my improved construction with the upper portion in section. Fig. 2 is a sectional detail of the release valve for the pneumatic for operating the tracking device. Fig. 3 is a vertical section taken on the line 3, 3, of Fig. 1. Fig. 4 is a plan view of the tracker board and its connections. Fig. 5 is a detail side elevation of the operating lever for the transposition device not shown in Fig. 1.

The framework for holding the operating parts is represented by 1, 1, for the sides; 2 for the base; 3 for the top and 4 for the back. In the sides of the framework the storage roll 5 for the music sheet is journaled, provided with end flanges 6, 6. The

receiving roll 7 is also mounted in the sides of the frame and the music sheet is wound from the storage roll 5 to the receiving roll in any of the well known ways to carry the perforated music sheet over the tracker board 8, provided with the tracker openings 9 connected to the tracker tubes 10 for releasing the pneumatics of the player piano as the perforations in the music sheet are propelled over the tracker openings.

The tracker board 8 is provided with a tongue 11 which fits within the groove of the grooved bar 12, the ends 13, 13, of which are loosely mounted in the sides of the frame, so as to slide therein. The tracker board is frictionally held in engagement with the grooved bar and thus supported in position.

On the upper surface of the tracker board 8 and the grooved bar 12, a series of teeth 14, 15, are formed, with the teeth registering with each other, so that the two parts will be held together by the outer wedge-shaped end 16 of the lever 17, which is pivotally mounted on a stud 18 on a support 19 from the frame. The lever 17 is mounted on the stud 18 so as to be capable of rocking with the stud as a pivot, and also so that the lever can be lifted off of the stud. The upper end of the lever 17 is pivotally connected to the bar 20, depending from the rod 21, the outer ends of which are connected respectively to the depending arms 22, 23, of a pair of bell crank levers, pivotally mounted at 24, 25, to the back of the frame. The horizontal arms 26, 27, of these bell crank levers are connected at their outer ends to rods 28, 29, connected with the movable members 30, 31, of a pair of power pneumatics 32, 33, which are mounted on top of the framework. These pneumatics are connected by the passageways 34, 35, each with a chamber 36, 37, over a corresponding vacuum chamber 42, 43. In the base of each of these vacuum chambers is the pouch 38, 39, from which lead the tubes 40, 41, to opposite ends of the tracker board framework. The chambers 36, 37, are open and closed between the outer air and the vacuum chambers 42, 43, by the disk valves 44, 45, which open and close the ports from the chambers 36, 37, while the buttons on the stems of the disk valves 44, 45, rest upon the pouches 38, 39, so that when the pouches are deflated, the passageways 34, 35, will be open to the outer air; and when the

pouches are inflated, the disk valves 44, 45, will be raised to subject the respective passages to the influence of the vacuum.

Mounted between the tracker board 8 and the storage roll 5 is the cylindrical bar 48, over which the perforated music sheet passes. This bar is provided with the flanged collars 49, 50, at either end, and these collars are engaged and supported by the inwardly projecting ends 51, 52, of the standards 53, 54, mounted on or integrally connected with the bar 12, in which the tracker board is mounted. For adjusting the length of the bar 48 for various widths of music sheets, I provide the ends of the bar 48 with a projecting pin 55, which engages in any one of a series of raised portions 56 on the sleeve 57 in which the end of the bar 48 is mounted, so that by turning the bar and holding the collars on the ends, the distance between the flanges 58, 59, may be adjusted. The ends 51, 52 of the supports have a sliding fit in the outer ends of the collars 49, 50, and a passageway 60 connecting with the pneumatic tube 41 for one end, and with the pneumatic tube 40 for the other end, is formed in the supports 51, 52, with these passageways normally closed by their respective collars. A very slight lateral movement, however, of the bar 48 and the flanged collars in either direction will expose the corresponding opening 60 to open either one of the pneumatic tubes 40 or 41.

Let us suppose that in winding the music sheet from the roll 5 to the storage roll 7, the sheet begins to move toward the left as viewed in Fig. 1. Under these circumstances, the flanged collars 50 and with it the bar 48 will be moved toward the left to expose the right hand opening 60, and admit air to the tube 41. As heretofore described, this will inflate the pouch 39 and raise the valve disk 44 to actuate the power pneumatic 32, which will in turn rock the bell-crank lever arm 22 to the right, shifting the inner end of the lever 17 to the right and the locking bar 16 to the left, and thus moving the tracker board to the left to bring the tracker openings into register with the perforations of the music sheet, which has commenced to shift to the left. In the same way, should the music sheet tend to travel in the opposite direction, the opposite tube 40 will be open, and the pneumatic 33 will be actuated to shift the tracker board in the opposite direction under the movement of the bell-crank lever 23, 27. It will be seen, therefore, from the foregoing description, that the tracking device will be automatically operated to always maintain the proper alinement for the perforated music sheet.

In view of the fact that the tracker board 8 and the supporting grooved bar 12 are in separate parts, and connected through the bar 16, engaging in the grooves between the

teeth 14, 15, by raising up the bar 16, the tracker board can then be shifted either to the right or left, so as to transpose the key actuated by the perforations in the music sheet, and the bar 16 can then be dropped back into position to hold the tracker board and the grooved bar in fixed relation. In order to be enabled to thus transpose the key from outside the machine, I provide the rock shaft 61, to which are secured an arm and link 62, one mounted on the rock shaft and the other connected with the lever 17, and on the outer end of this rock shaft 61, I provide the operating handle 63. This handle 63 is mounted in the slotted coupling 64 on the end of the rock shaft 61 and held by the pin 67, so that the shaft can be rocked at the same time the lever is swung laterally. Coupled to the operating handle 63, at 65, is a connecting rod 66, which is pivotally secured to the under surface of the tracker board 8, so that by swinging the lever 63, the tracker board can be correspondingly shifted.

When the device is to be used for transposition, the lever handle 63 is raised, which rocks the shaft 61 and causes the toggle 62 to raise the lever 17 and disengage the tracker board and its supporting bar. Then by shifting the hand lever 63 laterally, the tracker board may be moved so as to change the key. The lever 17 and the arm 16 are then returned to their normal position, locking the tracker board in its new position.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. In a device of the character specified, a tracker board adapted to be moved laterally, a tracking bar also adapted to be moved laterally, a common support for said board and bar, a power pneumatic controlled by the lateral movement of the tracking bar, and connecting mechanism intermediate the power pneumatic and the tracker board, whereby the movement of the tracking bar will automatically shift the tracker board.

2. In a device of the character specified, a tracker board adapted to be moved laterally, a tracking bar also adapted to be moved laterally, a common support for said board and bar, a pair of power pneumatics controlled respectively by the lateral movement of the tracking bar in opposite directions, and connecting mechanism intermediate the pneumatics and the tracker board, whereby the movement of the tracking bar will automatically shift the tracker board in the same direction with the movement of the tracking bar.

3. In a device of the character specified, a tracker board, and a laterally movable support in which the board is mounted, with means for adjustably connecting the board and its support, a tracking bar also adapted

ed to be moved laterally, supporting means therefor integral with the said movable support, a power pneumatic controlled by the lateral movement of the tracking bar, and
 5 connecting mechanism intermediate the power pneumatic and the tracker board whereby the movement of the tracking bar will automatically shift the tracker board.

4. In a device of the character specified,
 10 a tracker board, and a laterally movable support in which the board is mounted, with means for adjustably connecting the board and its support, a tracking bar also adapted to be moved laterally, supporting means
 15 therefor integral with the said movable support, a pair of power pneumatics controlled respectively by the lateral movement of the tracking bar in opposite directions, and connecting mechanism intermediate the pneu-
 20 matics and the tracker board, whereby the movement of the tracking bar will automatically shift the tracker board in the same direction with the movement of the tracking bar.

25 5. In a device of the character specified, a tracker board and a laterally movable support in which the board is adjustably mounted, a lever bar common to the support and the tracker board for locking the two
 30 parts in adjusted position and for shifting

same laterally, a tracking bar laterally movable, a power pneumatic controlled by the lateral movement of the tracking bar, and connecting mechanism intermediate the
 35 power pneumatic and the lever bar, whereby the movement of the tracking bar will automatically shift the lever to move the tracker board to correspond with the movement of the tracking bar.

6. In a device of the character specified,
 40 a tracker board and a laterally movable support in which the board is adjustably mounted, a lever bar common to the support and the tracker board for locking the
 45 two parts in adjusted position and for shifting same laterally, a tracking bar laterally movable, a pair of power pneumatics controlled respectively by the lateral movement
 of the tracking bar in opposite directions, and connecting mechanism intermediate the
 50 pneumatics and the lever bar, whereby the movement of the tracking bar will automatically actuate the lever to shift the tracker board in the same direction with the movement of the tracking bar.

JOSEPH LEISCH.

Attest:

MARSTON ALLEN,
 EARL W. GUFFIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
 Washington, D. C."