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J. W. STEVENSON & S. L. DICKINSON.
MECHANICALLY OPERATED MUSICAL INSTRUMENT.
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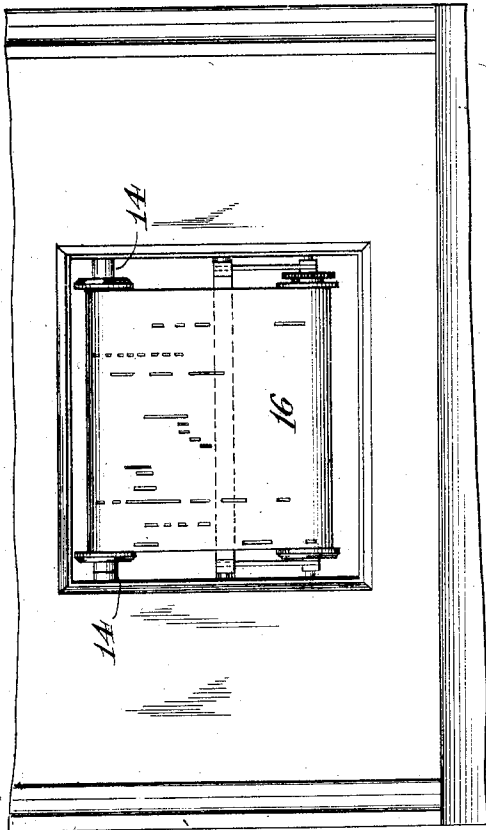
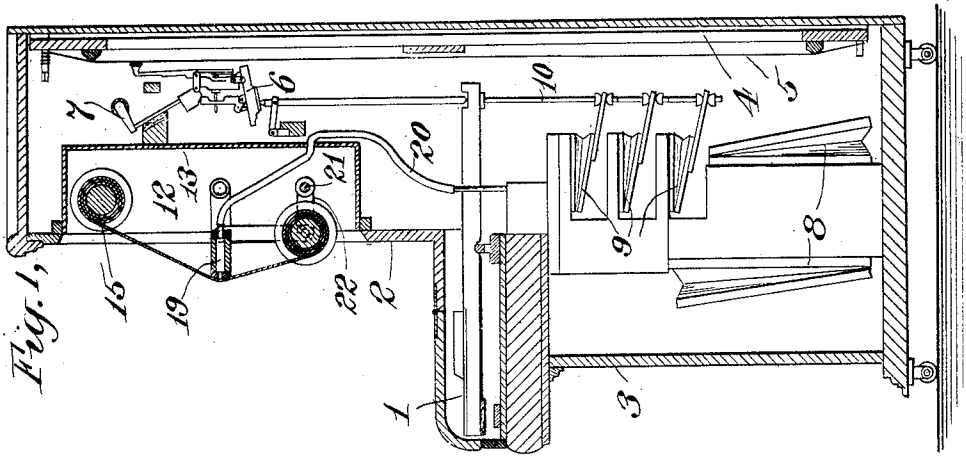
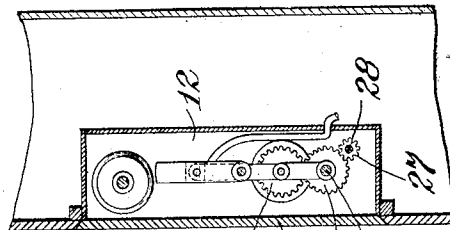
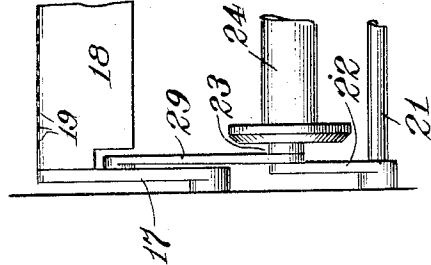


Fig. 3,



WITNESSES:

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Fig. 2,

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MECHANICALLY-OPERATED MUSICAL INSTRUMENT.

No. 851,185.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JOHN W. STEVENSON, residing in the borough of Manhattan, city, county, and State of New York, and SAMUEL L. DICKINSON, residing at Cranford, in the county of Union and State of New Jersey, both citizens of the United States, have invented a certain new and useful Improvement in Mechanically-Operated Musical Instruments, of which the following is a specification.

This invention relates to mechanically-operated pianos and its object is to effect certain improvements in the construction of such instruments whereby a more convenient arrangement of the parts, both for operating the instrument and for storing the parts when not in use, is obtained.

In the player-pianos heretofore employed, it has been common to arrange the rolls for the music-sheet and the tracker-board below the key-board of the piano and, in some cases, to so mount them that they can be moved from that position up in front of the keyboard. Both of these arrangements are objectionable principally because the operator has to sit at a greater distance from the keyboard than is convenient and has to look downwardly at a considerable angle to the music-roll.

In accordance with our invention, we arrange the rolls and tracker in the upper part of the piano above the keyboard so that no space in front of or below the keyboard is taken up by these parts and the operator can sit as close to the keyboard as is convenient without danger of injuring parts mounted under it when playing the piano either mechanically or manually. Also, when the parts are thus arranged, the music sheet is in the position where the operator can most conveniently watch its operation and the expression marks thereon, since the sheet is substantially on a level with the eyes of the operator instead of being considerably below them.

In practically all upright pianos, the front-board of the casing above the keyboard has a panel therein and back of this panel is considerable space not used for the parts of the piano-action. In the preferred embodiment of our invention, we make that panel

removable and utilize the space behind it for the two rolls for the music-sheet and the tracker-board. If the space available is of insufficient depth to permit of mounting the rolls and tracker in operative relation behind the removable panel, as is usually the case, one or both of the rolls and the tracker may be arranged for movement from an operative position in which they extend beyond the plane of the front-board of the piano to an inoperative position in which they occupy but little space immediately behind the removable panel of the front-board and in front of the piano-action.

The preferred embodiment of our invention is illustrated in the accompanying drawings, in which

Figure 1 is a transverse section of a player-piano, Fig. 2 is an elevation of the upper portion thereof, and Figs. 3 and 4 are detail views in elevation and section, respectively, showing the supports for the tracker-board and rolls.

Referring to the drawings, Fig. 1 shows an upright piano of ordinary construction, having a key-board 1, a front-board 2, foot-board 3, a piano-frame 4 and strings 5 extending across the frame. The keys 1 are arranged to actuate suitable piano-actions 6 to cause the hammers 7 to strike the strings, all as usual in upright pianos. The mechanism for operating the piano mechanically is of any usual or suitable type; in the drawings, a pneumatic operating mechanism is illustrated diagrammatically, consisting of main bellows 8 and key-actuating bellows 9, the latter of which are each adapted to raise the inner end of one of the keys 1 by means of a rod 10 to cause the corresponding hammer 7 to strike its string. Each key-actuating bellows operates when the air therein is permitted to escape by an opening in the music-sheet coming over the end of the opening through the tracker connected to that bellows in the usual manner.

The front-board 2 of the piano case has a panel 11 therein, as is common in the construction of upright pianos, but this panel is so made as to be readily removable, as by folding, sliding, turning on hinges or otherwise, it being held in the closed position in any suitable manner.

Mounted on the rear side of the front-board 2 are supports 12 and, preferably, a back 13 and top and bottom members forming a box or receptacle for certain parts of the mechanical-playing mechanism.

Mounted on the supports 12 in axial alignment are bearings 14 which support and permit rotation of a music-roll 15 consisting of a spool and a music-sheet or strip 16 wound thereon.

Below the music-roll, two arms 17 are pivotally mounted one on each of the supports 12 so as to rotate about the same axis. Extending across between the free ends of these arms and secured thereto is a tracker-board 18. This board has a number of openings 19 therethrough corresponding to the number of keys in the key-board and communicating with each of these openings is a flexible tube 20 extending down to and communicating with the proper bellows 9 in the usual manner. It will be seen that the tracker-board 18 is movable about the pivots of the arms 17, the flexibility of the tubes 20 permitting such movement while maintaining the air connections.

Below the tracker, a rod 21 extends across between the supports 12 and is secured at its ends thereto. Mounted for rotation on this rod are two arms 22, the free ends of which carry bearings 23 adapted to receive the ends of a reel or receiving-roll 24. Formed integral with one of these bearings is a gear 25 which meshes with a gear 26 loose on shaft 21 and this gear meshes with a pinion 27 secured on a shaft 28. This shaft is mounted for rotation in bearings in supports 12 and extends through one of those supports, means being provided coacting with this extended portion for driving the shaft. Any suitable devices may be employed for this purpose. These devices being of the construction usual in player-pianos are not illustrated in the drawing. Either one or each of the arms 22 or the bearings 23 is connected to the corresponding arm 17 by a link 29, the connections at both ends of the link being pivotal ones as will be readily understood. As thus constructed, it will be seen that the tracker-board and the receiving-roll can be moved within the piano casing to an inoperative position, as shown in Figs. 3 and 4, or be drawn out to an operative position, as shown in Figs. 1 and 2. When in the Fig. 4 position, the operator may readily grasp the tracker-board, the receiving-roll or one of the arms 17 and 22 and draw it forward and by means of the links 29 all the parts move to the Fig. 1 position. In this position the tracker and receiving-roll extend beyond the plane of the front-board 2 through the opening provided by the removal of panel 11. This movement of the parts does not affect the operating connections thereto, as the pipes leading to the tracker are flexible and one of the gears for driving

the receiving-roll is mounted on the axis about which the arms carrying the roll turn. When the parts are in this position, a roll containing a music-sheet is mounted in bearings 14 and its end carried over the tracker and secured to the receiving-roll, and the instrument may be operated in the usual manner. The portion of the sheet directly over the tracker is then directly in front of the operator and he may therefore watch it with greatest convenience; also, no space directly in front of and over the keyboard is occupied and the operator may sit close thereto. When it is desired to operate the piano manually, the parts are readily moved back as shown in Fig. 1 and the removable panel 11 inserted. It will be seen that the rolls and tracker are so mounted that when in the inoperative position they lie close to and occupy little space behind the panel 11 and do not interfere in any way with the piano-action.

Having now described our invention, what we claim as new therein and desire to secure by Letters Patent is as follows:—

1. The combination with an upright piano having a keyboard and a front-board above the same, of mechanical operating devices therefor including two rolls for the music-sheet and a tracker mounted above the keyboard and behind the plane of said front-board, said tracker being pivotally mounted and adapted to be turned on its pivots to an operative position in which it extends beyond said plane, substantially as described.

2. The combination with an upright piano having a keyboard and a front-board above the same provided with a removable panel, of mechanical operating devices therefor including two rolls for the music-sheet and a tracker mounted behind said removable panel, said tracker being pivotally mounted and adapted to be turned on its pivots to an operative position in which it extends through the opening formed by the removal of said panel, substantially as described.

3. The combination with an upright piano having a keyboard and a front-board above the same, of mechanical operating devices therefor including a roll for the music-sheet and a tracker mounted for movement from a position behind the plane of said front-board to an operative position in which they extend beyond said plane, substantially as set forth.

4. The combination with an upright piano having a keyboard and a front-board above the same provided with a removable panel, of mechanical operating devices therefor including a roll for a music-sheet and a tracker mounted behind said removable panel and adapted for movement to operative position through the opening formed by the removal of said panel, substantially as set forth.

5. The combination with a piano, of mechanical operating devices therefor including

supports for a music-roll and a tracker pivotally mounted one independently of the other and adapted to be moved on their pivots from an inoperative to an operative position, substantially as set forth.

6. The combination with a piano, of mechanical operating devices therefor including supports for a music-roll and a tracker pivotally mounted one independently of the other and interconnected so as to move simultaneously from an inoperative to an operative position, substantially as set forth.

7. The combination with a piano having an opening in the casing thereof, of mechanical operating devices therefor including a tracker and a roll for a music-sheet mounted within said casing and movable to operative position through said opening, substantially as set forth.

8. The combination with a piano having an opening in the casing thereof, of mechanical operating devices therefor including a tracker and a roll for a music-sheet mounted within said casing and movable to operative position through said opening, and means

for driving said roll when in the forward position, substantially as set forth.

9. The combination with an upright piano having a keyboard and a front-board above the same provided with a removable panel, of mechanical operating devices therefor including two rolls for a music-sheet and a tracker mounted in the upper part of the piano behind said removable panel, one of said rolls and said tracker being movable to operative position through the opening formed by the removal of said panel, and means for driving one of said rolls, substantially as set forth.

This specification signed and witnessed this 14th day of November, 1906.

JOHN W. STEVENSON.

SAMUEL L. DICKINSON.

Witness to signature of John W. Stevenson

DANIEL GRAINGE,

GEO. M. CLARK.

Witness to signature of Samuel L. Dickinson

D. S. EDMONDS,

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