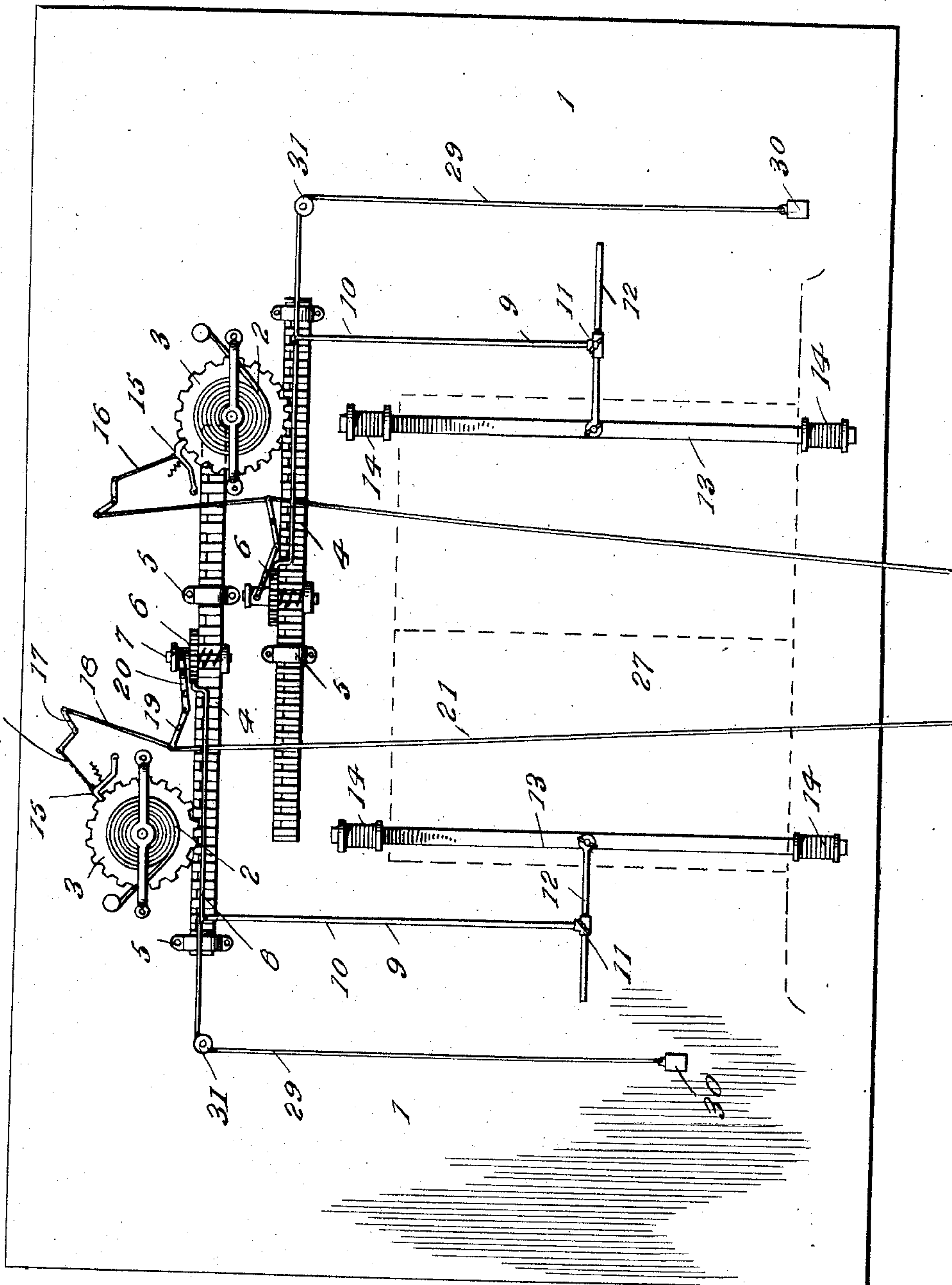


No. 881,807.

R. LANGSTAFF. PATENTED MAR. 10, 1908.  
MUSIC LEAF TURNER.  
APPLICATION FILED AUG. 16, 1907.

2 SHEETS—SHEET 1.



Witnesses

*Wm. H. Woodson*  
Wm. H. Woodson

By

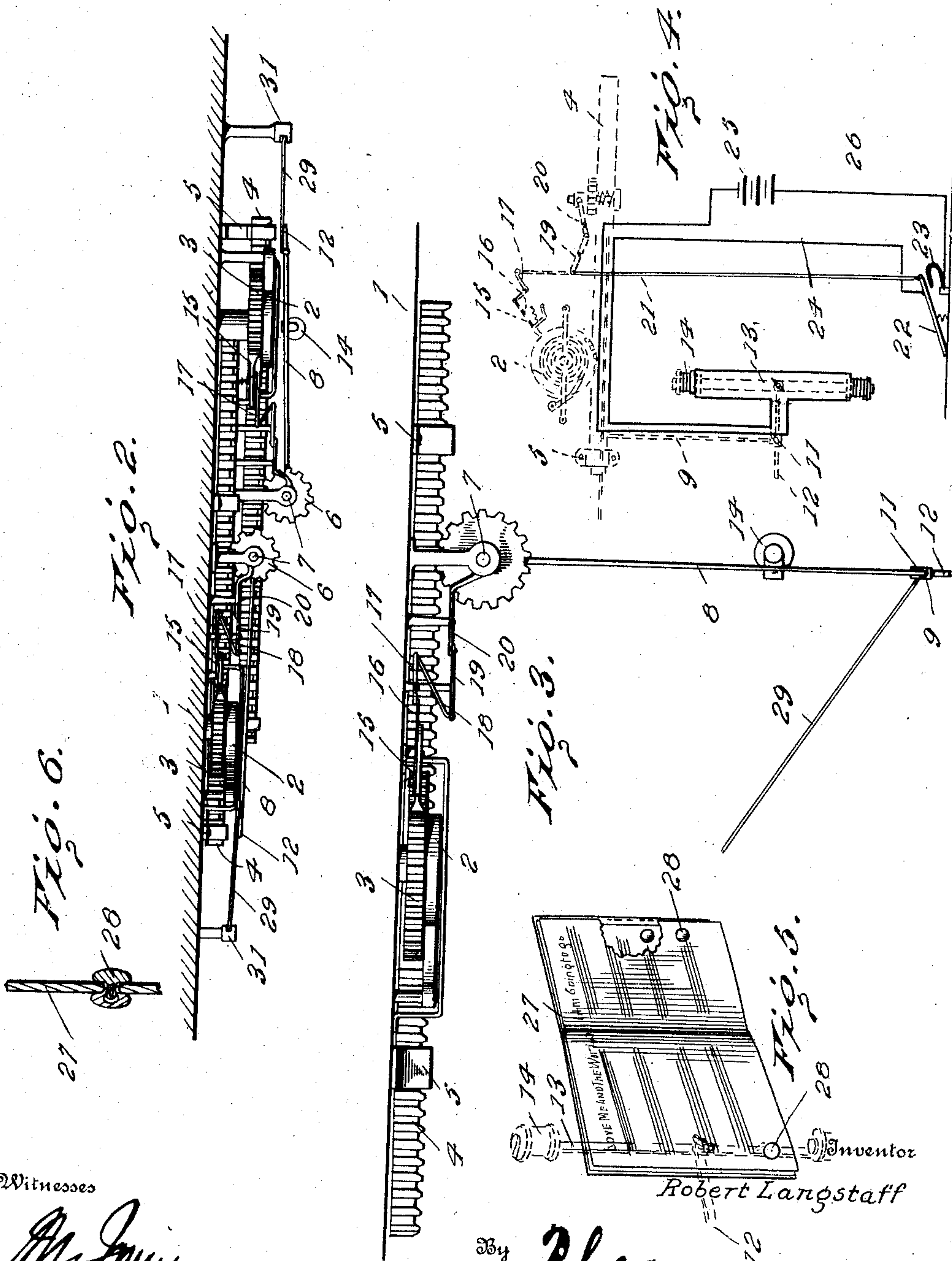
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Witnesses

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# UNITED STATES PATENT OFFICE.

ROBERT LANGSTAFF, OF DONORA, PENNSYLVANIA.

## MUSIC-LEAF TURNER.

No. 881,807.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed August 16, 1907. Serial No. 388,869.

*To all whom it may concern:*

Be it known that I, ROBERT LANGSTAFF, citizen of the United States, residing at Donora, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Music-Leaf Turners, of which the following is a specification.

This invention contemplates certain new and useful improvements in music leaf turners, and the invention has for its object a simple and efficient construction of device of this character which will be comparatively cheap to manufacture and which may be operated to turn the leaves either backwardly or forwardly, as the occasion may demand.

With this and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements, and combinations of parts that I shall hereinafter fully describe, and then point out the novel features in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and the accompanying drawings, in which:—

Figure 1 is a front elevation of a music leaf turner constructed in accordance with my invention; Fig. 2 is a top plan view thereof; Fig. 3 is a similar view of a portion of the apparatus, on a larger scale; Fig. 4 is a view, in the nature of a diagram, illustrating particularly the wiring for the electric circuits; Fig. 5 is a detail perspective view illustrating a piece of sheet music arranged to coact with the leaf-turning mechanism; Fig. 6 is a fragmentary view, on an enlarged scale, of a portion of one of the leaves.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 1 designates the supporting plate of the apparatus which is designed to be secured to the front of the case of a piano or other musical instrument, in juxtaposition to the ordinary music holding support, and which is designed to carry the operative elements of the apparatus. All of which elements are duplicated in the present embodiment of the invention, so that the apparatus is capable

of turning the leaves either forwardly or backwardly. As one set of elements corresponds to the other set, I deem it necessary to specifically describe only one set, the drawings clearly illustrating the duplication of parts.

2 designates a spring motor which is mounted on the supporting plate 1 and which actuates or drives a spur gear wheel 3 in meshing engagement with one set of teeth on a laterally reciprocating rack 4, mounted to move within guides 5. A pinion 6 is splined on a vertical shaft 7 journaled in suitable bearings on the supporting plate and is normally held by a spring out of engagement with another series of teeth on the outer face of the rack bar 4. The pinion 6 carries a radially extending arm 8 from the outer end of which a rod 9 depends. This rod is preferably jointed, as indicated at 10, so that it may be folded upon itself to economize space when the apparatus is not being used. The lower end of the rod 9 is provided with a collar 11 through which the stem 12 extends, being adjustably held therein by means of a set-screw as shown. The stem 12, at one end, has a pivotal connection to the attracting yoke or connecting core 13 of electro-magnets 14. The spring motor 2 is normally held in an inoperative condition by means of a spring pressed pawl 15. In order to release the pawl from the motor, I provide a cord 16, which is attached at one end to the pawl and at its other end to one arm of a bell crank 17 fulcrumed at its elbow on the supporting plate 1. A cable 18 is attached at one end to the other arm of the bell crank, said cable being also connected to one arm of a rocking lever 19 fulcrumed on the supporting plate. The other arm of the lever 19 has a loose jointed connection with the shipper lever 20 formed with a yoke encircling the grooved hub of the pinion 6.

A pull cord or cable 21 is attached to one end of the lever 19, as clearly illustrated in Figs. 1 and 4, and is designed to extend downwardly to a foot-treadle 22 which is spring pressed upwardly as shown in Fig. 4. The foot-treadle 22 carries a brush or terminal of an electric circuit, the same being designed for contact with a yielding or spring terminal 23 to complete the circuit. The said electric circuit includes a lead from the foot-treadle 22 through the arm 8 and a rod 9



and the electro-magnet, the wire thence extending backwardly to a cell 25 or other source of electrical supply, located at any convenient point, preferably within the instrument. The other lead connects the opposite pole of the battery or cell 25 with the relatively stationary terminal 23.

For use in connection with the mechanism above described the music sheet to be turned thereby is especially prepared. I provide a series of iron or steel buttons that are adapted to be secured to the respective leaves of a piece of music 27, the buttons being spaced from each other on the respective leaves, as illustrated in Fig. 5, and preferably consisting of two interlocking parts 28 which the operator may readily apply to the music, as clearly illustrated in Fig. 6, hence it will be seen that the music need not be manufactured especially for the apparatus.

In the practical operation of my improved music leaf turner, the operator may, by pressing the foot-treadle 22 downwardly cause the lever 19 to rock. This will manifestly move the shipper lever 20 to carry the pinion 6 into engagement with one series of teeth of the rack 4. Simultaneously the rocking of the lever 19 will effect the rocking of the bell crank 17 in a direction to carry the pawl 15 out of engagement with the spur gear 3, thereby permitting the motor to operate. The consequent rotation of the gear wheel 3 will effect the sliding movement of the rack bar 4 in a direction to turn the pinion 6 so as to swing the arm 8 around. It is to be understood that the operation of these movable parts is coincident to the closing of the electric circuit and the consequent energization of the electro-magnets. Hence the latter will cause a button 28 of a leaf to adhere by magnetic attraction to the core piece 13, and as the magnet is carried around by the sweep of the arm 8, the leaf will be carried with it and returned. As the leaf passes the center and has a tendency by its own weight to complete its traverse, the operator will release the treadle 22 and open the electric circuit so that the electro-magnet will no longer attract the button, and this movement will also be accompanied by the movement of the pinion 6 to the released position, the motor at the same time being automatically stopped. In order to then return the magnet to its original position ready for the succeeding operation, I provide the cord 29 which carries a weight 30 and which passes up over a pulley 31 on the supporting plate 1, and is attached to the outer end of the arm 8.

In Fig. 1 of the accompanying drawings, the wiring has been omitted for the sake of clearness.

It is to be understood that when the rack 4 completes its travel in one direction, actuated by the spring motor, it is drawn back-

wardly to its initial position by hand, and in so doing it will wind up the motor. The apparatus may be covered, or inclosed in a suitable case, so as not to mar the appearance of the instrument.

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

1. In a music leaf turner the combination of a support, an arm mounted on said support and adapted to swing from side to side thereof, means for swinging said arm, an electro-magnet carried by said arm, means or energizing said magnet, in connection with a button designed to be secured to a leaf and adapted to be attracted to said magnet and carried by the latter in its traverse.

2. In a music leaf turner, the combination of an oscillating arm adapted to swing from side to side, actuating means for said arm, means for holding said actuating means inoperative, a clutch mechanism adapted to operatively connect and disconnect the actuating means with and from said arm, means for simultaneously throwing the clutch in and moving the holding means to the release position, a magnet carried by said arm, and an element adapted to be secured to a leaf and designed to be attracted to said magnet.

3. In a music leaf turner, the combination of an oscillating arm adapted to swing from side to side, actuating means for said arm, means for holding said actuating means inoperative, a clutch mechanism adapted to operatively connect and disconnect the actuating means with and from said arm, means for simultaneously throwing the clutch in and moving the holding means to the release position, and means carried by the arm, in connection with a device secured to a leaf for moving the leaf as the arm is moved.

4. In a music leaf turner, the combination of an oscillating arm adapted to swing from side to side, actuating means for said arm, means for holding said actuating means inoperative, a clutch mechanism adapted to operatively connect and disconnect the actuating means with and from said arm, means for simultaneously throwing the clutch in and moving the holding means to the release position, means carried by the arm in connection with a device secured to a leaf for moving the leaf as the arm is moved, and means for automatically returning the said means carried by the arm to initial position.

5. In an apparatus of the character described, the combination of a support, an arm mounted to oscillate on said support, means for actuating said arm, a clutch for connecting said arm with its actuating means, means for holding the actuating means inoperative, an electro-magnet carried by said arm, an electric circuit in which said magnet is included and a source of supply therefor, and means for simultaneously closing said circuit, releasing the holding means



for the actuating means and throwing the clutch in a direction to operatively connect the arm with its actuating means.

5 6. A music leaf turner, comprising a supporting plate, a rack bar mounted to slide laterally thereon, a spring motor having a gear wheel meshing with said rack, a shaft journaled on said supporting plate, a pinion splined on said shaft and spring pressed out  
10 of engagement with the rack bar, a spring-pressed pawl engaging with said gear wheel, levers connected to the pawl and to the pinion respectively, a connection between said  
15 levers for their simultaneous actuation, a pull cord operatively connected to said levers and designed to effect the release of the pawl and

the movement of the pinion into engagement with the rack bar, a foot treadle connected to said pull cord, an arm carried by said pinion, a magnet suspended from said arm and  
20 adapted to be swung from side to side of the supporting plate as the arm operates, and a weighted cord connected to said arm and adapted to return the latter to its initial po-  
25 sition.

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

ROBERT LANGSTAFF. [L. s.]

Witnesses:

PAUL V. NEEL,  
LEONARD E. SANDS.