R. B. WHITE.

MUSIC LEAF TURNER.

APPLICATION FILED MAY 27, 1912.

1,067,954. Patented July 22, 1913.

FIG. 1.

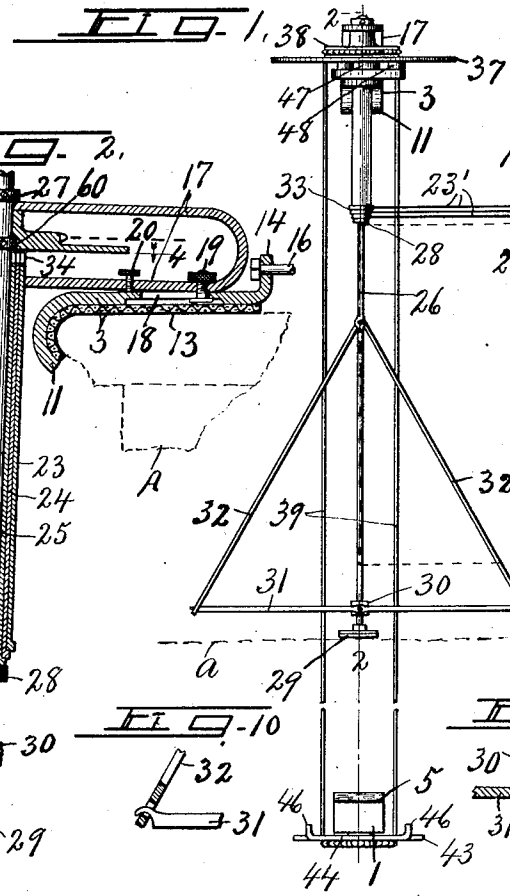


FIG. 2.

FIG. 3.

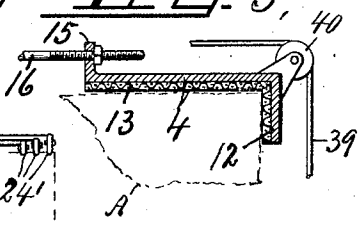


FIG. 9.

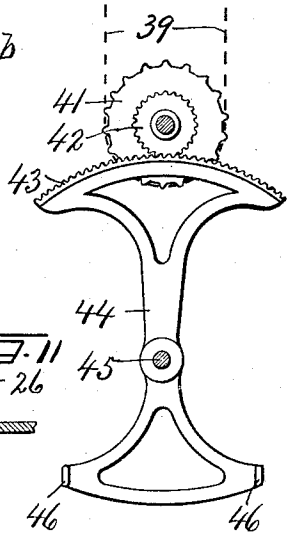


FIG. 10.

FIG. 11.

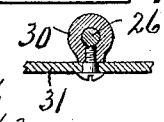


FIG. 4.

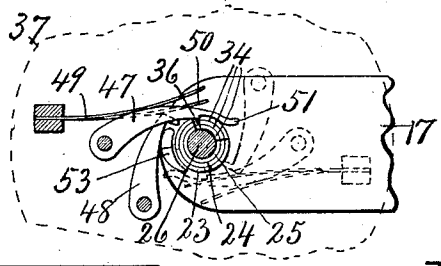


FIG. 6.

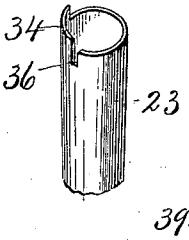


FIG. 5.

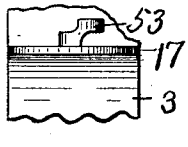


FIG. 7.

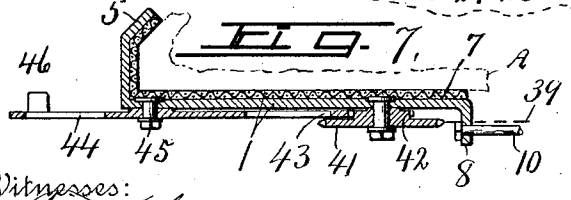
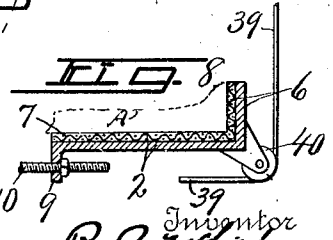


FIG. 8.



Witnesses:

H. Whitesell

K. E. Chase

Inventor

R. B. White

By Howard P. Denison Attorney

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ROSCOE B. WHITE, OF SYRACUSE, NEW YORK.

MUSIC-LEAF TURNER.

1,067,954. Specification of Letters Patent. Patented July 22, 1913.

Application filed May 27, 1912. Serial No. 700,000.

To all whom it may concern:

Be it known that I, ROSCOE B. WHITE, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Music-Leaf Turners, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in music leaf turners involving the use of one or more relatively rotatable co-axial and concentric sleeves each carrying a laterally projecting arm having means thereon to support and turn a music leaf as the sleeves are rotated.

The main object is to provide simple means whereby the leaf turning elements may be easily and quickly applied to or removed from upright pianos and similar instruments.

Another object is to operate the leaf turning sleeves from their upper ends by suitable pedal operated mechanism extending rearwardly across the top and downwardly at the rear and forwardly under the piano case so as to conceal the greater part of the operating mechanism and at the same time applying the power to the sleeves nearer to the leaf turning arms carried thereby.

A further object is to provide a simple means for turning the sleeves successively and for restoring them to their normal positions by reverse operations of a pedal lever.

Other objects and uses will be brought out in the following description:

In the drawings—Figure 1 is a front elevation of my improved leaf turning mechanism including the means by which it is held in operative position upon an upright piano not shown. Fig. 2 is an enlarged longitudinal vertical sectional view taken on line 2—2, Fig. 1, a portion thereof below the leaf turning sleeves being broken away, showing also the front portion of the clamping device by which the leaf turner is secured to the upper front edge of the piano. Fig. 3 is an enlarged sectional view of the rear upper portion of the clamping device. Fig. 4 is a horizontal sectional view through the leaf-turning mechanism taken on line 4—4, Fig. 2, showing the operating pawls for the sleeves in their normal position by full lines and in their abnormal position for turning the music sheet from right to left by dotted lines. Fig. 5 is a detail elevation of the pawl tripping cam on the supporting frame for the upper end of the sleeves. Fig. 6 is a perspective view of the upper portion of one of the sleeves. Fig. 7 is a transverse vertical sectional view through the lower front clamping member and pedal lever mounted thereon together with the adjacent sprocket wheel adapted to be operated by said lever. Fig. 8 is a similar transverse sectional view of the lower rear clamping member and adjacent portion of the sleeve operating cable. Fig. 9 is a top plan of the pedal lever showing the rack and pinion and sprocket wheel operated thereby. Fig. 10 is an enlarged detail sectional view of the lower left hand corner of the triangular sheet supporting frame shown in Fig. 1. Fig. 11 is a horizontal sectional view of the central portion of the lower bar of the same triangular frame and its supporting collar, to which it is pivoted.

This music leaf turner comprises a pair of lower front and rear clamping members —1— and —2— and a corresponding pair of upper front and rear clamping members —3— and —4— constituting the main support for the operating parts of the leaf turning means, the lower clamping members being placed transversely underneath the piano case to engage the front and rear edges thereof, while the upper clamping members —3— and —4— are adapted to extend transversely of and to rest upon the upper portion of the piano case for engaging the front and rear portions thereof. For this purpose the lower front clamping member —1— is provided at its front end with an upwardly and rearwardly extending flange or abutment —5—, while the lower rear clamping member is provided with an upwardly extending flange or abutment —6—, said flanges or abutments being opposed to each other and are adapted to be drawn firmly against the front and rear edges of the lower part of the piano case preferably near the center thereof, the inner faces of said clamping members being pref-

erably covered with a protective layer —7— of felt or equivalent material to protect the piano case against marring by the main bodies of the clamping members which are preferably made of cast or sheet metal.

The rear end of the lower front plate —1— and also the front end of the lower rear plate —2— are provided with pendant projections or lugs —8— and —9— having suitable apertures therein for receiving a clamping bolt —10— by which the clamping members may be drawn toward each other to firmly tighten them against the front and rear edges of the lower part of the case as —A— shown by dotted lines.

The front end of the upper front clamping member —3— is deflected downwardly and rearwardly to form a flange or abutment —11— for engaging the upper front edge of the piano case, while the rear end of the upper rear clamping member —4— is deflected downwardly forming a flange or abutment —12— for engaging the rear face of the upper portion of the case, the inner faces of the clamping members —3— and —4— being also provided with layers —13— of felt or equivalent material to protect the piano against marring by the main bodies of the clamping members which are preferably formed of cast or sheet metal.

The rear end of the front clamping member —3— and front end of the rear clamping member —4— are provided with upturned ears or lugs —14— and —15— having apertures therein for receiving a clamping bolt —16— by which the members —3— and —4— may be drawn tightly against the front and rear edges of the upper portion of the piano case.

A U-shape supporting bar —17— is mounted upon the upper front clamping member —3— and adapted to be adjusted forwardly and rearwardly and also vertically for imparting similar adjustment to the leaf turning sleeves presently described which are supported on the front end thereof. For this purpose the clamping member —3— is provided with a slot —18— for receiving a clamping bolt —19— which is passed through an aperture in the lower rear portion of the U-shape bar —17—, and has a head engaging the underside of the member —3— to hold the latter in place, the lower side of the bar being also provided with an adjusting screw —20— for engaging the upper side of the clamping member —3— for the purpose of adjusting the front end of the bar vertically to different angles, and thereby raising and lowering the sleeves and adjusting them to different angles, the forward and rearward adjustment of the U-shape bar —17— serving to bring the sleeves and their leaf turning arms in proper relation to the front of the piano case above the key-board as may be required for different forms of pianos to properly support the music sheets.

The front ends of the lower and upper arms of the U-shape bar —17— project forwardly some distance beyond the front end of the clamping member —3— and are provided with vertically alined apertures —21— and —22—, the aperture —21— being somewhat larger than the aperture —22— for receiving and forming a journal bearing for the upper end of one of a series of, in this instance three, sleeves —23—, —24— and —25— which are arranged one within the other for free relative rotary movement. The innermost sleeve is journaled upon a stationary upright rod or spindle —26— extending centrally through and some distance beyond the opposite ends of all of the sleeves and having its upper end passed through the aperture —22— in the upper arm of the U-shape bar —17— and supported thereon by a collar —27—, the portion of the rod or spindle —26— directly beneath the lower ends of the sleeves being provided with an annular flange or end thrust bearing —28— for holding the sleeves against downward displacement. The extreme lower end of the rod or spindle —26— is provided with a suitable foot —29— adapted to rest upon an ordinary music leaf shelf as —*a*— shown by dotted lines in Fig. 1 for the purpose of steadying the rod or spindle and sleeves mounted thereon against lateral vibration during the operation of rotating the sleeves in a manner hereinafter described.

Mounted upon and adjustable lengthwise of the lower end of the rod or spindle —26— is a collar —30— adapted to be held in its adjusted position by a suitable set screw and upon this collar is centrally pivoted a horizontal arm —31— capable of being rocked to a vertical position parallel with the rod —26— so as to bring these parts into compact space within the length of the rod by simply shifting the collar —30— upwardly substantially the distance corresponding to one-half the length of the bar —31—.

A pair of oppositely disposed brace rods —32— are pivotally secured at their upper ends to the intermediate portion of the upright rod or spindle —26— so as to rock to and from a vertical position substantially parallel with the upright rod or spindle and the lower ends of the bars —32— and outer ends of the horizontal bar —31— are provided with suitable interlocking members detachably engaged with each other to hold the bars —32— in downwardly diverging lines and at the same time holding the bar —31— in a horizontal position, thereby constituting a triangular frame as shown in Fig. 1 for supporting the lower ends of a music

sheet as —*b*— indicated by dotted lines in the same figure.

The lower ends of the sleeves —23—, —24— and —25— are provided with annular shoulders —33— each constituting a step upon which the next adjacent outer sleeve is supported against downward movement. That is, the shoulder —28— constitutes an end thrust bearing for the inner sleeve, while the flanges —33— of the innermost sleeves —23— and —24— constitute end thrust bearings for the sleeves —24— and —25— respectively. The upper ends of these sleeves —23—, —24— and —25— are provided with upwardly projecting concentric segments or extensions —34— of suitable circumferential length, in this instance substantially equal to one-fourth of the peripheries of their respective sleeves and having vertically disposed edges normally registering with each other for engagement by an operating pawl presently described and also to permit each sleeve to be turned one-half revolution slightly more or less in the operation of turning the leaves from one side to the opposite side, said sleeves being also provided with vertical slots —36— normally in radial registration and extending downwardly from the upper edge of the sleeve at one edge of the segments —34— to form additional shoulders whereby the sleeves may be returned by one of the pawls presently described.

A disk —37— is loosely mounted upon the upper end of the rod or spindle —26— between the upper ends of the sleeves —23—, —24— and —25— and the upper arm of the U-shape bar —17— and is provided with a sprocket wheel —38— rigid thereon around which is passed one end of an endless cable —39—, the latter extending across the top, back and bottom of the piano case around suitable idlers or sheaves —40— on the clamping members —4— and —2— and having its opposite ends passed around a sprocket wheel —41— on the lower front clamping member —1—. This sprocket wheel is provided with a pinion —42— meshing with a toothed segment —43— on the rear end of a pedal lever —44— which is pivoted at —45— to the underside of the lower front clamping member —1— and is provided at its front end with upwardly projecting shoulders —46— spaced apart a sufficient distance to receive the ball of the foot between them so that by moving the foot in one direction or the other, corresponding rotary motion will be transmitted to the disk —37— through the medium of the cable —39—.

The lower ends of the sleeves —23—, —24— and —25— are provided with laterally projecting arms —23′— having clasps —24′— for engaging and supporting the music sheets from their upper ends, said arms —23′— being preferably disposed in different horizontal planes, while the clasps —24′— are disposed in different vertical planes so as to permit each leaf to be turned from right to left independently of the others.

Pivotally mounted upon the underside of the disk —37— are a pair of pawls —47— and —48— which are spring pressed toward the peripheries of the sleeves by separate springs —49— and —50—, the pawl —47— serving to rotate the sleeves from their normal positions or from right to left, while the pawl —48— is for the purpose of returning the sleeves and leaves to their normal positions or from left to right. The uppermost pawl —47— is disposed in substantially the same horizontal plane as the upwardly projecting segments —34— and when the sleeves are all in their normal positions is adapted to engage the left-hand edge of the segment —34— of the outermost sleeve, said pawl being provided with an outwardly curved extension or arm —51— adapted to rest against the periphery of the outermost segment to limit the inward movement of the shoulder on the pawl which shoulder is of substantially the same radial depth as or slightly less than that of the segment. The sleeves and pawls are shown in their normal positions in Fig. 2 and more particularly in Fig. 4, the dotted lines in Fig. 4 showing the position of the pawls for turning the sleeves a half revolution from their normal positions. The pawl —48— is disposed in substantially the same horizontal plane as the slots —36— for interlocking engagement therein when it is desired to return the sleeves to their normal positions. It is now apparent that when the front end of the lever —44— is shifted by the lateral movement of the foot to the left, thereby rocking the segment —43— to the right, the sprocket wheel —42— shown more clearly in Fig. 9, will be rotated to the left, thereby rotating the disk —37— in the same direction and that the pawl —47— on said disk which is then in engagement with the left-hand edge of the outermost segment —34— of the sleeves —23— will rotate said sleeve and its sheet carrying arm —23— from right to left. The reverse motion of the pedal lever —44— to its normal position will restore the disk and pawls to their normal position, thereby bringing the pawl —47— into engagement with the left-hand edge of the next adjacent segment —34— so that by a repetition of the operation of the pedal lever to the left, the sleeve —24— and its arm —23′— will be shifted from right to left to turn the next music sheet and so on until all of the sleeves have been turned. If, however, it is desired to

return the sleeve or sleeves which have been previously turned, it is simply necessary to move the pedal lever —44— a little farther to the left than is required to turn the sheets for the purpose of bringing the pawl —48— into position to enter one or more of the slots of notches —36—, the end of the pawl —48— which is adapted to enter the slots —36— being slightly back of the shoulder on the pawl —47— which engages the edge of the segments —34— so as to prevent the pawl —48— from engaging in the slots —36— during the regular turning of the sheets from right to left and return of the pawls to their normal positions. This additional rotary movement of the pawls to bring the pawl —48— into registration with the slots —36— causes the extension arm —51— on the pawl —47— to ride against a fixed cam —53— on the lower arm of the U-shape bar —17— as shown more clearly in Figs. 4 and 5, thereby tripping the pawl —47— just before the pawl —48— enters the slot or slots —36— in the sleeve or sleeves which have been turned. It therefore follows that as soon as the pawl —48— is thus engaged with the slot or slots of the turned sleeves and the pedal lever —44— is returned to and beyond its normal position said sleeve or sleeves and leaves carried thereby will be returned, the radial depth of the tooth on the free end of the pawl —48— being sufficient to enter all of the slots —36— when all of the sleeves are turned from their normal positions at which time the slots will all be in registration with each other. If, however, only one of the sleeves has been turned it is evident that the next adjacent sleeve will cover the slot of the outer sleeve and thereby prevent the entrance of the pawl —48— into the slots of the remaining sleeves other than that in the outermost sleeve, thus permitting the return of the outermost sleeve and corresponding music sheet. In like manner if two sleeves have been turned from right to left to turn the corresponding sheets and it is desired to return those two sheets, it is simply necessary to operate the pedal lever through the additional movement referred to to cause the engagement of the pawl —48— with the slots —36— of both of such turned sleeves and then to return the pedal lever to its extreme right-hand position for returning said sleeves and sheets to their starting positions.

The disk —37— is held clear of the adjacent end of the sleeves by a collar —60— which is secured to the shaft or spindle —26— and together with the adjustable collar —28— permits the sleeves and disk to be adjusted to any desired height along the spindle to conform to different heights of pianos, it being understood that the upper end of the spindle extends some distance above the collar —27— which is also adjustable on the spindle and serves together with the upper arm of the U-shape bar —17— to support the upper end of the spindle.

My improved music leaf turner includes the means by which it is clamped to the piano and it will be observed that this clamping means has to conform to different sizes of pianos; that the operating means for the leaf turning sleeves is connected to the upper ends thereof and extends rearwardly from the top of the piano and downwardly at the back and then forwardly under the piano case where it is attached to the pedal lever —44— on the lower front clamping member —1—.

The endless belt —39— may be of any well known construction but is preferably provided with a chain section for engagement with the sprocket wheel —41— to effect a more positive transmission of motion to the disk —37—.

What I claim is:

1. In a music leaf turner, a support comprising lower and upper pairs of clamping members adapted to engage the upper and lower corners of a piano case, adjustable connections between the clamping members of each pair for drawing them toward each other, sheaves on the rear clamping members, rocking members on the front clamping members, cable connections between the rocking members passing over said sheaves, pedal-operated means for operating the rocking member on the lower front clamping member for operating the cable and rocking member on the upper front clamping member, and leaf-turning means actuated by the rocking member on the upper front rocking clamping member.

2. In a music leaf turner, a support comprising lower and upper pairs of clamping members adapted to engage the front and rear corners of the top and bottom of a piano case, adjustable connections between the clamping members of each pair, sheaves on the rear clamping members, rocking members on the front clamping members, cable connections between the rocking members passing over said sheaves, a lever for operating the rocking member on the lower front clamping member, a disk actuated by the upper rocking member, and leaf-turning means actuated by said disk.

3. In a music leaf turner, comprising lower and upper clamps adapted to be clamped respectively to the bottom and top of the piano case, a sprocket wheel and coaxial pinion mounted upon the lower clamp, a separate sprocket wheel mounted upon the upper clamp, cable connections between the sprocket wheels for transmitting

motion from one wheel to the other wheel, a pedal operated lever having a toothed segment meshing with the pinion for rotating the wheels in reverse directions, an upright rotary sleeve below and in proximity to the upper clamp and coaxial with the upper wheel, a leaf turning arm on the sleeve, a pawl on the disk for engaging and turning the sleeve in one direction and a separate pawl on the disk for engaging and turning the sleeve in the opposite direction.

In witness whereof I have hereunto set my hand on this 23d day of May, 1912.

ROSCOE B. WHITE.

Witnesses:
H. E. CHASE,
E. S. TUCKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."