UNITED STATES PATENT OFFICE.

JOSEPH F. LAUDA, OF RACINE, WISCONSIN, ASSIGNOR OF ONE-FIFTH TO SCOTT PLAYER ACTION CO., OF RACINE, WISCONSIN, A CORPORATION OF ILLINOIS, AND FOUR-FIFTHS TO THE NORTHERN TRUST COMPANY, TRUSTEE, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PLAYER-PIANO-ROLL CENTRALIZER.


To all whom it may concern:

Be it known that I, Joseph F. Lauda, a citizen of the United States, and resident of Racine, in the county of Racine and State of Wisconsin, have invented new and useful Improvements in Player Piano Roll Centralizers, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to improvements in player piano roll centralizers.

In the ordinary player pianos, the player roll is mounted on the rotary part of the piano player action and the end portion of the paper record of the roll is extended over the tracker bar and connected to the winding roll preparatory to starting to play. When thus arranged the rolls are both shifted endwise, manually by levers adjacent to the keys, to properly position the perforations of the sheet with relation to the perforations of the tracker bar. This adjustment requires an extra lever and connections extending to the keyboard of the instrument and the necessary work in adjusting the same. The adjustment is not always correctly made with the result that the tracker bar perforations are partly overlapped by the paper and the full volume of sound is not produced.

It is one of the objects of the present invention to overcome the before mentioned objectionable features and provide a player piano roll centralizer which will automatically position the record roll with relation to the perforations of the tracker when said roll is placed in the piano and also with relation to the winding roll to prevent injury to the edge portions of the record in winding or unwinding.

A further object of the invention is to provide a player piano roll centralizer in which the mechanism for aligning the player roll will remain in open position to permit the insertion of the roll and which will align the roll when the winding roll starts to unwind the record sheet from the player roll.

A further object of the invention is to provide a player piano roll centralizer in which automatic and pneumatic means are provided for actuating the centralizing mechanism.

A further object of the invention is to provide a player piano roll centralizer which is of simple construction, is strong and durable and is well adapted for the purpose described.

With the above and other objects in view the invention consists of the improved player piano roll centralizer and its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawing in which the same reference characters indicate the same parts in all of the views:

Fig. 1 is a front view of the improved roll centralizer shown attached to the roll mechanism of a player piano, portions of the mechanism being shown in section;

Fig. 2 is a top view thereof;

Fig. 3 is a horizontal sectional view thereof taken on line 3—3 of Fig. 1;

Fig. 4 is a vertical sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a sectional detail view taken on line 5—5 of Fig. 1;

Fig. 6 is a detail vertical sectional view taken on line 6—6 of Fig. 5; and

Fig. 7 is an enlarged detail view of parts 80 shown in Fig. 4.

Referring to the drawing the numeral 10 indicates the portion of a player piano which contains the player roll mechanism and which comprises the winding roll 11, the transmission mechanism 12, the record roll 13 and the record roll idle spindle 14 and the driving spindle 15. The record roll and the winding roll are positioned within the roll chamber 16 which comprises opposite end walls 17 and 18, a top and bottom wall 19 and a rear wall 20. The winding roll spindle 21 extends through the opposite end walls of the roll chamber 16 and is connected to the transmission mechanism in the usual manner. Said transmission mechanism is also connected to the driving spindle 15 by a rewind sprocket chain and wheel 22 which is controlled by a lever and rod 23.

An inverted U-shaped rod 24 longitudinally slidably mounted on the upper wall 19 has its opposite end portions depending downwardly therefrom at the outer end portions of the record roll spindles 14 and 15 and in longitudinal alignment therewith.

The depending end portion 25 is of tubular...
shape and extends slidably inwardly through the end wall 17 and forms a bearing for the spindle 14 which extends slidably and revolvably therethrough. A portion of the spindle 14 within the bearing is of less diameter than the other portion to form a shoulder 14' against which a coiled spring 25 bears. Said spring is within the bearing and surrounds the reduced portion of the spindle and is interposed between the spindle shoulder and the outer end portion of the bearing, the opening of which is of a diameter to fit the reduced portion of the spindle, and holds said spindle 14 yieldingly in its inner position. A collar 26 mounted on the outer end of said spindle 14 limits the inward movement with relation to the rod 24. The opposite end portion 27 of the rod 24 is flattened and engages the outer end of the driving spindle 15. The inner ends of these two aligned spindles enter recesses 28 in the record roll and the inner end of the driving spindle is formed with a tooth 15' which locks the spindle to the roll and causes the roll to rotate with the spindle.

The rod 24 is slidably mounted on the top wall 19 in bearings 29 and 29 and the bearing 29 is vertically pivotally mounted on the top wall by a pivot pin 29 and is provided with a rearwardly extending arm 29' to which is attached the end of a connecting link or rod 30. The opposite end of the link 30 is pivotally connected to an arm 31 which is mounted on and extends upwardly from the hinged member 32 of the bellows 33. The inner or fixed portion of the bellows is connected in spaced position to the end wall 17 by upper and lower brackets 94. A spring 35 normally holds the bellows in open position.

When the bellows is in open position as shown, the link 30 will be pushed to the right and turn the bearing 29 in a position to clamp the U-shaped rod 24 against longitudinal movement, as shown in Fig. 2, to prevent endwise movement of the record roll while rewinding.

Two angled centralizer members 36 are slidably mounted on the upper wall 19 and their end portions 36 extend downwardly through openings 37 in said wall and surround the record roll spindles 14 and 15. The upper portions of said centralizer members are offset longitudinally from each other and at their inner upper ends are pivotally connected through short links 38 to the outer end portions of a lever 39 which is medially fulcrumed on the upper wall 19 and extends at approximately right angles to the centralizer members 36. A controlling link or rod 40 is connected at one end to one end of the lever 39 and at its opposite end is connected to an arm 41 mounted on and extending upwardly from the hinged member 32 of the bellows 33 so that when the hinged bellows member is moved inwardly to closed position the link 40 will move outwardly and through the lever 39 while drawing the depending portions 36 of the centralizer members against the ends of the record roll, as indicated in dotted lines in Fig. 1, and thus automatically centralize said roll with relation to the perforations of the tracker bar 42. In moving to central position the U-shaped bar 24 will be released by the clamping bearing 29 and said bar will be free to move with the record roll and its spindles 14 and 15.

In order to control the movements of the parts described automatically and pneumatically the fixed portion of the bellows is provided with a valve chamber 43 which is divided into two compartments 44 and 45 by a diaphragm 46. The compartment 45 is in communication with the open air through a tube 47 and valve 54 and which tube extends to a position adjacent the end of the winding roll farthest from the bellows. The other compartment 44 is in communication with the vacuum creating mechanism (not shown) of the piano by a tube 48. Within the valve chamber is positioned a partition 48 having a valve 49 which bears against the diaphragm 46 and is controlled thereby. The said valve 49 opens communication between the compartment 44 and another compartment 50 in communication with the bellows 33 through a passageway 51. Another passageway 52 connects the compartment 50 with the outside air and is controlled by an extension valve 53 forming part of the valve 49 and moving therewith.

The outer end of the tube 47 is closed by a valve 54 which is mounted on the inner end of two part controlling lever 55. Said controlling lever is fulcrumed on the rear curved upwardly to more freely ride in the groove and on the record roll paper 57. The passageways to which the tubes 47 and 48 are connected are in communication with each other by a small lead passageway 47' which eliminates the vacuum in the compartments 43 and 44 when the valve 54 is in open position.

In operation the record roll is mounted between the spindles and the end of the record is connected to the winding roll in the ordinary manner. In this position the end of the controlling lever 55 rests in the groove 11' and the valve 54 is in open position. The piano is now operated to rotate the winding roll and as soon as the record roll sheet winds around the winding roll it will pass beneath the end of the lever 55 and lift it from the roller groove and close the valve 130.
54 over the pipe 47. When thus closed the vacuum of the tube 48 will exhaust the air from the compartments 43 and 44 and open the valve 49 and close the valve 53. When the valves are thus positioned the air will be exhausted from the bellows and the hinged portion of the bellows will be forced to closed position by atmospheric pressure. The hinged member in closing will draw the centralizer members together and centralize the record roll. Simultaneously with this movement the bearing 29 will be turned to release the U-shaped rod 24 and permit said rod and the spindles to be freely moved longitudinally.

When the transmission is changed to rewind the record roll and when said roll is rewound the lever 55 will drop into the roller groove 11 and swing the valve 54 to open position. When in open position the centralizer arms will be moved to open position by the spring of the bellows and the record roll may be freely removed and another substituted therefor.

From the foregoing description, it will be seen that the roll centralizer is well adapted for the purpose described.

What I claim as my invention is:

1. The combination with a player piano having a tracker bar and a removable record roll and a winding roll, of a roll centralizing means therefor, comprising automatically controlled pneumatic means controlled by the winding roll for moving the record roll longitudinally to alined position with relation to the tracker bar.

2. The combination with a player piano having a tracker bar and a removable record and a winding roll, of a roll centralizing means therefor, comprising spindles between which the record roll is mounted, and pneumatic means controlled by the winding roll for moving the record roll to a centralized position with relation to the tracker bar.

3. The combination with a player piano having a tracker bar and a removable record roll and a winding roll, of a roll centralizing means therefor, comprising endwise movable spindles between which the record roll is mounted, one of said spindles being endwise movable, means for causing both spindles to move endwise simultaneously, and thereby moving the record roll to a centralized position with relation to the tracker bar, and a member controlled by the movement of the grooved portion of the winding roll for controlling the movement of the record roll moving means.

4. The combination with a player piano having a tracker bar and a removable record roll and a winding roll having an annular groove, of a roll centralizing means therefor, comprising endwise movable spindles between which the record roll is mounted, means for causing both spindles to move endwise simultaneously and thereby moving the record roll to a centralized position with relation to the tracker bar, said means including a bellows, and a valve controlled by the rotation of the grooved portion of the winding roll for controlling the movement of the bellows.

5. The combination with a player piano having a tracker bar and a removable record roll and a winding roll having an annular groove, of a roll centralizing means therefor, comprising endwise movable spindles between which the record roll is mounted, a U-shaped member slidably mounted on the piano and engaging both spindles, one of said spindles journeled and endwise yieldingly movable in said U-shaped member, a bellows having a movable portion connected to the U-shaped member, a pair of centralizer members movable by the bellows toward and away from the record roll for controlling the position of the record roll.

6. The combination with a player piano having a tracker bar and a removable record roll and a winding roll having an annular groove, of a roll centralizing means therefor, comprising endwise movable spindles between which the record roll is mounted, a U-shaped member slidably mounted on a piano part and having angular extending portions which engage the spindles, one of said spindles being journeled and longitudinally yieldingly mounted in one of the angular portions, a pair of centralizing members movable to engage opposite and portions of a record roll mounted between the spindles and move said roll to a central position, a lever fulcrumed on the piano and pivoted to both centralizing members, a bellows mounted on a piano part and having its movable part connected to the lever, a clamping bearing connected to the U-shaped member and to the movable portion of the bellows, vacuum means controlling the movement of the bellows, a valve controlling the vacuum means, and a lever for moving said valve and which lever rides in the annular groove of the winding roll and is moved by the record sheet winding on the roll.

7. The combination with a player piano having a tracker bar and a removable record roll and a winding roll, of a roll centralizing means therefor, comprising endwise movable spindles between which the record roll is mounted, one of said spindles being endwise movable, means for causing both spindles to move endwise simultaneously, and thereby moving the record roll to a centralized position with relation to the tracker bar, and a member controlled by the movement of the grooved portion of the winding roll for controlling the movement of the record roll moving means.
having a tracker bar and a winding roll and a removable record roll with a strip record thereon, of a roll centralizing means therefor, comprising spindles between which the record roll is mounted, a U-shaped member slidably mounted on a piano part and having angular extending portions which engage the spindles, one of said spindles being journaled and longitudinally yieldingly mounted in one of the angular portions, a pair of centralizing members movable to engage opposite end portions of a record roll mounted between the spindles and move said roll to a central position, a lever fulcrumed on the piano and pivoted to both centralizing members, a bellows mounted on a piano part and having its movable part connected to the lever, a clamping bearing connected to the U-shaped member and to the movable portion of the bellows, vacuum means controlling the movement of the bellows, a valve chamber mounted on the bellows, valves within said chamber for controlling the passage of air into and from the bellows, a tube leading from said valve chamber to a position adjacent the annular groove of the winding roll, a valve controlling the passage of air through said tube, and a two part lever for moving said tube valve and which lever rides in the annular groove of the winding roll and is moved outwardly by the record sheet winding on the roll and covering said groove.

In testimony whereof I affix my signature.

JOSEPH F. LAUDA.