J. B. RICE.

MUSIC LEAF TURNER.

APPLICATION FILED JULY 13, 1911.

1,032,429.

Patented July 16, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

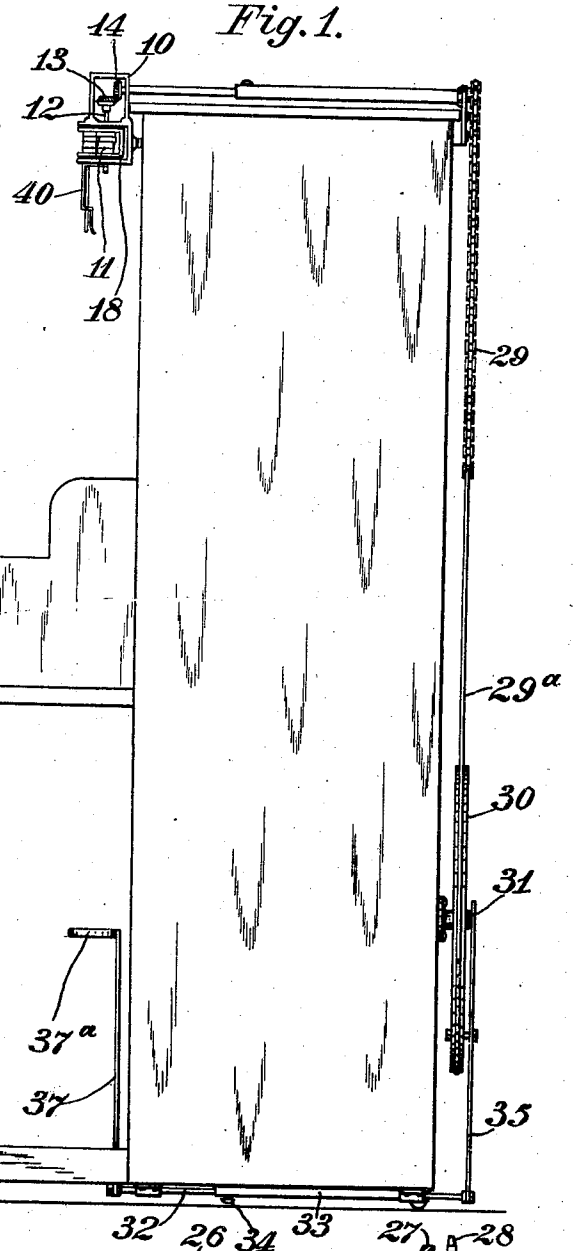
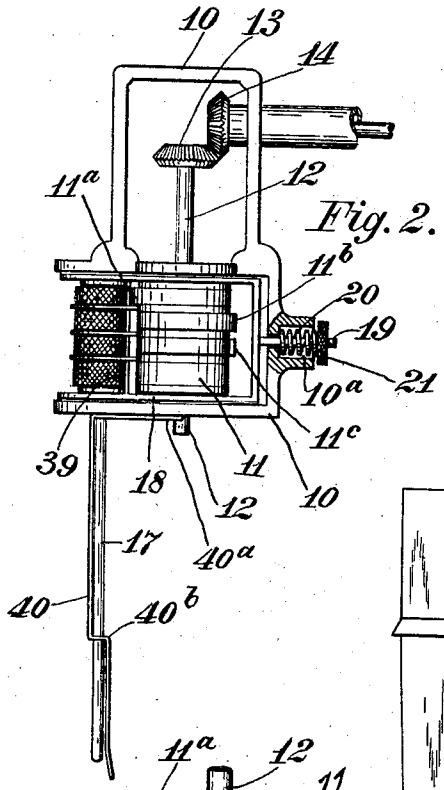


Fig. 2.



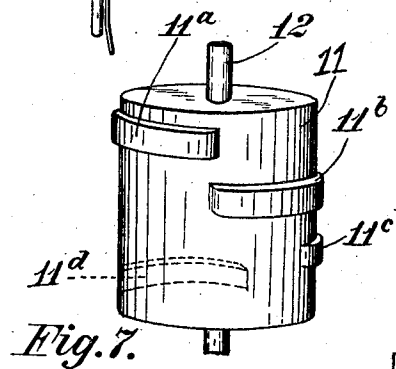


Fig. 7.

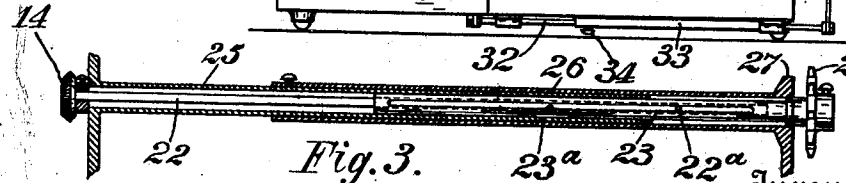


Fig. 3.

Witnesses

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2 SHEETS—SHEET 2.

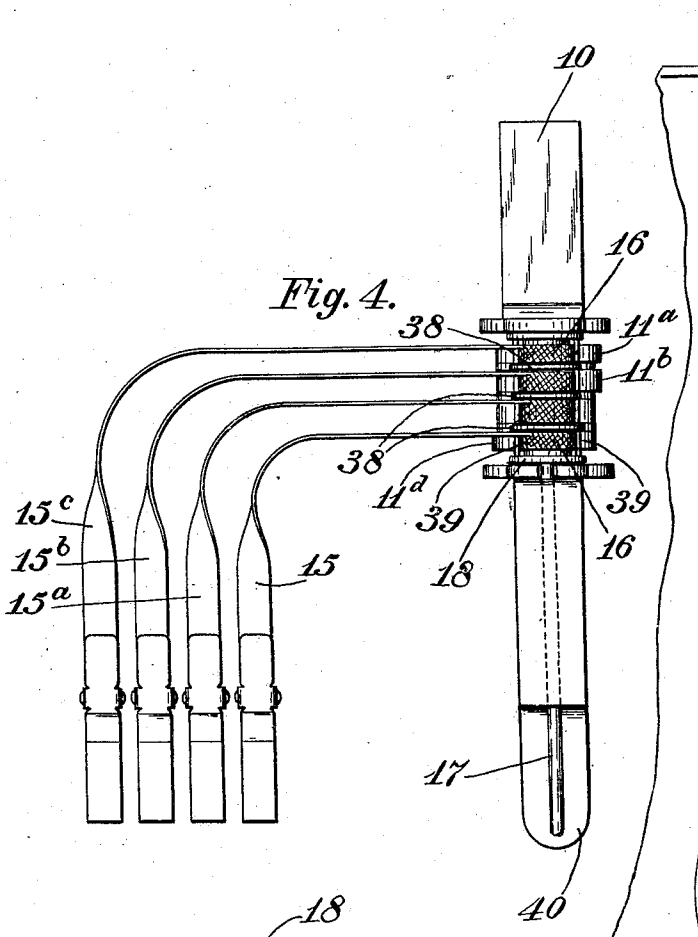

Fig. 4.

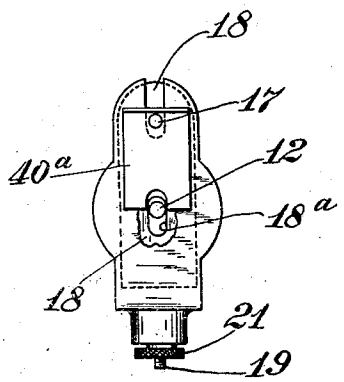

Fig. 5.

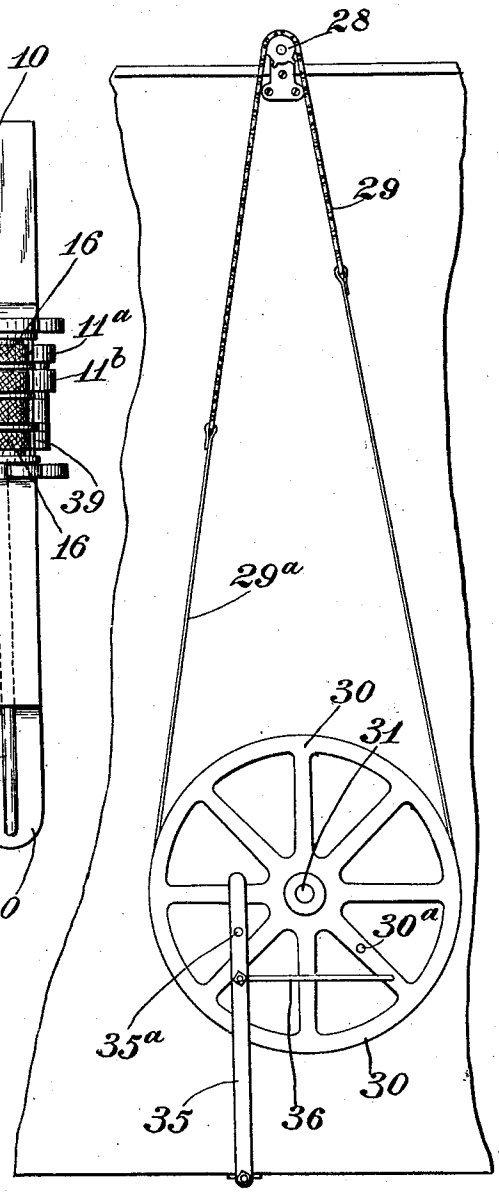

Fig. 6.

Witnesses

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MUSIC-LEAF TURNER.

1,032,429. Specification of Letters Patent. Patented July 16, 1912.

Application filed July 13, 1911. Serial No. 638,246.

To all whom it may concern:

Be it known that I, JOHN B. RICE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Music-Leaf Turners, of which the following is a specification.

The object of this invention is to provide a music leaf turner that shall be of simple and economical construction, easily applied to a piano and easily operated.

The invention is embodied in the construction herein shown and described and then particularly pointed out in the claims.

In the accompanying drawings—Figure 1 is a view in end elevation of an upright piano showing the leaf turner applied thereto. Fig. 2 is a detail view in side elevation with a part in section showing the finger operating devices. Fig. 3 is a longitudinal sectional view showing the shaft for operating the devices shown in Fig. 2. Fig. 4 is a front view of the parts shown in Fig. 2. Fig. 5 is a plan view of the lower side of the frame that carries the leaf turning fingers and their operating spool or drum. Fig. 6 is an elevation showing the operating mechanism at the back of the piano. Fig. 7 is a perspective view on a larger scale of the spool or drum.

In the views 10 designates a frame that is supported near the top of the piano at its front. In this frame is vertically mounted a spool or drum 11 having on its surface four excrescent soft rubber segments 11^a, 11^b, 11^c, and 11^d of the same size and form and located in a spiral line around the drum. The drum 11 has fixed in it a shaft 12 that has at its upper end a bevel gear 13 engaged by a bevel gear 14 on a shaft constructed and turned as will be later herein described.

15, 15^a, 15^b and 15^c, designate the music leaf turning fingers. These fingers each have some suitable form of device for engaging the music leaf at their lower ends and at their upper ends they are formed with cylindrical hubs such as shown at 16. Said hubs have roughened surfaces and are arranged in a tier parallel to the axis of the spool or drum 11 so that the rubber segments of the latter may when turned successively engage said hubs to swing the leaf turning fingers one after the other from left to right or reversely as may be desired. The hubs are journaled on the upper end of a pin 17 said pin being fixed in a yoke-like frame 18. The frame 18 is provided with slots in its arms like that shown at 18^a where it passes the shaft 12 so that the pin 17 and its contained hubs can be moved toward or from the spool or drum. The frame 18 is provided at its rear end with a threaded pin or shank 19 that extends through the structure of the frame and a pocket 10^a on said frame 10. In said pocket 10^a encircling the pin 19 is a coil spring 20 and against said spring is turned a nut 21. The lengths of the pin 19 and spring 20 are such that the frame 18 can have some play so that the frame is thereby held with the hubs drawn in regulable yielding contact with the rubber segments of the spool or drum.

The gear 14 is fixed on the end of a solid shaft member 22 that telescopes in a tubular shaft member 23. The shaft member 22 is furnished with a pin 22^a that projects into a slot 23^a in the member 23 so that the member 23 can turn the member 22 after adjustment of said members with reference to each other to lengthen or shorten the combined members. The possible adjustment of the shaft members permits the application of the device to pianos of different depths. The shaft members 22 and 23 are incased in tubular stationary members 25 and 26 forming parts of the frame 10 and a bracket 27 attached to the back of the piano. The tubular shaft member is journaled in the bracket 27 and beyond said bracket is furnished with a small sprocket wheel 28. Over the sprocket wheel 28 travels a sprocket chain 29 forming in conjunction with a strap portion 29^a a driving belt which in its strap part extends around a large belt wheel 30. The belt wheel 30 is mounted to turn on a suitable stud shaft 31 secured to the back wall of the piano.

Journaled to the under side of the piano is a two part shaft composed of a rod 32 and a tube 33 with a set screw 34 in the tube to pinch the rod to fix them together in adjusted position. On the rear end of this shaft is a crank arm 35 connected by a rod 36 with the large wheel 30 and on the forward end of said shaft is a crank rod 37 provided at its upper end with knee piece 37^a by means of which the performer can swing

the crank rod 37 to the right or left and therefore rotate the wheel 30, and through the belt, shaft members 22—23 and gears 13 and 14 operate the leaf turning fingers. The rod 36 has each of its ends bent but in opposite directions and threaded to receive an ordinary nut substantially as illustrated at the end connected with the rod 35. Therefore said rod 36 is removable and can be shifted to different holes 30^a and 35^a in the wheel 30 and crank rod 35 respectively to effect a longer or shorter movement of the belt as may be desired, it being obvious, for example, that if the left hand end of the rod or link 36 (as seen in Fig. 7) be connected with the hole 35^a it will with an equal swing of the arm 35 move through a longer arc than if connected at the point shown in said Fig. 6. The wheel 30 can be made of large circumference so that a partial revolution—say a sixth thereof—shall effect preferably one revolution of the shaft 12 and drum 11.

The hubs of the leaf turners are kept separated by means of washer-like plates 38 mounted on pins 39 secured in the yoke frame 18. The pins 39 also serve as stops to limit the oscillations of the leaf-turning fingers to the right and left.

The pin 17 is extended somewhat below the frame 10 and fixed on said pin in a spring clip piece 40 having at its upper end a head portion 40^a that slides under said frame and at its lower portion the piece 40 is bent as seen at 40^b and perforated for the passage of the pin 17. The lower extremity of the piece 40 constitutes a spring clip that cooperates with the lower end of the pin 17 to receive the music sheets at the middle fold to hold the sheets while they are being read and turned.

Assuming that the necessary leaf turning fingers have been attached to the leaves of the music at the right the swinging of the crank arm 37 to the left with the knee will turn first one and then the next and so on in succession until as many leaves have been turned as desired. To repeat the piece or a movement thereof the said arm 37 is swung to the right until the page desired is reached. In this operation the arms 37 and 35, being both fixed to the shaft 32, swing correspondingly and because the arm 35 is linked to the wheel 30 said wheel rocks through an arc corresponding to the throw of the arm 35 at its point of connection with said wheel.

With this construction of device the hubs can be moved independently of the operating drum or spool, and because of the aforesaid slippage the operating drum upon continued rotation in one direction works all the leaf turning fingers into line against one of said stops 39. Therefore when any one leaf holding finger has been manually moved or displaced from its proper relation to the others the continued rotation of the drum 11 in the proper direction brings all the fingers into normal alinement or position against the stop 39 at one side and the mechanism may therefore be said to be self correcting. That is to say if one finger is not properly positioned with reference to the others the mere ordinary operation of the device brings about the correct positioning of the fingers with reference to each other. The reason for this is that the movement of the fingers to the right or left is limited by the pins 39 and the continued and forced operation of the drum in one direction or the other permits slippage between the segments and hubs until all the fingers are brought into line against one of the pins 39. When regularly in line at one side the leaf turning fingers can be regularly operated to the other because of the regular occurrence of the segments around the spool or drum.

What I claim is:

1. In a music leaf turner, the combination with the leaf engaging fingers having hubs, a rotatable drum having frictional devices for independently operating said hubs, and means for rotating said drum of means for drawing said hubs toward the drum and holding the same in position to be engaged by said frictional devices.

2. In a music leaf turner, the combination with the leaf engaging fingers having hubs, a rotatable drum having frictional devices for independently operating said hubs, and means for rotating said drum of means for drawing said hubs toward the drum and yieldingly holding the same in position to be engaged by said frictional devices.

3. In a music leaf turner, the combination with the leaf engaging fingers having hubs, a rotatable drum having a stationary axis and frictional devices for independently operating said hub, and means for rotating said drum a pin 17 on which said hubs are mounted, a movable yoke 18 engaging said pin, and means whereby said yoke can be adjusted to move the hubs toward or from said drum.

4. In a music leaf turner, the combination with the leaf engaging fingers having hubs, a rotatable drum having a stationary axis and frictional devices for independently operating said hubs, and means for rotating said drum, a pin 17 on which said hubs are mounted, a movable yoke 18 engaging said pin, and means consisting of a threaded stem 19, spring 20 and nut 21 whereby said yoke can be adjusted to move the hubs toward or from said drum.

5. In a music leaf turner, the combination with the leaf engaging fingers having hubs, a rotatable drum having a stationary axis and frictional devices for independ-

ently operating said hubs, and means for rotating said drum a pin 17, on which said hubs are mounted, a movable yoke 18 engaging said pin, and means whereby said yoke can be adjusted to move the hubs toward or from said drum said pin having an extension and a coöperating clip for engaging the music sheets.

6. In a music leaf turner, the combination with the leaf engaging fingers having hubs, a rotatable drum having elastic segmental devices for independently operating said hubs, and means for rotating said drum said hubs and segmental devices having contacting operating surfaces adapted to permit the slipping of such devices with reference to said hubs at any point of contact.

7. In a music leaf turner, the combination with the leaf engaging fingers having hubs, a rotatable drum having elastic segmental devices for independently operating said hubs, and means for rotating said drum said hubs having roughened surfaces and said segmental devices having smooth operating surfaces to contact with said hubs.

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