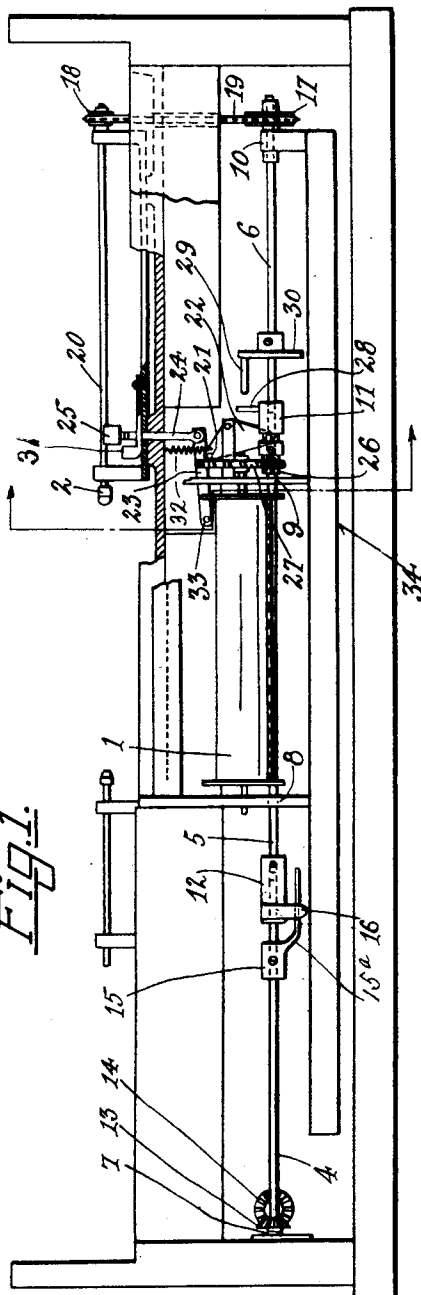
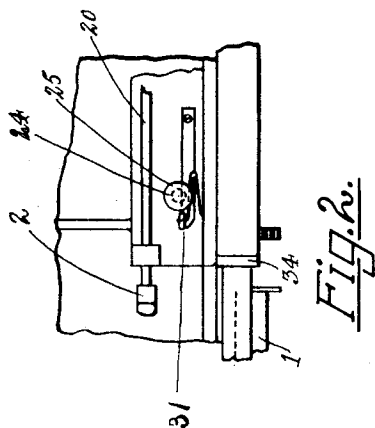
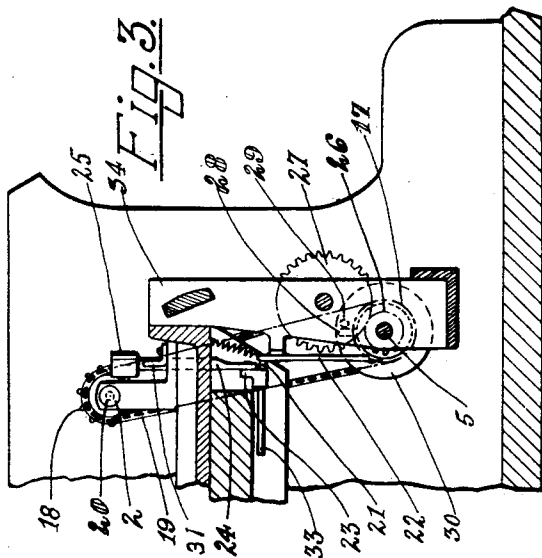


R. A. GALLY.
MUSIC ROLL WINDING AND REWINDING APPARATUS.
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1,106,297.

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Witnesses:
Jacob A. Hollander
J. W. Macy

Inventor:
Robt. A. Gally

UNITED STATES PATENT OFFICE.

ROBERT A. GALLY, OF CINCINNATI, OHIO, ASSIGNOR TO THE BALDWIN COMPANY,
OF CINCINNATI, OHIO.

MUSIC-ROLL WINDING AND REWINDING APPARATUS.

1,106,297.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT A. GALLY, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Music-Roll Winding and Rewinding Apparatus, of which the following is a specification.

Previous music roll winding apparatus have usually had the motor drive and rewind, and shift clutches for same, all at one end of the roll box, such drive, rewind and shift lying between the motor and the box; or the motor drive to one rewind at one end of such box, with a second rewind at the other end. In the present invention the driving motor means is beyond one end of the box, the forward drive engagement at the box, preferably at the other end; and the rewind connections beyond the end of the box away from the motor drive means, all being most conveniently combined by the use of three shafts set end to end on one axial line parallel to the axis of the music spools. In the drawings, Figure 1 is a front view of the invention embodied in a grand piano structure of the general character set forth in my issued Patent #1,065,602, June 24, 1913, and my application #742,864, filed January 18, 1913; Fig. 2 is a plan view of the main part of Fig. 1; and Fig. 3 a section taken at A of Figs. 1 and 2.

The propulsion of the take-up spool 1 for forward travel and music roll clutch spindle 2 for reverse travel of a music-sheet, is accomplished by a system of three shafts 4, 5, and 6, set in one axial line, and held in bearings 7, 8, 9 and 10, and also supported in common line at their two meeting points by sleeves 11 and 12. The first shaft at the left, drive shaft 4, has its left end in bearings 7, and a miter gear 13 affixed to that same end of said shaft 4 engages with its mate miter gear 14 by which it receives its revolution impulse. A sleeve 15^a fixed to the right end of this shaft 4 has a clutch arm 15^a which is in constant engagement with clutch arm 16 of sleeve 12 of slide shaft 5 so that both shafts 4 and 5 revolve together, yet shaft 5 is free to slide longitudinally of the common axis for changing the drive engagement of shaft 5 from its leftward position for revolution of spool 1 for winding a music sheet thereon, to reach its rightward position for the revolution of rewind shaft 6 and its at-

tached sprocket wheel 17, and the upper sprocket wheel 18 by connecting chain drive 19 to revolve upper shaft 20 to turn clutch 2 for reverse winding of such music sheet. The longitudinal shifting of the intermediate slide shaft 5 is accomplished by the motion of a pin 21 of a bell crank 22 which is engaged by an arm 23 actuated by a push rod 24 and its button 25, a downward pressure on said button 25 and connected parts moving said slide shaft 5 rightward and thus releasing the pinion 26 of slide shaft 5 from the gear wheel 27 attached with take-up spool 1, and at same time engaging the clutch pin 28 of sleeve 11 of slide shaft 5 with clutch-pin 29 of disk wheel 30 affixed to rewind shaft 6. In this condition, the revolution of gears 13 and 14 and shafts 4 and 5, also causes the similar revolution of rewind shaft 6, sprocket wheels 17 and 18, and upper shaft 20 and clutch 2 for reverse winding of a music sheet. When the button 25 is released by forward shift of its catch 31, spring 32 raises the horizontal arm of bell-crank 22, the arm 23 and rod 24 and button 25, at same time moving pin 21 and sleeve 11 to the left together with slide shaft 5, engaging pinion 26 of slide shaft 5 with gear 27 of take-up spool 1 to enable revolution of said spool for forward travel of a music-sheet. With the same leftward shift of slide shaft 5, the clutch pin 28 is released from engagement with clutch pin 29 of sprocket shaft 6, and thus frees said rewind shaft 6 and the sprockets 17 and 18 and chain 19 from any revolution from the motor drive of shafts 5 and 4.

The arm 23 is conveniently attached to a shaft 33 extended rearwardly to control the shifting of such valves as are commonly employed for controlling the proper air supplies for the action and motor.

For convenience of removal of the take-up spool and related parts, the bell-crank 22 is mounted on the framework 34 together with the take-up spool 1, gear 27, shafts 4, 5 and 6, and pinion 26, etc., and the arm 23 remains permanently with rock-shaft 33, and push-rod 24 and button 25 mounted on the main part of the piano. The horizontal part of bell-crank 22 lies directly under arm 23 so that the bell-crank 22 will readily slide in and out of such position when the take-up spool and related parts on frame 34 are removed or replaced.

What I claim as my invention, is:—

1. In a music-roll winding apparatus: a take-up spool adapted to wind a music sheet and having a horizontal axis, and a gear therewith, a slide-shaft parallel with and adjacent to said spool, a pinion on said slide-shaft, shift means engaged with and adapted to move said slide-shaft longitudinally of its axis together with said pinion to and from engaged and free positions of said pinion with said gear, a longitudinally stationary drive-shaft in axial alinement with said slide-shaft at one end of said slide-shaft, clutch means revolubly engaging said shafts to each other at their adjacent ends but free for longitudinal motion of said slide-shaft, a rewind shaft in axial alinement with said slide-shaft at the other end of said slide-shaft, clutch means adapted to revolubly engage said slide-shaft to said rewind-shaft when said slide-shaft and its pinion are disengaged from the take-up spool and gear, and means on said rewind-shaft for effecting the operation of mechanism to rewind such music sheet from said take-up spool when said rewind-shaft is so revolubly clutched with said slide-shaft.

2. In a music-roll winding apparatus: a take-up spool having a gear therewith, a shaft parallel to the axis of said spool and divided into three sections as to its length, and couplings connected to the two adjacent ends of each pair of said sections of shaft, one end section and the middle section of said shaft having a constant drive, and the third section having optional drive, the middle section of said shaft having a pinion therewith and adapted to be moved longitudinally, and means for longitudinally moving said middle section of said shaft to a position of said longitudinal movement engaging said pinion with said gear, and to alternatively move said middle section of said shaft to a position of disengagement of said pinion and gear, and coupling means engaged by said movement to revolubly couple said middle section to the optionally revoluble third section, said third section having means for rewinding a music roll when so coupled.

3. In a music-roll winding apparatus; a horizontally disposed take-up spool, a shaft parallel with said spool, said shaft being in three sections as to its length, its middle section lying adjacent the lengthwise dimension of said spool, couplings between said sections, and shifting means engaging said middle section and adapted to shift said section in direction of its length, and means to revolubly engage said middle section with said spool at one position of its said lengthwise movement, means combined with an end section of said shaft for effecting the rewinding of a music-sheet from said spool, and means to revolubly engage said middle

section to said rewind section at another position of the lengthwise movement of said middle section.

4. In a music-roll winding apparatus: a take-up spool, a shaft parallel to the axis of said spool, said shaft being of three sections in one axial line with couplings between the sections adapted to allow change of relation of said sections as to lengthwise position and revolution, the middle section being movable in direction of its length, and means to revolubly engage said middle section with said spool at one position of the said lengthwise movement of said middle section.

5. In a music-roll winding apparatus: a take-up spool, a shaft lying adjacent to said spool and parallel to the axis of said spool, means to shift said shaft in direction of its length, means to revolubly engage the shaft with said spool at one position of said movement of said shaft and to be free of said revoluble engagement at another position of said movement, another shaft in axial alinement and revolubly engaged with one end of said first shaft at all times, and drive means to revolve both said shafts together, and a third shaft in axial alinement and engagement with said first shaft at its other end, and means revolubly engaging said third shaft with said first shaft only when said first shaft is free of revoluble engagement with said spool.

6. In a music-roll winding apparatus: a horizontally disposed take-up spool and a gear therewith, a longitudinally movable shaft adjacent to and parallel with the axis of said spool and having a pinion thereon adapted to engage said gear at one longitudinal position of said shaft, a bell-crank in vertical plane similar to the axis of said shaft, a vertical member of said bell-crank engaging said shaft for its longitudinal motion, the horizontal member of said bell-crank connected with vertical acting members rising above said horizontal member and having a controlling member at the top thereof adapted for manual depression to actuate said bell-crank and the lengthwise motion of said shaft.

7. In a music-roll winding apparatus: a horizontal take-up spool and a revoluble shaft parallel therewith; adjacent thereto and at similar level, a music-roll clutch and shaft at a higher level and entirely above said spool, means for alternately engaging said revoluble shaft with said take-up spool and with said clutch-shaft, and means for shifting said engaging means from one said connection to the other, said shifting means extending above said spool to the level of said clutch-shaft, and a manual control means adapted to operate said shifting means and entirely above said spool.

8. In a music-roll winding apparatus: a

horizontal take-up spool and a revoluble shaft parallel therewith, adjacent thereto and at similar level, a music roll clutch and shaft at a higher level and entirely above said spool, means for alternately engaging said revoluble shaft with said take-up spool and with said clutch-shaft, and means for shifting said engaging means from one said connection to the other, said shifting means extending above said spool to the level of said clutch-shaft and having vertical motion, and a manual control means adapted to operate said shifting means and entirely above said spool.

9. In a music-roll winding apparatus: a horizontal take-up spool and a gear therewith, a pinion means adapted to intermittently engage said gear, means for shifting said pinion means into and out of engagement with said gear, said shifting means including a horizontal rock-shaft at right angles to said take-up spool and extended rearwardly thereof, a horizontal arm at the front of said rock-shaft, and a vertical push rod and button at top thereof connected to and above said horizontal arm.

10. In a music-roll winding apparatus: a horizontal take-up spool and a gear therewith, a pinion means adapted to intermit-

tently engage said gear, means for shifting said pinion means into and out of engagement with said gear, said shifting means including a horizontal arm, and a vertical push rod and button at top thereof connected to and above said horizontal arm, and said shifting means also including a bell-crank between said arm and said pinion means.

11. In a music-roll winding apparatus: a horizontal take-up spool and a gear therewith, a pinion means adapted to intermittently engage said gear, means for shifting said pinion means into and out of engagement with said gear, said shifting means including a horizontal arm, and a vertical push rod and button at top thereof connected to and above said horizontal arm, and said shifting means also including a bell-crank between said arm and said pinion means, said take-up spool, pinion-means and bell-crank being combined as a removable unit independent of said arm, push rod and button.

ROBT. A. GALLY.

Witnesses:

S. M. WAMACKS,
J. W. MACY.