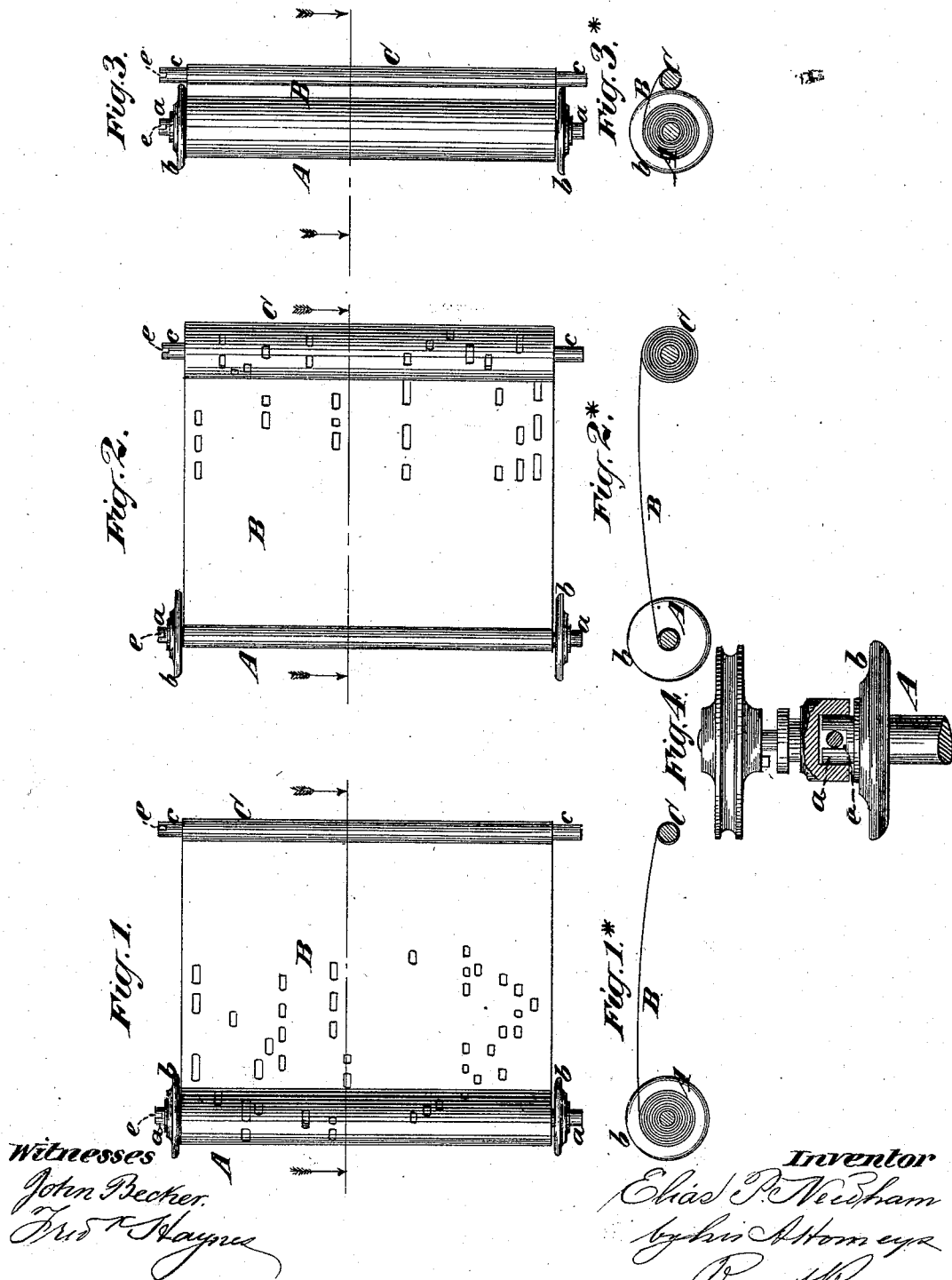


E. P. NEEDHAM.  
Music-Sheet for Mechanical Musical Instruments.

No. 219,297.

Patented Sept. 2, 1879.



# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MUSIC-SHEETS FOR MECHANICAL MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. **219,297**, dated September 2, 1879; application filed April 28, 1879.

### *To all whom it may concern:*

Be it known that I, ELIAS P. NEEDHAM, of the city and State of New York, have invented certain new and useful Improvements in Traveling Perforated Music-Sheets for Mechanical Musical Instruments, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to perforated music-sheets for organs and other wind musical instruments, the reeds, pipes, or other playing devices of which are either directly or indirectly controlled by the winding and unwinding of said sheet onto one roller and from another and the travel of said sheet between the two rollers.

For the performance of a variety of music a large number of these sheets has to be kept on hand, and it is very desirable not only that said sheets should be capable of being easily and quickly inserted into and removed from the instrument, to provide for the convenient changing of the music, but also that when said sheets are removed from the instrument they should be in as compact a form or occupy as little space as possible, and yet be retained in proper condition to be easily placed in the instrument.

To these ends the invention consists in the combination, with a perforated music sheet or strip, of a flanged delivery-roller permanently attached to one end of said sheet or strip and a plain or flangeless take-up roller attached to the other end thereof, whereby the desired results are obtained, as will be hereinafter more fully explained.

In the accompanying drawings, Figure 1 represents a plan or face view of a perforated music-sheet attached at its opposite ends to a flanged delivery-roller and a plain or flangeless take-up roller, showing said sheet as partly wound on the delivery-roller. Fig. 2 is a similar view, but showing the perforated sheet as partly wound on the take-up roller; and Fig. 3 is a similar view, showing the music-sheet as wholly wound on the delivery-roller prior to its use in the instrument. Figs. 1\*, 2\*, 3\* are transverse sections, corresponding, respectively, with Figs. 1, 2, and 3. Fig. 4 is a plan view of a portion of the delivery-roller, showing a coupling and pulley for driving it.

A is the delivery-roller, provided near its opposite ends and inside of its journals or projecting ends *a a* with flanges *b b*, and having one end of the perforated music-sheet B permanently attached to its periphery, between the said flanges, by gluing or in any other convenient and secure manner. Said flanges *b b* on the delivery-roller, on which said music-sheet is always intended to be rolled when out of the instrument, keep the music sheet or strip in place, and prevent its telescopic extension lengthwise on the roller, and guide it, when in motion, within the instrument. These flanges, it is preferred, should be slightly rounded on the inner edges of their periphery, to facilitate the winding and unwinding of the sheet on or from the roller.

C is the take-up roller, onto which the music-sheet is rolled from the delivery-roller in the operation of the instrument. This roller, to which the other end of the perforated sheet may be permanently attached by gluing or otherwise, is constructed without flanges. In fact, the said roller may preferably be, as represented, composed of a plain cylindrical stick, and have the journals or projecting ends *c c* outside of the sheet B of the same size as the rest of the roller.

While it is very desirable that the delivery-roller, on which the music is always kept rolled when out of the instrument, should have flanges to prevent the sheet from slipping lengthwise of the roller or "telescoping" while being handled, and under other circumstances when out of the instrument, the sheet, while being rolled and unrolled in playing, works in some respects better without flanges, and this is one reason why I make the take-up roller plain or without flanges, and use fixed guides in the instrument to guide the edges of the sheet on and near the said roller. There is, moreover, another reason why I make the latter roller without flanges, which is that when the music-sheet is not in the instrument, but put away, the empty body of the flangeless roller is allowed to come close up to the flanges on the delivery-roller, and this, when a large stock of music is kept on hand, effects a great saving of room.

In order to provide for driving the take-up and delivery rollers, each one is provided in one of its ends or journals with a transverse

notch, *e*, for the reception of a transverse pin or spline secured in a coupling-piece, which receives the said end of the roller within it, and which carries a driving-pulley, as shown in Fig. 3.

I am aware that a perforated music-sheet has been provided with a roller permanently attached thereto, and I do not, therefore, claim this broadly; but

I claim—

The combination, with a perforated music sheet or strip, of a flanged delivery-roller permanently secured to one end of the said sheet or strip and a plain take-up roller attached to the other end of said sheet or strip, substantially as and for the purpose herein described.

E. P. NEEDHAM.

Witnesses:

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