

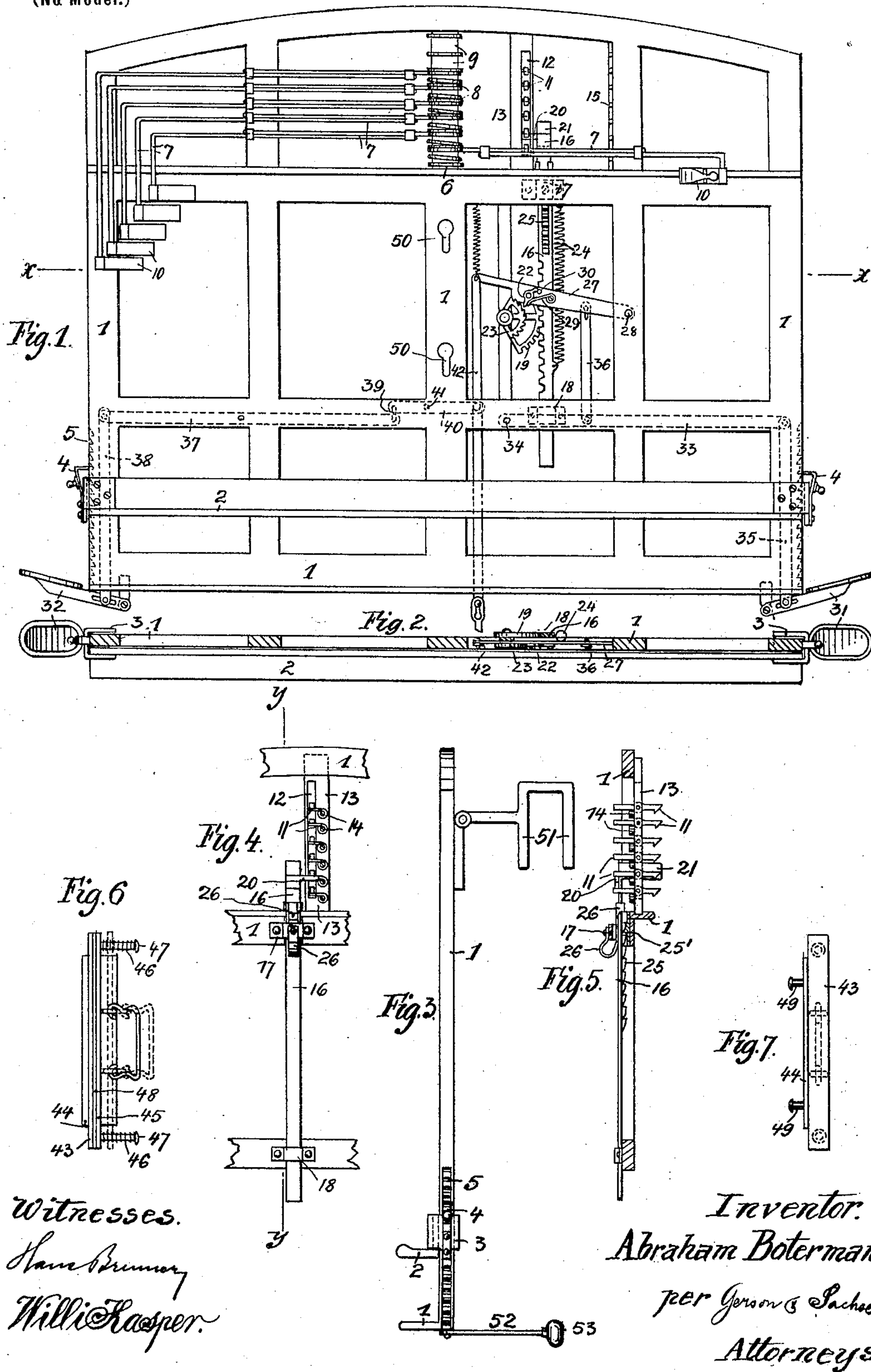
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Patented Apr. 22, 1902.

A. BOTERMANS.
MUSIC LEAF TURNER.

(Application filed Jan. 8, 1902.)

(No Model.)



UNITED STATES PATENT OFFICE.

ABRAHAM BOTERMANS, OF UTRECHT, NETHERLANDS.

MUSIC-LEAF TURNER.

SPECIFICATION forming part of Letters Patent No. 698,252, dated April 22, 1902.

Application filed January 8, 1902. Serial No. 88,947. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM BOTERMANS, a subject of the Queen of the Netherlands, residing at 4 Stationsdwaarsstraat, Utrecht, Netherlands, have invented new and useful Improvements in Music-Leaf Turners, of which the following is a specification.

My invention relates to improvements in music-leaf turners, and especially in those having spring-actuated leaf-turning arms engaging the leaves.

The invention consists principally in the special manner of releasing the arms one at a time and of the means for operating the escapement mechanism.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a front elevation of my improved leaf-turner. Fig. 2 is a cross-sectional view taken on the line *x x* of Fig. 1. Fig. 3 is a side elevation of the frame without the mechanism. Fig. 4 shows the rear view of the releasing mechanism, the means for operating said mechanism being omitted. Fig. 5 is a vertical section on the line *y y* of Fig. 4. Figs. 6 and 7 show in front and side elevation a detail used in connection with my improved leaf-turner.

In the construction of my invention I use a supporting-frame 1 and a rest 2, which is slidably mounted on said frame by means of U-shaped guides 3, as shown in Fig. 2, and may be vertically adjusted on the frame by spring-acting pawls 4, secured to said guides and engaging ratches 5, formed in the sides of said frame 1. A vertical rod 6, fastened in the top of the frame, forms the pivot for the leaf-turning arms 7, which are secured thereto by suitable eyes 8, forming spiral springs, the ends of which are fastened to said rod within corresponding annular grooves 9, as shown in Fig. 1. The two-parted arms 7 may be adjusted with their outer angularly-bent ends to the length of the leaves, so as to allow spring-actuated clamps 10, which are provided at the free end of said swinging arms, to be properly attached to the edges of the leaves, as is well known in such like leaf-turners. Said turning-arms are turned over from the left to the right, as shown in Fig. 1, and are secured in such position against the tension of their springs by means of spring-

actuated hooks 11, Figs. 1, 4, and 5. Said hooks are mounted in a vertical slot 12 of a plate 13, secured to the frame 1 on the right hand of said pivot 6 and are actuated by springs 14, fastened to the rear side of plate 13, as shown in Fig. 4. A rack 15 serves for supporting said arms 7 in said position. For releasing said arms from being held by hooks 11 I employ a rack-bar 16, which is vertically movable on the rear side of the frame within guide-pieces 17 and 18 (see Figs. 4 and 5) and engages a pinion 19, mounted in the frame. A horizontal arm 20 is provided at the upper end of the rack-bar 16 and engages, when moved downwardly, the rear ends of the lever-acting hooks 11, so as to release the turning-arms 7 and to allow said arm to turn over. A projection 21 at the front of said rack-bar assists the arm 20 in releasing the turning-arms by pressing on said arms simultaneously with the action of arm 20 on hooks 11. For releasing said turning-arms one by one and for operating the rack 16 and pinion 19 for this purpose I use an arrangement of levers operating a pawl 22 and a ratchet 23, which is rigidly connected to the axle of gear-wheel 19 and freely moves therewith. A spring 24, which has its ends respectively fastened to frame 1 and rack-bar 16, provides means for upwardly moving the latter against the action of pinion 19. A ratch 25, formed on the front side of rack-bar 16, and a suitably-formed projection 25' on the rear side of the frame within the guide-piece 17, engaging said ratch, in connection with a spring 26, pressing on bar 16, are the means for securing the rack-bar in position when moved downwardly by the action of pawl 22. Said pawl is mounted on a lever-arm 27, pivoted at 28, the free end of which arm is upwardly drawn by a spring 29, attached thereto. The motion of the spring-actuated pawl is limited by a pin 30 on said lever-arm. Said arm may be acted upon by two sets of levers, which are respectively operated by the finger-pieces 31 and 32, pivoted at the right and left corner of frame 1, as shown. A lever 33 is pivoted at 34 and connected to the lever-like-acting finger-piece 31 and lever-arm 27, respectively, by connecting-rods 35 and 36. Another lever 37 is connected by rod 38 to finger-piece 32 and by link 39 to lever 40, which is pivot-

ed at 41 and connected to the end of arm 27 by a rod 42. The levers and rods are partly arranged in slots within the frame, as indicated by dotted lines in Fig. 1.

5 The operation of the leaf-turner is obvious. The turning-arms 7 are turned over to the left and secured in such position by hooks 11 and supported within rack 15. A music-book (not shown) is put on the rest 2, and
 10 the uppermost arm is attached to the first leaf by means of its clamp 10. The following leaves are respectively attached to the following arms. When a leaf shall be turned, one of the finger-pieces at the right or left is
 15 pressed downwardly, and the limited action of pawl 22, operated thereby, causes the ratchet 23 and pinion 19 to rotate, so as to move the rack-bar 16 a limited stroke downwardly. The arm 20 of rack-bar 16 thereby
 20 acts on the uppermost hook 11 and simultaneously presses on said arm 7, so as to release same, which, being freed, turns over the leaf attached. The following leaves are turned
 25 over in the same manner, and the rack-bar in thus successively moving downwardly is secured in position by the ratch 25 and projection 25'. After having turned over all leaves the parts are brought into the initial position
 30 by pressing on the projection 21 of rack-bar 16, whereby said bar is freed from the projection 25' owing to the arrangement of spring 26 (see Fig. 5) and is drawn into its highest positions by means of spring 24. Simultaneously pinion 19 and ratchet 23 return to their
 35 normal position, as the ratchet is normally out of the reach of its pawl when the latter is in state or rest. The device shown in Figs. 6 and 7 is for securing single music-leaves in position on the frame, and consists of a sta-
 40 tionary plate 43, secured at right angles to a base-plate 44, and of a second plate 45, which is pressed against plate 43 by springs 46 and is guided on pins 47, carrying said springs. A leather cover 48 on the inside of plate 43
 45 and suitable corrugations (not shown) on plate 45 provide means for firmly securing such

leaves. Pins 49 on base-plate 44 form means for securing said device in the slots 50 of frame 1. Hooks, as 51 in Fig. 3, serve for securing the frame to the upper edge of the piano-
 50 forte front wall, and rods, as 52, with cushions, as 53, are for holding the frame in proper position when thus suspended.

Having now described my invention, what I claim as new, and desire to protect by Let-
 55 ters Patent, is—

In a music-leaf turner the combination of a supporting-frame, a vertically-adjustable rest for the music-leaves, spring-actuated leaf-
 60 turning arms pivoted at the top of the frame and adjustable to the length of the leaves, clamps at the free ends of said arms for attaching said leaves, spring-actuated hook-le-
 65 vers for securing said arms in position when turned over against the action of their spring, a vertically-movable upwardly-spring-pressed rack-bar guided on the rear side of said frame,
 70 a horizontal arm at the top of said rack-bar engaging the free ends of said hook-levers for releasing the turning-arms when moved down-
 75 wardly, a projection at the front of said rack for assisting said horizontal arm in releasing the turning-arms by pressing them down-
 80 wardly free from the hooks, a pinion meshing with said rack-bar, a ratchet connected to said pinion, a pawl engaging said ratchet,
 85 an upwardly-spring-pressed arm pivoted to the frame and carrying said pawl, a ratch on said rack-bar, a projection on said frame engaging said ratch for securing the rack-bar in
 position when operated, two finger-pieces respectively pivoted to the right and left corners of the frame and two sets of levers each transmitting the limited motion of one oper-
 ated finger-piece to the pawl, ratchet pinion and rack for the purpose of releasing the leaf-
 turning arms one by one, substantially as de-
 scribed.

ABRAHAM BOTERMANS.

Witnesses:

HENRY HASPER,
 WOLDEMAR HAUPT.