(No Model.) 3 Sheets—Sheet 1.

M. L. SMITH.

MUSIC LEAF TURNER.

No. 491,907. Patented Feb. 14, 1893.

Fig. 1.

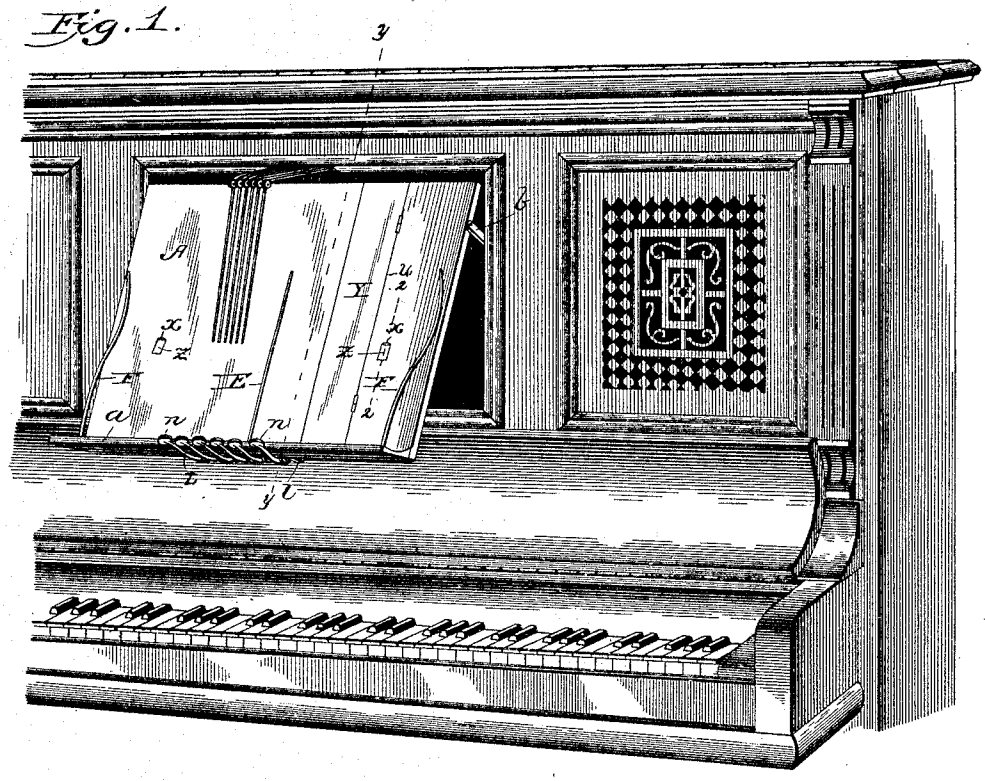
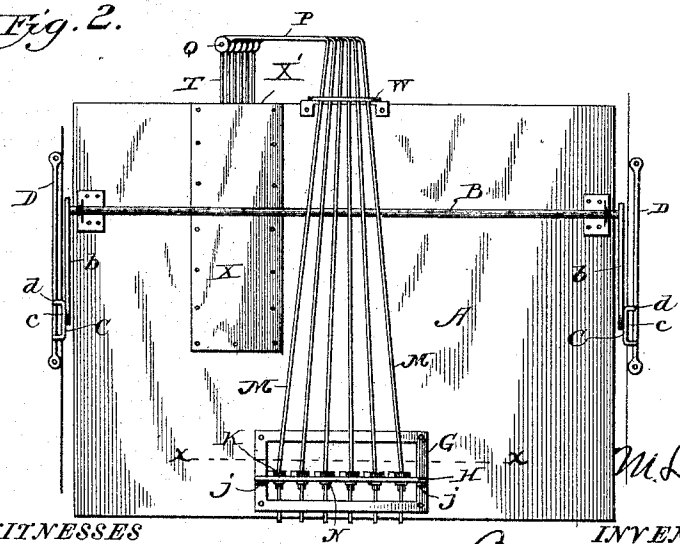


Fig. 2.



WITNESSES

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Fig. 3.

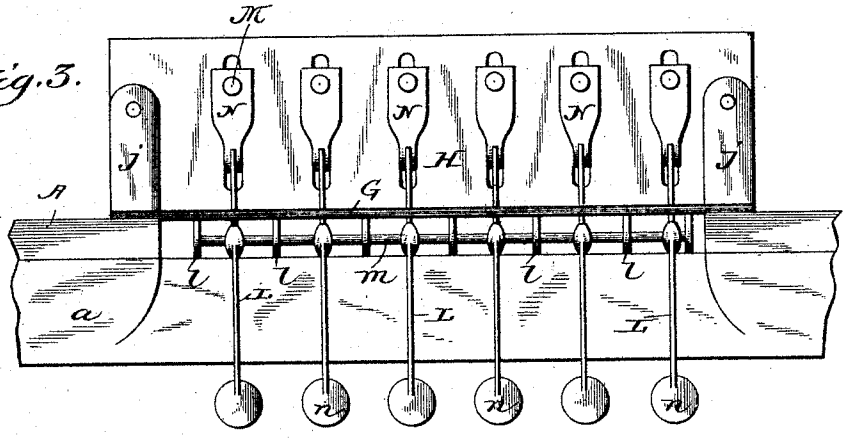


Fig. 4.

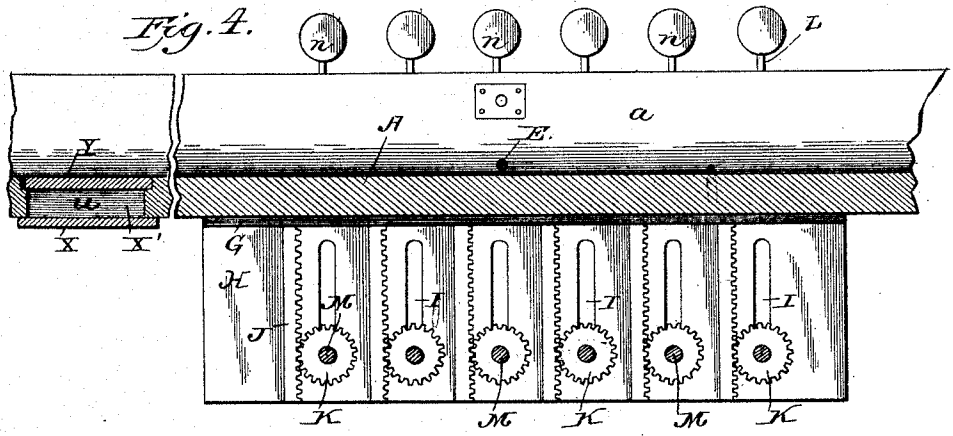


Fig. 8.

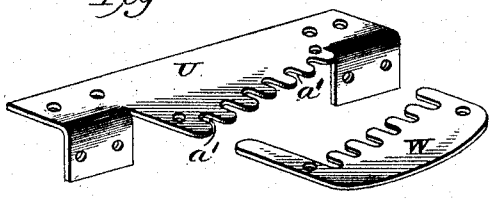
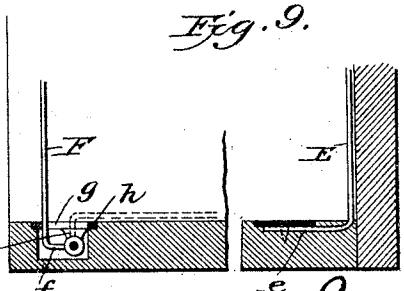


Fig. 9.



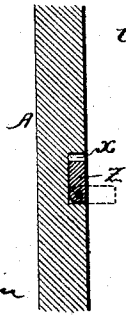


Fig. 10.

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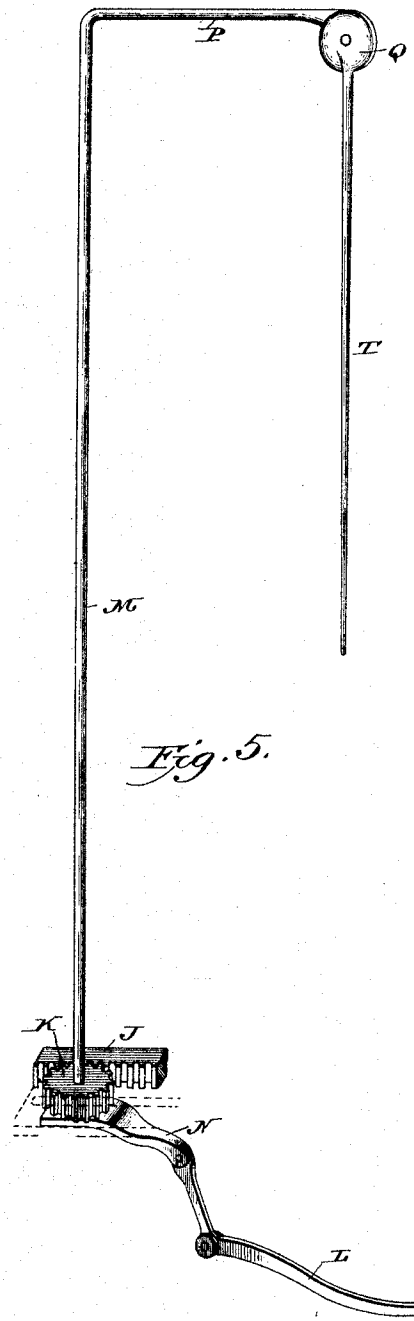

Fig. 5.

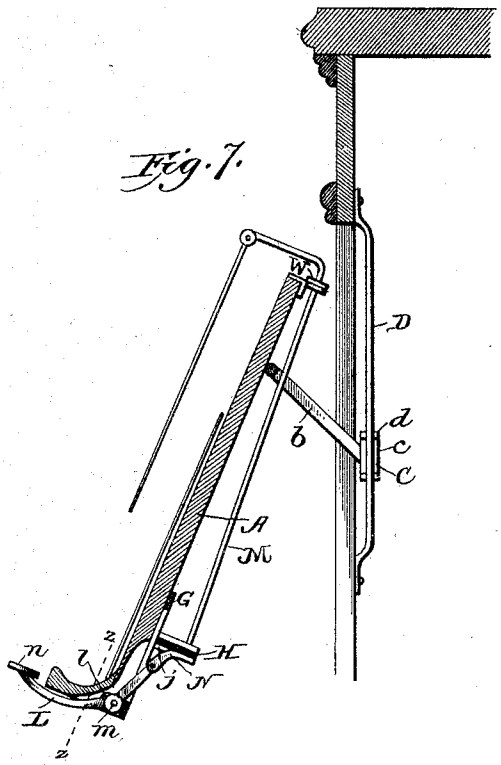

Fig. 7.

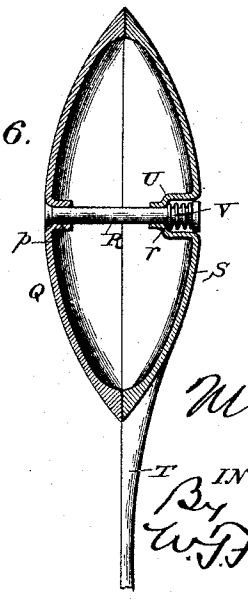

Fig. 6.

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UNITED STATES PATENT OFFICE.

MARTIN L. SMITH, OF ELWELL, IOWA.

MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 491,907, dated February 14, 1893.

Application filed April 21, 1892. Serial No. 430,045. (No model.)

To all whom it may concern:

Be it known that I, MARTIN L. SMITH, a citizen of the United States, residing at Elwell, in the county of Story and State of Iowa, 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.

My invention has relation to improvements in music leaf turners, and it has for its object to provide a music leaf turner of such construction that the leaves of a piece or book of music may be rapidly turned by a performer playing the piano or the like without taking the fingers off the keyboard and with the exercise of but a very slight effort.

A further object of the invention is to connect the angular branches of the rotary shaft to the depending leaf fingers in such a manner that the said fingers may be swung into any desired position and automatically locked in such position.

Other objects and advantages of the invention will be fully understood from the following description and claims when taken in conjunction with the drawings, in which:—

Figure 1, is a perspective view of my improved device in position upon a piano. Fig. 2, is a rear elevation of the device removed from the piano. Fig. 3 is an enlarged, detail, inverted plan view of the same. Fig. 4, is an enlarged detail, horizontal, transverse section taken in the plane indicated by the line *x*—*x* on Fig. 2, looking downwardly. Fig. 5, is an enlarged, detail perspective of one of the rotary shafts, the leaf finger carried thereby and the operating lever. Fig. 6, is an enlarged diametrical section taken through the connected disks or heads of a branch of one of the rotary shafts and a leaf finger. Fig. 7, is a vertical transverse section taken in the plane indicated by the line *y*—*y* on Fig. 1. Fig. 8 is a detail perspective view of the bearing plates. Fig. 9 is a broken, vertical section taken in the plane indicated by the line *z*—*z* on Fig. 7, and: Fig. 10 is a detail, vertical, transverse section taken in the plane indicated by the line 2—2 of Fig. 1.

In the said drawings, similar letters designate corresponding parts throughout the several views, referring to which:

A, indicates the body panel or main frame of my improved device, which is preferably of a rectangular form, as illustrated, and is provided at its lower edge with a forwardly extending ledge designed to support a book or piece of music. This body A, is provided upon its rear side, as shown, with suitable bearings to receive the horizontal rock shaft B, which is provided at its ends with angular branches *b*, to which are pivotally connected the body plate *c*, of the shoes C, said body plates having at their ends, angular notched branches *d*. These angular, notched branches *d*, of the shoes C, are designed and adapted to engage the vertical guide bars D, attached in a suitable manner to the inner side of the front wall of the piano, whereby it will be readily perceived that the body panel A, may be held in various angles of inclination.

Seated and suitably secured in the ledge *a*, of the panel body A, is the angular branch *e*, of the upwardly extending spring arm, E, which is designed and adapted to bear against a hook or piece of music at the middle thereof, and serve in conjunction with the spring arms F, to securely hold the same against the panel body. These arms F, one of which is illustrated in Fig. 9 of the drawings, are provided at their lower ends with short angular branches *f*, which take through the laterally extending slots *g*, in the plates *h*, which are connected to the ledge *a*, of the panel body and are provided upon their lower sides with perforated lugs or ears *i*, to which the angular branches *f*, of the arms F, are pivotally connected, whereby it will be perceived that when not in use the said arms F, may be folded in and down upon the ledge *a*.

Suitably connected to the rear side of the panel body A, adjacent to the lower edge thereof, is a plate G, upon the horizontal bracket arms *j*, of which is mounted the plate H, which is provided at intervals in its length with the transversely extending vertically-disposed slots I, which are designed and adapted for the passage and play of the rotary shafts presently to be described.

Connected to or formed integral with the

plate H, and arranged at one side of the slots I, are the transversely extending rack-bars J, which are designed to be engaged by the horizontal pinions K, of the rotary shafts M, to rotate said shafts, as will be presently described.

Extending forwardly from the lower portion of the plate G, is a series of hangers *l*, through which takes the fulcrum shaft *m*, of the operating levers L. These levers L, which are of an approximate bell-crank form and are provided at their outer ends with finger disks *n*, as illustrated, have their inner ends pivotally connected to the links N in which are journaled the lower ends of the shafts M, whereby it will be readily perceived that when the forward ends of the operating levers are depressed the shafts M, will be pulled toward the body panel and, through the medium of the rack bars J, and pinions K, will be caused to rotate so as to swing their angular branches P, from right to left.

Fixedly connected to or formed integral with the ends of the shaft branches P, are circular heads or disks Q, which are concavo-convex in diametrical section and have their inner edges toothed, as shown, for a purpose presently pointed out. These disks Q, are respectively provided with a central, transverse aperture *p*, for the passage of a bolt R, which also takes through a central aperture formed in the disk S, of the respective leaf fingers T, which disk S, is of a similar form to the disk Q, and is provided with teeth upon its inside adapted to engage those of the said disk Q, to fix the leaf finger in its adjusted position.

As better illustrated in Fig. 6, of the drawings, the disks S, of the respective leaf fingers T, are provided with a lateral inwardly extending sleeve U, which surrounds a central aperture in said disk and is reduced at an intermediate point in its length to afford a shoulder *r*, against which bears one end of a coil spring V, which surrounds the bolt R, and bears at its opposite end against the head of said bolt, whereby it will be seen that while the fingers are normally held fixed with respect to the angular branches of their respective shafts they may be adjusted with respect to the said branches by pulling the disks S, away from the disks Q.

Suitably connected to the upper edge of the body panel A, is a plate U, which is provided in its free edge with a series of notches *a'*, and is designed to serve in conjunction with the notches in the edge of the plate W, to form the bearings for the upper portions of the rotary shafts M.

Formed in the upper portion of the body panel A, is a slot *u*, which is closed on the rear side of the said panel A, by the plate X, to form a receptacle X', for the leaf fingers T, when the device is not in use.

Connected to the front of the body panel A, by hinges, as shown, is a door Y, which is designed and adapted to close the receptacle X', and rest flush with the surface of the body panel as shown.

Formed in the front of the body panel A, at about the elevation illustrated, are recesses *x*, in which are pivotally mounted the bracket blocks Z. The blocks Z, which are preferably of the proportional size illustrated, are designed and adapted to be swung outwardly to support a narrow book so that the leaf fingers will take between the leaves of the same.

In applying my improvements to a piano, organ or the like, it will be readily perceived that it is only necessary to slightly recess the same so as to give room for the play of the inner ends of the operating levers.

To, use my invention, the book or piece of music is placed upon the panel A, and secured by the spring arms, before described. The leaf fingers are then placed between the leaves in the usual manner, when by tapping the keys consecutively from left to right, the leaves may be turned in the proper order.

When all of the leaves have been turned and it is desired to return the same to their former position, it is simply necessary to raise the last lever to the left, when not only the leaves but the leaf fingers will be swung to the right.

Although I have specifically described my invention as especially applicable to pianos or organs, yet I do not desire to be confined to such application, as the device may be employed upon a suitable stand to turn the leaves of a book or manuscript when desired.

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

1. In a music leaf turner, substantially as described, the swinging leaf fingers in combination with the body panel having the receptacle X', and the hinged door adapted to close said receptacle; substantially as and for the purpose set forth.

2. In a music leaf turner, substantially as described, the combination with a stationary rack-bar, a rotary shaft carrying a leaf finger, and a pinion fixedly mounted on said shaft and engaging the rack-bar; of an operating lever, and a link pivotally connected to the lever and to the rotary shaft; substantially as specified.

3. In a music leaf turner, substantially as described, the combination with the body panel having a ledge at or adjacent to its lower edge, and a slotted plate seated in said ledge and having ears upon its underside; of the spring arm having an angular branch at its lower end pivotally connected to the ears of the slotted plate; substantially as specified.

4. In a music leaf turner, substantially as described, the combination with the body panel having a ledge at or adjacent to its lower edge, and slotted plates seated in said ledge adjacent to the ends thereof and having ears upon its underside; of the stationary

spring arm having an angular branch connected to the ledge of the body panel at the middle thereof, and the spring arms having angular branches at their lower ends pivotally connected to the ears of the slotted plates; substantially as specified.

5. In a music leaf turner, substantially as specified, the combination with a rotary shaft having an angular branch, and the circular disk or head of concavo-convex form in diametrical section connected to said branch and having a central aperture; of a leaf finger, the circular disk or head of concavo-convex form in diametrical section connected to the leaf finger and having a central aperture, and an inwardly-extending sleeve reduced at an intermediate point in its length, the bolt connecting the said heads or disks, and a coiled spring mounted on said bolt and bearing against the head thereof and the end of the reduced portion of the sleeve; substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

MARTIN L. SMITH.

Witnesses:
JOHN BRODIE,
J. W. DOUGLASS.