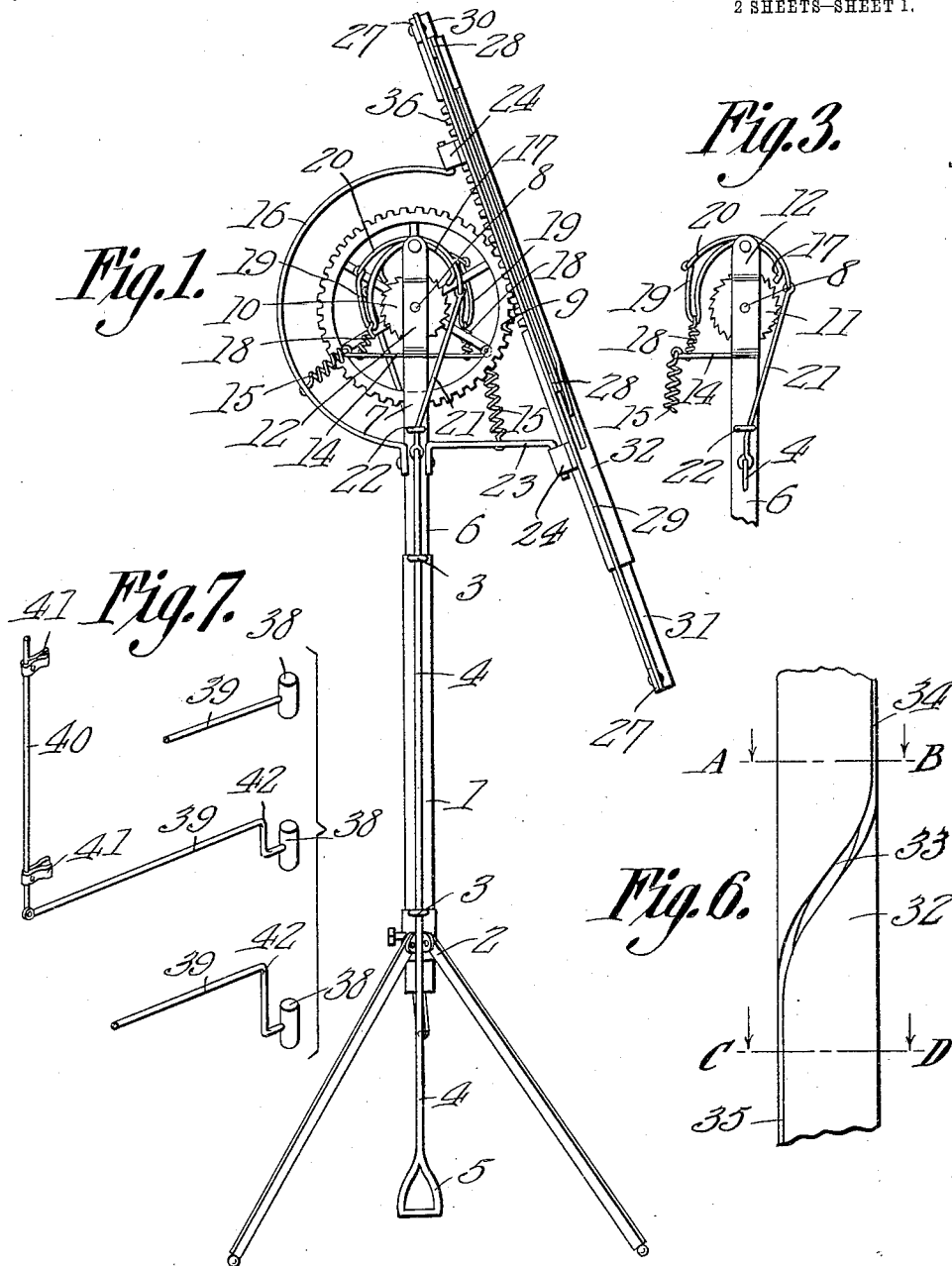


N. W. CARROLL.
MUSIC LEAF TURNER.
APPLICATION FILED MAY 22, 1912.

1,055,443.

Patented Mar. 11, 1913.

2 SHEETS—SHEET 1.



Witnesses

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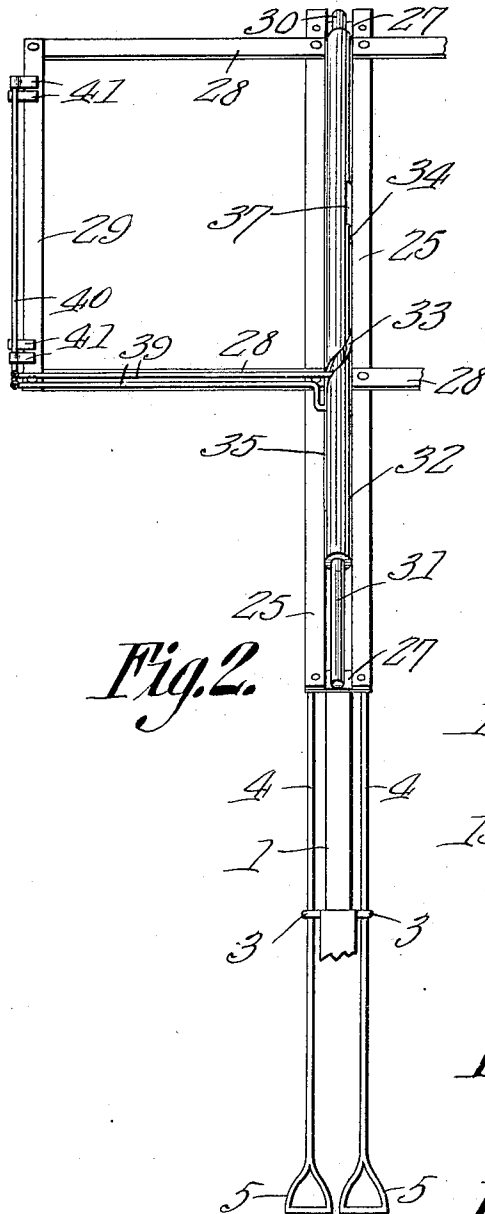


Fig. 2.

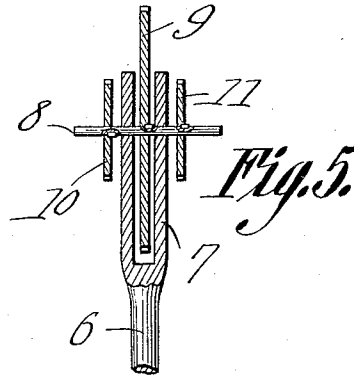


Fig. 5.

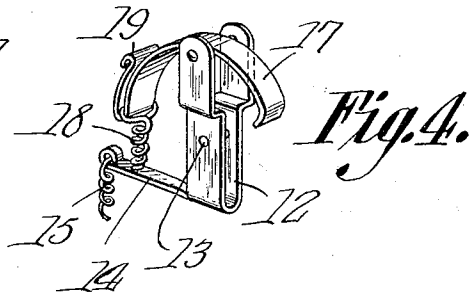


Fig. 4.



Fig. 8.

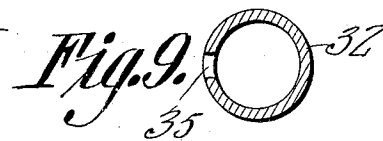


Fig. 9.

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UNITED STATES PATENT OFFICE.

NORMAN W. CARROLL, OF CINCINNATI, OHIO.

MUSIC-LEAF TURNER.

1,055,443.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed May 22, 1912. Serial No. 699,039.

To all whom it may concern:

Be it known that I, NORMAN W. CARROLL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Music-Leaf Turner, of which the following is a specification.

This invention relates to music leaf turners, one of its objects being to provide a simple and compact mechanism whereby one or more leaves can be readily turned in either direction, the mechanism being such that where two or more leaves are employed they will be successively turned as desired.

Another object is to provide a music leaf turner of this character which is practically unlimited as to the number of sheets which may be turned thereby, it being possible to utilize any desired number of sheet engaging devices.

Another object is to provide simple means for turning the leaves in either direction desired.

Another object is to provide mechanism of this character which is so compact as to be easily connected with an ordinary music stand or with the music rack of a piano or like instrument.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a side elevation of a music stand having the present improvements combined therewith. Fig. 2 is an enlarged front elevation of the leaf turning apparatus removed from its supporting standard, a portion of the device being broken away. Fig. 3 is a side elevation of a portion of the ratchet mechanism. Fig. 4 is a perspective view of a portion of the ratchet mechanism. Fig. 5 is a transverse section through a portion of the apparatus. Fig. 6 is an elevation of a portion of the shifting sleeve. Fig. 7 is a perspective view of portions of music leaf engaging

and turning devices separated. Fig. 8 is a section on line A—B Fig. 6. Fig. 9 is a section on line C—D Fig. 6.

Referring to the figures by characters of reference, 1 designates a tubular standard supported by a tripod 2 or the like and provided with laterally extending guides 3 in which are mounted operating rods or slides 4 having foot pieces or pedals 5 at their lower ends where they can be easily reached and actuated by the user.

A stem 6 is mounted in the standard 1 and is provided, at its upper end, with a forked extension 7 in which is journaled a shaft 8 having a large gear 9 secured to the middle portion thereof and arranged within the fork. Secured to each end portion of the shaft 8 is a yoke 12 having openings 13 therein through which the shaft extends. The yokes straddle ratchet wheels 10 and 11 respectively, these wheels being suitably secured to the shaft 8 so as to rotate therewith. The two yokes are oppositely disposed. An arm 14 extends outwardly from the lower or crown portion of the yoke and is connected, by means of a spring 15, to a guard strip 16 which extends from the upper portion of the stem 6. This guard strip is sufficiently broad to protect the gears and it is to be understood that if desired, a housing may be used in lieu of this strip so as to completely inclose that portion of the mechanism carried by the stem 6. A pawl 17 is pivotally mounted in the upper portion of each yoke 12 and is supported above the ratchet wheel within the yoke, one end of the pawl being adapted to engage the ratchet wheel while the other end of the pawl is connected, by means of a light spring 18, to the arm 14. This spring 18 serves to hold the pawl normally disengaged from the ratchet wheel. That end of the pawl to which the spring 18 is secured has an arm 19 extending upwardly therefrom and connected to a flexible band 20 which bears on the outer or convex surface of the pawl and extends downwardly beyond that end of the pawl designed to engage the ratchet wheel. This downwardly extending end of the band is connected, by means of a cord 21 or the like, to the upper end of one of the rods or slides 4 and extends through a guide 22 projecting from the stem 6.

Each of the ratchet wheels is provided

with operating mechanism such as has been described. It is to be understood, however, that the ratchet mechanism at one side of the apparatus is disposed oppositely to the mechanism at the other side so that when one of the pawls is actuated it will rotate its ratchet wheel and the gear 9 in one direction whereas when the other pawl is actuated the movement of the gear 9 will be reversed.

A bracket 23 extends forward from the stem 6 and secured to this bracket and to the upper end of the band or housing 16 are straps 24 or the like connecting the parallel middle strips 25 of a music rack, these strips being fixedly connected not only by means of the straps 24, but also by means of suitably disposed cross pieces 27. Leaf supporting strips 28 are pivotally connected to the middle strips 25 and are adapted to swing relative thereto, these leaf supporting strips being connected at their outer ends in any suitable manner, as by means of connecting strips 29 pivotally attached to them. It is to be understood that the rack, however, can be of any other suitable construction.

A downwardly extending pintle 30 is secured to the upper connecting strip 27 and an upwardly projecting pintle 31 is secured to the lower connecting strip 27 the two pintles being extended toward each other and alining but spaced apart. A shifting sleeve 32 is slidably mounted on the pintles and has a spiral slot 33 extending half way around it and merging, at its ends, in longitudinal slots 34 and 35 respectively.

A longitudinal series of rack teeth 36 is formed along the back portion of sleeve 32 and the gear 9 is adapted to mesh with these teeth and thus slide the sleeve longitudinally as the gear is rotated.

As shown particularly in Fig. 2, the upper end portion of the slot 34 is enlarged, as shown at 37. Cylindrical blocks 38 are insertible through this enlargement so as to aline with one upon the other. Each block has an arm 39 extending radially therefrom and adapted to be slidably engaged by the walls of the slots 33, 34 and 35. Each of these arms 39 has an upstanding portion at its free end, as shown at 40, said upstanding portion carrying clips 41 for engaging the page to be turned. The uppermost arm 39 is straight from end to end while the next adjoining arm thereunder has a bend 42 near its block 38, this bend extending downwardly from the arm a distance equal to the length of the axis of the spiral slot 33. The next lowest arm 39 has a bend 42 which extends downwardly a distance equal to twice the length of the axis of the spiral slot 33. Thus it will be apparent that when the blocks 38 are assembled end to end within the sleeve

32, all of the arms 39 will be disposed close to each other and one above the other. Obviously any desired number of blocks 38 may be used and the distance between the free ends of the pintles 30 and 31 is such as to permit these blocks to completely fill the space between the pintles and thus to be held against vertical movement during the sliding movement of the sleeve. The rods or arms 39 are so located as to lie directly in front of the lower portion of the rack on which the sheet music is mounted.

Any suitable means may be provided for preventing the sleeve 32 from rotating on the pintles 31 and 30. This rotation can be prevented by the frictional engagement between the teeth 36 and the teeth of the gear 9 or separate means may be used for holding the sleeve against rotation.

It is to be understood that under normal conditions the sleeve 32 is in its lowermost position on the pintles and the arms or rods 39 thus extend toward the right from the sleeve and project through the upper slot 34 in said sleeve. The sheets of music are attached to the respective upstanding portions 40 and, when it is desired to turn the first sheet, the rod 4 at the right of standard 1 is shifted downwardly. This causes cord 21 to pull on the band 20 and thus tilt the pawl 17 into engagement with the ratchet wheel 11, thereby elongating the spring 18. Further downward movement of rod 4 will cause the yoke 12 to swing about the axis of the shaft 8 and against the stress of spring 15 and, as pawl 17 is in engagement with the wheel 11, said wheel together with shaft 8 and gear 9 will be rotated. As gear 9 is constantly in mesh with the rack 36, said rack and the sleeve 32 constituting a portion thereof, will be moved upwardly a sufficient distance to bring the uppermost arm 39 within the slot 33. The spiral walls of this slot will cause the said arm to swing from the right to the left of the rack and into position to be received by the straight portion 34 of the slot and the leaf will be carried to the left by the arm. This will bring the upper end of the spiral slot 33 close to the lowermost portion of the bend 42 of the next adjoining arm 39. When it is desired to turn this second arm and, consequently the leaf carried thereby, the foregoing operation is repeated so as to raise sleeve 32 a farther distance sufficient to bring the lower portion of the bend 42 of the next or second arm 39 into the spiral slot 33 so as to be shifted toward the left of the rack and into the slot 34. This operation is repeated until all of the arms or rods 39 have been turned to the left. By then moving sleeve 32 downwardly, said arms can be successively swung back to the right. It will be understood of course that any one of the arms 39 can be swung back toward the right

after it has been swung to the left, simply by reversing the operation of the mechanism.

Inasmuch as each bend 42 extends downwardly a distance equal to the length of the axis of the spiral slot 33, it will be seen that the sleeve 32 will move the full length of the slot 33 before the wall of said slot is brought into engagement with the bend 42 of the arm in the path thereof. Obviously, therefore, during the movement of the sleeve in one direction, no two arms will be moved simultaneously but, instead, said arms can only be swung successively from right to left or vice versa.

What is claimed is:—

1. A leaf turner including a rack, alining spaced pintles carried thereby and fixedly mounted, a sleeve mounted to slide upon the pintles and having a slot extending longitudinally in the end portions of the sleeve and spirally partly around the sleeve between the end portions of the sleeve, means for sliding the sleeve in either direction upon the pintles, cylindrical blocks mounted for rotation within the sleeve and held against longitudinal movement by the pintles, arms extending from the blocks and through the slot in the sleeve, and means for moving the sleeve in either direction along the pintles for successively swinging the arms from one side to the other of the rack and rotating the blocks in the sleeve.

2. A leaf turner including a rack, oppositely disposed alining pintles fixed thereon, a sleeve slidably mounted on the pintles and held against rotation, said sleeve having a slot therein, the ends of the slot being extended longitudinally and the intermediate portion thereof being extended spirally partly around the sleeve, there being an inlet opening at one end of the slot, cylindrical blocks insertible through said opening into the sleeve, said blocks being disposed end to end and held against longitudinal movement by the pintles, arms extending from the blocks and through the slot, and means for sliding the sleeve longitudinally in one direction to bring the wall of the spiral portion of the slot successively into engagement with the arms to swing said arms from one side to the other of the rack.

3. A leaf turner including a rack, oppositely disposed alining pintles fixed thereon,

a sleeve slidably mounted on the pintles and held against rotation, said sleeve having a slot therein, the ends of the slot being extended longitudinally and the intermediate portion thereof being extended spirally partly around the sleeve, there being an inlet opening at one end of the slot, cylindrical blocks insertible through said opening into the sleeve, said blocks being disposed end to end and held against longitudinal movement by the pintles, arms extending from the blocks and through the slot, and separately operable means for shifting the sleeve intermittently in either direction to bring the wall of the spiral portion of the slot successively into engagement with the arms to swing said arms from one side to the other of the rack.

4. The combination with a sheet supporting rack, and alining spaced pintles connected thereto, of a sleeve mounted to slide on the pintles and having a slot extending longitudinally thereof, an intermediate portion of the slot being extended spirally partly around the sleeve, a block interposed between and held against longitudinal movement by the pintles, said block being mounted to rotate within the sleeve, a leaf carrying arm extending from the block and through the slot, and means for sliding the sleeve upon the pintles.

5. The combination with a sheet supporting rack, and alining spaced pintles connected thereto, of a sleeve mounted to slide on the pintles and having a slot extending longitudinally thereof, an intermediate portion of the slot being extended spirally partly around the sleeve, a block interposed between and held against longitudinal movement by the pintles, said block being mounted to rotate within the sleeve, a leaf carrying arm extending from the block and through the slot, rack teeth upon the sleeve, a gear meshing therewith, and separate means for rotating the gear in opposite directions respectively.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

NORMAN W. CARROLL.

Witnesses:

E. M. HUGHES,
WALTER W. SCHWAAB.