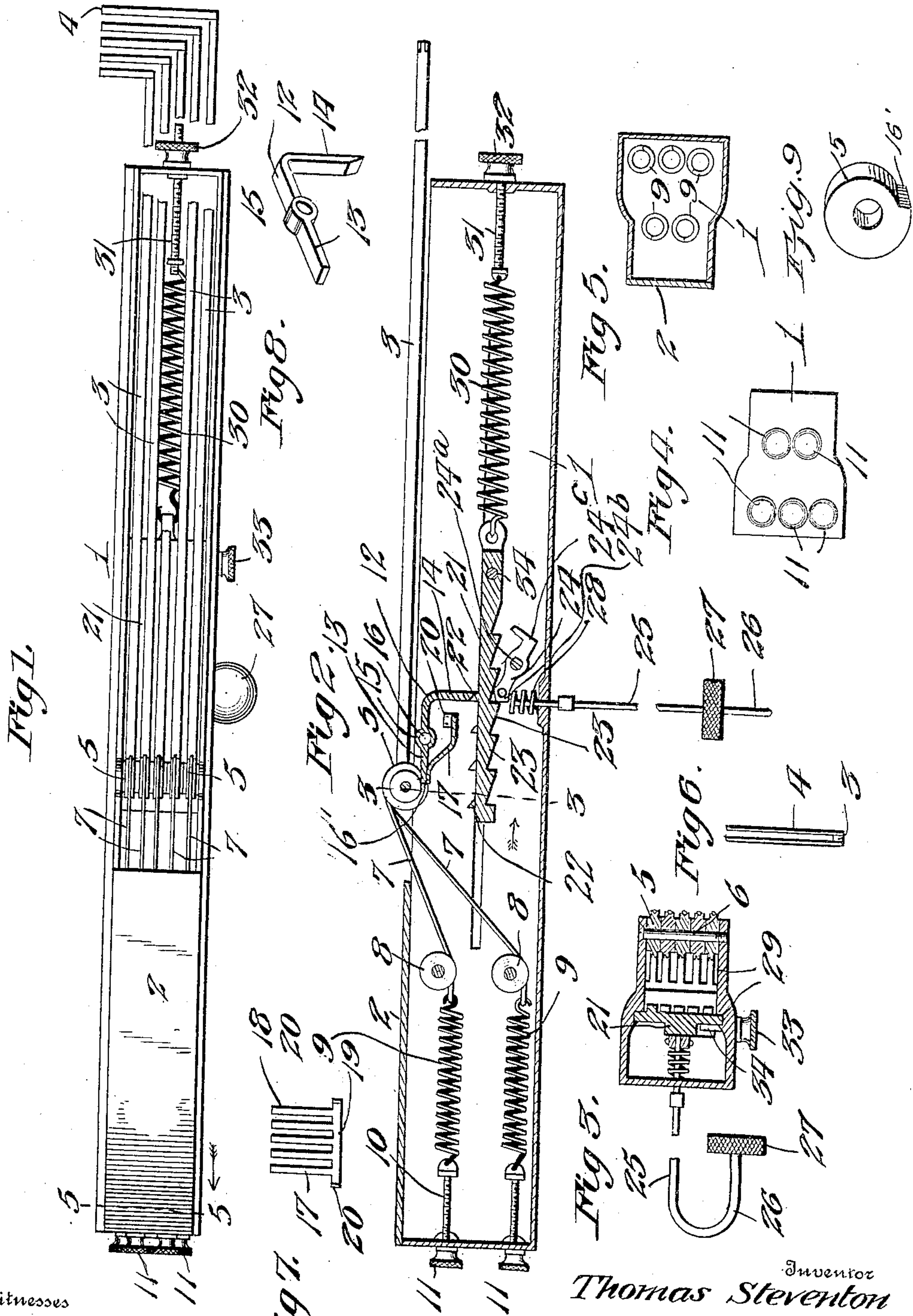


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MUSIC LEAF TURNER.
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MUSIC-LEAF TURNER.

No. 815,873.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS STEVENTON, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented new and useful Improvements in Music-Leaf Turners, of which the following is a specification.

This invention relates to a device for turning sheets or leaves of music, the object of the invention being to provide a simple, reliable, and inexpensive device of this character which may be readily applied to a piano or like instrument or to a music-rack and operated to successively turn the sheets or leaves without interfering with the playing of the performer.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a music-leaf turner constructed in accordance with my invention, the leaf-turning arms being broken away adjacent to their outer ends to show the feed-spring of the feed-rack and the tension-controlling device therefor. Fig. 2 is a vertical longitudinal section, showing the device turned up at right angles to its normal position. Fig. 3 is a cross-section taken on line 3 3 of Fig. 2. Fig. 4 is an end elevation of the device looking toward that end carrying the nuts for regulating the tension of the arm-swinging straps. Fig. 5 is a cross-section taken on line 5 5 of Fig. 1 looking toward the end of the device shown in Fig. 4. Fig. 6 is an outer end view of one of the leaf-turning fingers, showing the spring gripping-finger thereof. Fig. 7 is a detail view of the spring-comb plate. Fig. 8 is a similar view of one of the detents for holding and releasing the turning-arms, and Fig. 9 is a detail view of the headed end of one of the leaf-turning arms.

Referring now more particularly to the drawings, the numeral 1 designates an oblong rectangular casing open at the front from a point a little to the left of its transverse center to provide for the movement of the leaf-turning arm, the remainder of the front of the casing being closed by a removable cover-plate 2. Arranged upon the casing are a series of leaf-turning arms 3, which when arranged in operative position for turning the leaves extend longitudinally at the front of the casing from a point about midway thereof to and beyond the right-hand end of the casing, each arm terminating at its outer end

in a right-angularly-projecting spring-finger composed of spaced spring-strips 4, adapted to receive and engage the edge of the leaf or sheet to be turned.

The arms 3 are connected at their inner ends to a series of circular heads 5, pivotally mounted upon a common shaft or pivot-pin 6, extending vertically within and suitably fixed in the top and bottom walls of the casing, the heads being arranged side by side in parallel relation and adapted for independent movement on the said pivot 6. Each head 5 is partially grooved to receive one end of an arm-swinging connection 7, which may be in the form of a strap, cord, or like flexible element. Each of these straps 7 is fastened at one end to its respective head 5, and thence extends into the casing and passes around a guide-pulley 8, suitably mounted in the casing in rear of the cover-plate 2 and connected at its opposite end to one end of an actuating-spring 9, the opposite end of which spring is connected to a screw-stem 10, extending through the left-hand end wall of the casing and provided with an actuating head or nut 11, whereby the tension of the spring 9 may be increased or diminished to govern the pull upon the strap 7 and the swinging action of the connecting-arm 3.

The arms 3 are held in their normal operative position against the pull of the springs 9 by a series of detents 12. Each detent 12 is of angular form, having engaging arms 13 and 14 arranged at right angles to each other, the arm 13 being formed with an eye or knuckle 15, whereby the detent is pivotally mounted upon a suitable pivot rod or pin 16, extending vertically between and connected to the top and bottom walls of the casing. The free ends of the arms 13 of the series of detents 12 are adapted to engage notches or shoulders 16' formed in the edges of the heads 5 to hold said heads from rotation and maintain the arms in their operative position, as shown in Figs. 1 and 2. The detents are held in engaging position by an actuating-spring common to all, said spring being in the form of a comb-plate 17, having a series of parallel spring-fingers 18, which respectively bear against the under sides of the arms 13 and hold the same projected upward into engagement with the heads 5. The fingers 18 are connected by a cross-strip 19, from which the fingers project upwardly in a curved line to properly engage the arms 13, as shown in

Fig. 2, the said strip 19 having upturned ends or ears 20, pierced for the passage of fastenings to secure the same to the top and bottom walls of the casing 1.

5 The detents 12 are controlled and released by an intermittently-movable feed-bar or release-bar 21, provided upon its front side with a series of teeth 22 equal in number to the detents and so arranged that an intermit-
10 tent movement of the bar longitudinally of and to the right of the casing 1 will successively bring the teeth into position to engage the arms 14 of the detents and tilt the arms 13 thereof inwardly against the resistance of the spring-
15 fingers 18, thereby releasing the heads 5 and permitting them to be turned by the action of their operating-springs 9 to throw the arms 3 to the left and turn the leaves or sheets of music connected therewith. The front faces
20 of the teeth 22 in the direction of feeding movement of the bar 21 are beveled and the coacting faces of the arms 14 of the detents 12 correspondingly beveled to permit the de-
25 tents to be tilted with a minimum of resistance when the bar moves forward.

The rear face of the bar 21 is formed with a series of rack-teeth 23, which are adapted to be successively engaged by holding and re-
30 leasing pawl 24, suitably pivoted to the casing 1, said pawl being connected to a releasing-rod 25, extending to the exterior through the rear wall of the casing and having a bent outer
35 end 26, carrying an operating push-button 27, the bent end 26 being arranged to project the button a sufficient distance below the bot-
40 tom of the casing so that it may be conveniently operated by the finger or a suitable operating device from the front thereof. A coiled spring 28 engages the rod and pawl 24
45 and normally holds the rod pressed inward and the pawl engaged with one of the ratchet-teeth 23. The teeth 23 are arranged in coinciding relation to and correspond in num-
50 ber with the teeth 22, so as to obtain a proper feeding movement of the bar 21 to effect the tripping of the detents 12. The edges of the bar 21 fit and slide in grooved guideways 29 in the top and bottom walls of the casing, whereby said bar is mounted for movement
55 in a true path.

To the forward or right-hand end of the bar 21 one end of a coiled spring 30 is attached, and the opposite end of this spring is
55 connected with a screw-stem 31, mounted in the right-hand end of the casing 1 and provided with an actuating head or nut 32, by which it may be adjusted to regulate the tension of said spring. The purpose of this
60 spring 30 is to feed the bar 21 forward to give the proper intermittent motion thereto as the pawl 24 is successively released from engagement with the teeth 23.

Assuming the parts to be set for operation, as shown in Figs. 1 and 2, it will be readily
65 understood that when the button 27 is gently

pushed rearwardly the rod 25 will be moved outwardly against the resistance of the spring 28 and will retract the pawl 24, thus permit-
70 ting the spring 30 to feed the bar 21 forward. The pawl 24 will thus be released from en-
75 gagement with one of the teeth 23, and as the button 27 is released immediately by the action of the spring 28 into engagement with the succeeding tooth 23 to the left in the direction of
80 movement of the pawl 24. This action will move the bar 21 the space of one tooth and the detent 12 in engagement with the forward tooth 22 will be tilted and will release the
85 head 5 held thereby, thus permitting the spring 9, connected with said head, to turn the same to the left and correspondingly swing the associated arm 3 to turn the sheet or leaf of music connected therewith to the
90 left. Successive forward movements of the bar 21 will operate the detents 12 in turn, thus effecting the swinging of the arms 13 in a corresponding manner to successively
95 turn the sheets or leaves. As each head 5 is released and turned to swing the leaf-turning arm connected therewith, the periphery of the head engages and rides on the free end of the arm 13 of the coacting detent and holds the detent tilted out of the path of the teeth
100 22. When the heads are returned to normal position by the retraction of the arms 3, the free ends of the arms 13 snap into the notches 16' under the action of the springs 17, thus resetting the detents for use.

The pawl 24 is centrally mounted upon a
100 suitable pivot-rod 24^a and is provided at one end with a feed-tooth 24^b and at its opposite end with a stop-tooth 24^c. The tooth 24^b normally holds the bar 21 from movement by the spring 30, while upon the retraction of said
105 tooth 24^b the tooth 24^c is projected into engagement with one of the teeth of the rack-bar to permit said bar to move only the distance of one tooth. By this means the pawl acts in the nature of an escapement to prevent
110 the feed of the rack-bar a distance greater than the distance between adjacent teeth and the release of more than one leaf-turning arm at a time in the event that the operator should press too long upon the key 27.
115

In order to permit the bar 21 to be conveniently moved backward or reset, a resetting device is provided comprising a head or but-
120 ton 33, arranged upon the under side of the casing and provided with a stem 34, movable in a longitudinal slot in the casing and connected with the bar, so that by simply tilting the arms 14 of the detents 12 out of engage-
125 ment with the bar, which may be performed in any convenient manner, the bar may be retracted or moved to the left and reset by sliding the resetting device 33.

In practice suitable means may be provided for actuating the pawl-releasing rod 25
130 by an arm or foot connection, so that the per-

former may effect the release of the leaf-turning arms in a convenient manner without affecting his playing.

Having thus described the invention, what is claimed as new is—

1. In a music-leaf turner, the combination of a frame or casing, a longitudinally-movable spring-actuated rack-bar arranged therein, said bar being provided with opposite sets of teeth, a series of spring-actuated leaf-turning arms, each of said arms having a grooved head provided with a locking-shoulder, pivoted spring-actuated detents adapted to engage said locking-shoulders and one of the sets of teeth of the rack-bar, actuating-springs, flexible connections between said actuating-springs and the grooved heads of the turning-arms, and a spring-actuated feed-pawl to engage the other set of teeth of the rack-bar.

2. In a music-leaf turner, the combination of a frame or casing, a longitudinally-movable rack-bar arranged therein and provided with opposite sets of rack-teeth, a series of spring-actuated detents cooperating with one of said sets of teeth, a series of leaf-turning arms having grooved heads provided with locking-shoulders to cooperate with said detents, a spring for actuating the rack-bar, arm-actuating springs, means for regulating the action of said springs, flexible connections between the arm-actuating springs and the grooved heads, and a spring-actuated feed-pawl cooperating with the other set of rack-teeth of the rack-bar, substantially as described.

3. In a music-leaf turner, the combination of a frame or casing having a guideway, a rack-bar slidably mounted in said guideway and provided with a finger-piece for retracting the same and the opposite sets of rack-teeth, a spring for moving the bar in one di-

rection, leaf-turning arms provided with grooved pivoted heads, each having a locking-shoulder, a series of spring-actuated bell-cranked detents adapted to engage said locking-shoulders and one of the sets of teeth of the rack-bar, contractile springs operatively connected with the rack-bar and heads of the turning-arms, and a spring-actuated feed-pawl coacting with the other set of teeth of the rack-bar.

4. In a music-leaf turner, the combination of a frame or casing, a longitudinally-movable holding and releasing device arranged therein, said device being formed upon its opposite sides with sets of rack-teeth, a contractile spring for sliding said device in one direction, a releasing device cooperating with one of said sets of rack-teeth and controlling the action of said spring, a series of spring-actuated detents arranged in parallel relation and cooperating with the other set of rack-teeth, pivoted leaf-turning arms adapted to be held in inoperative position by said detents and released by the retraction thereof, and contractile springs for swinging said arms.

5. In a music-leaf turner, the combination of a frame or casing, a rack-bar slidably mounted therein, a releasing device for controlling the action of the rack-bar, a series of spring-actuated detents adapted to be successively released by said bar, leaf-turning arms normally held retracted by said detents, contractile springs operatively connected with the rack-bar and arms, and adjusting devices arranged upon the casing for regulating the action of said springs.

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

THOMAS STEVENTON.

Witnesses:

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