

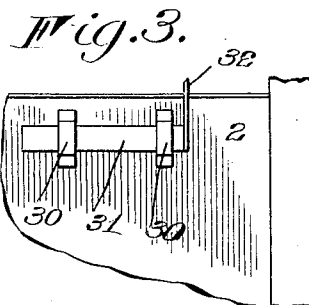
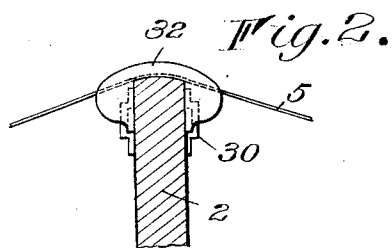
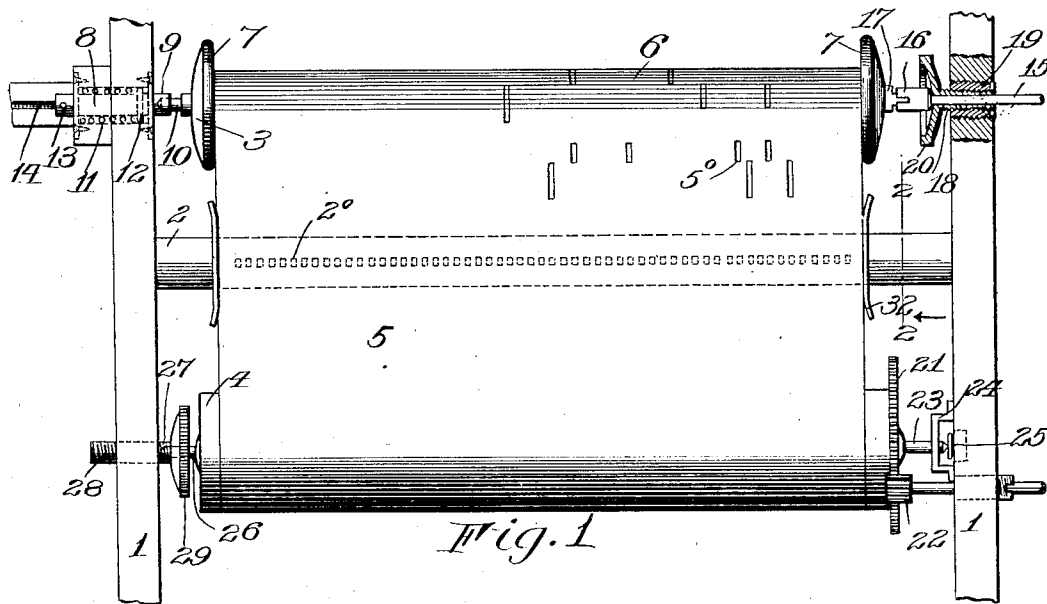
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J. J. HEALY.

MUSIC SHEET MECHANISM FOR PIANO PLAYERS.

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Witnesses.

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MUSIC-SHEET MECHANISM FOR PIANO-PLAYERS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN J. HEALY, of the city of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Music-Sheet Mechanism for Piano-Players; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to improvements in devices for feeding a strip or ribbon over a support in a relatively fixed path, and it is especially applicable for use in connection with a piano-player employing a relatively fixed tracker-board provided with the usual apertures, over which the perforated music-sheet moves in passing from the spool to the winding-reel; and it is the purpose of my invention to provide a conveniently-arranged adjustment which is capable of so positioning each perforated sheet that the perforations of the latter will accurately register with the correspondingly-arranged apertures of the tracker-board in order to insure the best results in the operation of the player even though there may be variations in the widths of the music-sheets.

To these and other ends my invention consists in certain improvements and arrangements of parts that will be hereinafter more fully described, the novel features being pointed out particularly in the claims hereunto annexed.

In the drawings, Figure 1 is a plan view of the music-sheet mechanism of a piano-player which embodies my invention. Fig. 2 is a sectional view of the tracker-board and contiguous parts on the line 2 2 of Fig. 1 looking in the direction of the arrow; and Fig. 3 is a fragmentary view of the tracker-board, showing one of the adjustable guide-stops thereon.

The same numerals of reference designate similar parts in the several views.

Heretofore in the operation of piano-players and similar devices employing a relatively movable strip or sheet having a plurality of perforations therein which must register with corresponding perforations in a

relatively fixed support or tracker-board no satisfactory provision has been made for variations in the widths of the sheets, climatic conditions causing the latter to expand and shrink, so that the perforations will not register with their corresponding apertures of the tracker-board, and this disadvantage is eliminated by my invention, which is capable of being so adjusted as to secure an accurate and positive registration of the perforations of the music-sheet with the apertures of the tracker-boards, even rendering it possible to employ sheets of different widths.

The present embodiment of my invention comprises generally the oppositely-arranged supports 1, which are connected by the supporting member 2, which in the present instance embodies the tracker-board, which is provided with a plurality of apertures 2°, which communicate with the usual air-ducts leading to their corresponding valves, which latter control the operation of the key-actuating mechanism in the well-known manner. At each side of the tracker-board are mounted the spool 3 and the winding-reel 4, the former being provided with the music-sheet 5, which is wound thereon and is provided with the perforations 5°, the latter being arranged at regularly-spaced intervals transversely across the sheet in order to register with the correspondingly-spaced apertures 2° of the tracker-board. The spool 3 is preferably of the usual construction embodying in the present instance the spindle 6, having the flanges or stops 7 7 at each end thereof, between which the sheet 5 closely fits, and is capable of being freely unwound and wound, the purpose of so constructing the spool being to cause the sheet while being unwound therefrom to move in a relatively fixed path while the spool occupies a predetermined position.

In one of the supports 1 is fitted a yieldable bearing comprising, in the present instance, a spring-operated plunger 8, which is provided at one end with the axial recess or depression 9 to receive the corresponding point or projection 10, formed at one end of the spool, a spring 11 being provided and arranged to bear against the flange or projection 12 of the plunger to cause a tendency of the latter

to move toward the spool, a lateral projection 13 being provided upon the plunger and cooperating with a slot 14 in a relatively fixed portion of the support to prevent rotation of the plunger, but permit an axial or longitudinal motion thereof. At the opposite end of the spool 3 is provided an adjustable bearing embodying the stem or spindle 15, which is enlarged at one end and provided with a socket 16 to receive the corresponding end 17 of the spool, and the spindle 15 is revolvably mounted in the sleeve 18, which is provided with screw-threads upon its exterior, which cooperate with those of the bushing 19, which is threaded or otherwise secured in the corresponding support 1, the end of the sleeve 18 adjacent to the spool and upon the inner side of the support being provided, preferably, with an enlarged milled head 20, by means of which the threaded sleeve 18 may be readily and conveniently adjusted axially within the relatively fixed bushing 19, the spindle being preferably removable from the sleeve in order that others may be substituted having sockets adapted to fit the corresponding portion of spools of different kinds, if desirable.

At the opposite side of the tracker-board is mounted the winding-spool or reel 4, which is provided at one end with a gear-wheel or other power-transmitting device 21, meshing with the operating pinion 22, the latter being connected to any suitable form of operating device, which is capable of imparting rotary motion to the winding spool. One end of this winding-spool is provided with a journal or extension 23, which is revolvably mounted in the bearing or bracket 24, the end of the extension being preferably formed conical and arranged to bear against a relatively fixed abutment 25, which latter is composed of metal or some suitable hard substance and is fitted to the corresponding support 1 behind the bearing or bracket 24. The opposite end of the winding spool or reel is provided with an extension 26, which is formed to rest in a corresponding recess 27 in the threaded sleeve 28, the latter being provided with a milled head 29, by means of which the sleeve may be adjusted in the manner described in connection with the adjustable sleeve 18, the purpose of such an adjustment being to enable the winding spool or reel to be readily and accurately centered between its supports in such a manner that it will be free from longitudinal movement and in proper position to receive the sheet as it unwinds from the spool, the pointed extension 23 of the winding-spool cooperating with the abutment 25 to receive the thrust from the adjusting member 27.

Near each end of the tracker-board are provided the brackets 30, which are preferably arranged in pairs upon opposite sides thereof and formed to receive the parallel arms 31 31 of the guides 32, which latter, in the present

instance, are yoke shape so as to rest over and straddle the edge of the tracker-board, and thus form stops or guides between which the sheet will move in a relatively fixed path, these guides being adjustable relatively to each other in order that music-sheets of different widths may be accommodated and held in such position by frictional engagement between the brackets and the sides of the support 2.

In applying a spool containing the music sheet or strip the pointed extension 10 thereof is inserted in the recess 9 of the plunger 8 and pressure is applied until the latter is retracted sufficiently to enable the end 17 of the spool to enter the corresponding socket 16, the compression of the spring 11 acting upon the plunger 8 operating to retain the spool and its supporting-bearings in cooperative relation irrespective of the position of the spool. The free end of the sheet may then be extended over the tracker-board and attached to the winding-spool 4 in the usual manner, and in order that the perforations of the music-sheet may be brought accurately in register with their corresponding apertures of the tracker-board the threaded sleeve 18 is rotated through its milled head 20 to cause a relatively longitudinal movement of the spool which will bring the perforations of the music-sheet and the apertures of the tracker-board accurately in register, the longitudinal motion thus imparted to the spool being compensated for by the spring-operated plunger 8, which is capable of moving axially without permitting disengagement of the spool and its supports. When the spool has been thus properly adjusted, the guides 32 32 may be moved up until they engage or rest in immediate proximity to the adjacent edges of the music-sheet, and thus operate as stops for guiding it in a relatively fixed path in its passage over the tracker-board.

A device of the character described when applied to a piano-player or self-playing piano may be instantly and conveniently adjusted to accommodate music-sheets of varying widths, as the adjusting-heads 20 and 27 are located between the supports 1, and therefore are accessible through the aperture which is usually provided for the insertion and removal of the spool containing the music-sheet, which renders the manipulation of the adjusting devices convenient without removing any portion of the casing of the device to which the device is applied. Moreover, these adjusting devices are capable of being manipulated very conveniently while the music-sheet is in motion, thereby enabling the operator to accurately adjust the position of the music-sheet relatively to the tracker-board while the sheet and the spools are in motion, and this is a material advantage.

tage over other devices of the same general character, as these adjustments do not necessitate the interruption of the device nor the removal or displacement of any of its parts.

By employing the adjustable spool and the tracker-board guides in the manner hereinbefore explained it enables me to use a receiving or winding spool without flanges, as the music-sheet in passing from the winding-spool and between the guides will be wound evenly upon the winding-spool, which renders the use of flanges thereon unnecessary, and thereby permits music-sheets of varying widths to be wound upon the same winding-spool with equal facility.

I claim as my invention—

1. In a device of the character described, the combination with relatively fixed supports, a tracker-board located between them, and the spool and winding-reel, the former having a sheet or strip wound thereon arranged to move over the tracker-board and wind upon the reel, of a bearing mounted in one support and receiving one end of the spool arranged to yield under pressure in a direction axially of the spool, an adjustable bearing for the opposite end of the spool located in the other support and operating means arranged axially of the spool between the supports for varying the position of the spool in an axial direction.

2. In a device of the character described the combination with a relatively fixed support, and the spool and receiving-roller, the former having a strip or sheet wound thereon arranged to move over the support and wind upon the roller, of a bearing supporting one end of the spool capable of yielding in a direction axially of the spool, and a bearing supporting the opposite end of the spool embodying a threaded sleeve fitted in a relatively fixed support and cooperating with the spool to move the latter in direction axially thereof when it is rotated.

3. In a device of the character described the combination with the oppositely-disposed supports and the spool and winding reel or roller arranged between them, the former being provided with a strip or sheet arranged to be wound upon the winding-reel, of a bearing for supporting one end of the spool capable of yielding in a direction axially of the latter, and a bearing supporting the opposite end of the spool embodying a threaded portion fitted into one of the supports and cooperating with the spool, and having an operating portion thereon which is located between the supports.

4. In a device of the character described, the combination with the oppositely-disposed supports, and the spool and winding-reel arranged between them, of a bearing for supporting one end of the spool adjustable

in a direction axially of the spool, and a bearing for supporting the opposite end of the spool embodying a threaded sleeve fitted into one of the supports having an operating portion located between the support and spool for imparting rotary motion to the sleeve, and a spindle revolubly mounted in the sleeve and cooperating with the adjacent end of the spool for supporting it.

5. In a device of the character described, the combination with the supports and the spool and winding-reel arranged between them, of a bearing for supporting one end of the spool adjustable in a direction axially of the spool, and a bearing for supporting the opposite end of the spool embodying a sleeve having a threaded portion fitted into one of the supports and an operating-head located at the inner side of the support by means of which the sleeve may be rotated, and a spindle revolubly fitted into the sleeve and having a head thereon cooperating with a corresponding portion of the spool for supporting the latter.

6. In a device of the character described, the combination with the oppositely-arranged supports, and the spool arranged between them, of a bearing for supporting one end of the spool capable of yielding or adjusting itself in a direction axially of the spool, and a bearing for supporting the opposite end of the spool embodying a bushing threaded into one of the supports, a sleeve threaded into the bushing and having an operating portion thereon, and a spindle revolubly mounted in the sleeve and cooperating with the adjacent end of the spool for supporting the latter.

7. In a device of the character described, the combination with the relatively fixed tracker-board having the apertures therein, and the spool and winding-reel, the former having a strip or sheet wound thereon provided with perforations corresponding to those of the tracker-board, of guides mounted on the tracker-board each embodying a central portion straddling the edge of the board and parallel arms movably supported in brackets on opposite sides of the tracker-board to permit the relative positions of the guides to be adjusted.

8. In a device of the character described, the combination with the relatively fixed tracker-board, spaced guides thereon and a spool having a strip or sheet wound thereon arranged to pass over the tracker-board between the guides, of a reel adapted to receive said strip, relatively adjustable bearings for positioning the reel longitudinally, supports for the bearings, and means located intermediate the supports and axially of the bearings for operating the latter.

9. In a device of the character described, the combination with the relatively fixed

5 tracker-board or support and the spool adjustable axially and having a strip or sheet wound thereon and arranged to pass over the tracker-board, and guides capable of adjustment in a direction transversely of the music-sheet, of a receiving roller or reel adapted to receive said strip, adjustable bearings there-

for and means located on the axis of the roller on the inner side of its support for operating the bearings to move the roller axially. 1c
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Witnesses.

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