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PATENTED DEC. 13, 1904.

E. L. GAGE & E. D. McCLISH.

MUSIC LEAF TURNER.

APPLICATION FILED MAR. 12, 1904.

NO MODEL.

Fig. 1.

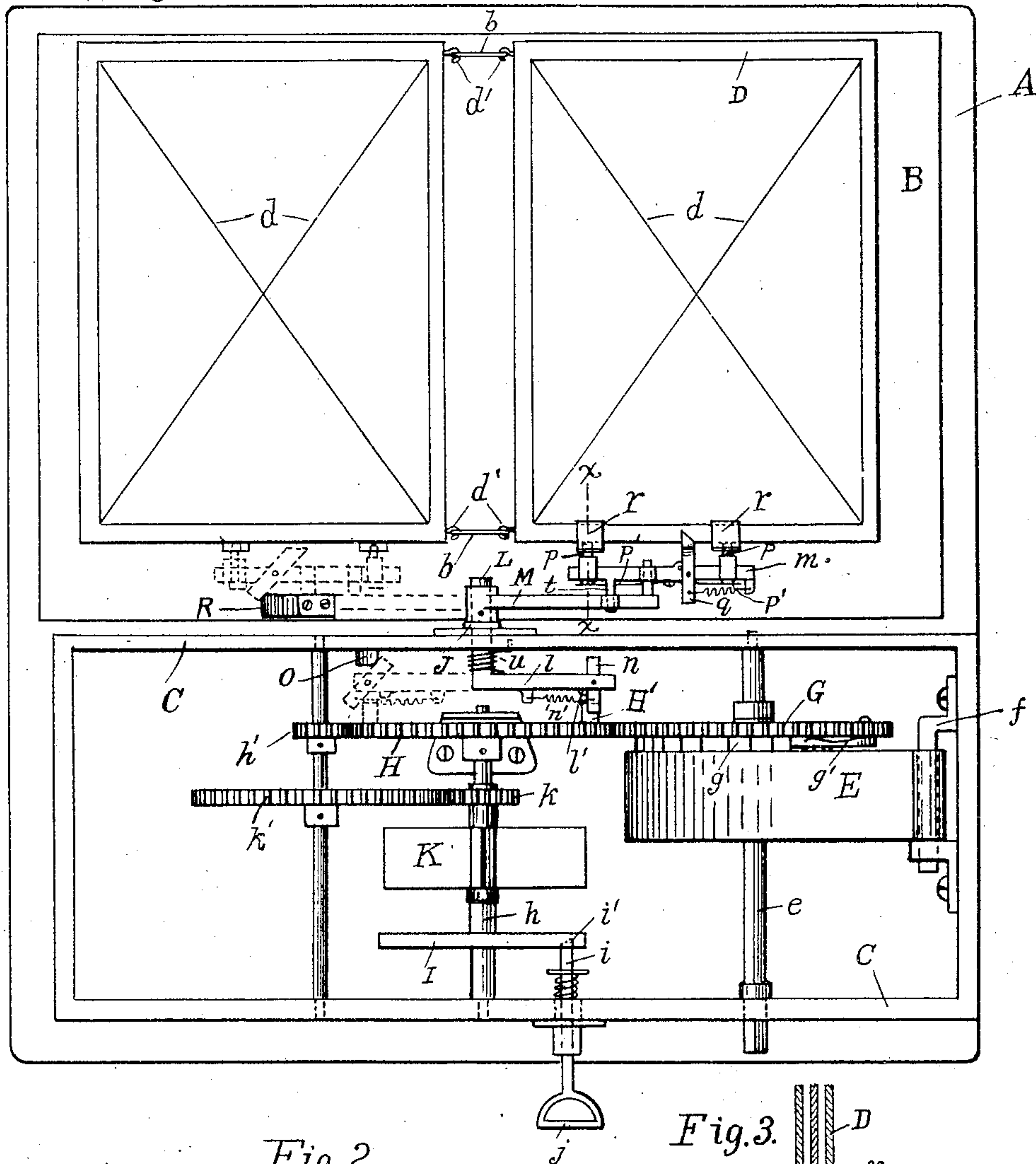


Fig. 2.

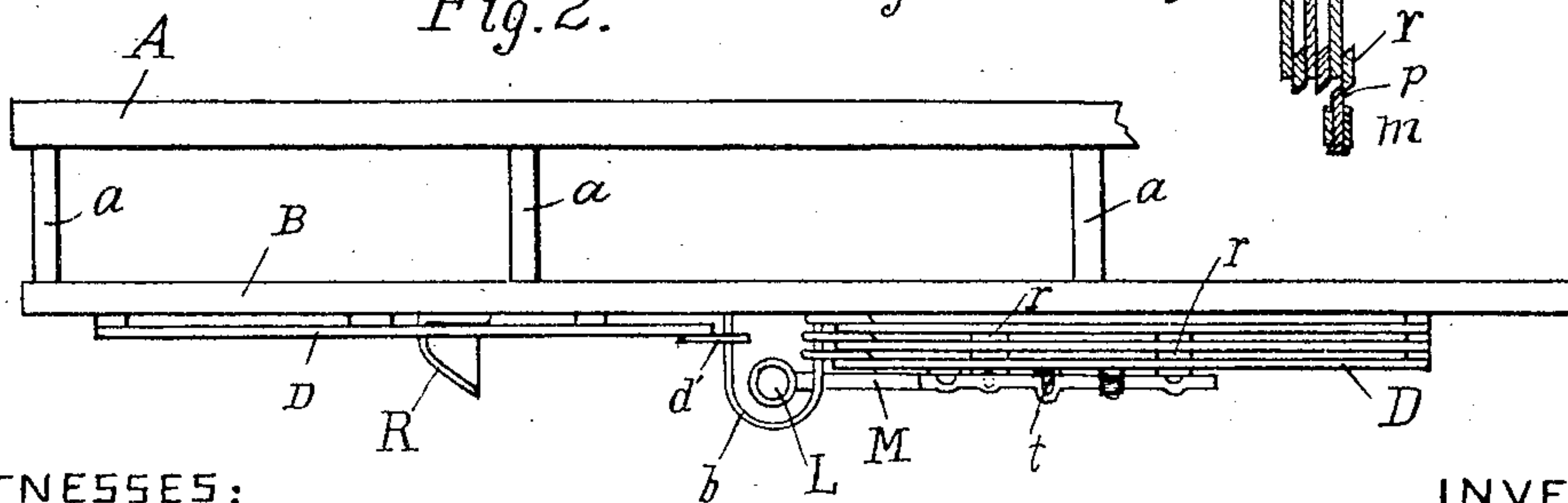
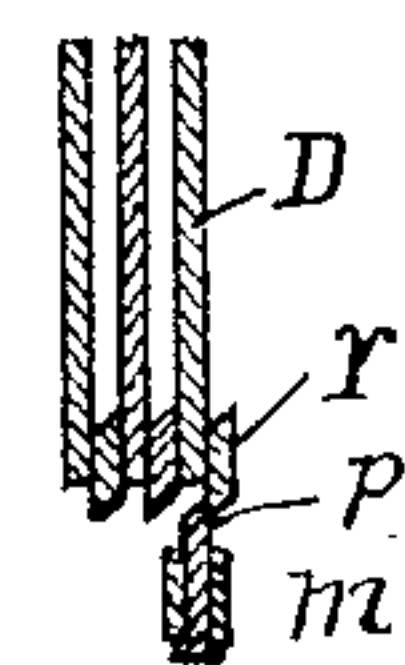


Fig. 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

EDWIN L. GAGE AND EARL D. McCLISH, OF TOLEDO, OHIO, ASSIGNORS  
TO ALBERT KRATT, OF TOLEDO, OHIO.

## MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 777,200, dated December 13, 1904.

Application filed March 12, 1904. Serial No. 197,822. (No model.)

*To all whom it may concern:*

Be it known that we, EDWIN L. GAGE and EARL D. McCLISH, citizens of the United States, and residents of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Music-Leaf Turners; and we 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 the letters of reference marked thereon, which form a part of this specification.

Our invention relates to instruments for turning sheets of music, and is especially adapted for use in connection with pianos, music-racks, and the like; and it has for its object to simplify and improve upon the construction of devices of this class by the provision of an oscillatory arm provided with suitable clamping means adapted to successively engage and turn the music-supporting frames as the rendition of the music may require, thereby obviating the necessity of the use of a plurality of turning-arms for that purpose.

The invention is fully described in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is an elevation of the mechanism and parts comprising our invention. Fig. 2 is a top end view of the music-frames, turning-arm, and supporting-board shown in Fig. 1; and Fig. 3 is a vertical sectional view taken on the dotted line *xx* in Fig. 1 and showing the manner of engaging the music-frames for the purpose of turning the same.

Referring to the drawings, A represents the base-board on which the several parts of the invention are mounted, B the platform that is elevated by the standards *a* above the base-board A and supports the music-frames D, and C the box or casing with the lid removed, in which is mounted the actuating mechanism for turning the frames D.

The frames D, which are shown as being rectangular in shape, are made from any suitable light material and provided with the spanning-wires *d d'*, which connect the diag-

onally opposite corners thereof and are intended to act as supports for the sheets of music and prevent their falling through the open portions of said frames as they are being turned. Retaining-hooks *d' d'* project from the inner edges of the frames D and loosely engage the loops *b b*, which are rigidly mounted in the platform B and project perpendicularly therefrom, thus providing simple means about which the frames are adapted to be turned, as hereinafter described. The hooks *d' d'* are open at their lower sides to enable the frames to be easily removed from or others to be engaged with said loops as the number of sheets of music to be used may require.

Energy is imparted to the music-turning parts of our invention from a spring-motor, which comprises a coiled spring of the desired strength and a gear-train similar to a clock. The spring E of the motor has its inner end secured to the winding-shaft *e* and its outer end engaged with the lug *f*, which is secured in adjacent position to the box-casing C, the said shaft being mounted in suitable bearings provided in said casing and having one end extended and squared to receive a winding-key. A loose gear G is mounted on the shaft *e* at one side of the spring E and is adapted to be moved by said spring through the medium of the ratchet *g* and the dog *g'*, the former being keyed to the shaft *e* between said spring and gear and the latter being pivoted to the gear G.

A gear H and disk I are keyed to the shaft *h*, which is suitably mounted within the casing C and caused to be rotated by reason of said gear meshing with and being driven by the gear G and to have its rotation controlled from without said casing by means of the spring-pressed catch or dog *i*, which normally engages a seat *i'*, provided in said disk, and is released therefrom to permit a single rotation of said shaft by the operator pulling on the handle *j*, connected thereto.

A fan-brake K is provided to govern the speed of the driving mechanism, it being loosely mounted on the shaft *h* and communicating with the gear H through the pinion



5  $k$ , which is mounted on a sleeve with said fan, the gear  $k'$ , and pinion  $k''$ . While we have shown and described a particular form and arrangement of energizing mechanism, it will be apparent that any other suitable mechanism may be employed for the purpose.

10 Rotatably mounted in a bushing  $J$ , provided in the casing in axial alinement with the shaft  $k$ , is the crank-shaft  $L$ , which carries a crank-arm  $l$  on its inner end and a crank-arm  $M$  on its outer end, as shown in Fig. 1. A pivotally-mounted finger  $n$  projects at right angles from the crank  $l$  in the path of a stud  $H'$ , provided on the adjacent face of the gear  $H$ , and is adapted to be normally retained in such position by means of the contraction-spring  $n'$ , which tends to hold said finger in engagement with the lug  $l'$  on the crank  $l$ . The finger  $n$  and arm  $l$  are adapted to be given a partial revolution as the gear  $H$  is revolved, the said finger  $n$  being released from the stud  $H'$  at a predetermined point in its movement by engagement with the stationary cam  $o$ , which lies in the path of the extended end of said finger and causes its end to be moved out of the path of said stud, as shown by dotted lines in the drawings.

30 Pivotally mounted on a stud at the end of the crank-arm  $M$  is the oscillatory member  $m$ , which is adapted to carry the reciprocating dogs  $p$  and oscillatory finger  $q$  for gripping and turning the frames  $D$  as the crank-arm is revolved. The dogs  $p$  are mounted transversely of the member  $m$  in suitable castings provided on the ends thereof and are caused to normally project in the path of the beveled-edged lugs  $r$ , which are secured to the frames  $D$  by means of the springs  $p'$ , bearing against their opposite ends, the projecting ends of said lugs being also beveled to adapt them to more readily pass to the opposite sides of said lugs, as shown in Figs. 1 and 3, as the arm returns after turning a frame to engage another. The oscillatory finger  $q$  is mounted and operated in the same manner as the finger  $n$  on the crank-arm  $l$ , the said finger  $q$  being adapted to engage the outer surface of the adjacent portion of the top frame  $D$ , thus stopping the returning movement of the member  $m$  as soon as the dogs  $p$  have passed beyond the lugs  $r$  and to be thrown out of engagement with said frame at a predetermined point in its turning movement by contact with a stationary cam  $R$ , as shown by dotted lines in Fig. 1.

60 In order to permit the member  $m$  to have a limited oscillatory movement with relation to the crank-arm  $M$  to enable said member to accommodate itself to the changing plane of the frames  $D$  with relation to the axis of said crank as the right-hand pile becomes reduced, we provide a stud  $t$  on the member  $m$ , which is adapted to have a limited oscillation in an alining slot provided in the crank-arm  $M$ .

65 We have shown a coiled spring  $u$  as being

mounted on the shaft  $L$  for causing a return of the said shaft and connected parts to the position shown in Fig. 1 after one of the frames  $D$  has been turned, the said spring having one end secured to the casing  $C$  and the other to the crank-arm  $l$ . If desired, the upper edges of the lugs  $r$  on the frames  $D$  may be inwardly beveled to provide a rest for the sheets of music on said frame.

75 From the above description it will be apparent that when it is desired to turn a sheet of music the operator releases the catch or dog  $i$  from engagement with the disk  $I$ , thus permitting the gear  $H$ , which is energized through the gear  $G$  by the spring  $E$ , to make a single revolution, the same being stopped at the end of such revolution by the dog  $i$  again seating in the socket provided for its reception in the disk  $I$ . As the gear  $H$  is rotated the stud  $H'$  thereon engages the finger  $n$  on the crank  $l$  and the crank-arm  $M$  and connected parts are thereby caused to make a half-revolution about their axis, carrying with them the top frame on the right-hand pile, which is gripped between the finger  $q$  and spring-pressed dogs  $p$ , and depositing it on the pile to the left of the loops  $b$ . Near the end of the half-revolution of the crank-arms the finger  $q$ , which is then in engagement with the inner side of the frame being turned, is released from such engagement by contact with the cam  $R$ , and the finger  $n$  is released from engagement with the stud  $H'$  by contact with the cam  $o$ , thereby permitting the clamping means, which is actuated by the spring  $u$ , to be returned to engage the next succeeding frame  $D$ .

105 It is obvious that any suitable mechanism may be employed for actuating the turning-arm and that such changes in the form, proportions, and minor details of construction of the parts as fairly fall within the scope of our invention may be made without departing from the spirit or sacrificing any of the advantages thereof.

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

1. In a music-leaf turner, a series of swinging frames, a revolubly-mounted arm, clamping means carried by said arm adapted to engage a portion of one of said frames, means for releasing said clamping means after a frame has been turned, mechanism for causing a partial revolution of said arm for the purpose of turning the engaged frame, and means for causing a return of said arm and clamping means to engage with another frame.

2. In a music-leaf turner, a series of swinging frames, a revoluble arm, clamping means carried by said arm and adapted when at rest to engage a frame to be turned, mechanism for causing a partial revolution of said arm and clamping means, means for releasing said clamping means from engagement with said



frame at a predetermined point in its movement, and means for causing a reverse movement of said clamping means when released to adapt it to engage the next frame to be turned.

3. In a music-leaf turner, a series of frames, a shaft, an arm carried by said shaft, clamping means carried by said arm adapted to successively engage said frames, mechanism adapted when thrown into operation to cause a movement of said shaft and arm, means for disconnecting said mechanism from said shaft and arm at a predetermined point, and means for releasing said clamping means from the engaged frame at a predetermined point in its movement.

4. In a device of the class described, a series of music-carrying frames, a crank-arm, an oscillatory member carried by said arm adapted to accommodate itself to the changing plane of said frames, frame-engaging means carried by said member, means for releasing said engaging means from a frame at a predetermined point in its swinging movement, and mechanism for actuating said arm to turn the engaged frame.

5. In a music-leaf turner, a series of swinging frames, a crank-arm, clamping members carried by said arm adapted to engage opposite sides of the frame to be turned, mechanism for imparting motion to said crank-arm for turning the engaged frame, and means disposed in the path of the clamping member engaging one of the sides of a frame for causing a release of said member to permit the clamping parts to return to their normal position.

6. In a music-leaf turner, a series of swinging frames, a shaft, a crank-arm on said shaft, an oscillatory member carried by said arm, spring-pressed reciprocatory dogs and an os-

cillatory finger carried by said member and adapted to normally engage opposite sides of one of said frames, mechanism for causing a partial rotation of said shaft, and means disposed in the path of said finger for releasing its engagement with said frame at a predetermined point in its movement preparatory to the return of the clamping parts to engage another frame.

7. In a music-leaf turner, a series of music-carrying frames, a shaft, a frame-engaging member on said shaft, a crank-arm on said shaft, a movable member carried by said arm, a rotatable element, a stud on said element disposed in the path of said movable member and adapted when moved to revolve said crank for the purpose of turning an engaged frame, and mechanism for causing a release of said movable member from engagement with said stud at a predetermined point in the rotation of said element, substantially as described.

8. In a music-leaf turner, the combination with a suitable actuating mechanism, of a series of frames, a revoluble frame-engaging member having connection with and adapted to receive a partial revolution from said mechanism to turn the engaged frame, means for releasing said engaging member from the frame being turned at a predetermined point in its movement, and means for causing a return of said engaging member after such release to engage the succeeding frame.

In testimony whereof we have hereunto signed our names to this specification in the presence of two subscribing witnesses.

EDWIN L. GAGE.  
EARL D. McCLISH.

Witnesses:

C. W. OWEN,  
CORNELL SCHREIBER.

It is hereby certified that Letters Patent No. 777,200, granted December 13, 1904, upon the application of Edwin L. Gage and Earl D. McClish, of Toledo, Ohio, for an improvement in "Music-Leaf Turners," was erroneously issued to Albert Kratt, as owner of the entire interest in said invention; that said Letters Patent should have been issued to *Earl D. McClish and Albert Kratt, jointly*, said Albert Kratt being the assignee of one-half interest only in said patent, as shown by the record of assignment in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 20th day of December, A. D., 1904.

[SEAL.]

F. I. ALLEN,  
*Commissioner of Patents.*