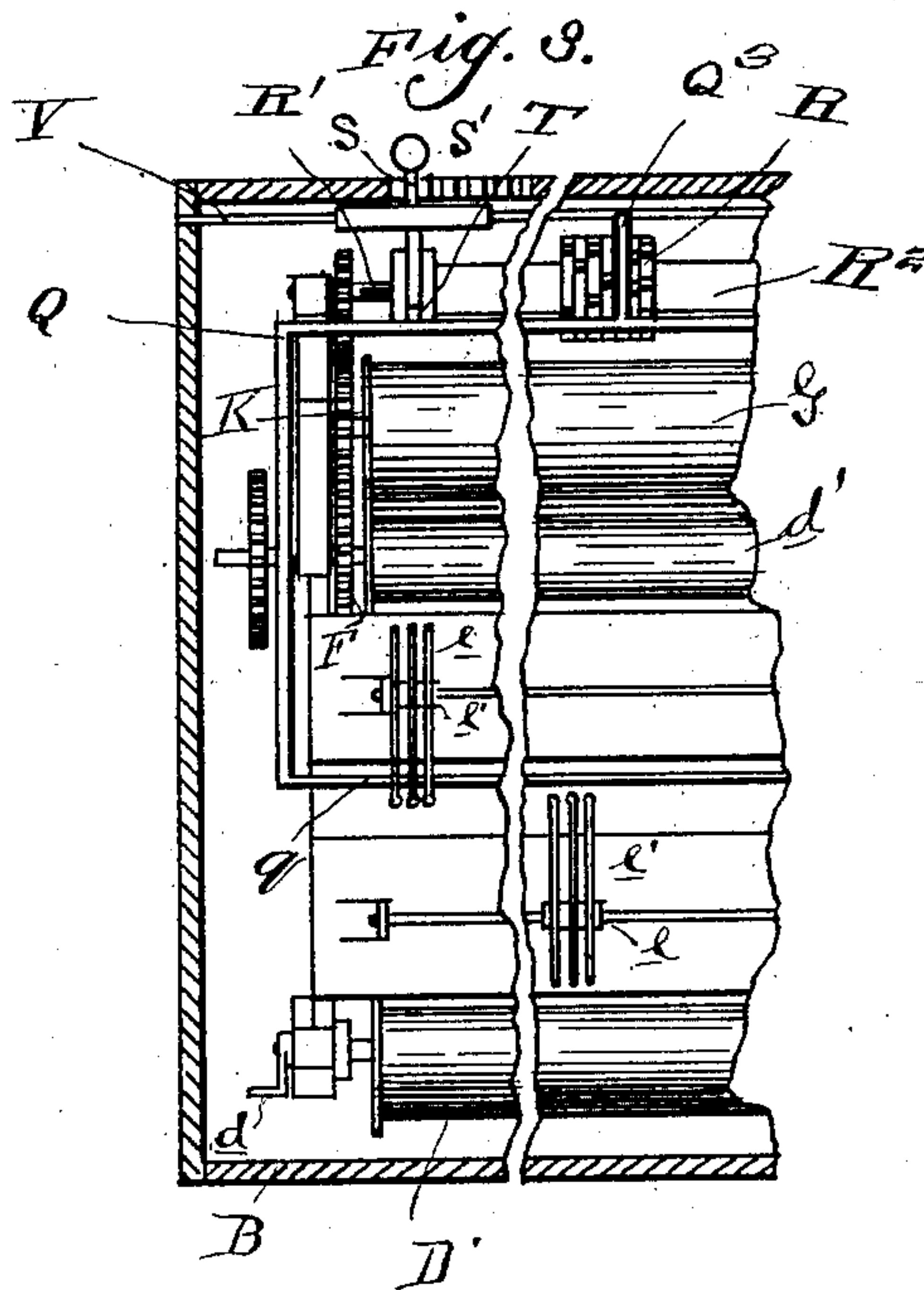
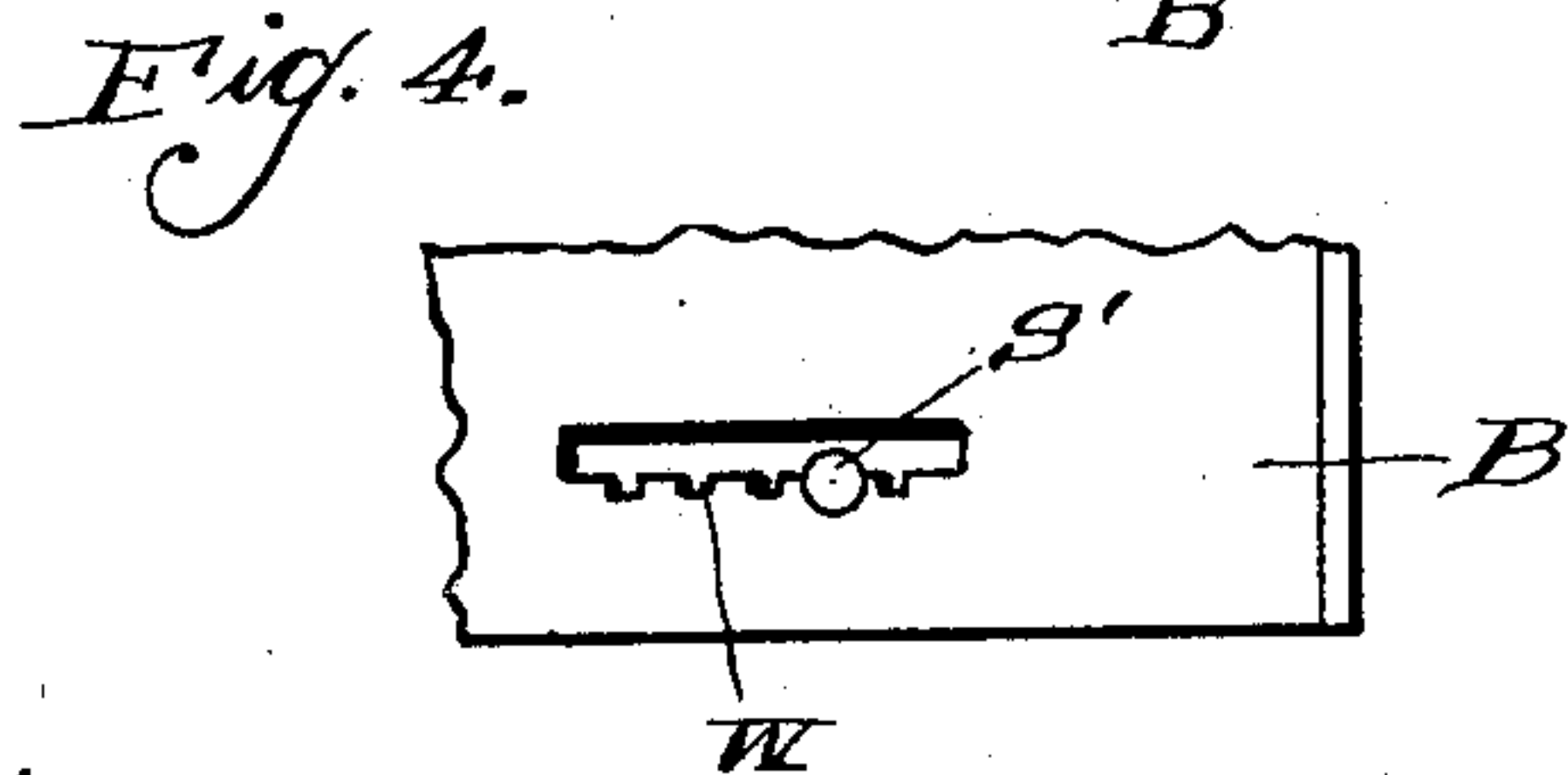
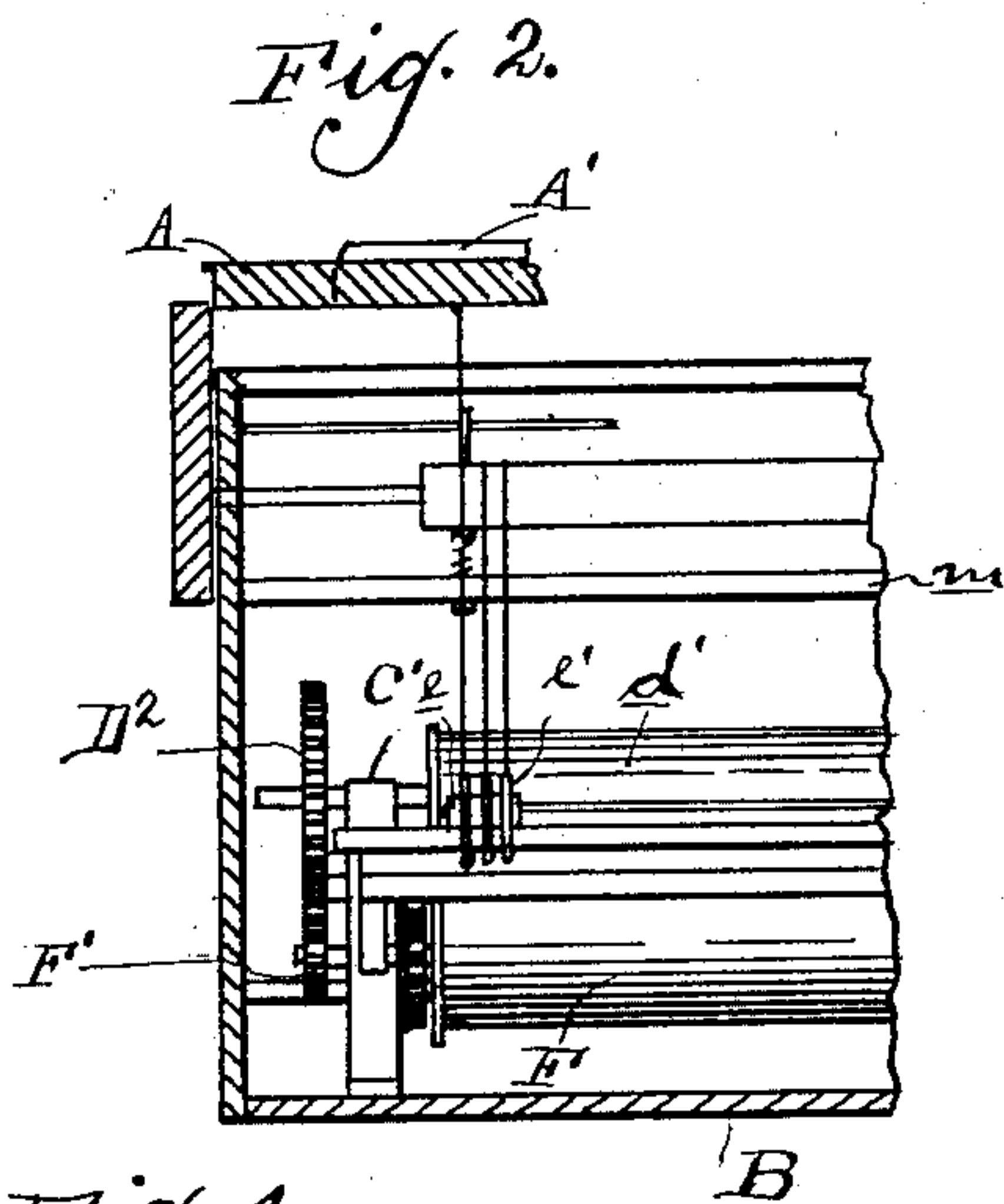
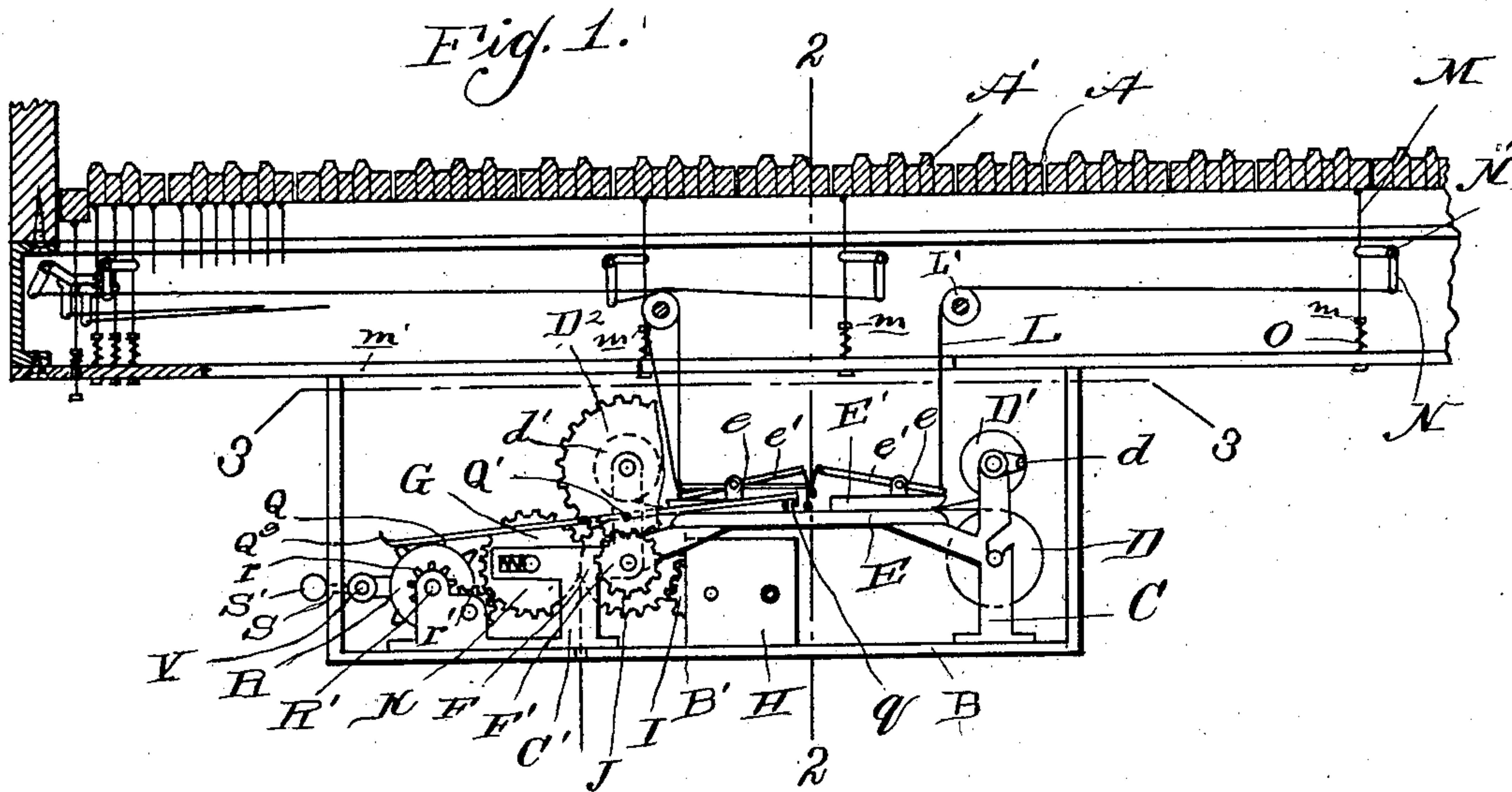


L. O. RISSMAN.
APPARATUS FOR RECORDING MUSIC.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

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No. 722,904.

PATENTED MAR. 17, 1903.

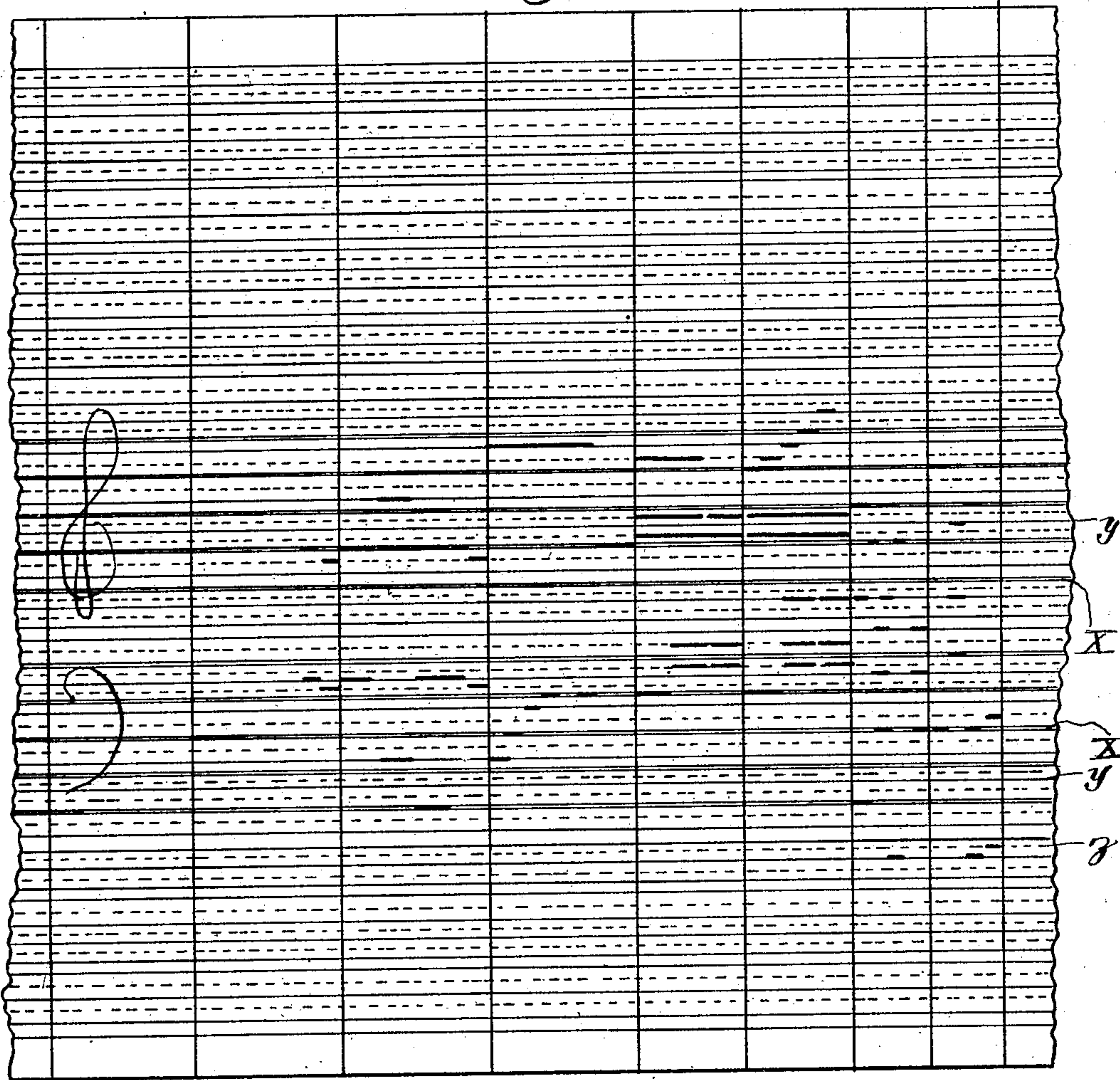
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2 SHEETS—SHEET 2.

Fig. 5.



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UNITED STATES PATENT OFFICE.

LILLIAN O. RISSMAN, OF CHICAGO, ILLINOIS.

APPARATUS FOR RECORDING MUSIC.

SPECIFICATION forming part of Letters Patent No. 722,904, dated March 17, 1903.

Application filed December 2, 1902. Serial No. 133,643. (No model.)

To all whom it may concern:

Be it known that I, LILLIAN O. RISSMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Recording Music; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to music-recording apparatus comprising spring-actuated rods which are adapted to be connected to the keys of a piano and type-carrying levers which have connection with said rods, with an inking-ribbon and an intermittently-moving bail-shaped member and means whereby a strip of paper may be transversely printed into bars.

The invention consists, further, in various details of construction, arrangement, and adaptation of parts, as will be hereinafter fully described and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this application, and in which drawings similar letters of reference indicate like parts in the views, in which—

Figure 1 is a partial longitudinal sectional view through a keyboard and a front elevation of the device, the front board being removed. Fig. 2 is a vertical sectional view taken on line 2 2 of Fig. 1. Fig. 3 is a horizontal sectional view taken on line 3 3 of Fig. 1. Fig. 4 is a partial end elevation of the device, showing the knob for adjusting the time of the printed music. Fig. 5 is a plan view of a portion of the music-sheet after it has been printed.

Reference now being had to the details of the drawings by letter, A and A' designate, respectively, the white and black keys of a keyboard of a piano, and attached to the frame of the board and underneath same is a casing B, having standards C and C' mounted therein, said standards C supporting the rollers or reels D and D', which are journaled in the

standards, the reel D having wound thereon a strip of paper on which the impressions are to be printed and the reel D' carrying wound thereon an ink-ribbon. A suitable crank *d* is fastened to reel D', whereby the ribbon may be wound back upon the reel from a roller *d'*, the pintles of which are journaled in the standards C'. The strip of paper passes from the reel D between two plates E and E', thence passes over a roller F, said strip being fed by frictional contact of a spring-pressed roller G, which holds the paper against the circumference of the roller F. Said roller G is journaled in slots in the standards C', and springs G' serve to hold the roller in frictional contact with the paper, as shown in Fig. 1.

For driving the strip of paper and the ink-ribbon I provide a spring-motor contained within a box H, which drives a gear-wheel I, which is in mesh with a gear-wheel J, fastened to rotate with the reel F. Said gear-wheel J is in mesh with a gear-wheel K, fastened to rotate with the roller G. Fastened to rotate with the shaft of the roller F is a pinion-wheel F', which transmits motion from said shaft to a gear-wheel D², mounted to rotate with the reel *d'*, on which the ink-ribbon winds. The gear-wheel D² is made somewhat larger in diameter than the other gear-wheel described for the purpose of imparting a slower movement to the ink-ribbon than to the strip of paper.

Pivotally mounted in the ears *e*, which rise from the plate E', are series of levers *e'*, the adjacent free ends of which carry points, each corresponding to a key of the finger-board, and the opposite end of each lever is fastened to a cord L, which passes over a roller L' and is fastened to one end of an angle-lever N, pivoted at N' to the frame of the keyboard. The other end of said angle-lever is connected to a wire M, which is fastened at its upper end to the under face of one of the keys of the keyboard, as shown clearly in Fig. 1 of the drawings. The lower end of each wire M, there being a similar wire fastened to each key, is acted upon by a spring O, which serves to hold the key in its normal position, returning same to its original position after it has been depressed. In Fig. 1 I have shown collars *m* fastened to each wire, the lower ends of the wires passing through apertures in the

cross-piece m' , and a spring is interposed between the latter and the upper of said collars, the collar at the extreme end of the wire being below the piece m' , thus limiting the upper movement of the wire.

A rectangular-outlined bar Q is pivotally mounted to the frame on the pins Q' and has one of its edges formed for printing cross-lines on the strip of paper, dividing the strip into measures. Said edge is designated in the drawings by letter q and is positioned adjacent to the point carried at the ends of the levers e' . For tilting said printing-bar Q to effect the printing of the cross-lines dividing the strip into measures, I provide a series of disks R, having each a series of lugs radially disposed about its circumference, the number of lugs varying on the several disks accordingly as it may be desired to print the cross-lines nearer together or farther apart for different times of music. In Fig. 1 I have four lugs about the circumference of the disk R, which will cause the printing edge q to make four impressions on the paper at each revolution of the disk. These disks are mounted to rotate with the shaft R' , on which is fastened a pinion-wheel r , that is in mesh with a pinion r' in gear with the wheel G.

Referring to Fig. 3, it will be observed that the several disks R are fastened to a shell R^2 , which is splined to the shaft R' , and by the provision of a bar S with a knob S' mounted thereon said shell may be moved longitudinally on the shaft R' , the inner end of said bar S engaging a groove T in an enlarged portion thereof. Said bar S is pivotally mounted on a shaft V, and a series of notches W is formed in the side of the casing, a detail of which is shown in Fig. 4, in which the bar may rest in adjusting the apparatus to print the cross-lines dividing same into measures nearer together or farther apart, as may be desired, for different times of music. Projecting from the bar Q is an arm Q^3 , the free end of which is slightly curved, as shown, and said arm is adapted to rest upon the circumference of one or another of said disks and to be raised by the lugs thereon.

Fig. 5 illustrates a section of a strip of paper which has been printed upon and which has been previously prepared by being ruled longitudinally, the treble and base clef being distinguished by each having five double lines and the characters being printed at intervals along the strip of paper, said double lines being designated by letter X. Between the double lines X of the staff-lines are continuous single lines Y and dotted lines Z, the continuous single lines Y corresponding to the white keys and the dotted lines indicate notes corresponding to the black keys. Above, below, and between the staves the single continuous and dotted lines are drawn, corresponding with each key of the instrument.

In operation the strip of paper with the ruling described printed thereon is fed between the plates E and E' , and when it is desired to

cause a character or mark to be printed upon the paper to correspond to a particular note a key is depressed and the point on the end of a lever e' , actuated by said lever, will press the ink-ribbon against the strip of paper, and the length of the mark printed will depend upon the length of time the operator holds the key depressed. The strip of paper, as illustrated in Fig. 5, shows at the left of the sheet cross-lines dividing the music into bars of four-four time and to the right of the center into bars of three-four time and to the extreme right still narrower measures of two-four time, these measure-lines being printed by the tilting of the bar Q, before described.

By the provision of an apparatus embodying my invention it will be observed that an improvised piece may be printed upon the strip of paper and readily enabling the operator to reproduce same from the impressions made thereon.

While I have shown a particular construction of apparatus whereby my invention may be carried out, it will be understood that I may make alterations in the detailed construction of the apparatus without departing from the spirit of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A music-recording apparatus, comprising in combination with the keys of the finger-board of a piano, spring-actuated rods fastened to the keys, point-carrying levers and connections between same and said rods, an ink-ribbon and impression-strip and means for feeding the same adjacent to said point-levers, a tilting bail-shaped member, and means for imparting an intermittent movement thereto whereby the impression-strip may be transversely printed into bars, as set forth.

2. A music-recording apparatus, comprising in combination with the keys of the finger-board of a piano, spring-actuated rods connected to said keys, pivotal point-carrying levers, connections between same and said rods, an ink-ribbon and an impression-strip and means for feeding same adjacent to said point-levers, a tilting bail-shaped printing member, a disk having a series of teeth about its circumference, and means for rotating the disk whereby an intermittent movement may be imparted to said bail-shaped member by said teeth, as set forth.

3. A music-recording apparatus, comprising in combination with the keys of the finger-board of a piano, spring-actuated rods fastened to said keys, pivotal point-carrying levers, connections between same and said rods, a pivotal bail-shaped printing member having an arm projecting therefrom, a disk having teeth about its periphery and against which said arm is adapted to contact whereby as the disk is rotated an intermittent movement is imparted to said member, and an ink-ribbon and an impression-strip and

means for feeding same adjacent to said point-carrying levers, as set forth.

4. A music-recording apparatus, comprising in combination with the keys of the finger-board of a piano, spring-actuated rods connected to the keys, tilting point-carrying members and connections between same and said rods, a tilting bail-shaped printing member, an arm projecting therefrom, a plurality of disks having varying numbers of teeth about their peripheries and on which said arm is adapted to rest, and means for shifting said disks in order to bring one or another thereof underneath said arm whereby an intermittent movement may be imparted to said member, an ink-ribbon and an impression-strip and means for feeding same adjacent to said point-levers, as set forth.

5. A music-recording apparatus, comprising in combination with the keys of the finger-board of a piano, spring-actuated rods fastened to said keys, point-carrying levers and connections between same and said rods, a pivotal bail-shaped member, an integral arm projecting from said member, a series of rotatable disks having varying numbers of teeth about their peripheries, a tilting lever adapted to shift said disks to bring any one of said disks in position to impart an intermittent tilting movement to said member, as set forth.

6. In combination with the keys of the finger-board of a piano, tilting point-carrying levers and connections between same and said keys, a casing, a tilting bail-shaped printing member mounted therein and hav-

ing an integral arm projecting therefrom, a shaft, a shell splined to said shaft, disks fixed to said shell and having varying numbers of teeth about their circumferences, a pivotal shifting-lever adapted to engage said shell to move the same longitudinally, said casing having a slot with notched teeth in which the shifting-lever is adapted to engage, and an ink-ribbon and impression-strip, and means for feeding the same adjacent to said printing-type, as set forth.

7. In combination with the keys of the finger-board of a piano, a casing, tilting point-carrying levers mounted therein, an ink-ribbon and reels upon which the same are carried an impression-strip, and reels for carrying same, plates mounted in the casing, and means for feeding said ink-ribbon and strip between said plates, a tilting bail-shaped printing member having an integral arm projecting therefrom, a series of disks having varying numbers of teeth about their circumferences, and geared connections with said strip-feeding means for rotating the disks, and a pivotal shifting-lever for throwing one or another of said disks underneath said arm whereby an intermittent movement may be imparted to said bail-shaped member, as set forth.

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

LILLIAN O. RISSMAN.

Witnesses:

ROBERT W. STEWART,
JOHN J. CURRAN.