(No Model.) 2 Sheets—Sheet 1.

L. L. BRIDGE.

MUSIC LEAF TURNER.

No. 442,009. Patented Dec. 2, 1890.

Fig. 1.

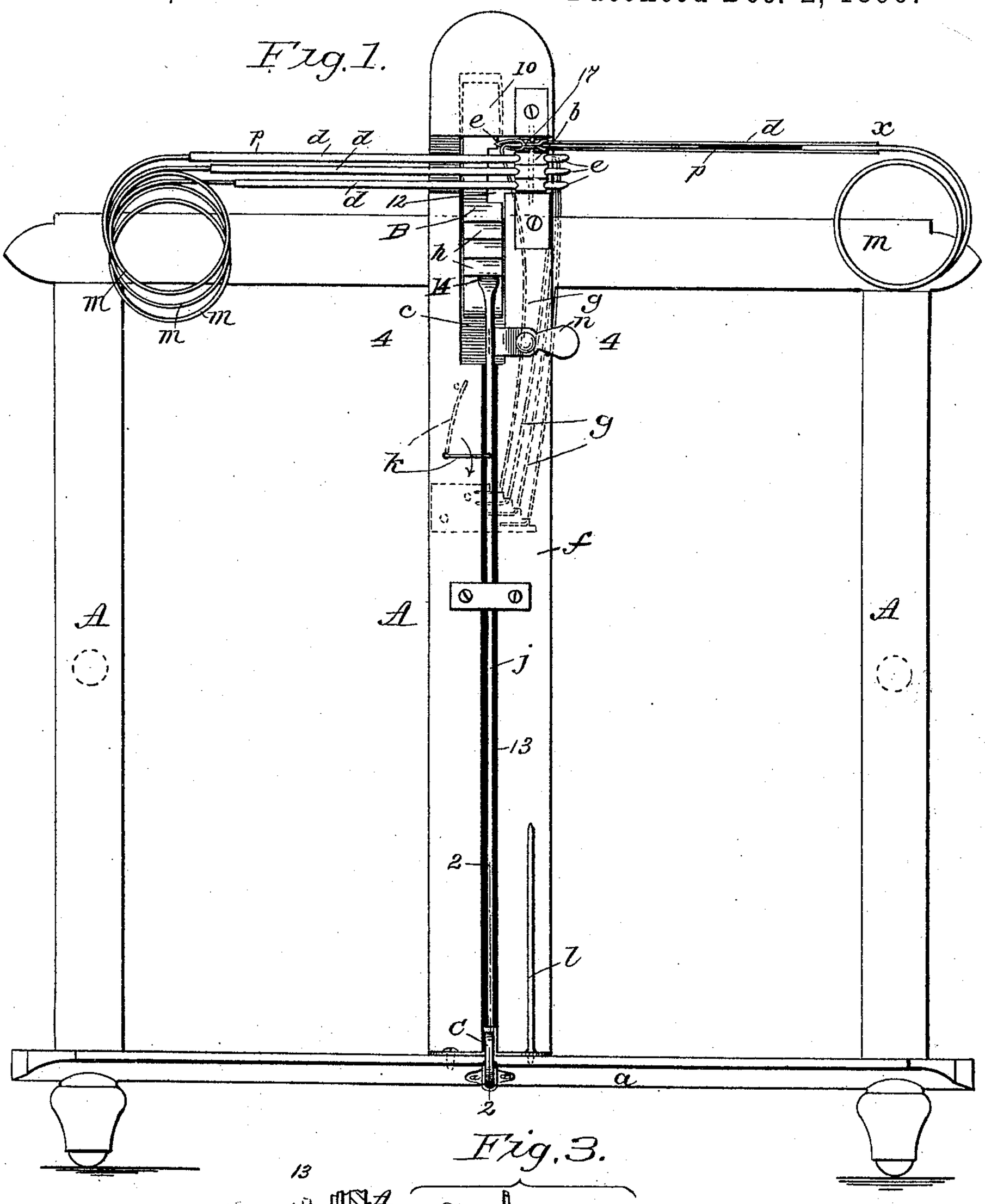


Fig. 3.

Fig. 2.

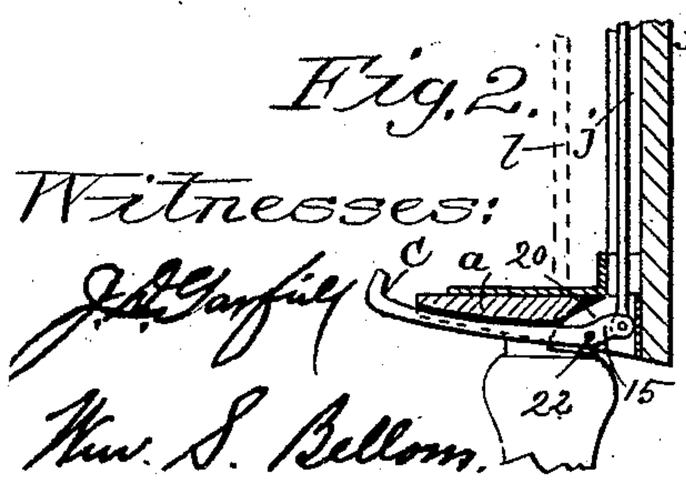
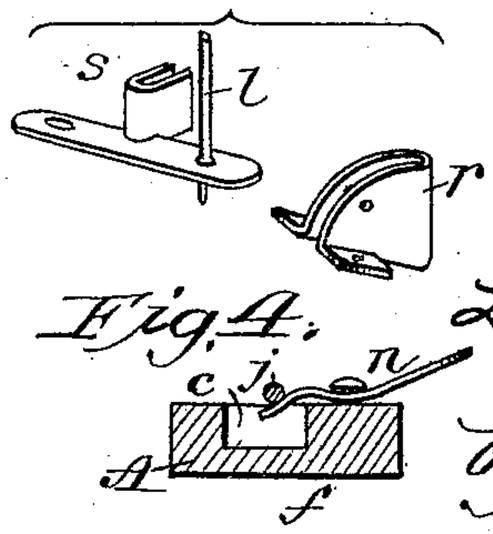


Fig. 4.



Witnesses:

J. L. Garfield

Wm. S. Bellows.

Inventor,

Lucius L. Bridge,

by Chapin & Co.

Atty's.

(No Model.) 2 Sheets—Sheet 2.

L. L. BRIDGE.

MUSIC LEAF TURNER.

No. 442,009. Patented Dec. 2, 1890.

Fig 5.

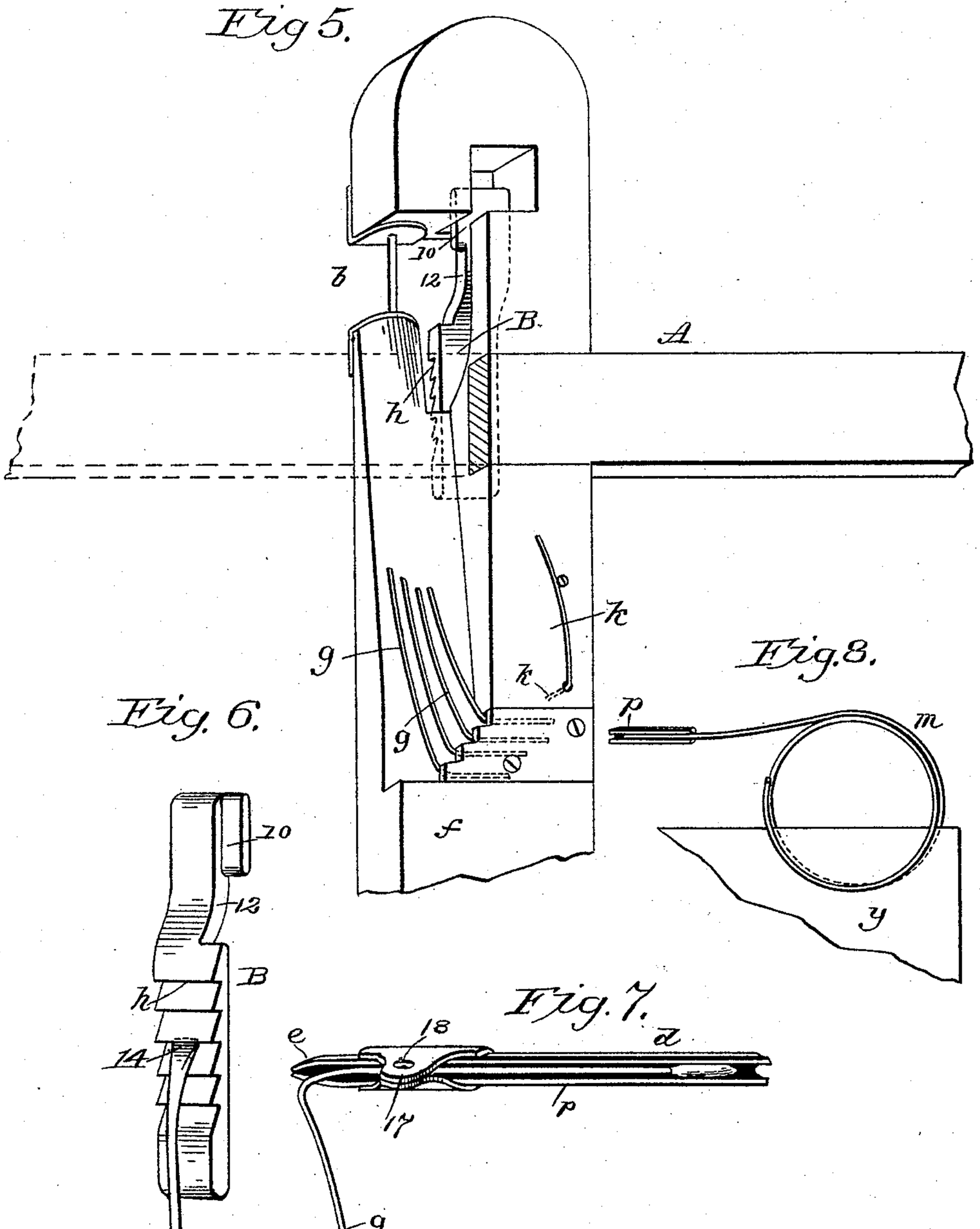


Fig. 8.

Fig. 6.

Fig. 7.

23

Witnesses:
J. D. Garfield
Wm. T. Billson.

Inventor,
Lucius L. Bridge
by Chapin & Co.
Atty's

UNITED STATES PATENT OFFICE.

LUCIUS L. BRIDGE, OF SPRINGFIELD, MASSACHUSETTS.

MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 442,009, dated December 2, 1890.

Application filed March 26, 1890. Serial No. 345,304. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS L. BRIDGE, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Music-Leaf Turners, of which the following is a specification.

This invention relates to improvements in music-leaf turners, the object of the invention being to provide a device for the purpose indicated which is most easily and quickly operated and which also is certain of operation; and the invention consists in the construction and combination of parts, all substantially as will hereinafter more fully appear, and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which the improved music-leaf turner is illustrated, similar letters and figures of reference indicating corresponding parts in all the views.

Figure 1 is a front elevation. Fig. 2 is a partial vertical section on the line 2 2, Fig. 1. Fig. 3 is a perspective illustration of detail parts to be hereinafter referred to. Fig. 4 is a detail horizontal section on line 4 4, Fig. 1. Fig. 5 is an enlarged perspective view of an upper portion of the device at the back thereof. Figs. 6 and 7 are enlarged views in perspective of detail parts to be hereinafter mentioned. Fig. 8 is an illustration of one of the turning-rods shown as in engagement with one music-sheet.

A represents a rectangular or otherwise appropriately-formed frame of a suitable size to accommodate various sizes of music-sheets, and at the base of said frame a ledge *a* is provided, extending angularly therefrom, on which the folio of music-sheets is supported.

d d represent turning-rods for the music, each near its inner end being pivotally mounted one next to and above another on a vertical pin *b*, all so that said turning-rods may swing in a horizontal plane or a plane at right angles to the said frame A and from the one side thereof to the other. Each turning-rod *d* has its end extended for a short distance inside of its pivotal connection *b*, as shown at *e*, and its outer end is formed so as to engage the upper-edge portion of a music-sheet.

B represents a vertical plate or part, which is guided and movable in a vertical aperture *c* in the middle portion *f* of the frame A, said plate-like part by one portion 10 thereof being adapted to underlie the said inner ends *e* of the turning-rods *d* when the same are swung to the right and in the position shown by the one particularly marked *x* in Fig. 1. Said plate-like part B, just below said portion 10, is recessed or cut out, as at 12, so that when the part B is moved upwardly and the continuous part 10 is moved away from contact with the inner end *e* of one of the turning-rods said turning-rod will be free to be swung, and each rod *d* has a spring *g* properly applied thereto for the exertion of such a spring reaction thereon that when the turning-rod is in the particular position as occupied by the one *x*, Fig. 1, and the restraining device, which is adapted to there hold it, is placed out of engagement therewith, the turning-rod will be swung to the other side of the frame. The said plate B is provided with a series of ratchet-teeth *h*, spaced corresponding to the distance of separation between the ends *e* of the rods *d*, and *j* represents a thrust or pawl rod vertically disposed and movable in a slot 13 in the front of the portion *f* of the frame, and the upper end of said thrust-rod *j* is properly formed, as at 14, to take into or engage with the teeth of said plate B.

C represents a finger-lever intermediately pivoted within a recess in the ledge *a*, its outer end projecting beyond the front of said ledge, and to its opposite end 15 the lower end of said thrust-rod *j* is connected.

k represents a spring having a downward reaction and an engagement with said thrust-rod, and acts to normally maintain said thrust-rod in its lowermost disposition.

l represents a pin standing perpendicularly from the ledge *a* and at a slight distance in advance of the front surface of the frame A, and said pin is in a line which is substantially coincident with the pivot-pin *b*, on which the turning-rods *d* swing, and said perpendicular pin *l* forms a stay or support for the folio or music-book at the fold or inner side of the back thereof and constitutes the center from or about which the leaves turn.

The operation of the device will be now explained: Assuming there is a folio of music supported on the ledge *a* and against the frame A, with the line of its back fold coin-

cident with the pin *l*, and that as many of the rods *d* are swung over to the right into the same position as is the one indicated by *x* as there are leaves to be turned at one playing, and that the respective turning-rods are by their extremities *m* engaged with the successive sheets to be turned, the lowermost turning-rod engaging the foremost sheet, the rod next above it engaging the second sheet, and so on, and the plate B is moved downwardly, so that the extended and continuous part 10 thereof lies opposite and against the back of all of said turning-rods *d* which are swung to the right, such contact of said part 10 being for all of said rod extremities *e* the same as is shown in Fig. 1 for the particular one *x*, and when the said plate B is thus downwardly disposed the extremity 14 of the thrust-rod *j* is in engagement with the uppermost tooth *h* of said plate B, then when it is desired to turn the first leaf by simply pressing or drawing downwardly upon the finger-lever C the thrust-rod is upwardly forced the distance of one of the teeth *h*, moving the plate B correspondingly upward, so that a portion of the recess 12 is opposite the extremity *e* of the lowermost turning-rod, the extended or continuous portion 10 having passed out of contact for the restraint of the lowermost turning-rod *d*, and said rod *d*, under the torsional reaction of its respective spring *g*, swings from right to left in a semicircular curve, carrying therewith that sheet which is in engagement therewith. Immediately the pressure is released from the finger-lever C the spring *k* reacts upon the thrust-rod *j*, returning same downwardly to its lowermost and normal disposition, the extremity 14 of said thrust-rod then taking into the next lower tooth *h* of the plate B, so that when the finger-lever C is next depressed through said thrust-rod the plate B will again be moved upwardly, so as to free the next turning-rod *d* to swing and turn over the next leaf. After the rod *j* has been upwardly thrust, and as it is returning to its normal position, the plate B is held against following the thrust-rod downwardly by the tension or pressure which is exerted by the extremities *e*, due to the action of their springs thereon, upon the portion 10 of the plate B.

n represents a prying-rod pivotally mounted on the middle rail *f* of the frame and having an engagement by its inner extremity with the thrust-rod *j*, all so that when it is desired to change the plate B from its uppermost to its lowermost position the extremity of the thrust-rod may be readily forced forwardly and out of engagement with the teeth of said plate B.

Each turning-rod consists, as shown, of a holder-bar *p*, made of thin metal folded into U shape and having near its extremity *e* earpiece extensions 17, which are brought together and perforated, as at 18, to form a bearing-opening through which the pin *b* passes. The extremities of the turning-rods are shown as consisting of a helically-bent wire, the convolutions of which have a springing tendency the one toward the other, whereby the edge portion of a music-sheet may be grasped in the manner shown in Fig. 8, the wire having the convolutions therein by one tangentially-extended terminal, being connected to the holder-bar *p* by soldering or otherwise. It is of course noted that the main portions of the turning-rods *d* are disposed at such a distance above the usual top edge of the sheets that in their swinging they have no interference with any of the sheets except the particular one engaged by the extremity *m* of the turning-rod respectively designed for the turning of such sheet.

In Fig. 3 the perspective views illustrate metallic bushings, each struck up from a single piece of sheet metal and punctured or perforated and both adapted to be applied in relation to the aperture 20 in the ledge *a*, the one *r* also forming a support for the pivot-pin 22 of the finger-lever C, and the one *s* also affording practical means for the support of the pin *l*.

Each spring *g* for the turning-rods *d*, as shown, consists of a piece of spring-wire bent twice at right angles, normally, substantially as shown in Fig. 7, one angular terminal 23 being confined against the back of the part *f* of frame A, and the other angular terminal lying along within the U-shaped holder-bar *p*, being soldered or otherwise securely affixed thereto. When the turning-rod *d* is in a position corresponding to that shown at the left of Fig. 1, said spring *g* therefor is under no particular recoil; but as the turning-rod is swung from its left-hand to its right-hand position a twisting strain is imparted to the spring *g*, the reaction of which is entirely sufficient to replace the turning-rod in its left-hand disposition.

The frame A, which is described and shown as forming the supporting structure for the music-leaf turner, in lieu of being a separate frame or appliance for a piano, organ, or other instrument, may be one with the usual music-supporting rack or "desk" of the piano or organ.

What I claim as my invention is—

1. In a music-leaf turner, the combination, with a frame or rack having a series of leaf-turning rods, each near its inner extremity pivotally mounted and adapted to swing in a plane angularly to said rack, each rod having its outer extremity adapted for engagement with a music-sheet, of a spring applied to each turning-rod to swing it, a plate provided with ratchet-teeth and constructed to engage with the inner extremities of said turning-rods for preventing their swing and to be moved, so as to be free from engagement with said rod extremities, one after another, for their successive swing, a thrust-rod *j*, having an engagement with the teeth of said plate, and the finger-lever C, for operating the same, substantially as described.

2. In a music-leaf turner, the combination, with a frame having a ledge *a*, provided with the perpendicular pin *l*, and the turning-rods *d d*, pivotally mounted near their inner extremities in a line coincident with said pin *l*, of the springs *g* for said rods, the plate B, provided with ratchet-teeth and having the recess 12 and the continuous or extended portion 10 and movable on said frame, for the purpose set forth, the thrust-rod *j*, adapted to engage the teeth of said plate, and the spring *k* therefor, and the finger-lever C, all substantially as and for the purpose set forth.

3. In a music-leaf turner, the combination, with the supporting frame or rack and the series of leaf-turning rods, each consisting of a holder-bar *p*, of thin metal, having a cross-sectional **U** shape, provided with the extended and perforated ear-pieces 17, and the inner engaging extremities *e*, and the wire-formed extremity *m*, having the convolutions therein, and by an extension of said wire entered and secured within the longitudinal opening in the holder-bar, of the pivot-pin *b*, on which said turning-rods swing, and the springs *g* for said rods, each secured by its one extremity to the rods and by its other extremity to the frame and adapted on the swinging of the rod in one direction to be given a torsional reaction for swinging the said rod back, substantially as described.

4. In a music-leaf turner, the combination, with the frame provided with the ledge *a* and having the aperture 20, of the struck-up sheet-metal bushings *s* and *r*, fitted in and about said aperture, and the one *r* transversely perforated and affording a bearing-support for the finger-lever, substantially as described.

5. In a music-leaf turner, in combination, a frame or rack provided at its bottom with a ledge *a* and at its upper end with a series of turning-rods pivotally mounted one above another and having the extensions *e* and the outer sheet-engaging devices, a spring applied to each turning-rod to swing it, the plate B, vertically movable and guided on said frame and provided with the continuous or extended portion 10 and the recess 12 and having the ratchet-teeth 14, the thrust-rod *j*, engaging said ratchet-teeth, and the spring *k* therefor, and the pivoted finger-lever C, connected to said thrust-rod, substantially as and for the purpose described.

6. The combination, in a music-leaf turner, of the ratchet-toothed plate B, and the thrust-rod *j*, and the lever *n*, engaging said thrust-rod, substantially as and for the purpose set forth.

LUCIUS L. BRIDGE.

Witnesses:
WM. S. BELLOWS,
G. M. CHAMBERLAIN.