

W. R. LYTTLETON.
 APPARATUS FOR TURNING THE LEAVES OF MUSIC AND THE LIKE.
 APPLICATION FILED NOV. 25, 1908.

971,204.

Patented Sept. 27, 1910.

2 SHEETS—SHEET 1.

FIG. 1.

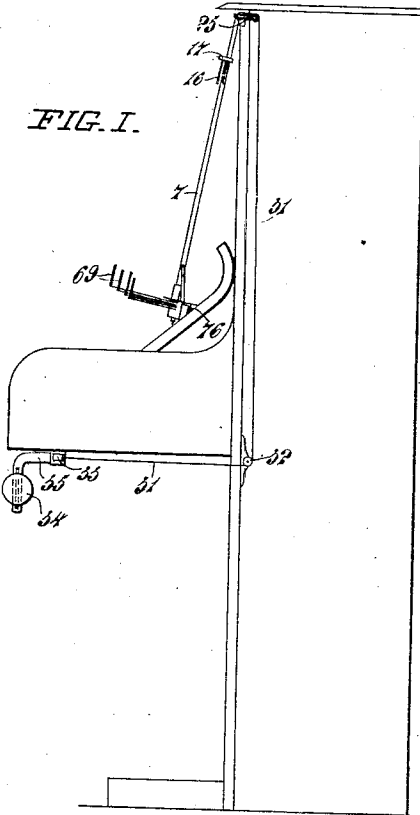


FIG. 3.

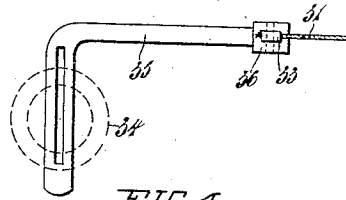


FIG. 4.

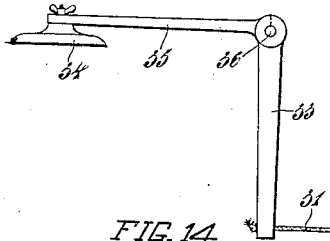


FIG. 14.

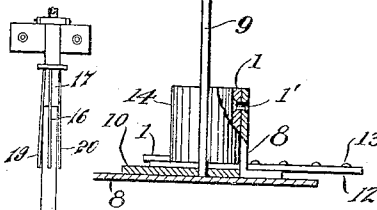


FIG. 2.

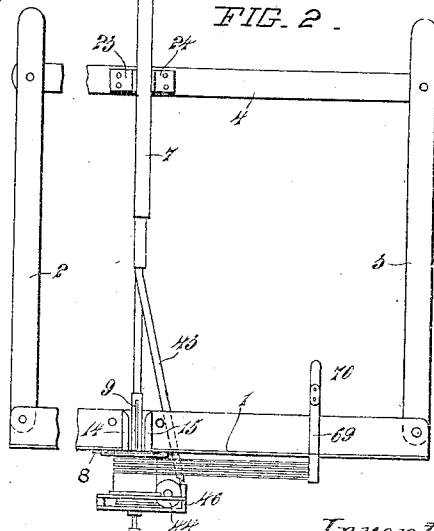
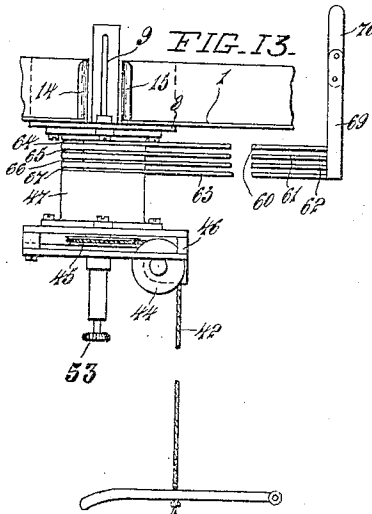


FIG. 13.



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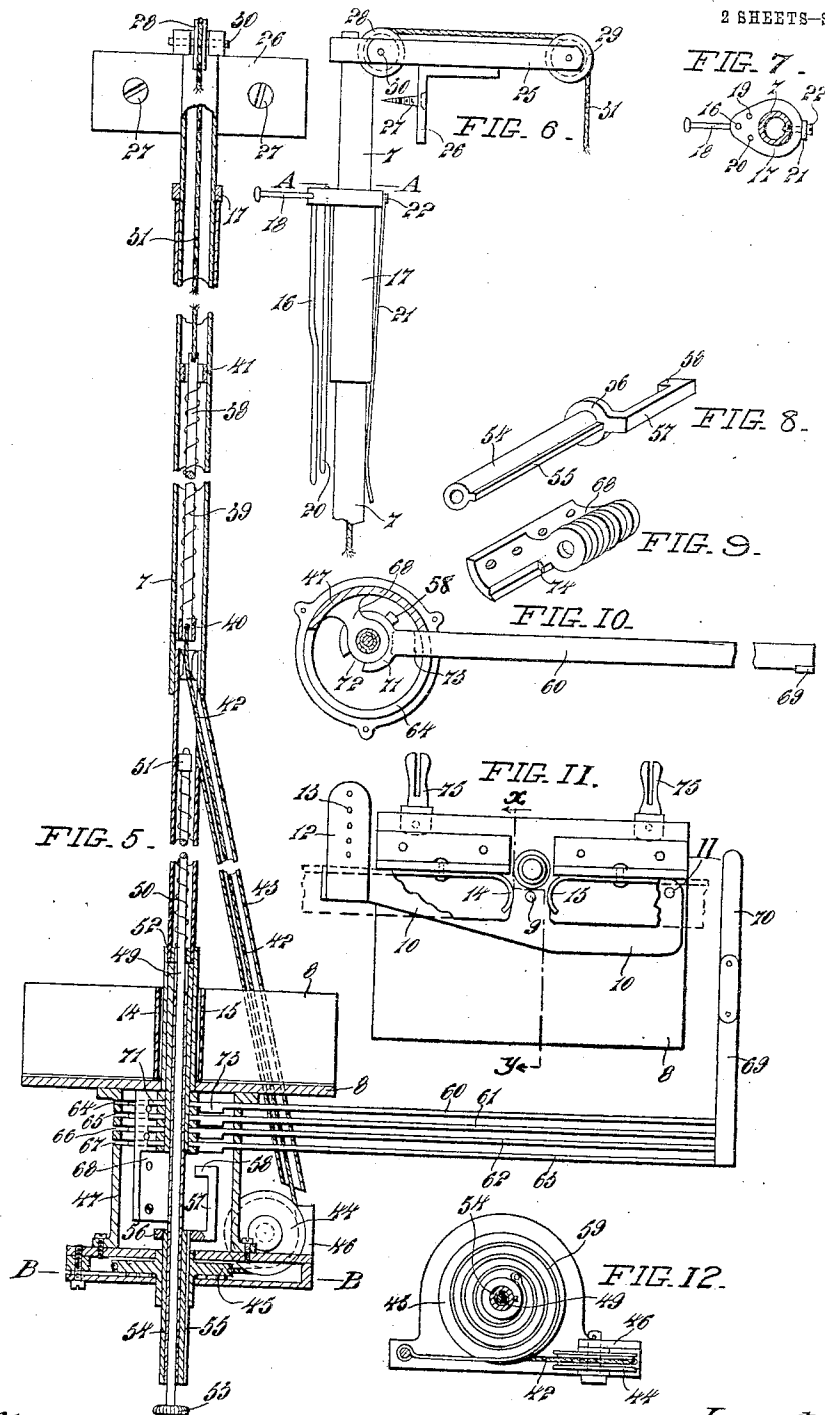
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2 SHEETS—SHEET 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

WESTCOTE RAYMOND LYTTLETON, OF RAKAIA, NEW ZEALAND.

APPARATUS FOR TURNING THE LEAVES OF MUSIC AND THE LIKE.

971,204.

Specification of Letters Patent. Patented Sept. 27, 1910.

Application filed November 25, 1908. Serial No. 464,470.

To all whom it may concern:

Be it known that I, WESTCOTE RAYMOND LYTTLETON, a subject of His Majesty the King of Great Britain and Ireland, residing at Rakaia, in the provincial district of Canterbury, in the Dominion of New Zealand, have invented certain new and useful Improvements in an Improved Apparatus for Turning the Leaves of Music and the Like, of which the following is a specification.

The invention relates to apparatus for turning the leaves of music, books, and the like.

According to my invention there is employed a holder in which the book or the like is retained and a series of horizontally pivoted arms, one for each leaf to be turned, which arms are operated in succession by the pull of a cord under the control of the reader. Means are provided by which any leaf may be turned back at will and again turned before the leaf next in succession is dealt with.

My invention is illustrated in the drawings wherein:

Figure 1, is a side elevation showing the apparatus applied to a piano. Fig. 2, a front elevation of the apparatus, Fig. 3, is an end elevation of the knee operated bell crank mechanism, and Fig. 4, a plan of bell crank mechanism, Fig. 5, a sectional elevation of the apparatus, Fig. 6, a side elevation of the upper part thereof, Fig. 7, is a sectional plan on line A—A Fig. 6, Fig. 8, an end perspective elevation of a driver, Fig. 9, a similar view of a bracket, Fig. 10, is a plan of an arm, bracket, and guide, Fig. 11, is a plan of a pivoted plate and parts for holding leaves of music, shown only in this view and in Fig. 14, Fig. 12, an inverted sectional plan on line B—B Fig. 5, Fig. 13, is an elevation of the invention particularly adapted for use upon an orchestral music stand. Fig. 14 is an enlarged section on the line $x-y$, of Fig. 11, showing the relation of parts 1, 10 and 8.

Referring first more particularly to Figs. 1 and 2. The music is supported upon the base piece 1 of a holder and lies against the side bars 2 and 3 respectively which are connected by the cross bar 4. An approximately tubular standard 7 is secured centrally to the frame by a bracket 8. The leaves to be turned over are held at the bottom by a pin 9, behind which they are placed

at their middle part or fold. This pin is fixed vertically in a plate 10 (Fig. 12), which is pivoted at 11 to the horizontal member of the bracket 8 and below the base-piece 1.

A spring catch 12 fixed to the end of the plate 10 remote from the pivot 11 thereof has a row of projections adapted to engage beneath the base-piece 1, the projections retaining the plate from turning upon its pivot during the will of the operator. The curved ends 14 and 15 formed by bending around the ends of the vertical members of the base piece 1, constitute a recess into which the pin 9 presses the leaves and thereby holds them more securely.

1' is a bolt holding the bracket 8 to the frame 1.

The upper part of the music book is held in position by a pin 16 pivoted to a socket 17 slidable upon the standard 7. The pin is operable by a projecting arm 18 (see Figs. 6 and 7) and falls between two wires 19 and 20 forming a recess into which the top of the leaves of the book are pressed by the said pin 16. The socket is held in sliding frictional contact with the standard 7 by a spring 21 fixed to the socket by a screw 22, said spring bearing at its other end against the said standard. The socket is prevented from turning around upon the standard by the point of the screw 22, passing into a groove formed longitudinally in the standard (see Fig. 7). The cross bar 4 is attached to the standard by brackets 23 and 24 secured to the said bar and forming a spring clip. The standard is supported upon the front of the piano by a cross head 25 (see Fig. 6) secured to a bracket 26 fixed to the piano by screws 27. Each end of the cross head is formed into a jaw to receive guide pulleys 28 and 29, and the top of the standard is pivoted upon the pin 30 of the pulley 28. A cord 31 passing over the pulleys descends inside the piano case and around a guide pulley 32 (Fig. 1) to the outside of the case below the keyboard, where it is connected to a bell crank lever consisting of arms 33 and 35 and operable by the knee of the player, and pivoted to the underneath side of the keyboard. This said bell crank lever has a knee pad 34 adjustable vertically upon the slotted arm 35 of the bell crank lever. The arm 35 is pivoted upon the pin 36 independently of the arm 33, the

arms being united by a stopped joint. The pad 34 and the arm 35 may thus be turned out of the way when not required.

Instead of the bell crank lever, a spring returned slide may be employed, or the cord may be continued to the bottom of the piano case and operated by a foot pedal. The upper part of the cord 31 descends inside the standard 7 where it is attached to a length of tubing 38 around which is a coiled spring 39 in compression between a shoulder 40 upon the tubing and a shoulder 41 within the standard. A second cord 42 passes through a guide tube 43 of the standard around a vertical guide pulley 44 and finally around a horizontal pulley 45 to which its end is connected. The pulleys 44 and 45 are carried in a bracket 46 fixed to the lower end of a cylindrical box 47 secured beneath the bracket 8. The pulley 45 is returned to its normal position after being rotated as hereinafter described, by a coiled spring 59 (see Fig. 11) attached at one end to the said pulley and at its outer end to the bracket 46.

A spindle 49 passing into the lower end of the standard 7 is projected upwardly by a coiled spring 50 in compression between a shoulder 51 upon the spindle and a shoulder 52 fixed inside the standard. The spindle passes through the box 47 and through the bracket 46 and is provided at its lower end with a milled button 53. A sleeve 54 fixed to the spindle has a feather 55 whereby the pulley 45 and the sleeve 54 rotate together while the said sleeve is slidable through the pulley. A "driver" fixed to the top of the sleeve comprises a disk 56, a vertical member 57 and a toe piece 58.

Arms 60, 61, 62 and 63 respectively passing through slots 64, 65, 66 and 67 formed in the cylindrical box 47 are pivoted in a bracket 68 fixed within and eccentrically to the box 47 and at their outer ends have vertical fingers 69 provided with terminals 70 of transparent celluloid or the like. The inner ends of the arms have integral disks 71, each of which is provided with a slot or gap 72 in its periphery. Upon the underneath side of each arm and at its juncture with its disk is a projection 73. A shoulder 74 (see Fig. 9) upon the bracket 68 is located to engage the toe piece and hold the "driver" out of operation until it is released. The bracket 8 is held in position by means of plugs 75 (see Fig. 11) having split ends which are sprung tightly into holes formed in a plate 76 (Fig. 1) fixed to the front of the piano.

In Fig. 13 which shows the apparatus modified for use upon an ordinary orchestral music stand, the same numerals are used to indicate the parts previously described, the apparatus being similar in all respects except that the upper part including the tube

7 is dispensed with as is also the guide tube 45. The guide pulley 44 is located below instead of above pulley 45 and the cord 42 is led over it to the foot of the music stand where a foot pedal is located by which the cord is pulled and the pulley 45 revolved with the result which will be understood from the following;—The spindle 49 is first pulled down by its milled button 53 and the toe 58 made to engage with the shoulder 74. The arms are then brought to the middle of their stroke that is perpendicular to the base 1, and the book placed in position upon the holder with the pins 9 and 16 passing between the leaves at top and bottom and preferably at the middle of the book. Each leaf to be turned is arranged in front of one of the terminals 70, and the arms then turned over with the leaves to the right of the standard. When it is desired to turn over the first leaf the operator moves the bell crank lever thereby pulling the cord against the action of the springs 39 and 59 and turning the pulley 45. The turning of the pulley 45 also turns the driver by means of the feather 55 until the said driver is released from the shoulder 74. After the driver is thus set free, the spring (50) raises the spindle (49) until the toe-piece is stopped by meeting the disk (71) of the arm (63). The pull upon the cord continuing, the toe piece slides around the said disk and engages the projection 73 of the arm 63 thus carrying the arm around and turning the leaf over to the left of the standard. The return of the driver is effected by means of the springs 59 and 39 and when the driver has returned to its original position it is raised by the spring 50 the toe piece passing through the slot or gap 72 formed in the disk 71 of the arm 63 until it meets the disk of the arm 62 immediately above. When it is desired to turn over a second leaf the operation is repeated and so on until all the arms have been turned over.

What I do claim and desire to secure by Letters Patent of United States is:—

1. In a leaf-turning mechanism, a plurality of pivoted arms having projections on their undersides, and integral disks provided with an open space in their periphery, a driver adapted to rise through the open space and engage successively the underside projections, in combination with means for operating the driver, substantially as set forth.

2. In a leaf-turning mechanism, a plurality of pivoted arms having projections on their underside and integral disks provided with gaps on their periphery, a cylindrical box provided with arm guides, a slotted bracket supporting the arms, in combination with a driver and means for operating the driver, substantially as set forth.

3. In a leaf-turning mechanism, a plu-

- 5 reality of pivoted arms having integral disks, and provided on their undersides with projections, said disks having a gap in their periphery, a driver adapted to be projected upward through said gap and engage successively the projections, in combination with means for raising, rotating and returning to its original position the driver, substantially as set forth.
- 10 4. In a leaf-turning mechanism, a plurality of pivoted arms having integral disks and projections on their under sides, said disks having a gap in their periphery adapted to form a passage for the driver, a driver adapted to be projected upward through said gap and engage successively the projections, means for raising and rotating the driver in combination with mechanism for controlling the motion of the driver by the operator, substantially as set forth.
- 15 5. In a leaf-turning mechanism, a plurality of arms having projections on their under sides and provided with integral disks slotted in their peripheries, a slotted bracket pivoting said arms and provided with a shoulder, and a driver engaging in said shoulder in combination with means for releasing and operating the driver, substantially as set forth.
- 20 6. In a leaf-turning mechanism, a plurality of arms having projections on their

underside and integral slotted disks, a guide box for said arms, a bracket fixed within and eccentrically to the box, a driver displaceable vertically and horizontally, enclosed in said box, in combination with means for elevating the driver and a spring incased in the base of the box adapted to communicate motion horizontally to the driver.

7. A leaf-turning mechanism, comprising a plurality of superposed pivoted arms having integral disks provided on their periphery with gaps, a projection on the underside of each of said arms, a pivoted driver having a toe-piece adapted to pass through the gaps, slide around the disks and engage the projection of each of the arms in succession, a sleeve carrying the driver, a feather upon the sleeve, a horizontal grooved pulley through which the sleeve and feather are slidable, a vertical guide pulley, a cord connected to the horizontal pulley and passing around a guide pulley, and means for pulling the cord and operating the horizontal pulley, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

WESTCOTE RAYMOND LITTLETON.

Witnesses:

HENRIE HAMPTON RAYWARD,
SAMUEL FREDERICK JOHNSON.