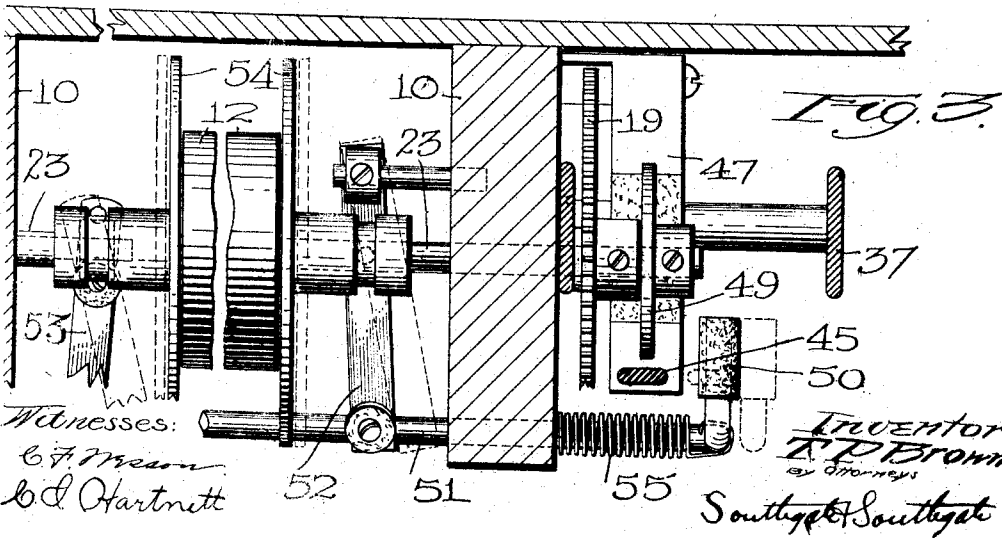
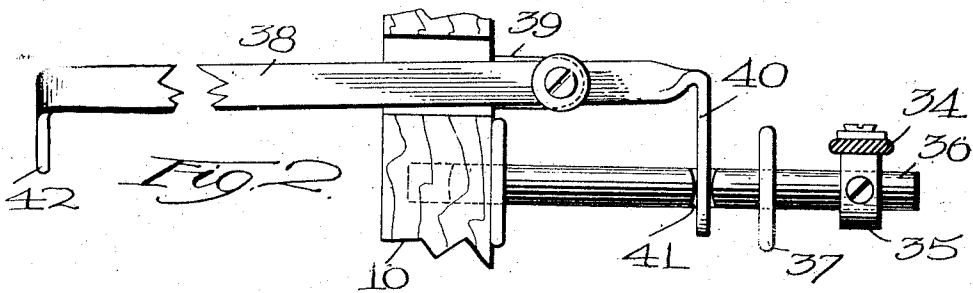
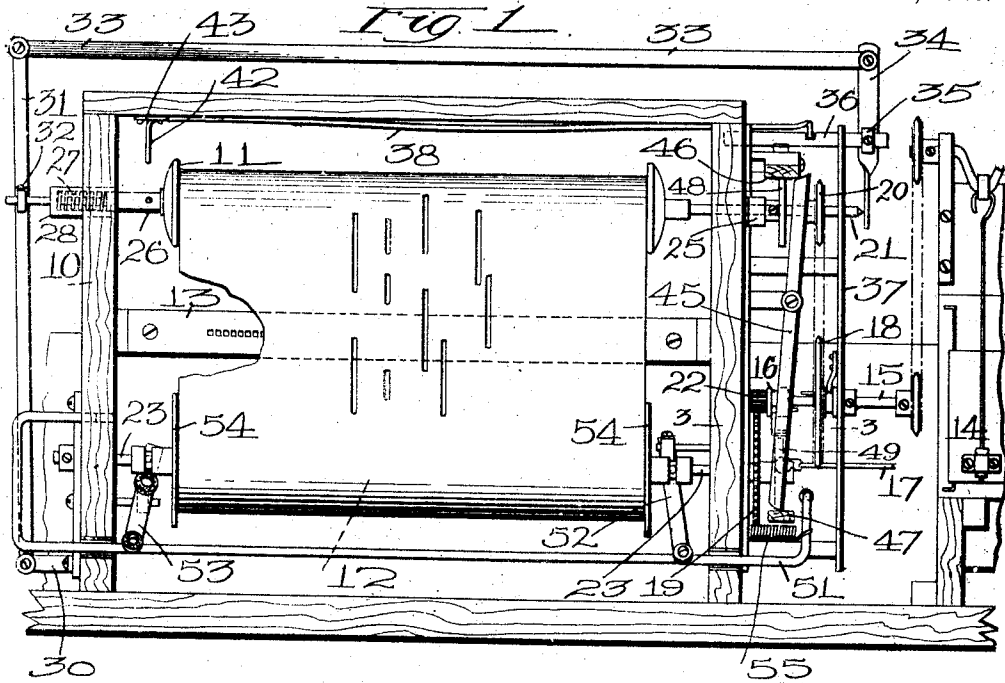


T. P. BROWN.
SPOOL ADJUSTING DEVICE FOR MUSICAL INSTRUMENTS.
APPLICATION FILED APR. 25, 1910.

978,355.

Patented Dec. 13, 1910.



UNITED STATES PATENT OFFICE

THEODORE P. BROWN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO SIMPLEX PIANO PLAYER COMPANY, A CORPORATION OF MASSACHUSETTS.

SPOOL-ADJUSTING DEVICE FOR MUSICAL INSTRUMENTS.

978,355.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed April 25, 1910. Serial No. 557,341.

To all whom it may concern:

Be it known that I, THEODORE P. BROWN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Spool-Adjusting Device for Musical Instruments, of which the following is a specification.

This invention relates to that type of musical instruments in which a note sheet is caused to travel over a tracker for the purpose of controlling the operation of the hammers.

The principal objects of the invention are to provide simple and practicable means whereby the music spool can be readily adjusted as a whole in either direction to cause the paper to track properly; to provide means connected therewith whereby the ordinary rewinding mechanism can be thrown into and out of gear without affecting the said adjustment; to provide a simple means controlled by a well-known portion of the winding mechanism for relieving the edges of the note-sheet on the take-up spool from all friction when the rewinding mechanism is started; and to provide for yieldingly holding the edges of the note sheet while it is being wound on the take-up spool, said means being so arranged as to be permitted to come into operation automatically when the rewinding mechanism is thrown out of gear.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a front elevation of a portion of a musical instrument showing a preferred embodiment of this invention; Fig. 2 is a plan of a portion of the adjusting devices for the music spool, and Fig. 3 is a sectional view on the line 3—3 of Fig. 1 showing the rewinding and take-up spool connections in plan.

The invention is shown as applied to a musical instrument having a box 10 for the music spool 11, take-up spool 12, and tracker 13. A motor 14 of ordinary kind is shown and a driving shaft 15 which is provided thereon with a movable clutch 16 operated by a rod 17 so as to connect the shaft 15 either with a wheel 18 or a wheel 19. As is

well understood in this art, the wheel 18 is connected with a wheel 20 by a sprocket chain or the like which is located on a spindle 21 with which the music spool 11 is connected. These connections are for rewinding. When the clutch 16 is in the position shown in Fig. 1 a pinion 22 thereon meshes with the gear 19 on a spindle 23 on which is located the take-up spool 12. In this position the parts are ready for the ordinary winding operation which takes place when the music is being played.

The parts so far described are well understood in this art.

The spindle 21 is normally pressed outwardly by a spring 25. The spindle 26 at the other end of the box which supports the other end of the music spool is also movable and is pressed inwardly by a spring 27 in the casing 28. Pivottally mounted on a bracket 30 is a lever 31 which is adjustably connected with the spindle 26 by means of a set screw 32. This lever is connected by a link 33 with a lever 34 pivoted on a member 35 which is adjustably secured to a sliding rod 36 by means of a set screw. This lever 34 engages the end of the spindle 21. It will be obvious that on account of these connections the spindles 21 and 26 will always move oppositely when the spindle 21 is in contact with the lever 34. In order to adjust these two spindles 21 and 26 both in the same direction so as to move the note sheet along the tracker to bring it into proper registration therewith without interfering with the relative adjustment of the two spindles, the rod 36, and consequently the fulcrum of the lever 34 is made longitudinally movable. For this purpose it is mounted to slide in the end of the box and has a bearing in a frame 37 spaced therefrom. A long lever 38 is pivoted on a bracket 39 just outside the box and is provided with a transverse arm 40 which enters a slot 41 in the rod 36. This lever extends through a passage in the box to the opposite end thereof and has a handle 42 just inside the box at its left side. Located at the top of the box on the inside is a bearing plate 43, and the lever is so made that its own resiliency forces it against this plate so that it will bear upon the same at all times. On account of the shape of the

arm 40 and its location directly transverse to the direction of motion of the sliding rod 36 together with the bearing of the lever on the plate 43 the springs which operate the spindles 21 and 26 cannot alone move the sliding rod. Therefore after being adjusted to proper position there is no danger of its getting out of adjustment. It will be seen also that the adjustment of the sliding rod does not affect the distance between the inner ends of the spindles 21 and 26.

As is well understood in this art the operating rod 17 is connected with a lever 45 near the ends of which are spring-pressed brakes 46 and 47 adapted to bear on wheels 48 and 49 connected respectively with the spindles 21 and 23. This lever is so arranged that when the parts are in position for the ordinary winding the lever moves over into position to take the brake 47 off the wheel 49 and to allow the brake 46 to engage the wheel 48. When the operating rod is in the opposite position the opposite condition prevails. Now when the lever 45 moves from the position shown in Fig. 1 to the position in which the brake 47 is on and the brake 46 is off, it engages an arm 50 on a rod 51 and pushes this rod to the right. This rod is connected with two levers 52 and 53 which are pivoted, one on one side and the other on the other side of the spindle 23. These levers are connected with the movable flanges 54 of the take-up spool. On account of the fact that the two levers are pivoted on opposite sides of the spindle of this spool, the motion of the rod to the right will move the two flanges in opposite directions and in this case it moves them away from each other. It will be seen therefore that when the connections are set for re-winding the flanges of the take-up spool are automatically separated so that there will be no friction on the edges of the sheet due to the take-up spool. When the parts are restored to the ordinary winding position as shown in Fig. 1, a spring 55 moves the rod 51 back and causes the flanges 54 to come up to proper position so as to receive the paper from the music spool and wind it up evenly on the take-up spool. It will be seen therefore that this invention provides in a simple and efficient way for the adjustment of the music spool back and forth to proper position and for the separation of the flanges of the take-up spool during re-winding as well as for holding the flanges of the take-up spool up against the paper with a yielding pressure during the ordinary winding of the note sheet.

While I have illustrated and described a preferred embodiment of the invention, I am aware that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims.

Therefore I do not wish to be limited to all the details of construction herein shown and described, but

What I do claim is:—

1. In a musical instrument, the combination of a pair of spindles for holding the music spool, means whereby when one of said spindles is moved the other will be moved in the opposite direction, and means connected therewith for moving both spindles in the same direction without changing their distance apart.

2. In a musical instrument, the combination of two supports for a spool, means for moving said supports in opposite directions, and means for adjusting said supports simultaneously in the same direction.

3. In a musical instrument, the combination of two supports for a spool, a sliding rod, means for moving said rod, a lever fulcrumed on said rod and adapted to move one of said supports, and a lever connected with the first named lever and adapted to move the other support in the same direction.

4. In a musical instrument, the combination of two supports for the opposite ends of a spool, means for moving said supports in opposite directions, a slidable rod, connections from the rod to said supports for moving them in the same direction when the rod slides, and a lever having an arm extending transversely with respect to the slidable rod, said rod having a slot for receiving said arm.

5. In a musical instrument, the combination of two supports for a spool, a slidable rod, connections from the rod to said supports for moving them in the same direction when the rod slides, and means for moving the supports in opposite directions without interfering with the adjustment of the rod.

6. In a musical instrument, the combination of two supports for a music spool, a slidable rod, connections from the rod to said supports for moving them in the same direction when the rod slides, means for moving the supports in opposite directions without interfering with the adjustment of the rod, a winding motor, and rewinding mechanism connected with one of said supports and adapted to operate in all positions of the slidable rod.

7. In a musical instrument, the combination of two supports for a music spool, means for moving said supports in opposite directions, a slidable rod, connections from the rod to said supports for moving them in the same direction when the rod slides, a winding motor, rewinding mechanism connected with one of said supports and adapted to operate in all positions of the slidable rod, a brake for the rewinding mechanism, a direct winding mechanism, a brake for the direct winding mechanism, a clutch for con-

necting the motor either with the winding or rewinding mechanism and for operating said brakes, a take-up spool, having movable flanges, and means whereby when the clutch
5 is set to connect the motor with the rewinding mechanism said brake lever will separate the flanges of the take-up spool.

8. In a musical instrument, the combination of a motor, a winding mechanism, a
10 rewinding mechanism, brakes for both of said mechanisms, a brake lever adapted to throw one brake on and the other off when the motor is connected with or disconnected from the rewinding mechanism, a take-up
15 spool having movable flanges, and means operated by said brake lever for separating the movable flanges when the rewinding mechanism is connected with the motor.

9. In a musical instrument, the combination of a motor, a rewinding mechanism,
20 and a take-up spool having movable flanges, of means for connecting the motor with the rewinding mechanism and simultaneously separating said flanges.

25 10. In a musical instrument, the combination of a motor, a rewinding mechanism, and a take-up spool having movable flanges, a slidable rod, a pair of levers connected with said rod, each connected with one of
30 said movable flanges, one lever being fulcrumed between the rod and the center of the movable flange, and the other being fulcrumed beyond the latter, an arm on said rod, and means for connecting the motor

with the rewinding mechanism, said means 35 being adapted to actuate said arm.

11. In a musical instrument, the combination of a take-up spool having movable flanges, a spindle on which the take-up
40 spool is mounted, a pair of levers, one connected with each of said flanges, one lever being fulcrumed on one side of the spindle and the other on the other side, a longitudinal sliding rod extending the length of the
45 take-up spool to which both of said levers are connected, and a spring for normally moving said lever in a direction to move flanges inwardly, and means for positively moving the rod in the opposite direction to
50 separate the flanges.

12. In a musical instrument, the combination of a take-up spool having movable flanges, a spindle on which the take-up spool
55 is mounted, a pair of levers, one connected with each of said flanges, one lever being fulcrumed on one side of the spindle, and the other on the other side, a single longitudinally sliding rod to which both of said
60 levers are connected, and a spring for normally moving said lever in a direction to move both flanges inwardly.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

THEODORE P. BROWN.

Witnesses:

ALBERT E. FAY,
C. FOREST WESSON.