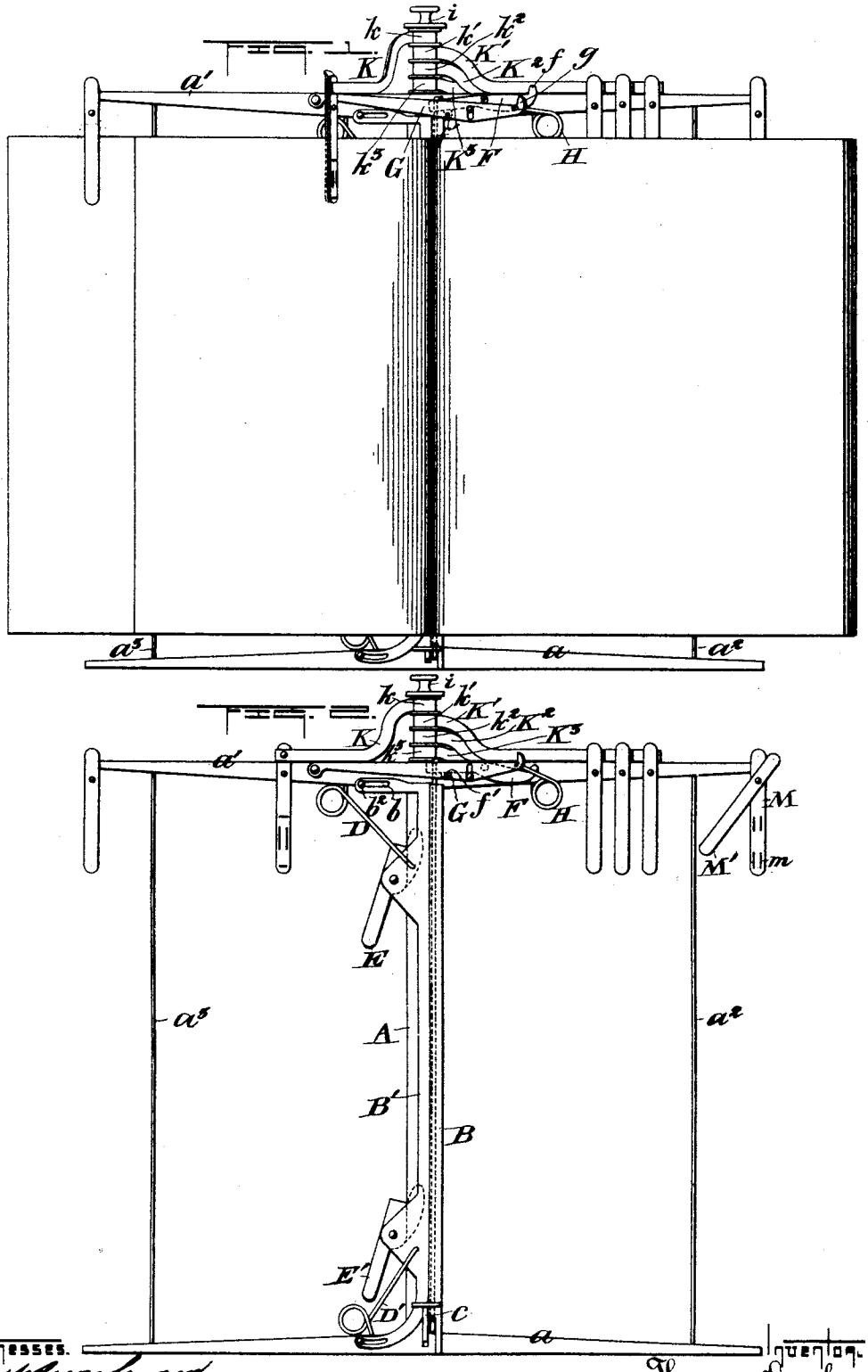
(No Model.) 2 Sheets—Sheet 1.

T. DOUGLAS.

MUSIC LEAF TURNER.

No. 511,200. Patented Dec. 19, 1893.



Witnesses.
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Inventor.
Thomas Douglas
by Attorneys. Brown Dewand

THE NATIONAL LITHOGRAPHING COMPANY.
WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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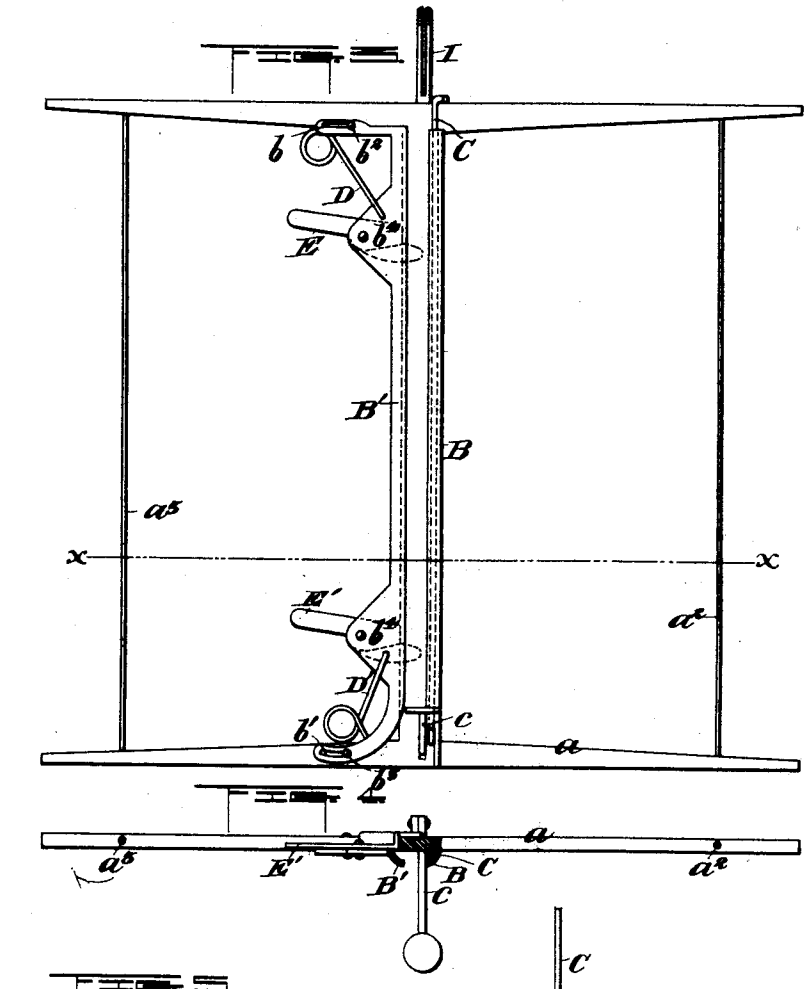

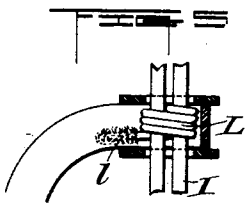

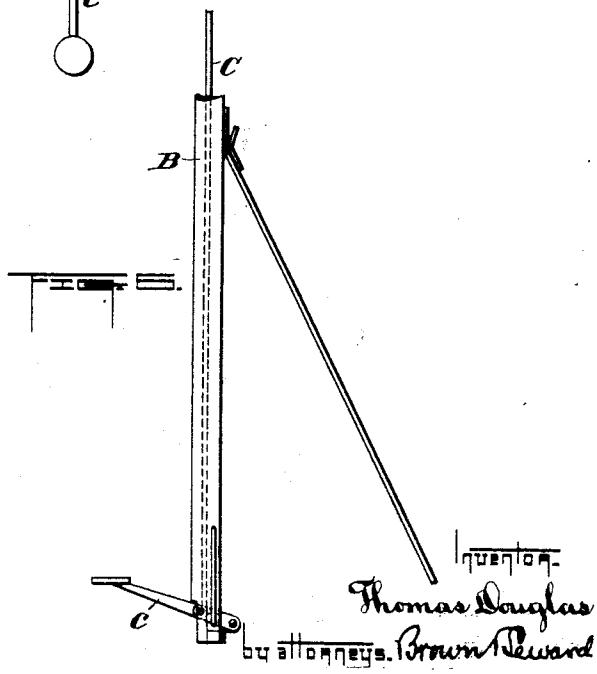

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UNITED STATES PATENT OFFICE.

THOMAS DOUGLAS, OF NEW YORK, N. Y.

MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 511,200, dated December 19, 1893.

Application filed May 4, 1893. Serial No. 472,965. (No model.)

To all whom it may concern:

Be it known that I, THOMAS DOUGLAS, of New York, in the county and State of New York, have invented a new and useful Improvement in Music-Leaf Turners, of which the following is a specification.

My invention relates to an improvement in music leaf turners in which by the touching of a key located within convenient reach of the person playing a musical instrument the leaves may be consecutively turned without further effort on the part of the player.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents the turner as it appears in use, the position of the parts being that which they assume when the first of a series of leaves is turned about three-quarters of the distance. Fig. 2 is a front view of the turner, the music being removed and one of the turning arms occupying the position which it assumes when it has completely turned a leaf. Fig. 3 is a similar view with the turning arms and fingers and their actuating mechanism removed, showing the clamp for holding the back of the music, open, to receive the music as distinguished from its closed position, shown in Fig. 2. Fig. 4 is a transverse section from front to rear through the line x, x of Fig. 3. Fig. 5 is an enlarged view in detail through one of the hubs of the turning arms, and Fig. 6 is a view in detail, showing a partial side elevation of the clamp, operating key and brace.

The frame consists of a center standard or back bone A, provided with a lower cross head a and an upper cross head a' extending in opposite directions from the back bone, the said cross heads being connected at a distance from the back bone and at opposite sides thereof by tie rods a^2 and a^3.

Along one edge, in the present instance along the right hand edge, of the back bone there is a fixed jaw B which extends a short distance toward the front and toward the center of the back bone, forming an under-cut lip within the hollow space of which the rod C for operating the turning arms extends, as will hereinafter more particularly appear. The opposite clamping jaw B′ which co-acts with the jaw B to clamp the back of the music to the frame is provided at its upper and lower ends with elongated slots b and b' through which pins b^2 and b^3 extend into the cross heads to fasten the movable jaw to the frame in sliding adjustment toward and away from the stationary jaw B. The movable jaw B′ is pressed normally toward the stationary jaw B by springs D and D′ at its upper and lower ends, one end of the said springs being secured respectively to the upper and lower cross heads and the opposite or free end pressing against the movable jaw. The jaw B′ is forced and held away from the stationary jaw by means of a pair of cam levers E and E′ pivotally secured to the projections b^4 and b^5 on the jaw B′ and their free ends engage the edge of the back bone A. When the levers are down in the position shown in Fig. 2, the movable jaw B′ is free to close toward the stationary jaw B and clamp the music between the two. When it is desired to remove the music, the levers E and E′ may be thrown into the positions shown in Fig. 3 and the cams upon their ends will, by pressing against the edge of the back bone, force the movable jaw back away from the stationary jaw and in this position it will be temporarily locked by the throwing of the levers slightly past center.

The operating key c is pivoted to the back bone at or near its lower end and the lower end of the operating rod C is connected with the key, as clearly indicated in Fig. 6. The upper end of the operating rod is attached to one arm of a vibrating dog F pivotally secured to the upper cross head and provided at the end of its arm opposite that to which the rod C is attached, with an upwardly extending nose f for the purpose of catching and retaining a succeeding turning arm while a previous turning arm is turning one of the leaves. The dog F has a pivotal engagement f' with the vibrating lever G, pivoted at one end to the upper cross head and at its opposite end engaged with the free end of an operating spring H, the tendency of which spring is to throw the lever upward. The free end of the lever G is provided with an upwardly extending nose g for the purpose of holding and releasing one of the turning arms. The operation of the dog F and lever G will be more fully described in connection

with the movements of the turning arms themselves.

At the upper end of the back bone A there projects a split pin I, screw-threaded at its top, for the reception of the finish and retaining cap *i*. On the split pin I the hubs of the several turning arms are loosely mounted. In the present instance I have shown four of the turning arms, but it is to be understood that their number may be increased or diminished at pleasure. They are represented respectively by K, K′, K² and K³. Their hubs are represented respectively by *k*, *k′*, *k²* and *k³*. Coil springs L, represented on an enlarged scale in Fig. 5, have one of their ends secured in the opening in the split pin I and after taking one or more turns around the split pin within the hub of the arm, have their opposite ends secured to the arm, as shown at *l*, Fig. 5. The tendency of the springs L is to swing the turning arms from their position at the right, over toward the left whenever the arms are at liberty to be swung.

At the end of each of the turning arms there is secured a depending finger, consisting of a stationary section M and a swinging section M′. (See Fig. 2.) I find it desirable to provide the face of the stationary section with some means for increasing its frictional hold upon a leaf of music, and to this end when I form the holding fingers of thin strips of metal, as I prefer to do, I find it desirable to thread in several short loops of india rubber. These are indicated by *m*. To insert a leaf, the spring section M′ may be turned off to one side and the leaf spread over the prepared face of the stationary section M and then the movable section M′ swung over the leaf to hold it between the two sections of the finger. In addition to providing the ends of the turning arms with the holding fingers I provide also the ends of the upper cross head *a′* with similar fingers for holding the front and back leaves of the music in position.

In operation, the cam levers E and E′ having been thrown in the position shown in Fig. 3, the backs of the music leaves may be inserted between the clamping jaws and the levers E, E′ may then be thrown into the position shown in Fig. 2, to clamp the music firmly to the frame. The first and last leaf may then be fixed in position by inserting them between the sections of the fingers attached to the opposite ends of the upper cross head. The intermediate leaves to be turned may then be secured in order between the sections of the fingers attached to the turning arms and the several arms thrown over to the right and held in position by the projection of the nose *g* in front of the uppermost of the arms, as indicated in Fig. 2. When it is desired to turn the leaf, the player momentarily presses downward on the key *c*. This will pull down on one arm of the dog F and elevate the nose *f* of the dog between the uppermost and the next succeeding of the turning arms, such position being shown in Fig. 1. The latter part of the downward movement of the key *c* will withdraw the nose *g* of the lever G from in front of the uppermost of the turning arms and permit it under the pressure of its operating spring to turn the leaf over from right to left. As the key *c* returns to its upper position under the pressure of the spring H, acting upon the lever G and hence upon the dog F, it will at first raise the nose of the lever G up in position to catch the next succeeding of the turning arms and its further upward movement will withdraw the nose *f* from in front of the succeeding turning arm and permit it to swing upward a slight distance against the nose *g*, ready to be released whenever it shall be desired to turn the next leaf. The dog F and vibrating lever G with their connections form in effect an escapement to permit the arms to be released one at a time in succession.

It is obvious that slight changes might be resorted to in the construction and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the construction and arrangement herein set forth, but

What I claim is—

1. The music leaf turner, comprising a supporting frame, means for securing the music leaves as a whole to the frame, spring actuated leaf-turning arms located at the top of the frame each provided with means for attaching its free end to the edge of the leaf, escapement mechanism located at the top of the frame and comprising a pivoted lever and a pivoted dog connected to move together and a controlling spring common to the two, for releasing the arms one at a time and an operating rod extending from the pivoted lever to the foot of the frame for operating the escapement, substantially as set forth.

2. The music leaf turner, comprising a supporting frame, clamping jaws for holding the back of the music secured to the frame, one of the jaws being movable toward and away from the other and the opposite jaw being under-cut, springs for actuating the movable jaw toward the other, a cam lever for forcing the movable jaw and locking it away from the other, leaf turning arms secured to the frame, an arm operating rod located within the said under-cut jaw and means for actuating the rod, substantially as set forth.

THOMAS DOUGLAS.

Witnesses:
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