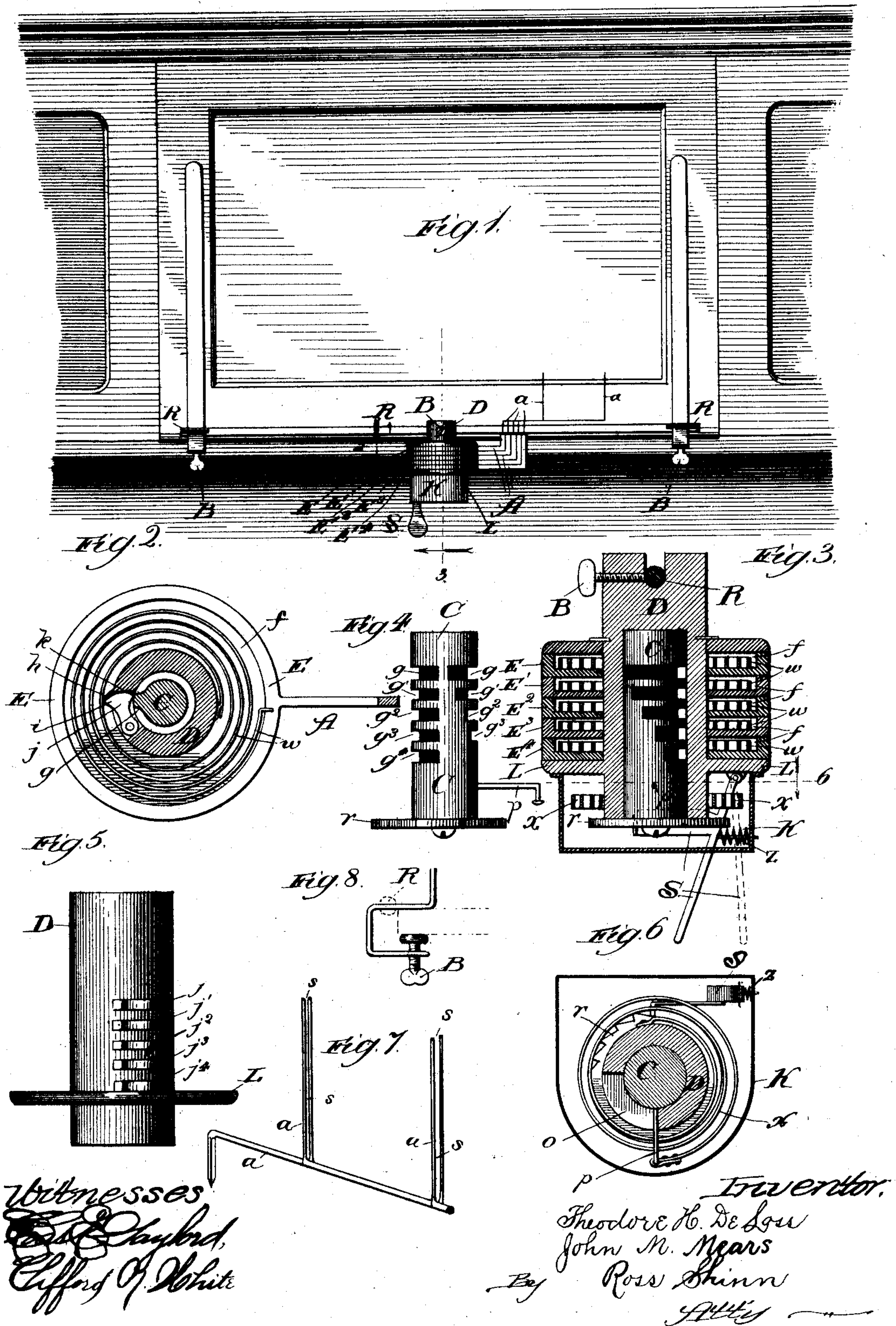


(No Model.)

T. H. DE LOSS & J. M. MEARS.  
MUSIC LEAF TURNER.

No. 432,120.

Patented July 15, 1890.





# UNITED STATES PATENT OFFICE.

THEODORE H. DE LOSS AND JOHN M. MEARS, OF CHICAGO, ILLINOIS; SAID DE LOSS ASSIGNOR TO SAID MEARS AND FRED. M. DE LOSS, OF SAME PLACE.

## MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 432,120, dated July 15, 1890.

Application filed March 31, 1890. Serial No. 346,004. (No model.)

*To all whom it may concern:*

Be it known that we, THEODORE H. DE LOSS and JOHN M. MEARS, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Music-Leaf Turners; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to that class of machines which are to be portably attached to the music-rest of a piano or other instrument, or to any and every kind of music-rest having a ledge upon which the music stands to face the performer.

Our present invention has for its object the automatic turning of the leaves of music being used by a performer at such times as he may desire and signify the same by a slight pressure upon a key or stop provided for that purpose, which object is attained by means of a fixed cylinder around which is a series of independently-movable rims with arms attached, and to which arms the leaves of the music are fixed in such a manner that when the rim or rims revolve the leaf or leaves are carried with them.

In the drawings, Figure 1 is a view of our device attached in position upon the music-rest of a piano, and is drawn to a smaller scale than the other figures. Fig. 2 shows a detailed section on the line 2 of Fig. 1, viewed in the direction of the arrow-point. Fig. 3 is a section taken on the line 3 of Fig. 1, and viewed in the direction of the arrow, with the core C in elevation. Fig. 4 is a detailed longitudinal view of the core C as in position in Fig. 1. Fig. 5 is a detailed view of the hollow cylinder D, surrounding the core C and in position as of Fig. 1. Fig. 6 is a detailed sectional view on the line 6 in Fig. 3, viewed in the direction of the arrow. Fig. 7 is a perspective view of the extension  $a$  of the arms A of Figs. 1 and 2, showing the space  $s$ , in which the leaf of the music is to be placed which it is desired to have turned; and Fig. 8 is a detailed end view of the attachment, which is also shown in Fig. 1.

R is a rod or bar on which the hollow cylinder

D is fixed at any angle by means of the thumb-screw B.

E, E', E<sup>2</sup>, E<sup>3</sup>, and E<sup>4</sup> is a series composed of any number of independently-movable rims revolving about the hollow cylinder D upon the ledge L, (which ledge L is an integral part of the said cylinder,) and to each of which movable rims is fixed an arm A and its extension  $a$ . Each of the movable rims E, E', E<sup>2</sup>, E<sup>3</sup>, and E<sup>4</sup> is provided with a receptacle  $f$ , in which a coiled spring  $w$  is placed, one end of which spring is attached to the immovable or fixed hollow cylinder D and the other to the rim E, E', E<sup>2</sup>, E<sup>3</sup>, or E<sup>4</sup>, with a tension tending to revolve the rim from right to left. Each one of said movable rims E, E', E<sup>2</sup>, E<sup>3</sup>, E<sup>4</sup> is further provided on its inner edge with a V-shaped notch  $h$ , accurately fitting over the exterior nose  $i$  of the double-nosed dog  $j, j', j^2, j^3$ , or  $j^4$ .

The immovable or fixed hollow cylinder D is provided with a series of double-nosed dogs  $j, j', j^2, j^3$ , and  $j^4$ , equal in number to the series of rims E, E', E<sup>2</sup>, E<sup>3</sup>, and E<sup>4</sup>, and so adjusted that each one of the series of dogs will be exactly within the corresponding one of the series of movable rims, each of which dogs is provided with an exterior nose  $i$  and an interior nose  $k$ . The core C is provided with a series of grooves  $g, g', g^2, g^3$ , and  $g^4$ , equal in number to the movable rims E, E', E<sup>2</sup>, E<sup>3</sup>, and E<sup>4</sup> and to the double-nosed dogs  $j, j', j^2, j^3$ , and  $j^4$ , and so placed that each will be immediately within the corresponding one of the series of double-nosed dogs. It will be seen that the grooves  $g, g', g^2, g^3$ , and  $g^4$  are of unequal lengths, being so arranged that the point of beginning of the groove  $g'$  is slightly farther to the right on the circumference of the core C than the point of beginning of the groove  $g$ , and that of the groove  $g^2$  farther to the right than  $g'$ , and so on through the whole series of grooves. The core C is further provided with a coil-spring  $x$ , as shown in Fig. 6, one end of which spring is attached to the immovable or fixed cylinder D and the other to the pin  $p$ , (which pin  $p$  is an integral part of the core C,) with a tension tending to revolve the core from left to right.



By referring to Figs. 2, 3, and 4 it will readily appear that by turning the core C slightly to the left the tension of the coil-spring *w* will cause the rim E to revolve from right to left, because of the V-shaped notch *h* forcing down the exterior nose *i* of the double-nosed dog *j* and forcing the interior nose *k* into the groove *g*. The interior nose *k* of the dog *j* will be held within the groove *g* by the inner edge of the rim E', and the tension of the coil-spring *x* will be thus prevented from turning the core C to the right. By again turning the core C slightly to the left the dog *j'* will in like manner be forced into the groove *g'* and the rim E' will revolve from right to left, and in like manner each and all of the series of rims, with their arms A and their extensions *a*, together with the leaf or leaves of music therein placed. The slight movement of the core C to the left is accomplished by means of a pressure upon the key or stop S, (shown in Figs. 1, 3, and 6,) acting upon the ratchet *r*, which ratchet *r* is an integral part of the core C. It will be noticed that the movement of the stop S is on a tangent to the circular ratchet *r*, and that the ratchet will release itself when turned a certain distance to the left by the pressure upon the stop S, which movement is suited to the adjustment of the points of beginning of the grooves *g*, *g'*, *g*<sup>2</sup>, *g*<sup>3</sup>, and *g*<sup>4</sup> in the core C. When the pressure on the stop S is released, the stop will be thrown up by means of the spring *z* on a tangent with and far enough beyond the ratchet *r* not to interfere with the turning of the core C to the right when the music is reversed. When the rims E, E', E<sup>2</sup>, E<sup>3</sup>, and E<sup>4</sup> have all been turned to the left or at any time when any one leaf or any number of leaves of the music is desired to be reversed, an arm or any number of arms A are turned by the hand of the performer to the right. This will bring the V-shaped notch *h* on the inner edge of each of the rims E, E', E<sup>2</sup>, E<sup>3</sup>, and E<sup>4</sup> over each of the corresponding series of dogs *j*, *j'*, *j*<sup>2</sup>, *j*<sup>3</sup>, and *j*<sup>4</sup>, releasing each or all of them, when the core C will be permitted to turn to the right far enough to force each dog out into the V-shaped notch opposite and hold each rim in that position. The movement of the core C to the right will be stopped by contact between the next dog above and the end of the groove in which it plays, or by the limit of the movement of the pin *p*, which attaches the coil-spring *x* to the core C, which movement is limited by the length of the slot *o* in the hollow cylinder D, as shown in Fig.

6. This limit will be reached when the rim E is turned to the right. The movement of the rims E, E', E<sup>2</sup>, E<sup>3</sup>, and E<sup>4</sup>, with their arms A, is limited to half-circles by the interference of the arms A with the bar or rod R or with the ledge on which the music rests. It will readily appear that the leaves of music can readily be turned forward, or from right to left, by a simple pressure on the stop S, and that any number or all of the leaves can be turned backward, or from left to right, by taking hold of any number of the arms A and turning them over to the right, thus permitting the music to be repeated as often as may be desired. The workings of the coil-spring *x* and the ratchet *r* are covered and concealed by the case K, as shown in Figs. 1, 3, and 6.

What we claim as our invention, and desire secured by Letters Patent, is—

1. An automatic music-leaf turner comprising, in combination, a series of any number of independently-movable rims to which are fixed arms for bearing the leaves of the music, a hollow cylinder provided with a like series of dogs operating in slots through said cylinder, and a core provided with a like series of grooves into which the dogs play and by which the action of the dogs and the consequent revolution of the rims are controlled, substantially as and for the purpose set forth.

2. An automatic music-leaf turner comprising, in combination, a hollow cylinder D, provided with a series of any number of dogs *j*, *j'*, *j*<sup>2</sup>, *j*<sup>3</sup>, and *j*<sup>4</sup>, a series composed of a like number of independently-movable rims E, E', E<sup>2</sup>, E<sup>3</sup>, and E<sup>4</sup>, which revolve about the cylinder D, and a core C, provided with a like series of grooves *g*, *g'*, *g*<sup>2</sup>, *g*<sup>3</sup>, and *g*<sup>4</sup>, controlling the action of the said series of dogs and the revolution of the said series of rims, and which core C is operated by means of a stop or key S, substantially as and for the purpose set forth.

3. The combination of a core C, provided with any number of grooves revolving within a hollow cylinder D, with a like number of dogs operating through said hollow cylinder and controlling the action of a like number of arms which revolve about said cylinder, substantially as set forth.

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Witnesses:

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