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Patented Nov. 21, 1899.

P. WELIN.

TAKE-UP SPOOL AND RACEWAY FOR MECHANICAL MUSICAL INSTRUMENTS.

(Application filed Dec. 19, 1898.)

(No Model.)

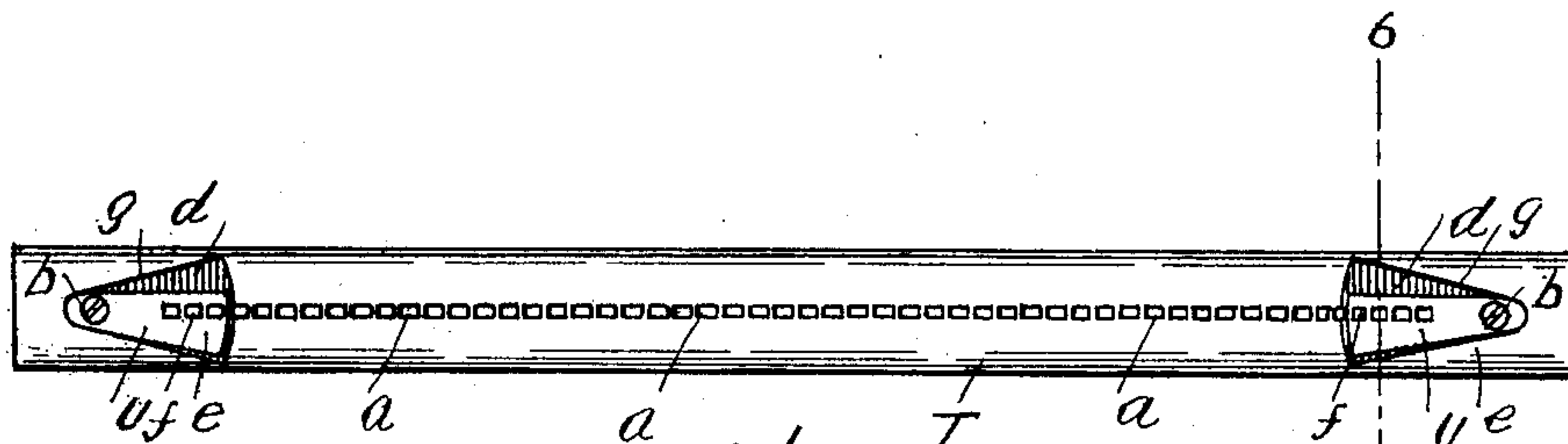


Fig. 3.

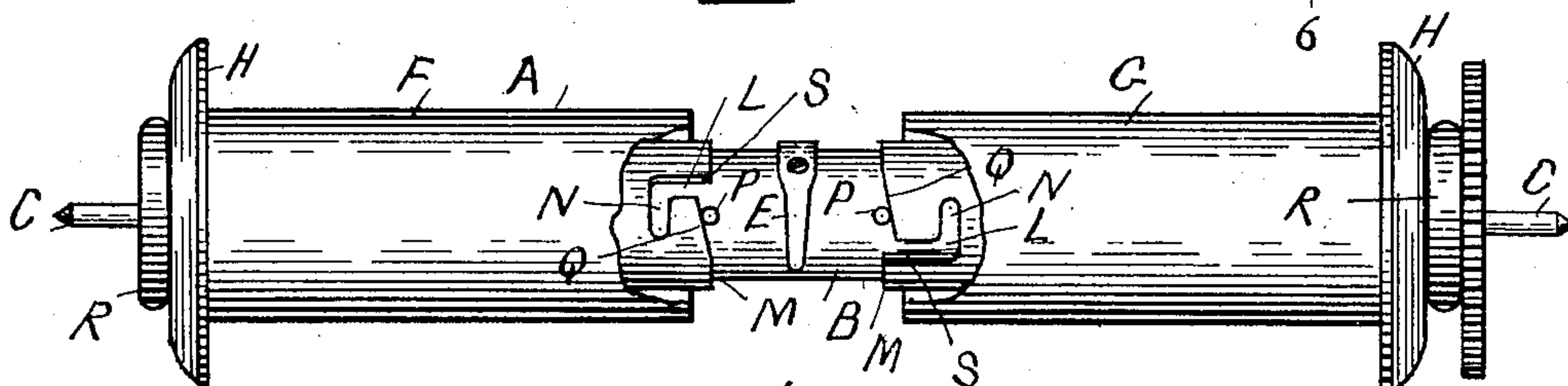


Fig. 1.

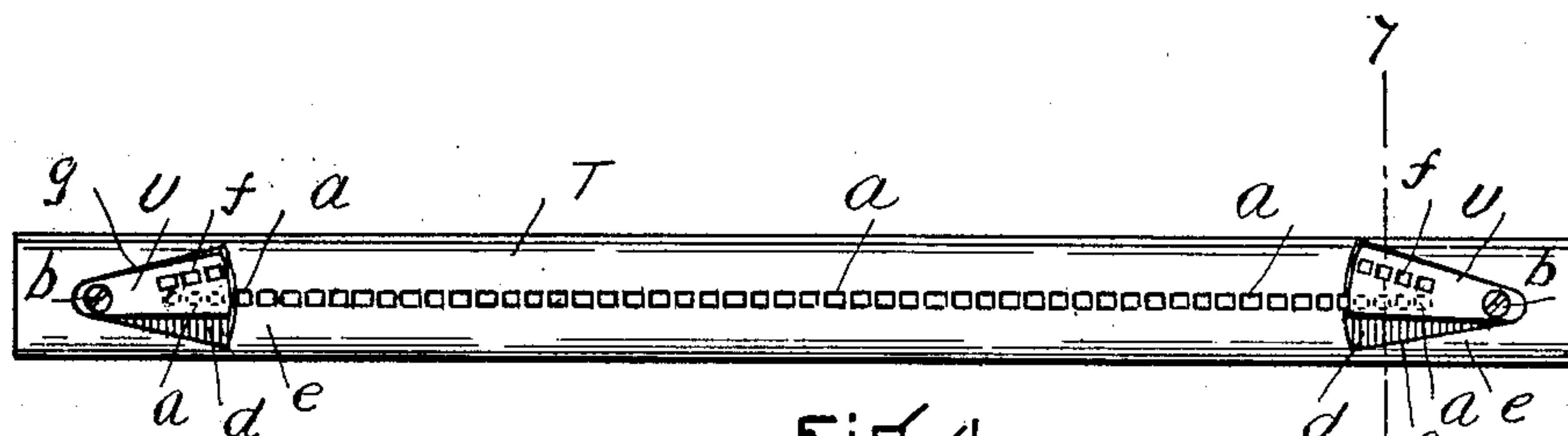


Fig. 4.

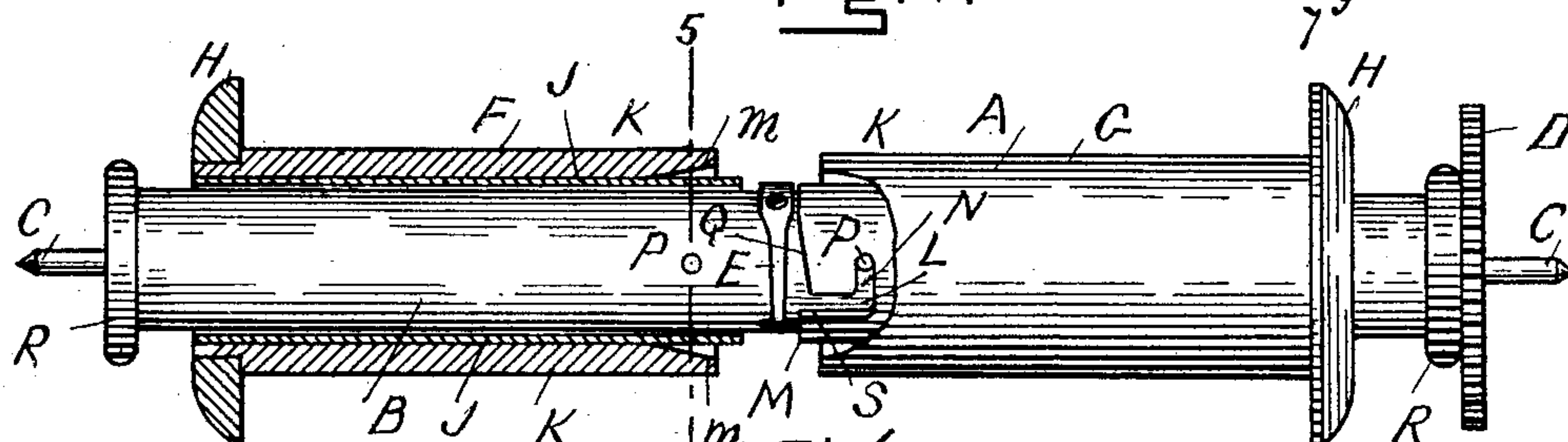


Fig. 2.

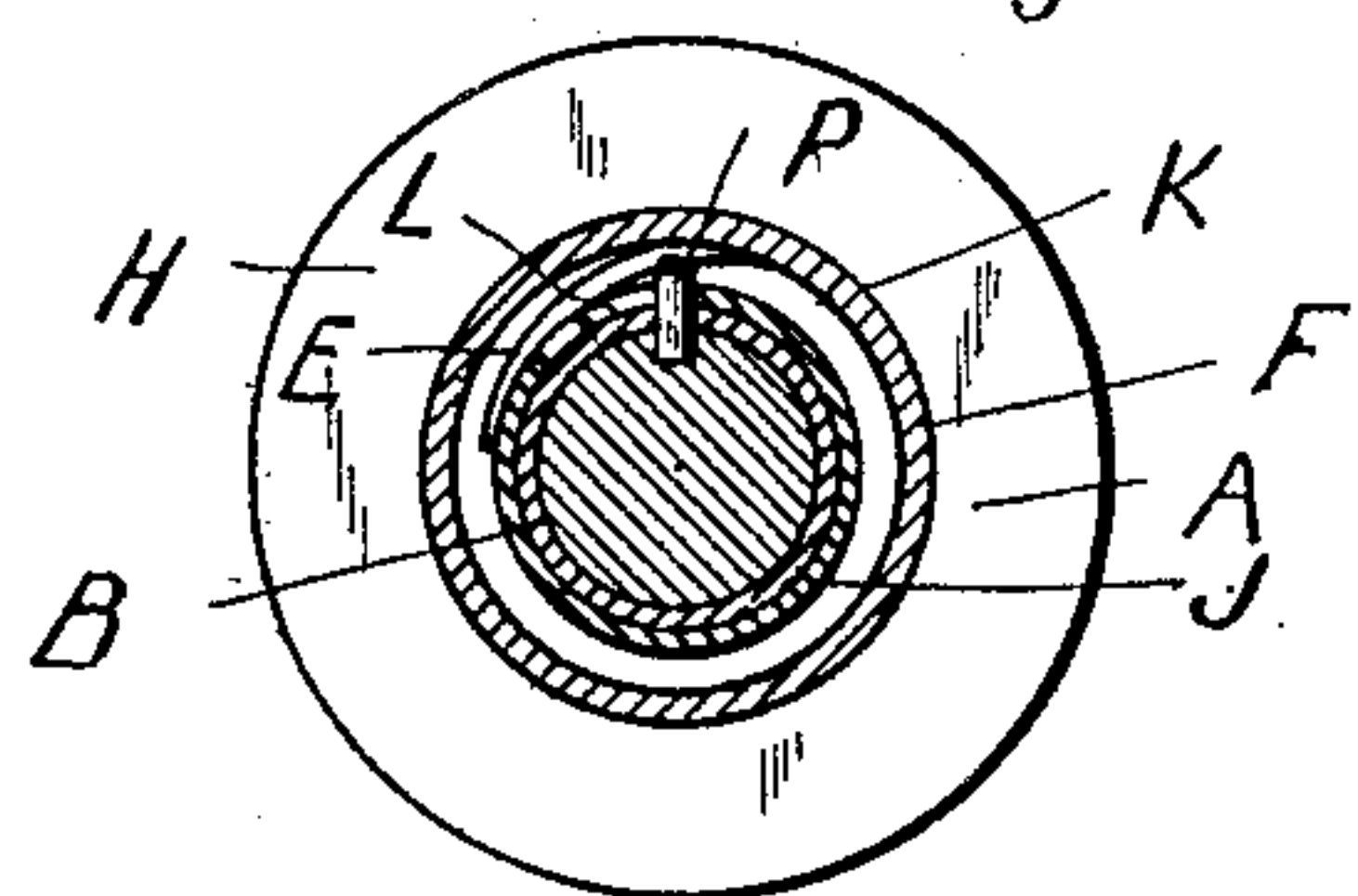


Fig. 5.

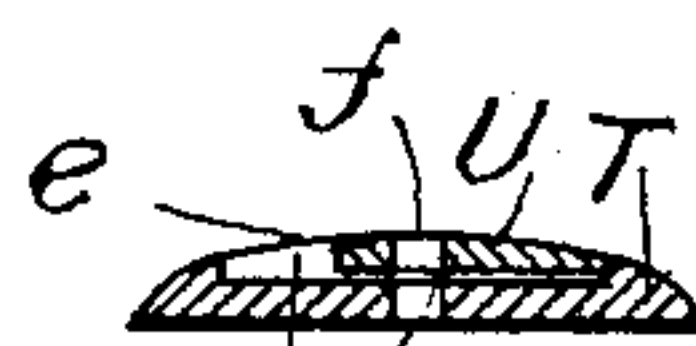


Fig. 6.

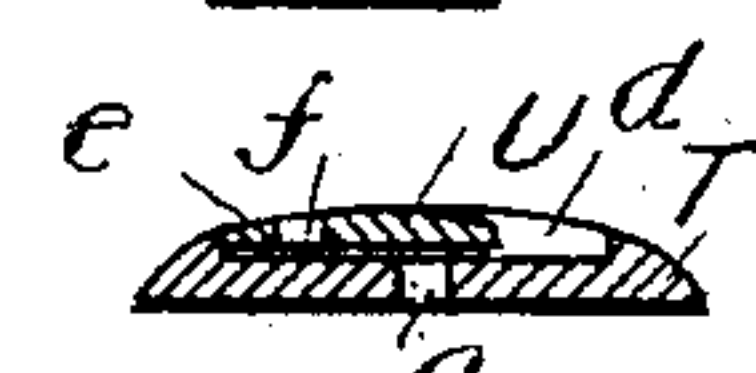


Fig. 7. INVENTOR

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PETER WELIN, OF WORCESTER, MASSACHUSETTS.

TAKE-UP SPOOL AND RACEWAY FOR MECHANICAL MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 637,540, dated November 21, 1899.

Application filed December 19, 1898. Serial No. 699,700. (No model.)

To all whom it may concern:

Be it known that I, PETER WELIN, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain
5 new and useful Improvements in Take-Up Spools and Raceways for Mechanical Musical Instruments, of which the following is a full, clear, and exact description.

This invention relates to a take-up spool of
10 a mechanical musical instrument operated by a perforated music-sheet, its object being to provide a take-up spool that can properly receive or have wound thereon perforated music-sheets of different widths; and the inven-
15 tion also relates to the track or raceway over which the perforated music sheets travel in the operation of the instrument, provided with means for covering or closing and uncovering or opening a more or less number
20 of the air-ducts at each end of the raceway, according to the width of the perforated music-sheet or the number of rows of perforations therein.

The invention consists of a novel construction of take-up spool for a mechanical musical instrument of that class wherein the
25 spool is constructed and arranged so it can be adjusted as to its length—that is, the distance between its two heads—for the proper reception of different widths of perforated music-sheets and held to such adjustment, all substantially as hereinafter fully described; and the invention also consists of a raceway or
35 track over which the perforated music-sheet is arranged to travel, having a series of air-ducts leading to the sounding devices, of means constructed and arranged to close and open any desired number of the air-ducts at
40 each end of the raceway, according to the number of rows of perforations in the perforated music-sheet being used, all substantially as hereinafter fully described, reference being had to the accompanying sheet of
45 drawings, in which are illustrated a take-up spool for a mechanical musical instrument and a raceway or track over which the perforated music-sheet travels, all constructed and arranged for operation in accordance with this invention.

50 Figure 1 is a side view of a take-up spool adapted to receive a perforated music-sheet of the full width of the length of the spool. Fig. 2 is a side view and partial longitudinal section of the take-up spool arranged to re-

ceive a perforated music-sheet of less width 55 than the music-spool shown in Fig. 1. Fig. 3 is a plan view of the raceway having its row of air-ducts open its full length for a perforated music-sheet of the full width to be wound on the spool, as shown in Fig. 1, with means in
60 plan view attached to the raceway-board for cutting off or closing the air-ducts at each end when a narrower sheet is to be used, or one with a less number of rows of perforations. Fig. 4 is a plan view of the raceway
65 having its air-ducts cut off or closed at each end for a perforated music-sheet arranged to be wound thereon suitable for the take-up music-spool arranged as shown in Fig. 2. Fig. 5 is a cross-section shown on line 5 5, 70 Fig. 2. Fig. 6 is a detail cross-section on line 6 6, Fig. 3. Fig. 7 is a detail cross-section on line 7 7, Fig. 4.

In the drawings, A represents a take-up music-spool for a mechanical musical instru- 75 ment, on which the perforated music-sheet is wound in the operation of the instrument, formed of a spindle or body B, having journal-pins C, one at each end, a gear-wheel D, secured at one end, by which the spool is ro- 80 tated, and a central hook E for the end of the music-sheet to be attached to the music-spool, all as usual in take-up music-spools for such instruments and needing no more particular description herein, except as to the present 85 invention.

Surrounding the spindle are two tubes or sleeves F G, adapted to freely slide longitudinally thereon a slight distance and turn thereon, each having a head or flange H secured 90 thereto. Each tube is constructed of an inner tube J, of thin metal, and an outer tube or covering K, preferably of wood, secured thereto, which forms the surface of the music-spool on which is wound the perforated mu- 95 sic-sheet.

In the inner end of each metal tube J is an angular slot or passage L through its thickness, extending longitudinally from the end M a short distance, the angular portion N of 100 the slot in one tube extending in an opposite direction transversely to that of the slot in the other tube, as shown more particularly in Fig. 1.

Secured to the spindle are two radially- 105 projecting pins P, which are so located that when the tubes are in the right positions and pushed toward each other the slots L will pass

over the pins P, and then turning each sleeve to the right or in opposite directions the right-angular portions N will pass over their respective pins into the positions shown in Fig. 2 and lock the sleeves from longitudinal movement.

At one side of each slot L the end of the metal tube is cut away, as at Q, on a diagonal line, so that when in the position shown in Fig. 1 it will bear or be wedged against its pin and lock the sleeve in its position, as shown in Fig. 1.

On each end of the spindle is a small flange or head R, which prevents the sleeves from detachment therefrom and against which they abut when moved outward into the positions shown in Fig. 1.

With the music-spool in the position shown in Fig. 1 it is adapted to receive the wide perforated music-sheet, having the larger number of rows of perforations, and to put the spool in position to receive the narrow perforated music-sheet or the one having the less number of rows of perforations, as shown in Fig. 2, grasp the spool with both hands, one on each sleeve, and turning them to the right or in opposite directions the sides S of the slots will abut against their respective pins, then pushing the sleeves toward each other the longitudinal portions travel over the pins, and then turning the sleeves still farther in the same direction the angular portions N of the slots will pass over the pins into the positions as shown in Fig. 2, when the spool is in condition to receive the narrow music-sheet, and reversing the movements the music-spool will be in condition to again receive the wider music-sheet.

When using the wide music-sheet, all the air-ducts *a* in the raceway T are used; but with a narrow music-sheet it is necessary to cut off or close a few at each end, as many as desired, or according to the less number of rows of perforations in the narrow music-sheet and, as shown in the present instance, three holes at the end at the left and four holes at the end at the right are closed, and this is accomplished as follows:

U is a flat triangular plate or valve pivoted at *b* to the upper side of the raceway-board T in a shallow recess *d*, so as to be below or flush with the surface *e* of the raceway. The plate U at the right end of the board is long enough to extend over and cover four air-ducts and the plate at the left to extend over three air-ducts, and in each plate are a corresponding number of holes *f* through its thickness, which are so arranged that when these plates are swung into the positions shown in Fig. 3 its holes *f* will be over or coincident with the air-ducts *a* in the raceway below them for the air to pass through them when the wide music-sheet is used, and when swung into the positions shown in Fig. 4 the holes *f* will be at one side of the air-ducts *a* and the solid part of the plates will be over such air-ducts and close them to the passage of air there-

through. The plates abut against the sides *g* of their respective recesses to stop or hold them in either position of their adjustment.

The inner ends of the wooden portion of the sleeve are cut away, as at *m*, to leave space for the free movement of the sleeves over the pins. The cutting away of the end of the metal tubes at Q allows the pins to be nearer to the sleeves, by which in turning the sleeves the other side S of the slots will abut against the pins, and with the outer ends of the sleeves against the shoulders R of the spindle the sleeves are prevented from turning too far in the wrong direction.

The sleeves can be made of one piece of material; but it is preferable to make them of two, as described, as it is better form of construction for the operation of the music-spool.

Having thus described my invention, what I claim is—

1. A take-up spool for a mechanical musical instrument, consisting of a spindle having a shoulder at each end, two tubes or sleeves over said spindle adapted to move longitudinally back and forth thereon, two pins projecting radially therefrom, a right-angular slot in the inner end of each sleeve arranged to engage respectively with the pins when the sleeves are turned in the right direction and an inclined edge on the end of each sleeve to abut or wedge against its respective pin.

2. A take-up spool for a mechanical musical instrument, consisting of a spindle having a shoulder at each end, a sleeve over the spindle adapted to move longitudinally back and forth thereon, the sleeve consisting of an inner tube of metal and an outer tube or covering of other material secured together, a right-angular slot in the inner end of the metal tube, an inclined edge on the end of the metal tube at one side of the slot, a pin projecting radially from the spindle in position for the angular slot to pass thereover when the tube is turned in the right direction and for the inclined edge to abut or wedge against the pin.

3. A raceway for a mechanical musical instrument having a row or line of air-ducts over which a perforated music-sheet is arranged to travel, a plate or valve on said raceway pivoted thereto and projecting over a number of air-ducts at the end of the row or line having holes or openings therethrough corresponding to the air-ducts covered by the plate or valve, by which the plate or valve can be moved to open and close the air-ducts to adjust the raceway to a wide or narrow perforated music-sheet to be wound upon the take-up spool.

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

PETER WEILIN.

Witnesses:

WILLIAM E. BULLARD,
EVA M. NEWTON.