

(No Model.)

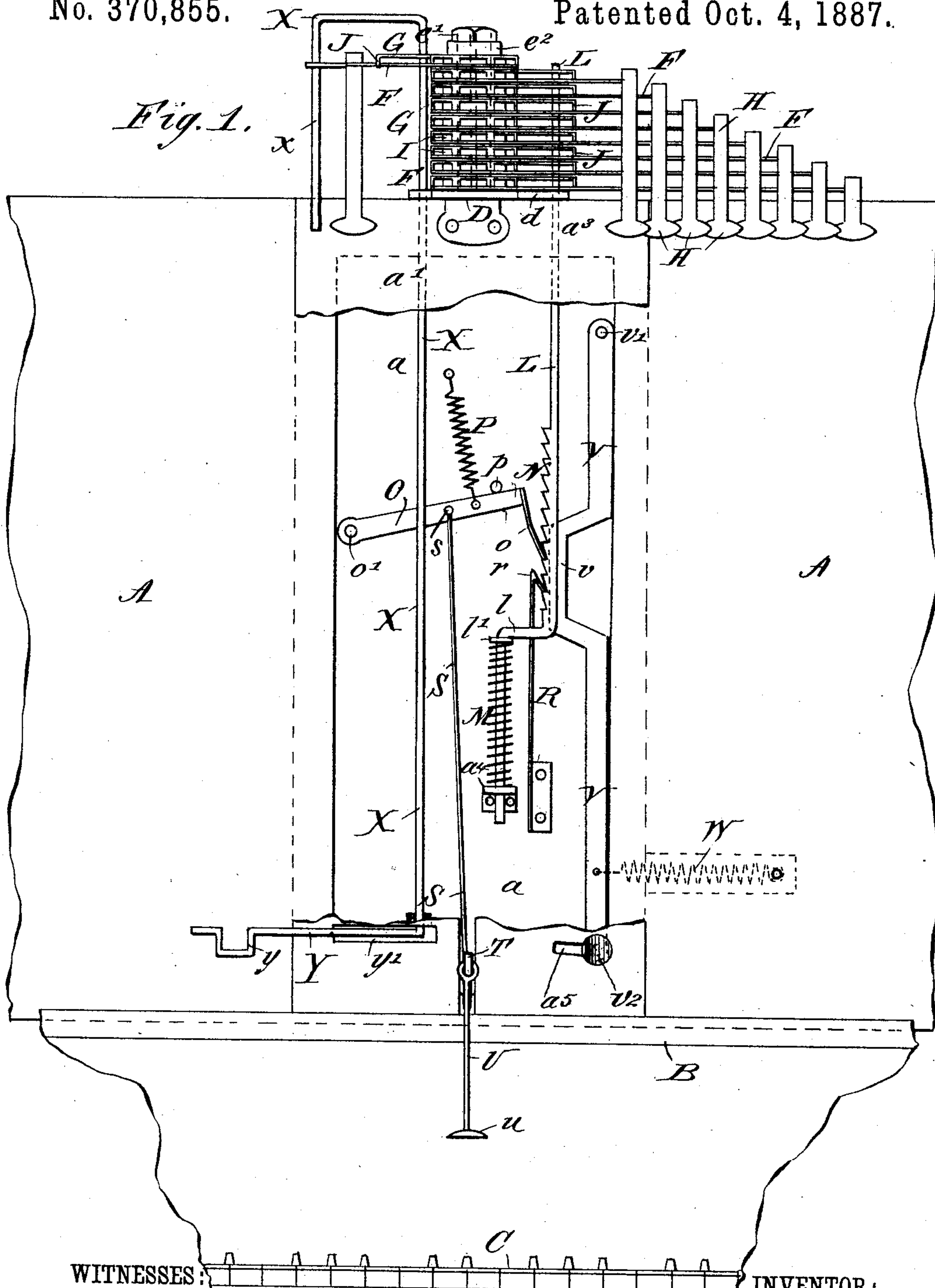
2 Sheets—Sheet 1.

A. J. COLE.

MUSIC LEAF TURNER.

No. 370,855.

Patented Oct. 4, 1887.



WITNESSES:
Wm Switcheil
C. Sedgwick

INVENTOR:
A. J. Cole
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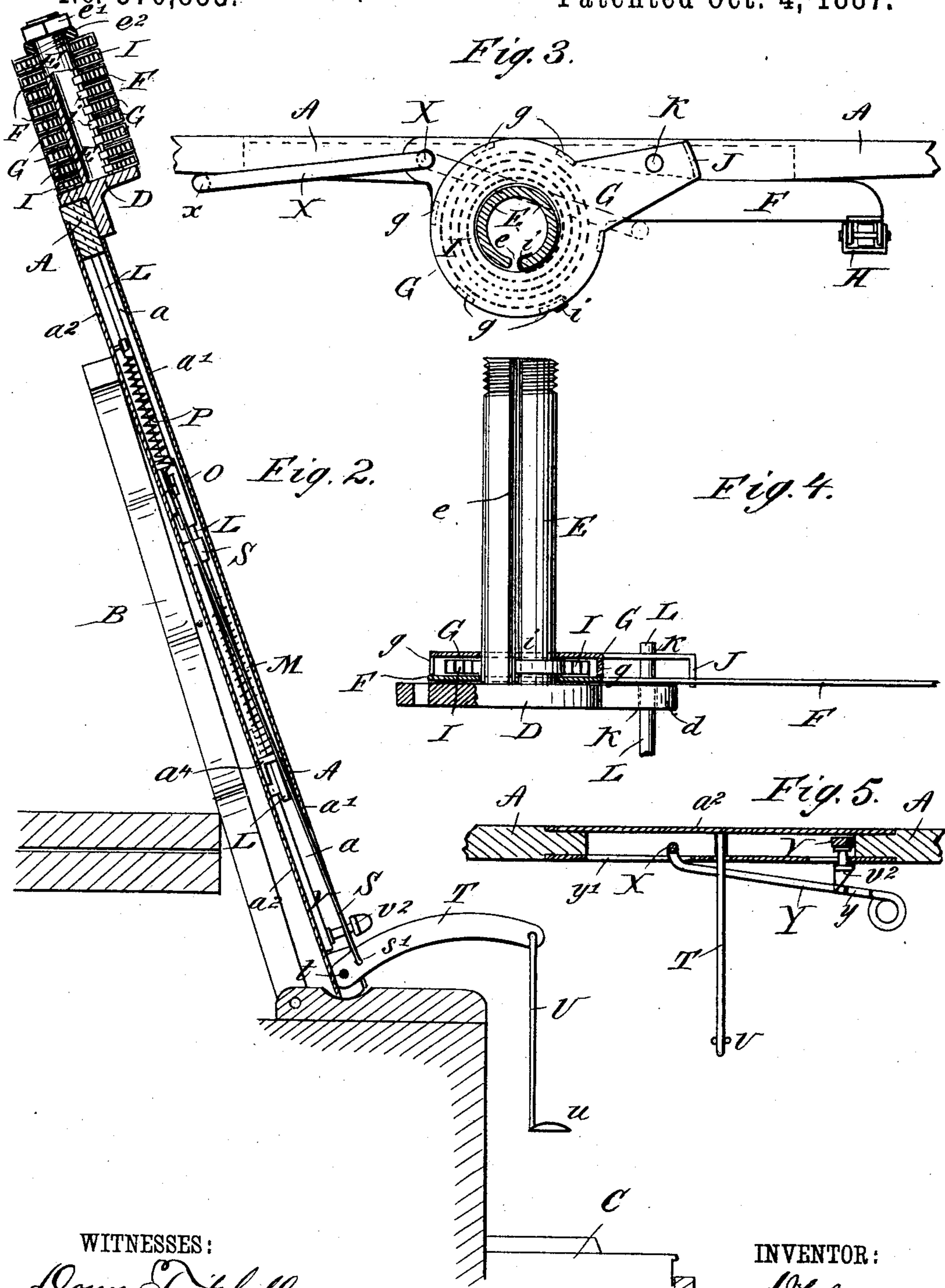
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UNITED STATES PATENT OFFICE.

ALBERT J. COLE, OF WATERLOO, IOWA.

MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 370,855, dated October 4, 1887.

Application filed February 10, 1887. Serial No. 227,120. (No model.)

To all whom it may concern:

Be it known that I, ALBERT JOHN COLE, of Waterloo, in the county of Black Hawk and State of Iowa, have invented a new and Improved Music-Leaf Turner, of which the following is a full, clear, and exact description.

My invention relates to a mechanically-operated device for automatically turning leaves of music for the convenience of the performer, but adapted also for turning the leaves of books; and the invention has for its object to provide a simple, efficient, durable, and convenient apparatus of this character.

The invention consists in certain novel features of construction and combinations of parts of the music-leaf turner, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of my improved music-leaf turner, partly broken away, and a portion of a piano or organ on which the turner is supported. Fig. 2 is a sectional side elevation of the same. Fig. 3 is an enlarged detail sectional plan view of parts of the leaf-turner mechanism. Fig. 4 is a sectional front elevation thereof, and Fig. 5 is a detail sectional plan view illustrating the action of the repeating device.

The back board or support, A, of the leaf-turner is shown broken away at both ends in Fig. 1, but it will have suitable length to support opened sheet or bound music, and will be placed against the ordinary music rack or rest, B, of a piano or other instrument having a key-board, C. The central portion of the back board, A, is recessed, as at *a*, to give space for some of the mechanism of the leaf-turner presently described, and this space may be inclosed by front and back plates, *a'* *a''*, of metal or other material.

To the top of the board A, at its center, there is fixed a plate, D, having an upwardly-projecting stem, E, which is preferably in the form of a tube and has a slot or recess, *e*, at one side, said stem forming a journal on which the music-leaf-turning arms F and their actuating levers or plates G are fitted for partial rotation. The arms F are flat plates of metal, having hubs bored or stamped out to fit the

stem E, and provided at their outer ends with clamps H of suitable form to hold the leaves of music to be turned, and the actuating-plates G are stamped-out pieces of metal provided at the margin of their hub portion, which is fitted on the stem E, with a series of short right-angularly-bent lips, *g*, which rest on the hub of arm F and form a box between the flat faces of the arm and plate hubs, in which a coiled spring, I, is placed. At its outer end the plate G is provided with a pendent lip or lug, J, which projects behind the next adjacent arm F and the plate G, and also a projecting lip or flange, *d*, on the plate D are provided with holes K, through which a trip-rod, L, of the turner mechanism is adapted to pass, as hereinafter explained. One end of the spring I is hooked at *i* into the slot or recess *e* of the stem E, and the other hook end, *i'*, of the spring engages one of the lips *g* of the plate G in a manner to cause the spring to be put in tension when the arm F and its plate G are swung over on the stem-bearing E toward the right hand, or as indicated by all but one of the arms in Fig. 1, and in Figs. 3 and 4 of the drawings. There will be as many sets of these leaf-clamping arms F H, plates G, and springs I as there are sheets of music to be turned. The drawings show nine sets of them, all placed on and around the same stem E, and held thereon by a nut, *e'*, and an interposed rubber washer, *e''*, and the arms are preferably made successively longer from the upper to the lower ones to allow the clamped sheets of music to lie flatter than they otherwise would.

The trip-rod L, which is adapted to pass through all the sets of arms F and plates G, as above stated, and as shown in Fig. 1 of the drawings, has a bearing at *a'* in the board A, and also below its bent portion *l* has a bearing in an angle-plate, *a''*, fixed to the board or one of its central face-plates, and between a collar, *l'*, fixed to the rod, and said bearing *a''*, there is placed on the rod a spring, M, which normally tends to lift the rod. The rod is provided with a series of rack-teeth, N, with which an elastic finger, *o*, on the end of a lever, O, is adapted to engage, said lever being pivoted at *o'* to the board A, to which and the lever there is attached a spring, P, which tends to lift the lever to a stop pin or stud, *p*,

on the board to enable the finger *o* to engage a next higher tooth of the rack N, the teeth of said rack being about as long as the depth of each set of the clamp-arms F and plates G.

5 An elastic pawl, R, fixed at one end to the board A, engages the rack by its hook-head *r* to hold the rod L against the lifting force of the spring M while the finger *o* is being lifted by the spring P to a higher tooth of the rack.

10 To the lever O there is attached at *s* one end of a rod, S, the other end of which is connected at *s'* to a lever, T, which is fulcrumed at *t* to the board A, and at its outer end carries a wire, U, having on it a finger-plate, *u*, over the key-board C, and in convenient position to be struck by the player to pull down the lever O and operate the rack-bar L.

A lever or rod, V, is pivoted at *v'* to the board A and extends downward to a slot, *a*⁵, 20 in said board, and a bent end, *v*², of rod V passes through the slot to allow the rod to be thrown to the left hand to cause a lateral bend or projection, *v*, of it to strike the finger *o* and pawl-head *r* to simultaneously disengage both 25 from the rack N after a lowering of the rod L by successive operations of the lever O, and thereby allow the spring M to force the rack-rod upward to initial operative position. A spring, W, connected to the rod V and to the 30 board A, normally draws the rod over to allow the parts *o r* to engage the rack-bar.

I provide what I call a "repeating device," which consists of a rod, X, which is journaled in the plate D and in suitable bearings on the 35 board A. The top of this rod X is bent twice to provide a vertically-ranging arm, *x*, which is adapted to move all the leaf-turning arms F back to their first position when the rod X is turned to the right hand by taking hold of 40 its lower laterally-bent handle or lever, Y, which is provided with a projection, *y*, adapted to strike the bent end *v*² of the rod V and force said rod to the left for removing the pawls *or* from the rack N to allow the rod L to be 45 forced upward by the spring M to retain the arms F in their first positions. The lever Y passes through a slot, *y'*, in the front of the board A.

The operation of the music-leaf turner is as 50 follows: When the trip-rod L is fully down, all the plates G and the arms F and their clamps H may be swung freely over to either side. The sheets or leaves of music which are not to be turned will be held to the back 55 board, A, by ordinary forked clamps, not necessary to show or describe, and when the plates G are retained by the rod L the sheets of music to be turned will be placed one at a time in the successive clamps H, commencing with 60 the clamp attached to the shortest arm F, and all the arms and the music held by them will then be swung around together to the right hand, or to the positions all but one of the arms occupy in Fig. 1 of the drawings, ready 65 to be turned over to the left hand, one by one, as the plates G are liberated from the rod L.

As the playing progresses and a leaf of music is to be turned, the performer simply touches the button *u* on the lever U as if it were one 70 of the keys C, which causes the lever O or its finger *o* to lower the rack-rod L the distance of one of the rack-teeth, which will draw the rod down from the uppermost arm-plate G, which unlocks it, so that the spring *l* is free to 75 instantly swing the arm around to the left hand, as in Fig. 1, with the leaf held by its clamp H, the pawl R meanwhile holding the trip-rod until the spring P draws the lever O up to the stop *p* to cause it to engage the next 80 higher tooth of the rack, and all is ready for turning the next leaf, and when this is to be done the button *u* will be depressed to again draw down the trip-rod to release the next leaf- 85 holding arm and plate, which will be instantly thrown around by its spring to turn the second leaf, and so on for every successive leaf of music, as will readily be understood.

Should it be desired to repeat the performance of the music, the player will simply take 90 hold of the lever Y of the rod X and turn it over toward the right hand, or to the position shown in Fig. 5 of the drawings, which will carry all the arms F back to the right hand, thus turning all the music-leaves at once to their first positions, and the projection *y* on the 95 rod-lever Y will strike the inclined face of the projecting end *v*² of the rod V and force it to the left hand, thereby pushing the pawls *o r* from the rack N and allowing the spring M to force the rod L up through all the arm-plates 100 G, thus locking them ready to be released one by one by the lowering of the rack-bar N, as above described. The rod X may now be 105 turned to the left by hand, or may remain to be carried over by the arm G, first thrown to the left by its spring I in turning the first leaf as the music is repeated.

It is obvious that the music-leaf holder and 110 turner may be used on a stand separate from a piano, organ, or other keyed instrument for holding and turning music during either vocal or instrumental performances.

Having thus described my invention, what I claim as new, and desire to secure by Letters 115 Patent, is—

1. In a music-leaf turner, the combination, 120 with a base-board, as A, and a bearing-pin, E, fixed thereto, of a series of leaf-turning arms, F, and plates G, fitted loosely on said pin, springs I, placed between the hubs of the parts F G and engaging the pin E and plates G, which plates are provided with holes K, a rod, 125 L, fitted to slide in the board A and adapted to the holes K of the plates G, and provided with a rack, N, having teeth about the length of the depth of the parts F G, a spring, M, normally forcing the rod L upward, a pawl-lever, O, pivoted to the board A and engaging said 130 rack N, a pawl, R, holding the rod while the lever O returns for engaging the next higher rack-tooth, a lever, T, pivoted to the board A, and a rod, S, connected to the levers O T, all

constructed and arranged for operation substantially as shown and described.

2. In a music-leaf turner, the combination, with a back board or support, as A, a series
5 of spring-actuated revoluble leaf-turning arms held thereto, and a sliding rod forming a detent to said arms, of a rack, N, on said rod having teeth about the length of the depth of the arms, a spring, M, normally forcing the
10 rod upward, a pawl-lever, O, pivoted to the board A and engaging said rack N, a pawl, R, holding the rod while the lever O returns for engaging the next higher rack-tooth, a lever, T, pivoted to the board A, and a rod, S,
15 connected to the levers O T, substantially as described, for the purposes set forth.

3. In a music-leaf turner, the combination, with a base-board, A, bearing-pin E, spring-actuated leaf-turning arms F G, the parts G
20 having lugs J and holes K, a rack-rod, L N, spring M, lever O, pawl R, rod S, and lever T, constructed and arranged for operation substantially as specified, of a rod, U, pendent from lever T and provided with a finger-plate,
25 u, adapted to a position over the key-board of an instrument when the leaf-turner is placed against the music-rack of the instrument, substantially as described, for the purposes set forth.

30 4. In a music-leaf turner, the combination, with a back board or support, a series of independently-revoluble leaf-turning arms, a spring-actuated rack-rod, L N, adapted to re-

tain said arms, and pawls engaging the rack to actuate and hold the rod, substantially as
35 specified, of a bar, V, pivoted to the support A and adapted to disengage the pawls from the rack, substantially as described, for the purpose set forth.

5. In a music-leaf turner, the combination, 40 with a back board or support, as A, a series of independently-revoluble leaf-turning arms, a spring-actuated rack-rod, L N, adapted to retain said arms, pawls engaging the rack-rod to actuate and retain it, and a bar, V, piv- 45 oted to the support A and adapted to disengage the pawls from the rack, substantially as specified, of a repeating device comprising a bent rod, X x Y y, journaled on the support A and adapted, when turned, to carry all the 50 leaf-turning arms together to first positions and to move the bar V to liberate the rack-rod to allow its projection to retain the arms, substantially as shown and described.

6. In a music-leaf turner, the leaf holding 55 and turning devices, comprising an arm, F, fitted to an axial pin, a plate, G, on said pin, and provided with a lug, J, bearing on the arm F, and with a hole, K, to receive a retaining and trip rod, and a spring, I, engag- 60 ing the axial pin and the plate G, substantially as shown and described.

ALBERT J. COLE.

Witnesses:

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H. A. SNYDER.