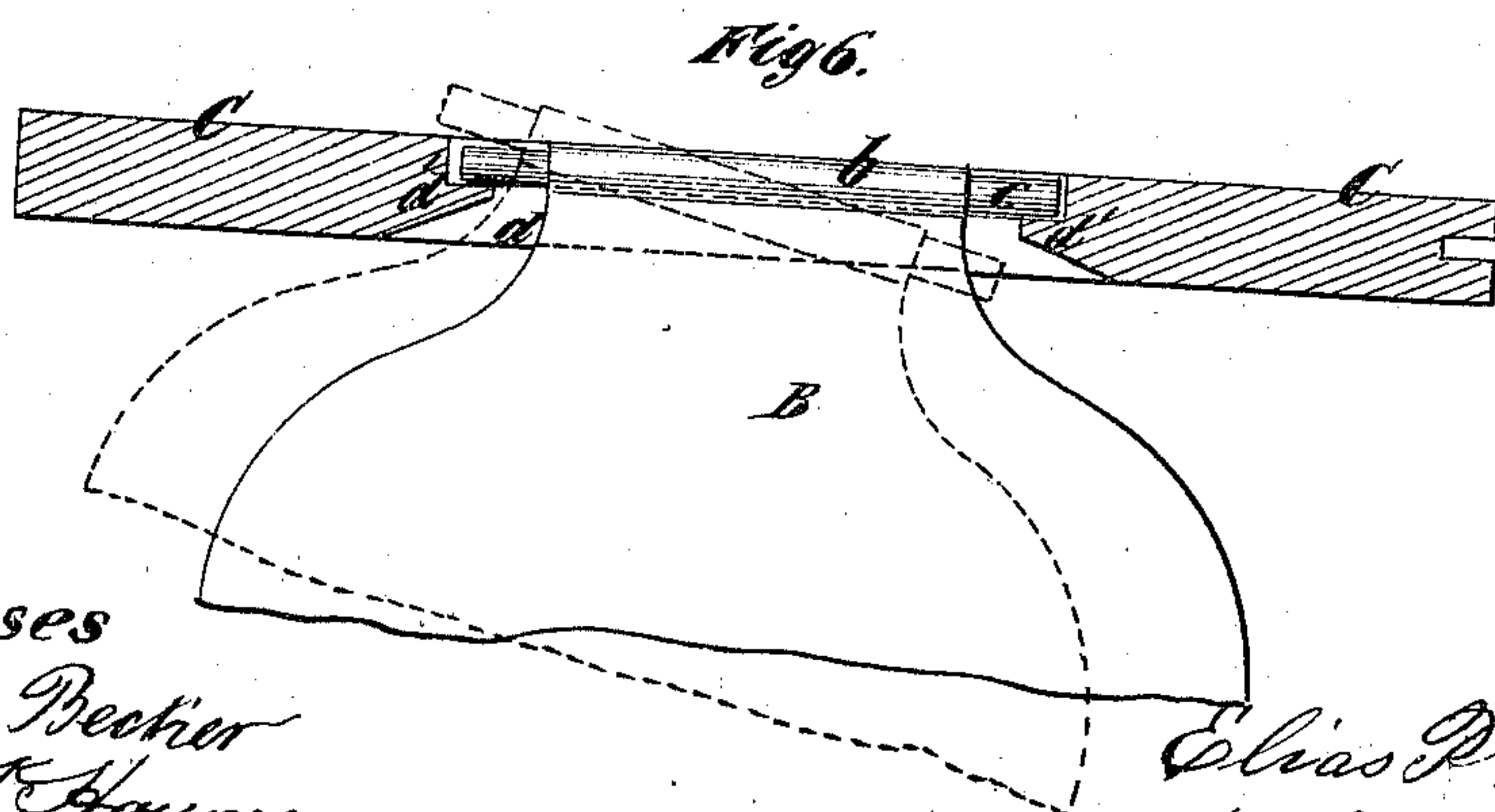
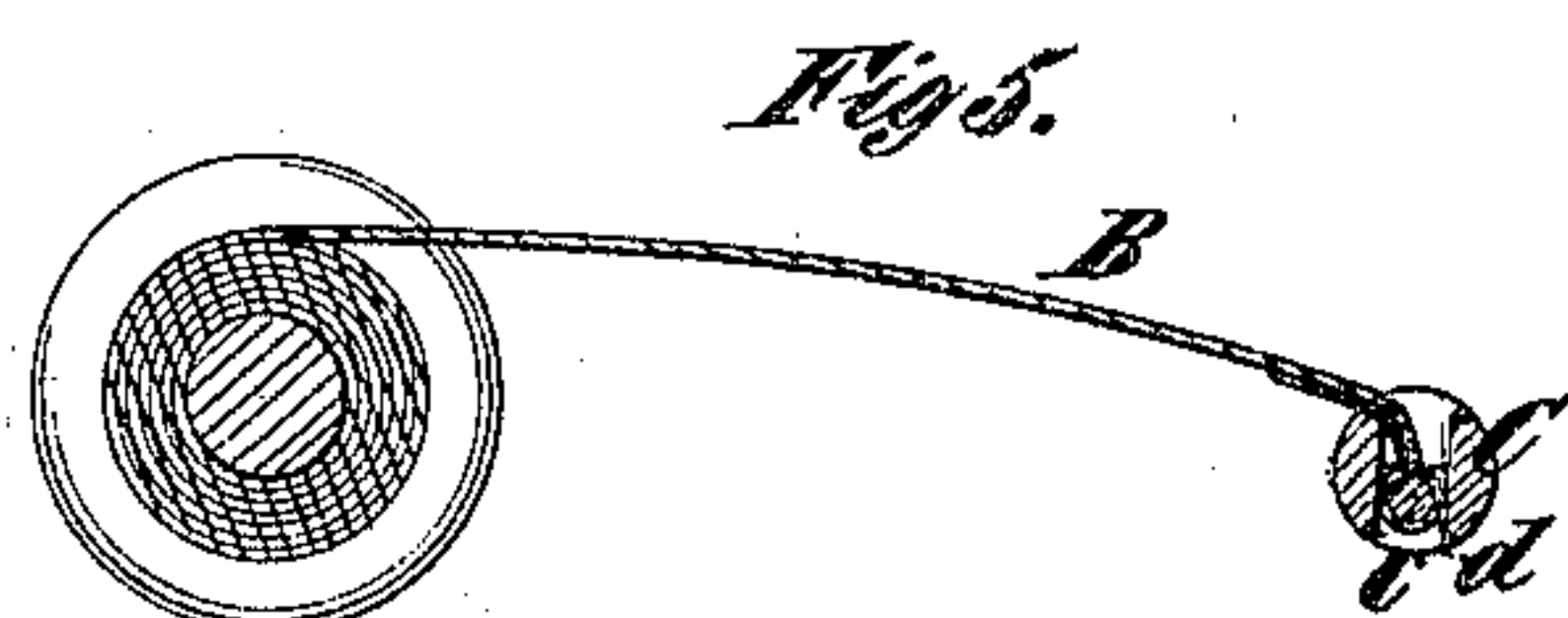
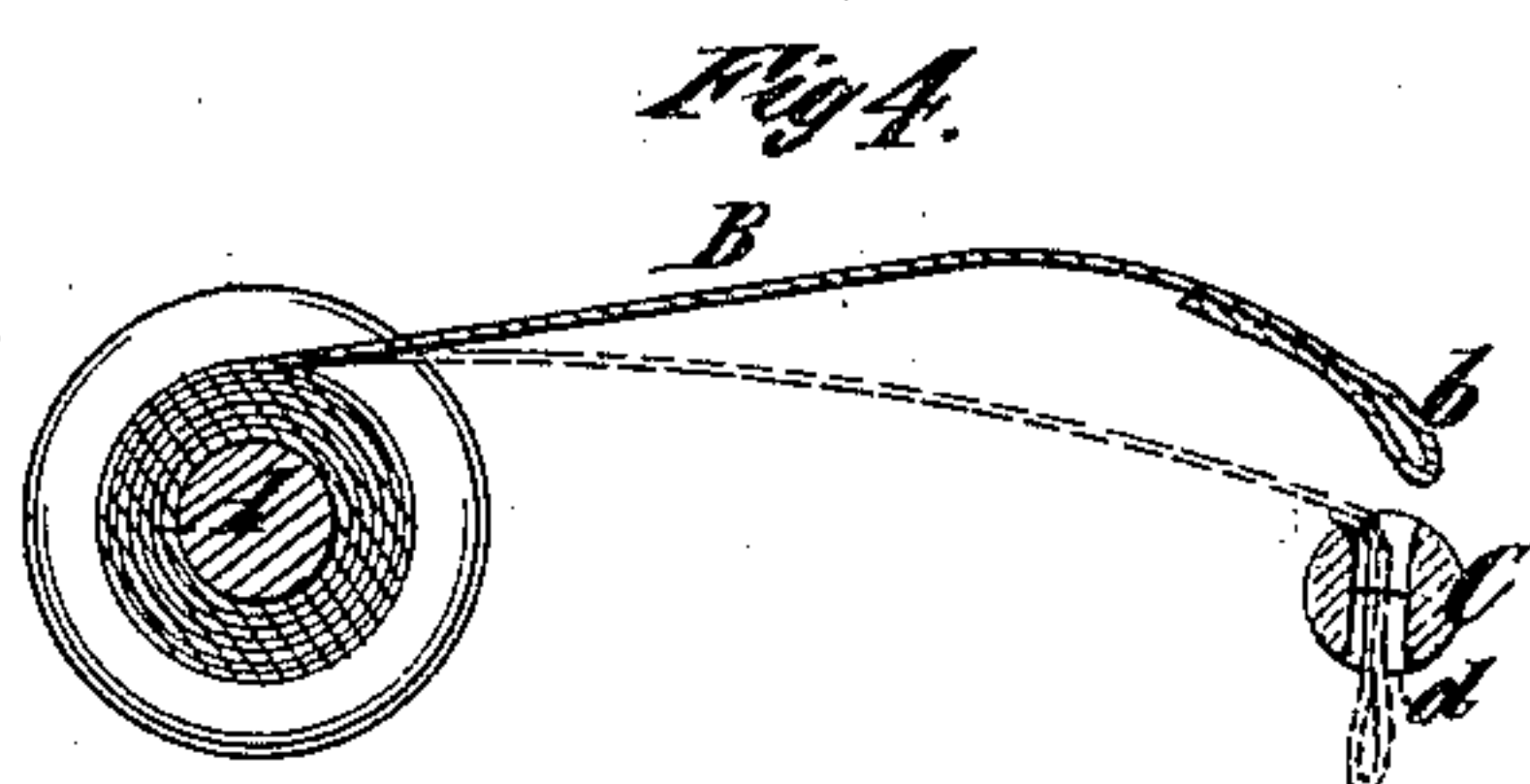
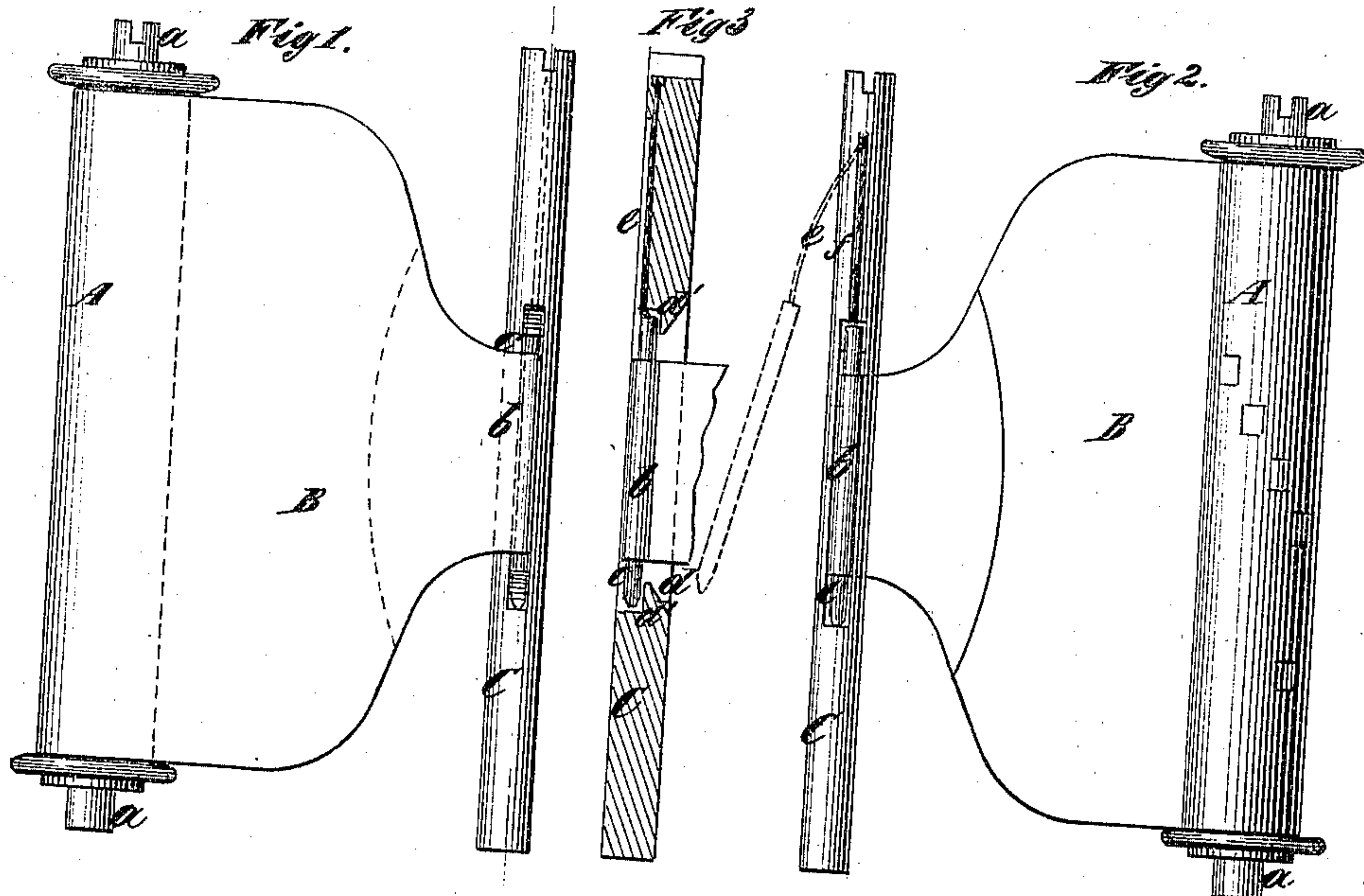


E. P. NEEDHAM.  
 Music-Sheet for Mechanical Musical-Instruments.

No. 224,715.

Patented Feb. 17, 1880.



Witnesses

John Becker  
 Fred Haynes

Inventor  
 Elias P. Needham  
 by his Attorneys  
 Brown & Brown



# UNITED STATES PATENT OFFICE.

ELIAS P. NEEDHAM, OF NEW YORK, N. Y.

## MUSIC-SHEET FOR MECHANICAL MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 224,715, dated February 17, 1880.

Application filed May 8, 1879.

To all whom it may concern:

Be it known that I, ELIAS P. NEEDHAM, of New York, in the county and State of New York, have invented certain new and useful  
5 Improvements in Music-Sheets for use in Mechanical Musical Instruments, of which the following is a specification.

The perforated or recessed music-sheets usually employed in mechanical musical instruments are generally permanently secured at  
10 one end to a music-roller upon which the sheet is wound before being placed in the instrument, and are permanently secured at the other end to a take-up roller upon which the sheet is  
15 wound as it passes through the instrument, requiring a separate music-roller and take-up roller for each music-sheet.

The object of this invention is to produce a music-sheet which may be readily attached to  
20 and detached from a take-up roller, thereby dispensing with a separate take-up roller for each music-sheet, and effecting a saving in cost and in the room required for packing said music-sheets for shipment.

To this end my invention consists in the combination, with a perforated or recessed  
25 music-sheet, of a slotted take-up roller which receives within it one end of said sheet, and a pin which is attached to the end of the sheet  
30 and secures the sheet to the roller by being received within the slot thereof.

It consists, also, in details and combinations of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1  
35 represents a plan of a music-roller, a music-sheet wound thereon, and a take-up roller detachably secured thereto. Fig. 2 represents a view of the under side thereof; Fig. 3, a longitudinal section through the take-up roller;  
40 Figs. 4 and 5 transverse sections through the music and take-up rollers, illustrating the manner of attaching the music-sheet; and Fig. 6, a longitudinal section through a take-up roller of slightly modified form.

45 Similar letters of reference designate corresponding parts in all the figures.

A designates a music-roller provided with bearings *a* for insertion in a musical instrument, and B designates a perforated or recessed music-sheet, represented as permanently  
50 secured to the music-roller A at one end and

wound thereon preparatory to being placed in a musical instrument. C designates a take-up roller upon which the music-sheet is wound after passing through the instrument.

I have represented the music-sheet as furnished with a loop, *b*, at its end, through which a pin, *c*, may be inserted, and the take-up roller C as provided with a slot, *d*, through which the loop *b* passes and in which the pin  
55 *c* rests. This pin *c* is preferably composed of a small straight stick of wood, and when inserted into or attached to the sheet occupies a position parallel with the plane of the sheet when the latter is straightened out.

At the ends of the slot *d* are shoulders *d'*, forming stops, against which rest the ends of the pin *c*, which project in opposite directions beyond the edges of the paper, the said shoulders preventing the pin from being drawn  
60 through the slot. The pin *c* is shown as permanently attached to the take-up roller by a cord, *e*, resting in a groove, *f*, in the said take-up roller C, and may be detachably attached to the music-sheet by inserting it in the loop  
65 *b* in the end thereof.

As the pin *c* rests within the slot *d* entirely below the surface of the take-up roller, it offers no obstruction to the free winding of the music-sheet upon the said take-up roller.

80 In attaching the roller the loop *b* is first passed through the slot *d*. The pin *c* is then inserted, and finally drawn into the slot, as represented clearly in Fig. 5.

In Fig. 6 I have represented the pin *c* as  
85 permanently attached to the music-sheet B and the slot *d* in the take-up roller C so formed that upon the pin *c* being tilted, as represented in dotted outline in Fig. 6, it may be drawn through the said roller, thereby de-  
90 taching the latter from the music-sheet.

By my invention I dispense with the permanently-attached take-up rollers secured to each music-sheet, one roller only being necessary for each instrument, instead of one for  
95 each music-sheet, as heretofore.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a perforated or recessed music-sheet, of a slotted take-up  
100 roller which receives within it one end of said sheet, and a pin which is attached to the end

of the sheet and secures the said sheet to the roller by being received within the slot thereof, substantially as specified.

2. The combination, with the perforated or  
5 recessed music-sheet B, of the straight pin c, arranged parallel with the plane of the sheet and projecting beyond both edges thereof, and the take-up roller C, provided with a slot, d, for the passage of the sheet, and with shoulders

d' at both ends of the said slot, forming bearings for the portions of the pin projecting beyond the edges of the sheet, substantially as specified.

E. P. NEEDHAM.

Witnesses:

HENRY T. BROWN,  
FREDK. HAYNES.