(No Model.) 2 Sheets—Sheet 1.

# H. W. STONE, Jr.

## MUSIC LEAF TURNER.

No. 370,165. Patented Sept. 20, 1887.

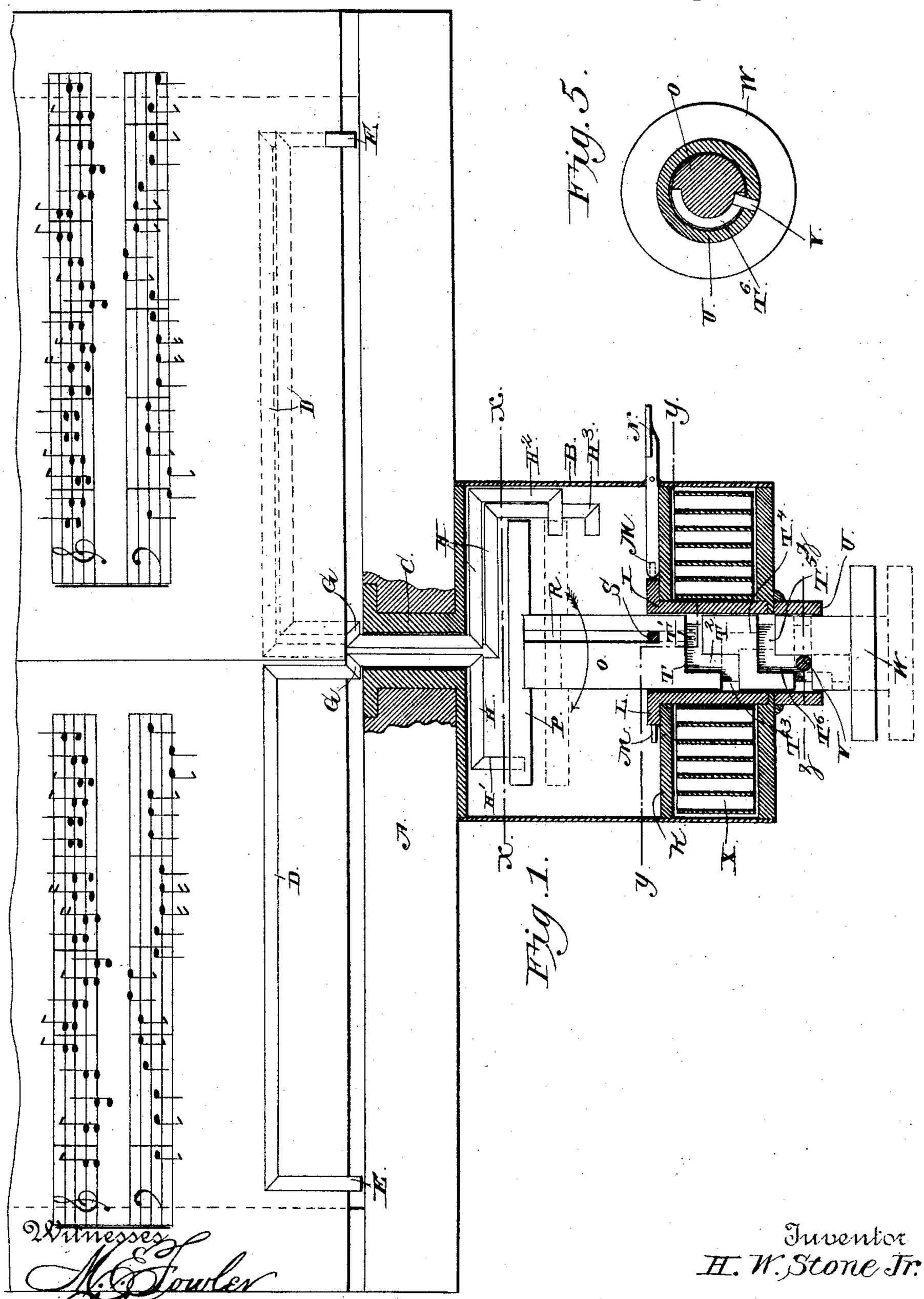

Fig. 1.



Fig. 5.

Witnesses
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Inventor
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(No Model.) 2 Sheets—Sheet 2.

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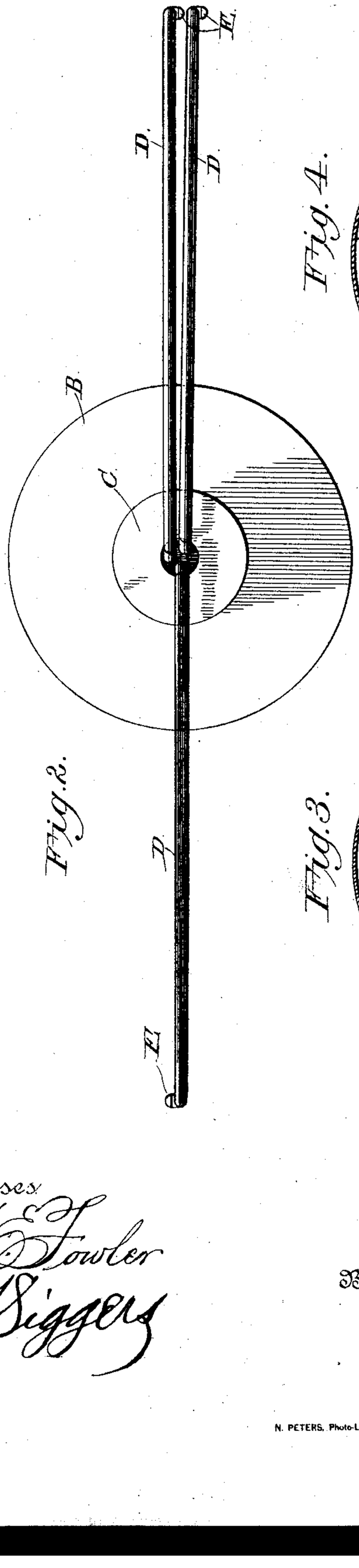


Fig. 2.

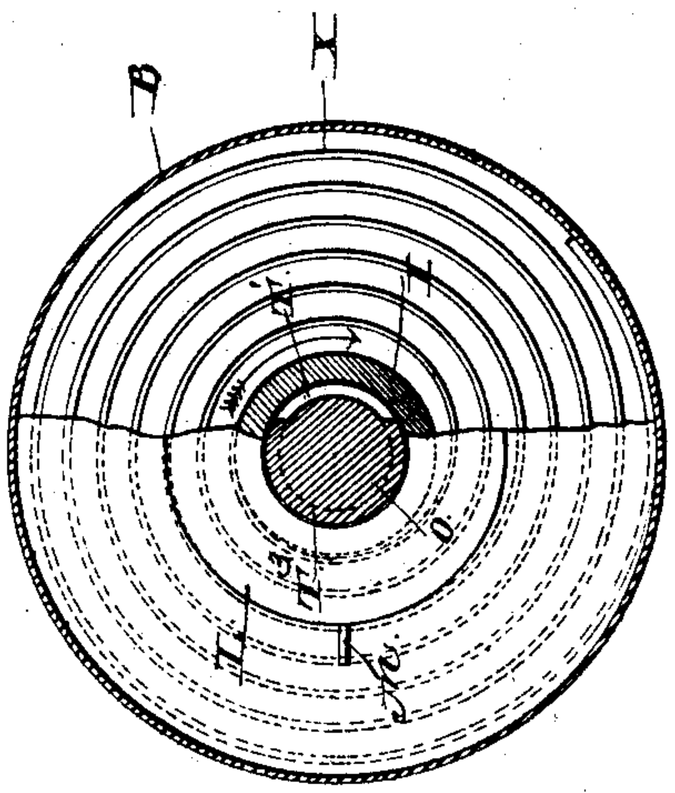


Fig. 4.

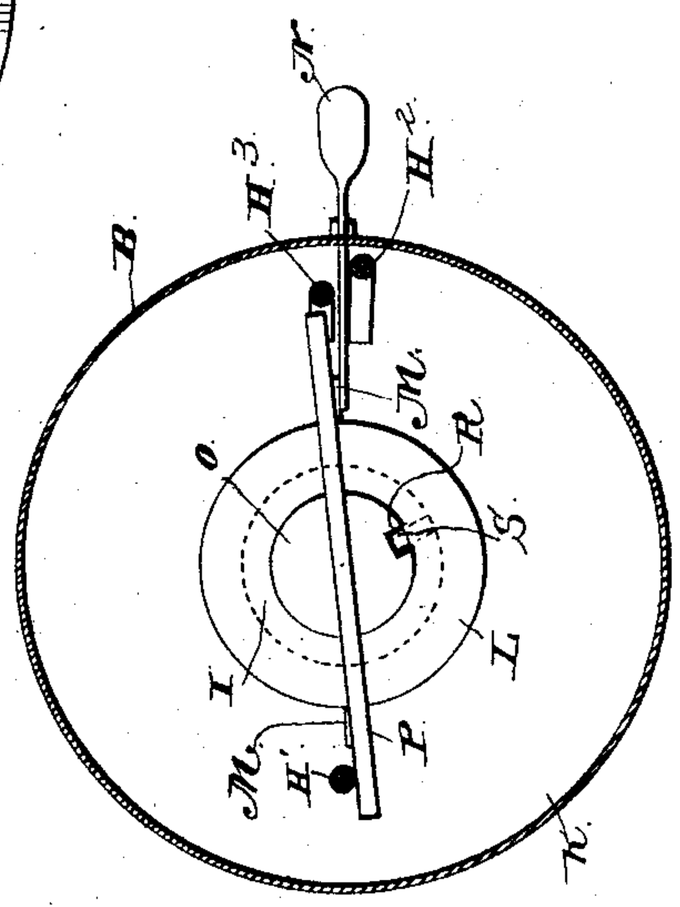


Fig. 3.

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# UNITED STATES PATENT OFFICE.

HEMAN WARD STONE, JR., OF MORRIS, MINNESOTA.

## MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 370,165, dated September 20, 1887.

Application filed August 3, 1887. Serial No. 246,058. (No model.)

*To all whom it may concern:*

Be it known that I, HEMAN WARD STONE, Jr., a citizen of the United States, residing at Morris, in the county of Stevens and State of Minnesota, have invented a new and useful Improvement in Music-Leaf Turners, of which the following is a specification.

My invention relates to an improvement in music-leaf turners; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is partly a front elevation and partly a vertical sectional view of a music-leaf turner embodying my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is a horizontal sectional view taken on the line *x x* of Fig. 1. Fig. 4 is a horizontal section on line *y y* of Fig. 1. Fig. 5 is a similar view on line *z z* of said Fig. 1.

A represents the bottom of the music-rack, on which the lower edges of the sheet rest.

B represents a cylindrical case of suitable size, which is provided at its upper end with a sleeve, C, that projects vertically from the center of the bottom of the music-rack, and thereby secures the case thereto.

D represents a series of arms, of any desired number, which are arranged radially, as shown, and have their outer ends turned downward at right angles to form hooks E, each of which engages one leaf of the music, and the inner ends of the said arms are turned downward at right angles to form vertical spindles, which extend through and are journaled in the sleeve C. Offsets G are formed at the upper ends of the said spindles, as shown, in order to prevent the spindles from moving downward in the sleeve. At the lower ends of the spindles are formed horizontal radial arms H, which are arranged in different planes, and have their outer ends turned downward to form the depending feet H′, H², and H³, the said feet having inward-projecting studs, which are arranged in different horizontal planes.

I represents a vertical cylindrical sleeve, which is journaled in the lower side of the case B and in a diaphragm, K, which is arranged at a suitable distance above the bottom of the case. The upper end of this sleeve has an outwardly-projecting annular flange, L, that bears upon the diaphragm K, and from diametrically-opposite points on the said flange project studs M.

N represents a detent or key, which is fulcrumed in one side of the case, and the inner end of which is adapted to engage the studs M at each semi-revolution of the sleeve I.

O represents a vertical shaft, which is journaled in the sleeve I and projects upward into the case B, and is provided at its upper end with a sweep-arm, P. This shaft is vertically movable in the sleeve I. In the upper portion of the shaft is a vertical groove, R, of suitable length. S represents a stud, which extends inward from the upper side of sleeve I and enters the groove R. In the lower portion of the shaft O is made a groove, T. The said groove extends half-way around the shaft, at a slight distance below the stud S, as at T′, then extends downward vertically a distance equal to the spaces between the planes in which the feet H′, H², and H³ are arranged, as at T², then again half-way around the shaft, as at T³, then downward a distance equal to the length of portion T², as at T⁴, then again half-way around the shaft, as at T⁵, and then downward, as at T⁶, the said groove thereby forming series of ascending steps in the sides of the shaft.

From the lower side of the case depends an annular collar, U, through which the shaft extends, and from the inner side of this collar projects a stud, V, which enters the groove T. To the extreme lower end of the shaft is secured a thumb-piece, W, by means of which the musician may turn the shaft by his fingers, when desired.

X represents a volute spring, which is arranged in the lower portion of the case below the diaphragm K. The said spring has its outer end attached to one side of the case and its inner end attached to the sleeve I, and is adapted to turn the said sleeve in the direction indicated by the arrows in Figs. 1 and 4.

The operation of my invention is as follows: The machine is in its normal position, when the stud V engages the lower portion, T⁶, of the groove T in the shaft, and the key N engages one of the studs M of the sleeve. In order to cause a leaf of music to be turned, the musician depresses the key N, causing the latter to disengage one of the studs M, and

thereby release the sleeve I. The spring X instantly turns the said sleeve through half a circle, thereby causing the stud V to work through one of the semicircular annular portions of the groove T, and thereby causes the sweep-arm P to engage, say, the foot or finger H′ of one of the arms D, and turn the latter through a half-circle, and thereby turn the music-leaf. As soon as the semicircular rotation of the shaft is completed, the stud V comes in contact with the lower side of one of the vertical portions of the groove T, and the key comes in contact with the other stud M, and thereby prevents further rotation of the sleeve. As soon as the movement is arrested, the torsional strain exerted by the spring on the shaft, through the medium of the sleeve and the stud S, is released, and the shaft thereby drops by its own gravity and causes the stud V to move upward in one of the vertical portions of the groove T, and the stud S to move upward in the groove R, thus lowering the arm P below the plane of the finger H′ into the plane of the finger H², so that at the next depression of the key the operation before described will be repeated, and thereby causing the succeeding leaf of music to be turned.

I do not desire to limit myself to the precise construction of the music-leaf turner hereinbefore described, as it is evident that modifications may be made therein without departing from the spirit of my invention. I also contemplate providing a pedal adapted to be depressed by the foot of the performer and connected to the key N by a rod, thus leaving the fingers of the performer entirely free for the operation of the musical instrument.

Having thus described my invention, I claim—

1. The combination, in music-leaf turners, of the case, the radial pivoted arms D, having the tappet-fingers arranged in different horizontal planes, the vertically-movable shaft having the arm P to engage the tappet-fingers successively, and provided with the curved horizontal grooves in its sides and the vertical grooves connecting the same, the sleeve I, revoluble with the shaft and in which the latter is fitted, and the stud V, projecting from the case into the communicating grooves in the shaft, substantially as described.

2. The combination of the case, the pivoted radial arms D, having the tappet-fingers arranged in different horizontal planes, the vertically-movable shaft having the arm P, and provided with the curved horizontal grooves in its sides and the vertical grooves connecting the same, the sleeve I, revoluble with the shaft and in which the latter is fitted, said sleeves having the studs or detents M, the key adapted to engage the said studs or detents successively, and the stud V, projecting from the case and engaging the communicating grooves in the shaft, substantially as described.

3. The combination of the case, the radial pivoted arms D, having the tappet-fingers arranged in different horizontal planes, the spring-actuated sleeve I, journaled in the same, and having the stud S, the shaft vertically movable in the sleeve, having the sweep-arm P, for the purpose set forth, and provided with the vertical slot to receive stud S, the horizontal curved slots and the vertical slots connecting the ends of the horizontal slots, and the stud V, projecting from the case into the communicating slots in the shaft, all combined and arranged to operate substantially as described.

4. In a leaf-turner, the combination of the pivoted arms having the tappet-fingers, the vertically-movable rotating shaft O, having the arm P to engage the tappet-fingers successively, the sleeve I, connected with the shaft, substantially as set forth, whereby the latter will rotate with sleeve I and at the same time the shaft O will have vertical movement independently of the sleeve, the detent N to engage the sleeve, and the spring to rotate the sleeve, substantially as described.

5. The case B, attached to the music-rack, the leaf-turning arms D, having the tappet arms or fingers, and the longitudinally-movable rotating shaft O, having an arm, P, to engage the tappet arms or fingers, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

HEMAN WARD STONE, Jr.

Witnesses:
LOUISE F. STONE,
HELEN M. FINNEY.