

UNITED STATES PATENT OFFICE.

THOMAS C. BRINKLEY, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO CHARLES D. LYFORD, OF WATERTOWN, MASSACHUSETTS, AND ALFRED W. NUNN, OF CAMBRIDGEPORT, MASSACHUSETTS, TRUSTEES.

ADJUSTABLE ROLL FOR PERFORATED MUSIC-SHEETS.

SPECIFICATION forming part of Letters Patent No. 689,458, dated December 24, 1901.

Application filed April 13, 1900. Serial No. 12,696. (No model.)

To all whom it may concern:

Be it known that I, THOMAS C. BRINKLEY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Adjustable Rolls for Perforated Music-Sheets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention relates to the rolls upon which are wound the perforated music-sheets used in instruments of the pianola or æolian class. These rolls have several functions. They preserve the music-sheet from injury and hold it so that it may be conveniently drawn through the instrument by the mechanism provided for that purpose. Each of these rolls is also intended to act to guide the music-sheet as it is unrolled, whereby to deliver said sheet so that its perforations shall pass exactly over the openings in the tracker-board. This last function, however, is frequently performed inaccurately and inefficiently, to the great annoyance of both the performer and the hearers. The result is that the tones produced lack purity and are reduced in volume, becoming more or less muffled, the attack is bad, and brilliancy of execution is impossible.

The object of the invention is to provide a roll which will permit the lateral adjustment of the music-sheet with reference to the "tracker-board" in the instrument either before or during the unwinding of the sheet, to the end that said sheet shall be so guided that the perforations therein shall properly register with the openings in said tracker-board.

The invention consists in the means I employ to accomplish this end. More particularly it resides in the construction and combinations of parts, as definitely set forth hereinafter in the claims.

In the drawings, Figure 1 is a perspective view of the tubular roll to which one end of the music-sheet is connected and upon which it is to be wound. Fig. 2 is a perspective view of the spindle, which fits within said roll and is adapted to be operatively mounted

in the instrument in the usual manner. Fig. 3 is a longitudinal section of the roll when the two parts thereof shown in the two preceding figures are properly assembled. Fig. 4 is a transverse sectional view on line 4-4 of Fig. 3.

Referring to the parts by letters, A represents a spindle, which is preferably of cylindrical form and may be made of wood. It is provided with a longitudinal groove a^5 . Projecting axially from one end is a rigid pin a , having lateral projecting wings a' , which winged pin is adapted to engage in the end of the driven shaft of the instrument.

a^2 represents a cylindrical pin which is fixed axially in the other end of the spindle.

The cylindrical pin a^2 and winged pin a are the means with which each of the music-rolls now commonly used is provided, whereby it may be rotatively mounted in the pianola or æolian; but any other suitable means may be employed.

B represents a tubular roll, which is preferably made of metal and of cylindrical form. This roll is adapted to fit upon the spindle, and it has an inwardly-projecting longitudinal tongue b , which enters the groove a^5 , wherefore the revolution of one of these parts is necessarily accompanied by the revolution of the other.

The roll B is capable of longitudinal movement upon the spindle, and suitable means are provided for holding it in any position upon said spindle to which it may be moved. These means, as shown, consist of a spring or springs C, secured in a deepened part of said groove a^5 , which springs are adapted to press against the tongue b of the roll, thereby creating sufficient friction to withstand any normal force, such as is exerted by the instrument itself to move it out of said position. The tubular roll is provided at its ends with the two annular flanges, which serve to guide the music-sheet when it is being wound upon the roll. The spindle is provided on the end in which the cylindrical pin a^2 is inserted with an external annular shoulder or flange a^6 , against which the end of the tube B will abut when the roll is being inserted into the instrument. In inserting this compound roll—i. e., the spindle

A and roll B—into the instrument the operator takes hold of the roll B and then inserts the pin a^2 into a socket in the instrument designed to receive it and then pushes the roll endwise against a spring in the instrument, whereupon the winged pin may move into engagement with the driven shaft of the instrument. The expansion of the spring in the instrument acting upon the pin a^2 maintains this last-named engagement. If it were not for the shoulder or flange a^6 , it would not be possible to introduce the roll into the instrument in this simple and convenient manner, because one could not by grasping the roll apply enough endwise pressure to the spindle to sufficiently compress the spring in the instrument, because the roll would slide on the spindle. After the roll is inserted in the instrument the music-sheet is properly attached to the mechanism provided for unwinding it. The operator may move the roll upon the spindle A as much as may be thought necessary to cause the perforations in the sheet to exactly register with the openings in the tracker-board, and at any time during the unwinding of the sheet if the perforations do not properly register with the said openings the roll B may be moved endwise slightly, so as to cause the proper registration. As before stated, it is preferable to form the spindle of cylindrical form and to provide it with a longitudinal groove and to form the roll with a longitudinal cylindrical bore having an inwardly-projecting tongue which projects into said groove; but any other form for the spindle and for the core of the roll may be adopted which will permit their relative longitudinal movement, but will compel their simultaneous rotation.

One spindle A may be associated with each instrument and may be adapted to be used with any of many rolls B constructed to fit it, substantially as described. In that event each roll of music as sold need to consist of only the roll B and the music-sheet. The roll B will cost less than do the rolls now used, because the rolls now used must be provided with the pin a^2 and winged pin a . The boxes in which the music-rolls are now placed to preserve them are necessarily provided at each end with a notched block to receive the two end pins, and thus prevent them from injuring the box. If the roll B is alone sold with each music-sheet, these notched blocks are unnecessary in the boxes, and thereby the boxes are cheapened. The described rolls are therefore not only adapted to improve the average results produced by the musical instrument, but they also effect a considerable saving.

Having described my invention, I claim—

1. The combination of a driving-spindle adapted to be rotatably mounted in a musical instrument of the pianola class, a tubular roll for holding a music-sheet mounted upon said spindle and having external flanges at its ends, one of said members having a longitu-

dinal groove and the other a tongue which enters the same whereby they rotate together but are capable of relative longitudinal movement, substantially as specified.

2. The combination of a spindle adapted to be rotated, a tubular roll slidably mounted thereon, a resilient member interposed between them and adapted to impede their relative endwise movement, and means for preventing the relative rotation of said spindle and tubular roll, substantially as specified.

3. The combination of a spindle adapted to be rotatably mounted in an instrument of the pianola class, and having an external shoulder at one end but not at the other, a tubular roll embracing said spindle, one of said members having a longitudinal groove and the other a tongue which enters the same whereby the roll may be moved lengthwise of the spindle but must rotate with it, and a resilient member rigid with one of said members and frictionally contracting the other, substantially as specified.

4. The combination of a spindle adapted to be rotatively mounted in a musical instrument of the pianola class and having a longitudinal groove, with a tubular roll having external flanges at its ends and having inwardly-projecting longitudinal tongues adapted to engage in said groove when the roll embraces the spindle, substantially as specified.

5. The combination of a spindle adapted to be rotatively mounted in a musical instrument of the pianola class and having an external longitudinal groove, with a tubular roll having external flanges at its ends and having inwardly-projecting tongue adapted to engage in said groove when the roll embraces the spindle, and springs lying between the spindle and roll to retard their relative movements, substantially as specified.

6. The combination of a driving-spindle adapted to be rotatably mounted in a musical instrument of the pianola class, a tubular roll for holding a music-sheet mounted upon said spindle, one of said members having a longitudinal groove and the other a tongue which enters the same whereby they rotate together, and a friction-spring interposed between said members whereby to impede their relative longitudinal movement, substantially as specified.

7. In combination with a spindle a sleeve mounted to slide thereon having a flange at its outer end, means for restricting its sliding movement, and a spring interposed between the spindle and said sleeve and bearing upon each, whereby said sleeve is held against accidental displacement, substantially as specified.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

THOMAS C. BRINKLEY.

Witnesses:

E. B. GILCHRIST,
E. L. THURSTON.