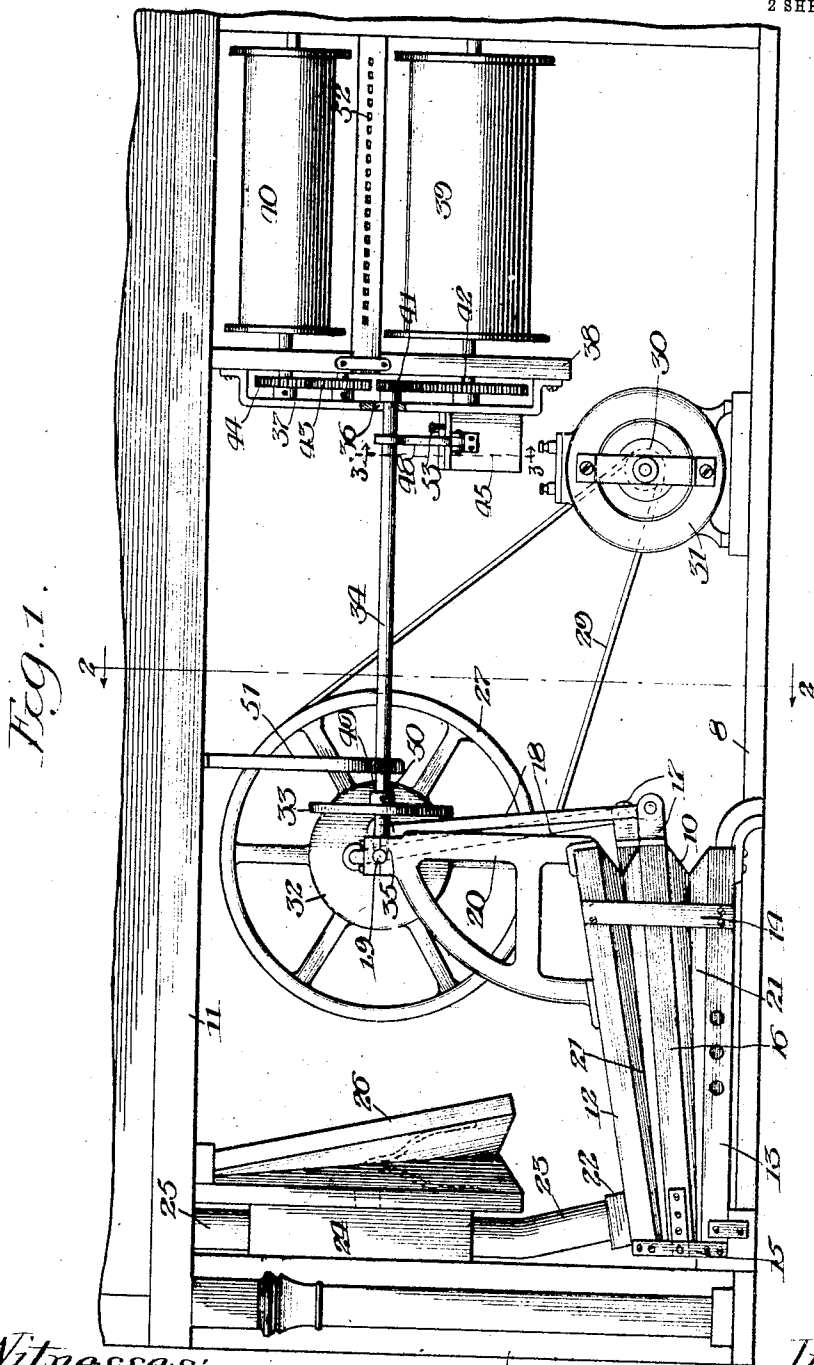


O. NELSON.
 REWINDING AND SPEED REGULATING MECHANISM FOR PNEUMATIC ACTIONS FOR PIANOS, &c.
 APPLICATION FILED OCT. 25, 1909.

972,633.

Patented Oct. 11, 1910.

2 SHEETS-SHEET 1.



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Fig. 3.

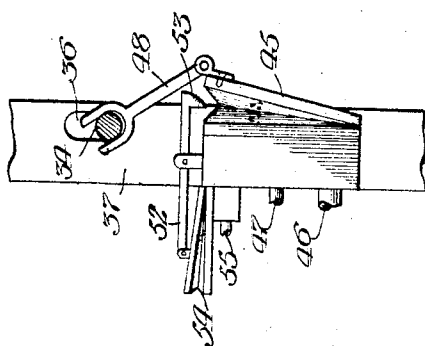


Fig. 4.

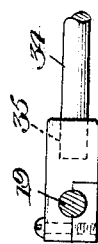
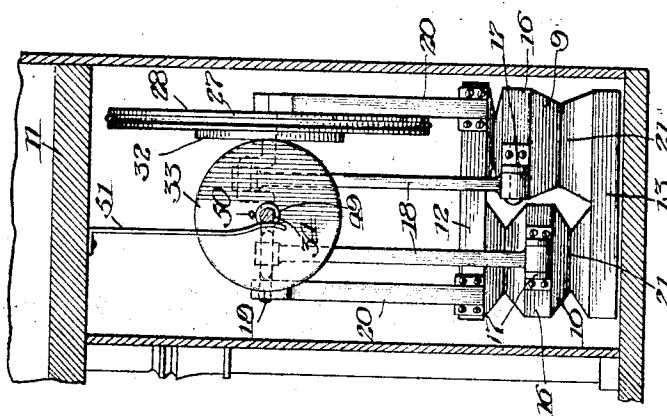


Fig. 2.



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UNITED STATES PATENT OFFICE.

OSCAR NELSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO J. P. SEEBURG PIANO COMPANY,
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REWINDING AND SPEED-REGULATING MECHANISM FOR PNEUMATIC ACTIONS FOR
PIANOS, &c.

972,633.

Specification of Letters Patent.

Patented Oct. 11, 1910.

Application filed October 25, 1909. Serial No. 524,516.

To all whom it may concern:

Be it known that I, OSCAR NELSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rewinding and Speed-Regulating Mechanism for Pneumatic Actions for Pianos and the Like, of which the following is a specification.

This invention relates to improvements in an apparatus to be used in connection with pneumatically operated musical instruments, and especially pianos, for regulating or controlling the speed of movement of the music-sheet and for rewinding the same, and it consists in certain peculiarities of the construction, novel arrangement and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide a rewinding and speed regulating mechanism of the above-named character, which shall be simple and inexpensive in construction, strong, durable and efficient in operation, and so made that the speed of the roller on which the music-sheet is wound may be easily regulated and the act of rewinding the same may be readily performed. Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which this invention pertains, to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1, is a view in front elevation of a portion of a piano casing showing my improved mechanism mounted thereon below the key-board and the parts in position ready for winding the music-sheet from one roller therefor to the other. Fig. 2, is a cross-sectional view taken on line 2—2 of Fig. 1, looking in the direction indicated by the arrows. Fig. 3, is a view partly in section and partly in elevation taken on line 3—3 of Fig. 1, looking in the direction indicated by the arrows. And Fig. 4, is a detail view of a portion of the winding shaft and the bearing for one end thereof.

Like numerals of reference, refer to corre-

sponding parts throughout the different views of the drawing.

The reference numeral 7, designates the front lower portion of a piano casing, that is, from just above the key-board thereof, to its base, with the front wall of the casing removed to disclose the improved mechanism. Mounted on the floor 8, of the casing 7, and near one end thereof, are the power pneumatics 9, and 10, which may be of the ordinary or any preferred construction, and are employed for operating the pneumatic action of the instrument which is not herein shown, but which it will be understood is mounted within the casing 7, above the key-board 11, thereof and may be of any well known type.

As shown in Figs. 1, and 2, of the drawings, the top and bottom boards 12, and 13, of the pneumatics 9, and 10, are rigidly held apart by means of upright braces 14, and 15, secured to the sides thereof near their ends and that the intervening frame 16, of each pneumatic is pivotally connected at one of its ends to the uprights 15, and has at its other end an extension 17, to each of which is pivotally secured at one of its ends a bar or rod 18, the other end of each of which is journaled on the crank shaft 19, which is horizontally mounted on the upper portion of a pair of brackets 20, which are mounted on the top board 12, of the pneumatics. The upper and lower boards 12, and 13, are connected to the intervening frames 16, at the edges of the latter by means of collapsible diaphragms 21, in the ordinary manner. Extended across the upper surface of the upper board 12, of the pneumatics, is a hollow trunk 22, which has communication through openings in the board 12, with the interior of the diaphragm 21, and also has communication through suitable conduits 23, 24, and 25, with the piano action, (not shown) and the reservoir 26, which also has communication at its upper portion with the piano action. Mounted on the crank shaft 19, near its rear end, is a pulley 27, which is preferably provided with a peripheral groove 28, for a cord or belt 29, which is extended around the pulley 27, and also around a pulley 30, on the shaft of a motor 31, which is located on the floor of the cas-

ing 7, and may be of any suitable kind or construction. The pulley or wheel 27, is provided on its central portion with a disk 32, against which a friction disk 33, mounted on the winding shaft 34, contacts.

As shown in the drawings, the winding shaft 34 is located at right angles to the crank shaft 19, and has one of its ends journaled in a suitable bearing 35, loosely mounted on the crank shaft 19, and its other end movably supported in an opening 36, in a bracket 37, secured to a portion of the supporting frame 38, for the music-sheet rollers 39, and 40, which are journaled one above the other as is clearly shown in Fig. 1, of the drawings. Mounted on that end of the winding shaft 34, adjacent to the rollers 39, and 40, is a pinion 41, which is adapted to mesh with a gear 42, on the shaft of the roller 39, and with a pinion 43, which is journaled on the frame 38, and bracket 37, and meshes with a gear 44, on the shaft of the roller 40. Mounted on the bracket 37, near the winding shaft 34, is a pneumatic 45, which has communication through the tube 46, with the pneumatic action and through the tube 47, with the tube leading from the tracker bar, and carries a forked arm 48, which is pivotally connected to the upper portion of the pneumatic 45, and embraces the winding shaft 34, as is clearly shown in Figs. 1, and 3, of the drawings. The friction disk 33, which as before stated, contacts with the face of the disk 32, on the pulley 27, is provided on one of its surfaces with a set screw 50, to engage the winding shaft 34, so as to fix the friction disk 33, thereon at the desired point. A spring 51, secured at one of its ends to the lower surface of the key-board 11, and depending therefrom, rests against one side of the winding shaft 34, so as to press it toward the disk 32, and thus constantly hold the friction disk 33, in contact with the first named disk.

From the foregoing, and by reference to the drawings, it will be readily understood and clearly seen that when the parts are arranged as shown in Fig. 1, of the drawings, and power is transmitted from the motor 31, through the belt or cable 29, to the pulley 27, said pulley, as well as the disk 32, and crank shaft 19, will be rotated in which operation, it is evident that the power pneumatics 9, and 10, will be actuated, and through their connections therewith, the pneumatic action will be operated. As the friction disk 33, on the winding shaft 34, is in contact with the disk 32, it is apparent that the winding shaft will be rotated and its movement imparted through the pinion 41, and the gear 42, to the music-sheet roller 39, on which the sheet will be wound and unwound from the roller

40, thus causing it to pass over the tracker board 52, which is located between said rollers and may be of the ordinary or any preferred construction.

When it is desired to rewind the music-sheet from the roller 39, to the roller 40, this can be done by exhausting the air from the pneumatic 45, which will cause it to collapse, and move the arm 48, upwardly, in which operation, as the fork of said arm engages the winding shaft 34, it is apparent that said shaft will be raised at its end adjacent to the rollers and the pinion 41, on said end thrown into engagement with the gear 43, which as before stated, meshes with the gear 44, on the shaft of the roller 40, and thus cause said roller to rotate. The speed of movement of the rollers 39, and 40, may be regulated by moving the friction disk 33, toward or from the crank shaft 19, as is apparent.

In order to hold the arm 48, and the winding shaft 34, in their raised positions, a lever 52, is fulcrumed on the upper portion of the trunk of the pneumatic 45, and has at one of its ends a catch 53, to engage the top of said pneumatic, and has its other end secured to a pneumatic 54, with which a tube 55, leading from the tracker bar tube (not shown) communicates.

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

1. In a mechanism of the class described, the combination with the power pneumatics, of a crank shaft journaled near the same, connections uniting the pneumatics and crank shaft, a pulley mounted on the crank shaft and having a disk at its central portion, music-sheet rollers journaled near each other, a gear on each of the shafts of said rollers, a pinion journaled near one of said gears, a winding shaft movably mounted at its end adjacent to the rollers and suitably supported at its other end near the crank shaft, a pinion on the winding shaft to engage one of the gears of one of the rollers and the first mentioned pinion, a friction disk mounted on the winding shaft in contact with the disk of the pulley, and means to rotate the pulley.

2. In a mechanism of the class described, the combination with the power pneumatics, a crank shaft journaled near the same, connections uniting the pneumatics and crank shaft, a wheel mounted on the crank shaft, music-sheet rollers journaled near each other, a gear on each of the shafts of said rollers, a pinion journaled near one of said gears, a winding shaft movably mounted at its end adjacent to the rollers and pivotally supported at its other end near the crank shaft, a pinion on the winding shaft adapted to engage one of the gears of one of the rollers and the first mentioned pinion, a

friction disk adjustably mounted on the winding shaft in contact with the said wheel, and means to rotate the crank shaft.

3. In a mechanism of the class described,
5 the combination with the power pneumatics, a crank shaft journaled near the same, connections uniting the pneumatics and crank shaft, a wheel mounted on the crank shaft, music-sheet rollers journaled near each
10 other, a gear on each of the shafts of said rollers, a winding shaft movably mounted at its end adjacent to the rollers and pivotally supported at its other end near the crank shaft, a pinion on the winding shaft

adapted to alternately engage gearing on 15 the shafts of the rollers, a pneumatic mounted near the winding shaft, an arm pivotally secured at one of its ends to said pneumatic and engaging at its other end the winding shaft, a friction disk adjust- 20 ably mounted on the winding shaft in contact with the said wheel, and means to rotate the crank shaft.

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