(No Model.) 2 Sheets—Sheet 1.

C. NICHOLSON.

MUSIC LEAF TURNER.

No. 589,851. Patented Sept. 14, 1897.

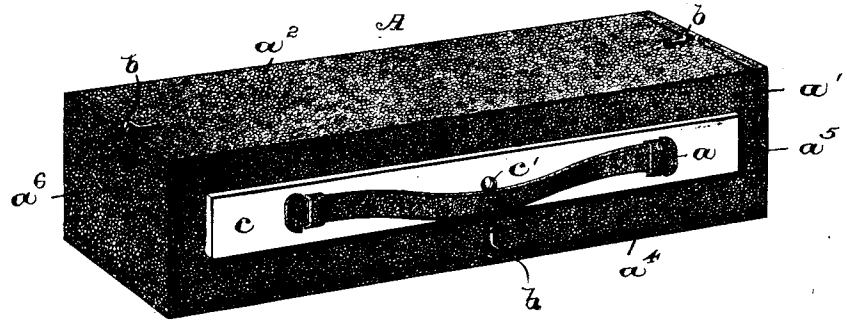


FIG. 1

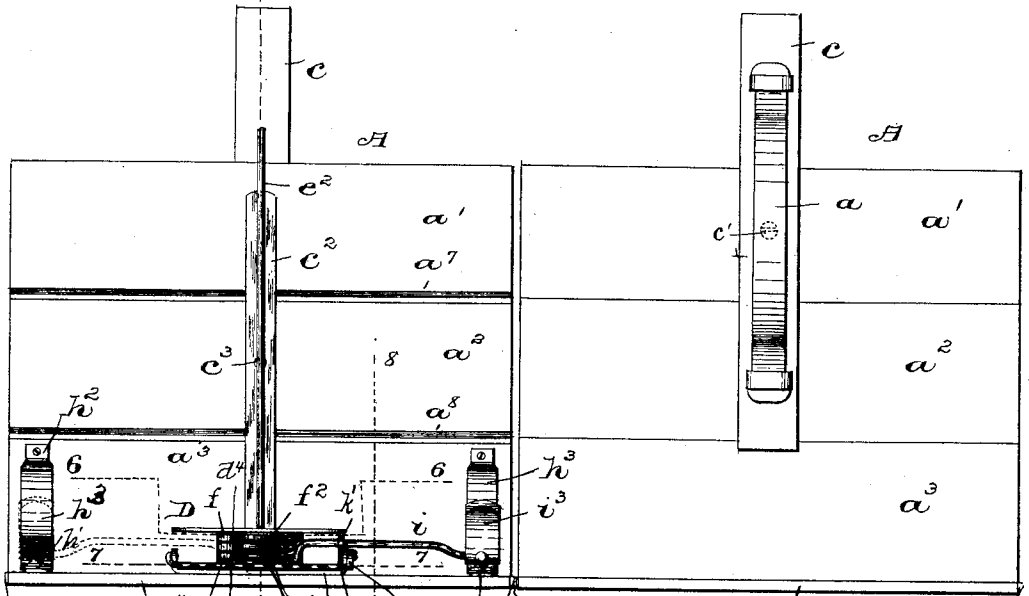


FIG. 2

FIG. 3

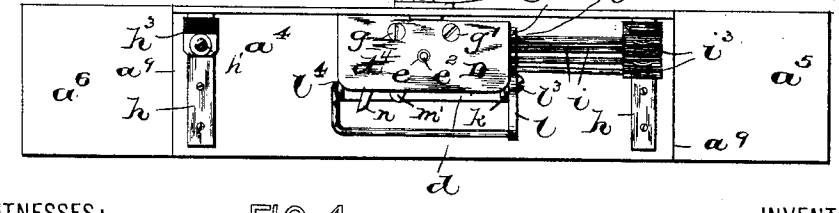


FIG. 4

WITNESSES:

Wm. H. Campbell Jr.

Mary J. Crandell

INVENTOR:

CHARLES NICHOLSON,

BY

Fred'k C. Fraentzel,

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

C. NICHOLSON.

MUSIC LEAF TURNER.

No. 589,851. Patented Sept. 14, 1897.

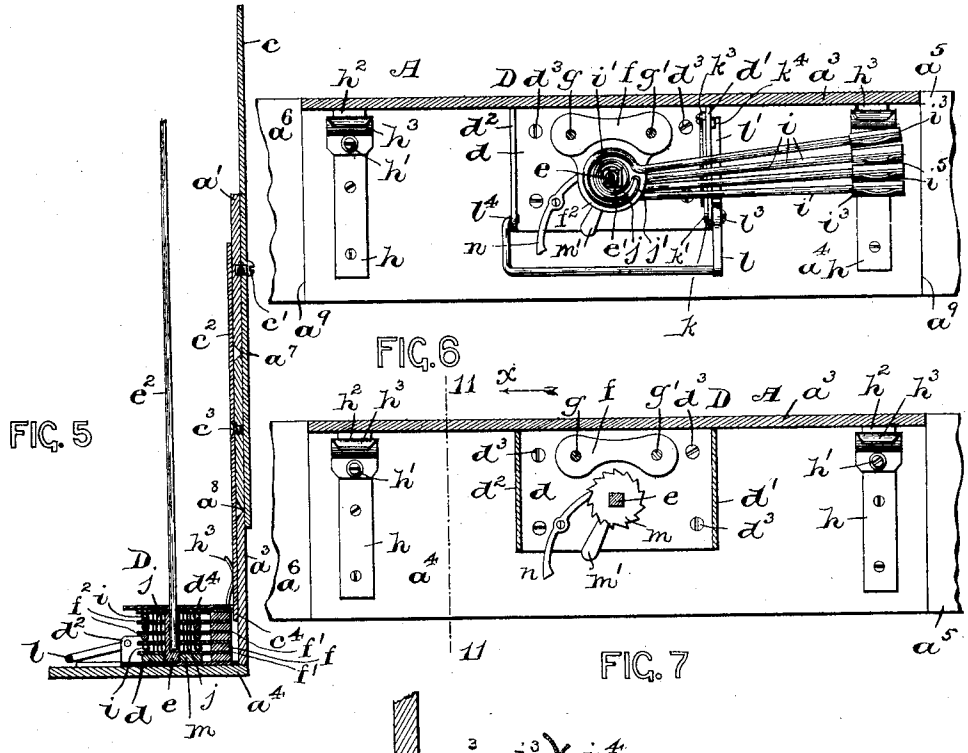


FIG. 5

FIG. 6

FIG. 7

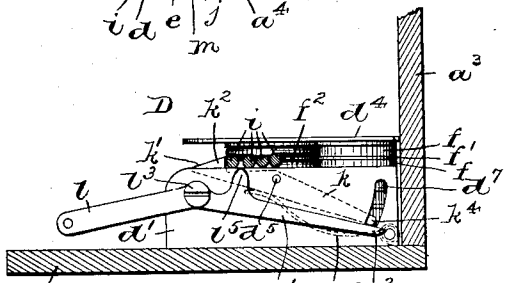


FIG. 8

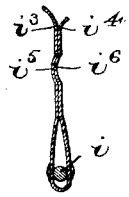


FIG. 10

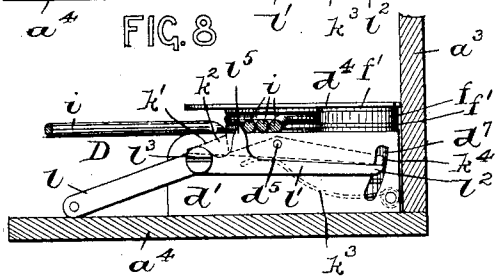


FIG. 9

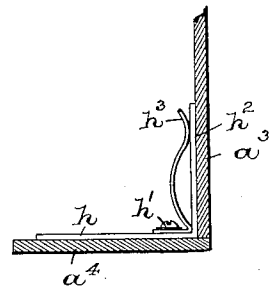


FIG. 11

WITNESSES:

Wm. H. Canfield Jr.

Marcus Brundell.

INVENTOR:

CHARLES NICHOLSON.

BY

Fred C. Fraentzel,

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES NICHOLSON, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO FRANK H. DOUGLAS, OF NEWARK, NEW JERSEY.

MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 589,851, dated September 14, 1897.

Application filed August 14, 1896. Serial No. 602,714. (No model.)

To all whom it may concern:

Be it known that I, CHARLES NICHOLSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Music-Leaf Turners; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

This invention has reference to a novel construction of music-leaf turner, and has for its object to provide a device of this class in which the leaf-turning mechanism is arranged in a compact box or casing, ready for carrying, the several sides of which box can be unfolded and held in an open and rigid position to provide a music-rack for the book or sheet-music, the leaves of which can then be operatively connected with the turning-arms operated by the mechanism of the device and properly turned at the will of the player.

A further object of this invention is to provide a simply-constructed device of this character which shall be inexpensive to make and shall be positive and reliable in its operation.

The invention therefore consists in the novel construction of music-leaf turner herein described, and also in the novel arrangements and combinations of parts to be hereinafter fully set forth, and finally embodied in the clauses of the claim.

With these objects in view the nature and operation of my invention will be readily understood from the accompanying specification and drawings, in which—

Figure 1 is a perspective view of the device, illustrating the box or casing closed and provided with a handle for carrying the same. Fig. 2 is a front view of the device, representing the collapsible sides of the casing held in their open relation to each other and clearly illustrating the leaf-turning mechanism. Fig. 3 is a back view, and Fig. 4 a top or plan view, of the device. Fig. 5 is a vertical section taken on line 5 5 in Fig. 2. Fig. 6 is a horizontal section, taken on line 6 6 in said Fig. 2, to more clearly illustrate the operating mechanism for actuating the leaf-turning arms; and Fig. 7 is a similar section taken on line 7 7, also in said Fig. 2. Fig. 8 is a vertical section, taken on line 8 8 in Fig 2, illustrating certain detents or catch-plates for retaining the spring-actuated leaf-turning arms in their normal and inoperative positions; and Fig. 9 is a similar view with the several parts represented in their operated positions to release one of a number of said sheet-turning arms at will. Fig. 10 is a sectional view of one of the clamping or holding plates at the end of each sheet-turning arm. Fig. 11 is a vertical section on line 11 11 in Fig. 7, looking in the direction of arrow x.

Similar letters of reference are employed in all of the above-described views to indicate like parts.

In said drawings, A represents the casing of the device, which when closed, as indicated in Fig. 1, forms a box provided on the outer side of the casing with a suitable handle a, of any desirable construction, to permit the carrying of the device, when the sides a', a^2, a^3, and a^4 and the end pieces a^5 and a^6 are folded and held in their folded positions by means of suitable catches or locks b, as clearly illustrated.

When the several sides of the casing A are placed in their open relation to each other, the sides a', a^2, and a^3 being hinged together, as at a^7 and a^8, and the ends a^5 and a^6 being hinged to the side or base a^4, as at a^9, then a rack is formed, as clearly represented in Fig. 2, which can be placed upon the ordinary rack of a piano in the manner of a book placed thereon. The said end pieces or sides a', a^2, and a^3 are held in their open and rigid relation to each other by a bar c, which is pivotally arranged on a pin or screw c' on the rear surface of the side a', and also by a bar c^2, pivotally arranged on a pin or screw c^3 on the front surface of the side a^2 of the device, and while the free end c^4 of the bar c^2 is forced behind the casing D of the mechanism for actuating the leaf-turning arms said sides a', a^2, and a^3 form a comparatively rigid plate, against which the book or sheet-music

can be supported. Said casing D consists, essentially, of a base-plate d, having the sides d' and d^2, and is secured to the base a^4 of the casing A by means of screws or pins d^3, which pass through perforations in said base-plate d, as clearly indicated in Fig. 6. On said base-plate d is a centrally-arranged post e, which is capable of a partial rotative movement in a perforation in said base-plate, and f and f' are alternately-arranged plates, said plates f' being provided with outwardly-extending portions f^2, which are perforated and are arranged over said post e to form the alternate spaces, as will be clearly seen from an inspection of said Fig. 5. Said plates f and f' are provided with suitable holes, and fitted upon the upper one of said plates is a cover d^4, having a perforation, into which extends the end of said post e, as shown. Said plate or cover d^4 is also provided with holes corresponding in position to the holes in the plates f and f' to receive the tightening-screws g and g', the shanks of which are passed through the holes in the cover d^4 and the plates f and f' and have their screw-threaded ends screwed into the base-plate d, as will be clearly understood. Said post e may be provided with a perforation or hole e', into which I can place the end of a rod or stem e^2, and between the same and the rack formed by the sides a', a^2, and a^3 can be placed the open book or sheet-music for the purpose of securely retaining the same in its open position upon the rack. As will be seen from said Fig. 2, I have secured to the two sides a^3 and a^4, at or near the ends thereof, a pair of brackets h, each of which has secured thereto, on a pin or screw h', a spring-clamp h^3, between which and the portions h^2 of the brackets h the covers of the book or sheet-music can be slipped and are securely held in such clamped positions.

In the spaces between the several portions f^2 of the plates f' and secured to the post e, which is preferably made rectangular in cross-section, as shown, I have arranged certain spiral springs j, having their free ends j' suitably connected with the looped ends i' of certain leaf-turning arms i, one spring for each arm, as will be clearly understood from an inspection of the several figures of the drawings.

As will be seen from Figs. 8 and 9, there is pivotally arranged on a pin d^5 on one side of the end piece d' of the casing D a detent k, having an upwardly-inclined nosing k', which terminates in a holding-tooth k^2. Said toothed end portion of this detent is normally forced above the upper edge of the end piece d' by the action of a spring k^3, suitably secured to said end piece d', and exerts a constant pressure against the under surface of said detent k to force its toothed end upwardly, as has been stated. At the back of said detent is a finger k^4, which extends at a right angle, or approximately so, from the body portion of said detent, passing through a slot d^7 in said end piece d'. In operative engagement with the free end of said finger k^4 on the detent k is the end l^2 of an arm l', which is connected with a suitable operating-lever l, pivotally attached to the two end pieces d' and d^2 of the casing D, as at l^3 and l^4, in the manner clearly illustrated in Figs. 6, 8, and 9 of the drawings. Between the free end of the arm l' and the pivotal support l^3 of said operating-lever l the arm l' is provided with an upwardly-extending holding or lock tooth l^5.

To cause the proper tension of the several springs j, I have secured to the post e, in the space between the portion f^2 of the lowest plate f' and the upper surface of the base-plate d, a ratchet-wheel m, having a lever m', whereby the post e can be partially turned, and in consequence thereof the tension of the springs j can be adjusted, and when adjusted held by the contact of a pivoted pawl n, which engages with the teeth of said ratchet-wheel m, as clearly shown in Fig. 7.

Secured to the free ends of the leaf-turning arm i are certain grasping or holding devices, as i^2, made from spring metal and bent to form the two holding or grasping jaws i^3 and i^4, between which a leaf of the book or sheet-music can be slipped and held by friction. To secure a more positive holding-contact, each jaw i^3 and i^4 may be respectively provided with indentations i^5 and i^6, substantially as illustrated in Fig. 10, and the purposes of which are evident.

The operation of the device is substantially as follows: When the several leaves of the book or sheet-music have been arranged in and are held between the jaws of the holding devices i^2 on the arms i, then said arms are in their normally-inoperative positions, (indicated in Figs. 6 and 8,) being held in this position by the outermost arm i coming in contact with the holding-tooth k^2 on the detent k. When it is desired to operate the first leaf-turning arm i, the player lightly touches the operating-lever l, bringing the same to the position indicated in said Fig. 9. Immediately the end l^2 of the arm l operates the finger k^4, connected with the detent k, whereby its holding-tooth k^2 is withdrawn from its holding engagement with the first arm i, which by the action of the spring j is caused to fly over and assume the position indicated in dotted outline in Fig. 2. At the same time while the lever l is being lowered and the arm l' raised the hereinabove-mentioned tooth or stop l^5 is raised above the edge of the end piece d' of the casing D, and thereby causes the retention of the remaining leaf-turning arms i in their normally-inoperative positions, as will be clearly understood. As soon as the player removes the hand from the lever l the spring k^3 causes the return of the detent k to its initial position (indicated in said Fig. 8) and the withdrawal of the tooth or stop l^5 from in front of the second arm i,

which then is immediately brought into holding engagement with the tooth k^2, where it is held until released by again pressing the lever l downward in the manner just described. Each succeeding arm i, of which there may be any desirable number and actuating mechanism therefor, may be operated in a like manner for the succeeding leaves of the book or sheet-music.

From the above description it will be seen that I have produced a music-leaf turner which is simple and operative in its construction, and has this great advantage that the rack portion thereof can be folded and can be closed to form a box or casing in which the operating mechanism is inclosed, the casing being provided with any suitable form of handle for carrying the device.

I am aware that many changes may be made in the details of construction. Hence I do not limit my present invention to the exact arrangements and combinations of the parts herein described and illustrated in the accompanying drawings.

Having thus described my invention, what I claim is—

1. A music-leaf turner, consisting, essentially, of a casing having hinged sides a', a^2, a^3 and a^4, and hinged end pieces, said sides being constructed to form a box when folded and a music-rack when opened, a bar c^2, pivotally secured on the front surface of the side a^2, and a leaf-turning mechanism arranged in said casing, said bar being adapted to be turned against the several sides of the casing to hold them in their open and rigid relation to each other, substantially as and for the purposes set forth.

2. A music-leaf turner, consisting essentially, of a casing having hinged sides a', a^2, a^3 and a^4, and hinged end pieces, said sides being constructed to form a box when folded and a music-rack when opened, means connected with said sides to hold them in opened and rigid relation to each other, a leaf-turning mechanism in said casing, and a pair of brackets h, having portions h^2 and spring-clamps h^3 connected with and secured to said brackets by pins h', substantially as and for the purposes set forth.

3. A music-leaf turner, consisting essentially, of a casing A, having hinged sides a', a^2, a^3 and a^4, and hinged end pieces, said sides being adapted to form a box when folded and a music-rack when opened, a bar c^2 pivotally secured on the front surface of the side a^2, and a bar c pivotally secured on the rear of the side a', said bars being adapted to be turned against said several sides to hold them in opened and rigid relation to each other, substantially as and for the purposes set forth.

4. A music-leaf turner, consisting essentially, of a casing A, having hinged sides a', a^2, a^3 and a^4, and hinged end pieces, said sides being adapted to form a box when folded and a music-rack when opened, a bar c^2 pivotally secured on the front surface of the side a^2, and a bar c pivotally secured on the rear of the side a', said bars being adapted to be turned against said several sides to hold them in open and rigid relation to each other, and a leaf-turning mechanism arranged in said casing, substantially as and for the purposes set forth.

5. In a music-leaf turner, a leaf-turning mechanism, comprising a base-plate d provided with an end piece d' having a slot d^7, a post on said base-plate, and a series of spring-actuated leaf-turning arms on said post, a detent k pivoted on one side of said end piece d' having a holding-tooth k^2, adapted to hold said arms in their inoperative positions, and a finger k^4 extending laterally from the end of said detent and projecting through said slot d^7, and a pivoted lever on the other side of said end piece d' having an arm l' adapted to engage with said finger k^4, and a stop or tooth l^5 on said arm l', adapted to be brought between the first two leaf-turning arms, substantially as and for the purposes set forth.

6. In a music-leaf turner, a leaf-turning mechanism, comprising a base-plate d, a post thereon, having an end piece d' provided with a slot at or near one end thereof, a series of volute or spiral springs having their inner ends secured to said post, a series of leaf-turning arms i having looped ends i' in which said springs are arranged and said springs having their outer ends secured to said looped ends i', a plate or end piece d' on said base-plate, a detent k having a holding-tooth k^2 adapted to hold said arms in their inoperative positions, a finger k^4 on said detent, extending laterally through said slot in said piece d', and a pivoted lever having an arm l' adapted to engage with said finger k^4, and a stop or tooth l^5 on said arm l', substantially as and for the purposes set forth.

7. In a music-leaf turner, a casing D, comprising a base-plate d, a post thereon, plates f and f', said plates f' being perforated and arranged over said post, a series of volute or spiral springs arranged in the spaces formed between said plates f', having their inner ends secured to said post, a series of leaf-turning arms i having looped ends i' in which said springs are arranged, and said springs having their outer ends secured to said looped ends i', a plate or end piece d' on said base-plate, having a slot d^7, a detent k having a holding-tooth k^2 adapted to hold said arms in their inoperative positions, a finger k^4 on said detent, extending laterally through said slot d^7, and a pivoted lever having an arm l' adapted to engage with said finger k^4 on the detent, and a stop or tooth l^5 on said arm l', substantially as and for the purposes set forth.

8. In a music-leaf turner, a casing D, comprising a base-plate d, a hollow post thereon, a vertical rod or stem removably arranged in said post, plates f and f', said plates f' being perforated and arranged over said post, a series of volute or spiral springs arranged in the spaces formed between said plates f', hav-

ing their inner ends secured to said post, a series of leaf-turning arms i having looped ends i' in which said springs are arranged, and said springs having their outer ends secured to said looped ends i', a plate or end piece d' on said base-plate, having a slot d^7, a detent k having a holding-tooth k^2 adapted to hold said arms in their inoperative positions, a finger k^4 on said detent, extending laterally through said slot d^7, and a pivoted lever having an arm l' adapted to engage with said finger k^4 on the detent, and a stop or tooth l^5 on said arm l', substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 12th day of August, 1896.

CHARLES NICHOLSON.

Witnesses:
D. S. PLUMB,
FREDK. C. FRAENTZEL.