

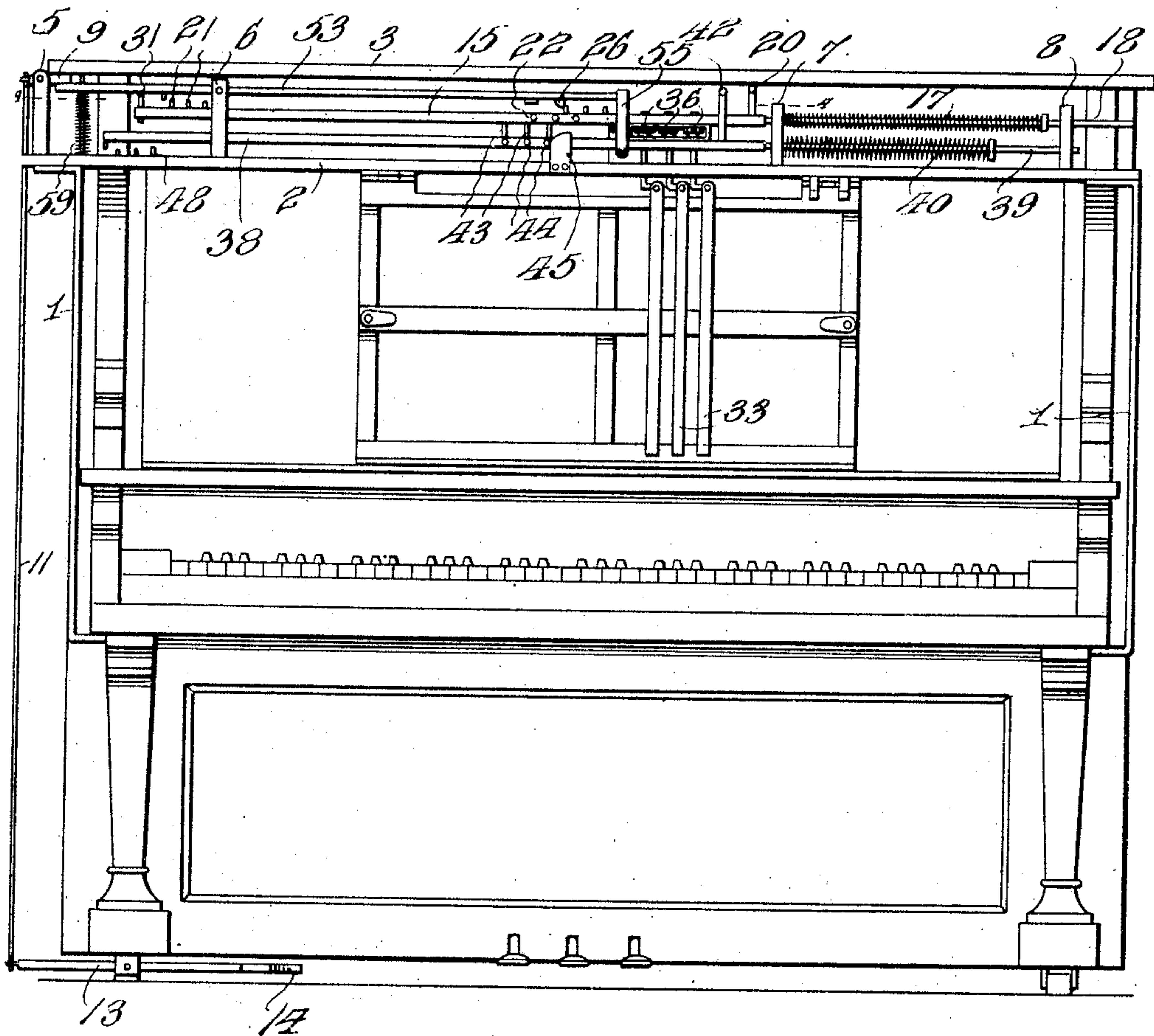
I. J. PONSTEIN.
MUSIC LEAF TURNER.
APPLICATION FILED MAR. 18, 1910.

976,690.

Patented Nov. 22, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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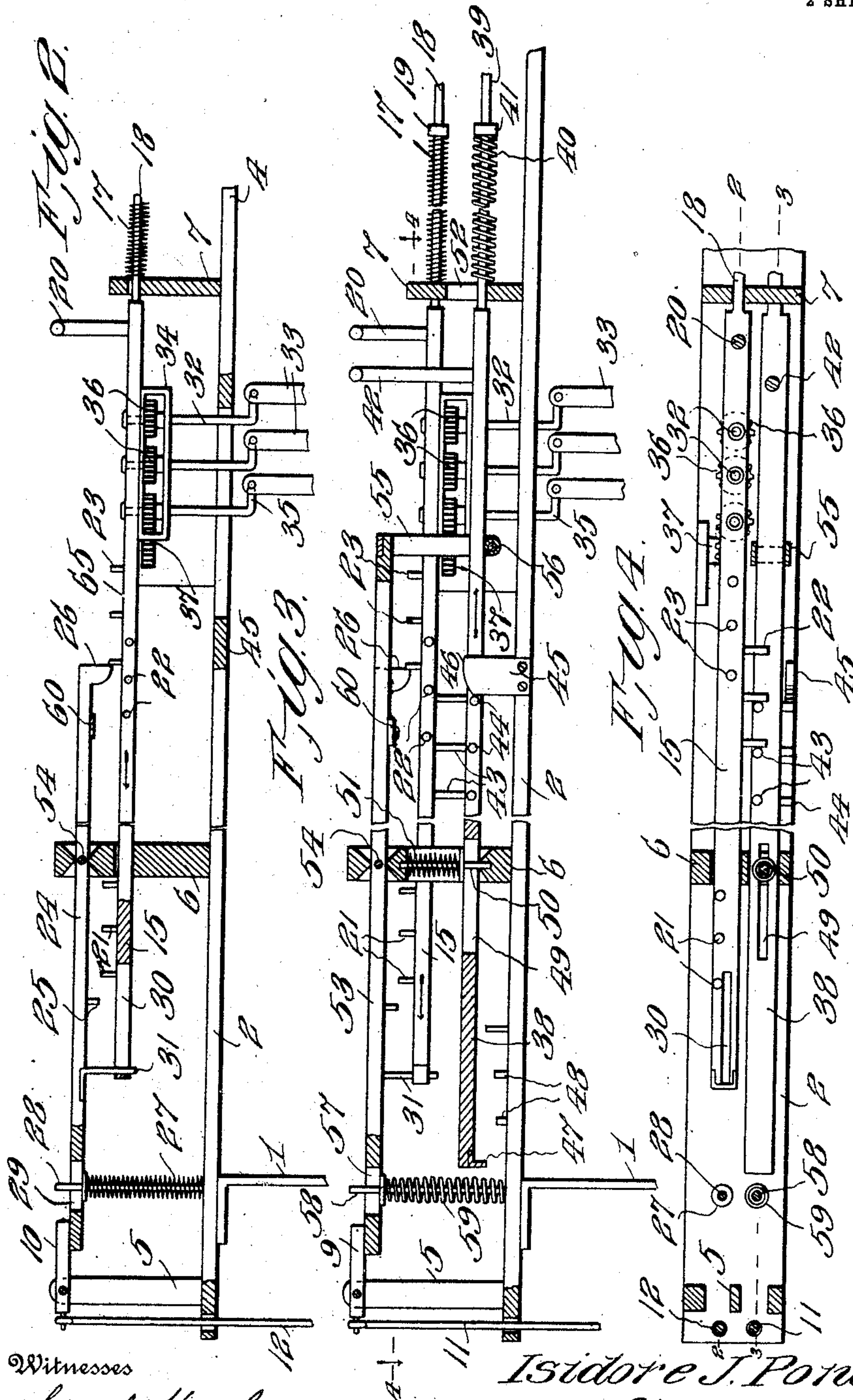
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

ISIDORE J. PONSTEIN, OF NEW ORLEANS, LOUISIANA.

MUSIC-LEAF TURNER.

976,690.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed March 18, 1910. Serial No. 550,273.

To all whom it may concern:

Be it known that I, ISIDORE J. PONSTEIN, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Music-Leaf Turners, of which the following is a specification.

The present invention provides mechanical means for turning the leaves of musical compositions so that the performer may continue the playing without any perceptible interruption and at the same time avoid the necessity of an assistant to turn the leaves during the progress of the performance.

The primary object of the invention is a music leaf turner involving a novel combination of elements which will admit of the leaves being turned positively in both directions, so that any part of a piece may be repeated, the construction being such that any desired leaf may be turned forwardly or backwardly according to the caprice of the performer to produce any desired effect or to lengthen the piece by repetition.

The invention in its specific adaptation is particularly designed for musical instruments of the pianoforte type provided with a manual and a music rest, the parts being so disposed as to be wholly out of the way and protected and adapted to be operated by the foot of the performer, thereby leaving the hands perfectly free for manipulation of the keys of the manual.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claims.

Referring to the drawings, forming a part of the application, Figure 1 is a front view of a musical instrument of the pianoforte type provided with a leaf turning mechanism embodying the invention. Fig. 2 is a vertical longitudinal section of the leaf turning mechanism on the line 2—2 of Fig. 4. Fig. 3 is a sectional view similar to Fig. 2 on the line 3—3 of Fig. 4. Fig. 4 is a horizontal section of the leaf turning mechanism on the line 4—4 of Fig. 1, showing the parts on a larger scale and having portions broken away.

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.

The invention is designed chiefly for pianos, organs, and musical instruments of kindred type and is shown in the accompanying drawings applied to a piano, the operating mechanism being located at the top of the instrument and arranged to be operated by pedals within convenient reach of the foot. It is to be understood that the mechanism is to be suitably incased so as to be protected and concealed from view. When the invention is applied to pianos and analogous musical instruments already constructed the operating mechanism is incased in a structure which is adapted to be placed upon the instrument and retained in position by suitable means. As indicated in Fig. 1 iron bars 1 are secured at their lower ends to the projecting portion of the instrument supporting the manual or keyboard and the casing inclosing the operating mechanism is attached to the upper ends of said bars and comprises a base 2 and a top 3. Suitable uprights 5, 6, 7 and 8 project upwardly from the base 2 and support the operating parts. Trips 9 and 10 are pivoted intermediate of their ends to the uprights 6 and are connected by means of rods 11 and 12 to pedals 13 and 14 pivotally supported near the foot of the instrument and near one end thereof. The leaf turning mechanism is mounted upon a carrier 15, which is slidably mounted in the uprights 6 and 7. A helical spring 17 is mounted upon a reduced portion 18 of the carrier and is confined between a stop 19 and the upright 7. The spring 17 is of the contractile type and normally exerts a pulling force upon the carrier 15 to move the same toward the left, one end of the spring 17 being secured to the stop 19 and the other end secured to the upright 7. A finger piece 20 is connected with the carrier 15 and is adapted to be gripped or otherwise pressed upon by a finger of the hand to move the carrier into any desired position when it is required to operate the same by hand. The carrier 15 is provided with three sets of stops, the several sets being designated by the reference numerals 21, 22 and 23. A detent 24 pivoted to the upright 6 is adapted to cooperate with the sets of stops 21 and 23, said detent having an end portion overlapping the trip 10 to be operated thereby. The detent 24 has a stop 25, which is adapted to engage any one of the series of stops 21 and is likewise provided with a stop 26 to cooperate with any one of the stops of the set

or series 23. A spring 27 interposed between the base 2 and outer end of the detent 24 exerts an upward pressure upon the outer end of the detent 24 so as normally to hold its inner end lowered with the stop 26 extending in the path of the series of stops 23. A pin 28 secured to the base 2 supports the spring 27 and passes through a slot 29 in the outer portion of the detent 24. The carrier 15 has a longitudinal slot 30 through which passes a pin 31 pendent from the detent 24, thereby holding the parts 15 and 24 in given position so as to insure engagement of the cooperating stops 21 and 25 and 23 and 26.

The leaf turning mechanism is mounted upon the carrier 15 and comprises a series of shafts 32 and leaf grippers 33, the latter being of any construction so as to grip opposite sides of a leaf to insure positive turning thereof either forwardly or backwardly. The leaf while embraced by the parts of the gripper is nevertheless held sufficiently loose to admit of the gripper having a sliding movement, which is essential because the leaf turning elements receive both a rotary and a sliding movement. The rotary movement results from a turning of the shafts 32 about their axes, whereas the sliding movement is incident to the backward and forward movement of the carrier 15. The shafts 32 are mounted in the carrier 15 and in a frame 34 secured to the under side of said carrier. The lower ends of the shafts 32 are bent laterally, as indicated at 35, and the leaf grippers 33 are attached to the outer ends of the bent portions 35. Pinions 36 are fastened to the upper portions of the shafts 32 so as to turn therewith. A short rack bar 37 is secured to a part of the framework and is arranged to engage with the pinions 36 in successive order so as to turn the same and the shafts 32 about one-half revolution sufficient to turn the leaves of the music. The rack bar 37 is provided with a sufficient number of teeth to impart a one-half revolution only to each of the shafts 32 and to clear the pinions thereof after the leaves of the music have been turned. It is to be understood that the carrier 15 receives a step-by-step movement, each movement being limited by the cooperating stops herein referred to, so that upon the first movement of the carrier 15 toward the left the first leaf of the music is turned and upon the second movement of the carrier the second leaf of the music is turned and so on in succession. When the pedal 14 is depressed the outer end of the detent 10 is elevated and its inner end correspondingly depressed, thereby lowering the outer end of the detent 24 and disengaging the stop 26 from the first stop of the set or series of stops 23 and at the same time bringing the stop 25 into the path of the set of stops 21. The

instant the stop 26 clears the first stop of the set of stops 23 the carrier 15 is moved to the left by the spring 17, thereby causing the pinion of the first shaft 32 to move across the rack bar 37, with the result that the first leaf of the piece is turned. The carrier 15 is limited in its movement to the left by the first stop 21 striking the stop 25 and when the foot is removed from the pedal 14 the spring 27 restores the parts 14, 10 and 24 to normal position. As the outer end of the detent 24 is pressed upward by the spring 27 its inner end is lowered, thereby bringing the stop 26 into position to engage the second stop of the set or series of stops 23 and upon operating the pedal 14 a second time the operation just described is repeated and the second leaf of the music is turned and so on throughout the series in succession.

A resetter 38 is provided for operating the carrier 15 to return the same to a given position to turn the leaves backward when it is required to repeat any portion of the musical composition. The resetter 38 consists of a bar and is mounted to receive both a pivotal and a sliding movement and is supported in the uprights 6 and 7. The resetter 38 has a reduced portion 39 upon which is mounted an expansible spring 40, which is confined between the upright 7 and a stop 41 secured to the reduced portion 39 of the resetter. The spring 40 normally exerts a pressure upon the resetter 38 to move the same to the right in opposition to the action of the spring 17, which latter tends to move the carrier 15 to the left. The spring 40 is of higher tension or superior to the spring 17 so as to overcome the force of the latter when both the carrier and the resetter are released, whereby the superior strength of the spring 40 may move both the resetter and the carrier to the right against the tension of the spring 17. The resetter is provided with a finger piece 42, whereby it may positively be moved independently of the pedal action. The resetter is provided with two sets of pins or stops 43 and 44, the stops 43 projecting vertically to cooperate with the stops 22 of the carrier 15 and the stops 44 projecting horizontally to cooperate with a stop 45 extending upwardly from the base 2 and having its upper edge curved slightly, as indicated at 46, for the stops 44 to ride upon. A stop 47 is pendent from the left hand end of the resetter and is adapted to engage one of a series of stops or pins 48 extending upwardly from the base 2 and which stops 48 vary in height. The stops 48 progressively increase in length from left to right so as to be engaged successively by the stop 47 as the resetter moves to the right. The resetter 38 has a longitudinal slot 49 through which a pin 50 passes, a spring 51 being mounted upon said pin and normally

exerting a downward pressure upon the re-
 setter. The pin 50 and spring 51 are lo-
 cated in a slot formed in the upright 6 and
 through which slot the resetter 38 passes, the
 lower closed end of the slot being oppositely
 inclined to form a knife edge upon which
 the resetter is pivotally mounted. A slot 52
 is formed in the upright 7 for the reduced
 portion 39 of the resetter to pass through
 and to move vertically. The spring 40 is
 normally under tension and the resetter 38
 is held at its extreme movement to the left
 by the foremost stop of the set of stops or
 pins 44 engaging the stop 45. When the
 right hand end of the resetter 38 is elevated
 the foremost stop 44 clears the stop 45 and
 the resetter is moved to the right by the ac-
 tion of the spring 40. When the right hand
 end of the resetter 38 is elevated one of the
 stops 43 engages with one of the stops 22 of
 the carrier 15 and moves the latter to the
 right, thereby causing the pinion of the
 nearest leaf turner to the left of the rack
 bar 37 to move across said rack bar, thereby
 turning said leaf turner to the right, with
 the result that the leaf of the music last
 played is turned backward. When the right
 hand end of the resetter is elevated the left
 hand end is lowered, thereby bringing the
 stop 47 in position to engage one of the se-
 ries of stops 48 so as to limit the movement
 of the resetter and carrier to the right.
 When the right hand end of the resetter is
 lowered the next stop 44 engages the stop
 45 and prevents further movement of the re-
 setter and the stop 44 previously clearing
 the stop 45 engages said stop 45, thereby
 preventing casual movement of the resetter
 to the left except by design or intent of the
 operator who must first lift the right hand
 end of the resetter and then push the same
 to the left, thereby compressing the spring
 40, and which movement is readily accom-
 plished through the instrumentality of the
 finger piece 42.

For operating the resetter 38 to effect dis-
 engagement of the stop 44 from the stop 45
 a release lever 53 is provided and pivoted at
 54 to the upright 6. The pivot 54 consists
 of a pin which also passes through the de-
 tent 24. The inner or right hand end of the
 release lever 53 is provided with a link 55,
 which is formed of spaced members embrac-
 ing opposite sides of the resetter and con-
 nected at their lower ends by means of a pin
 56 upon which a roller is mounted, the pin
 and roller extending beneath the resetter.
 The left hand end of the release lever 53
 underlaps the trip 9 and is formed with a
 slot or opening 57 through which a pin 58
 passes, said pin being secured at its lower
 end to the base 2 and supporting a coil
 spring 59, which exerts an upward pressure
 upon the left hand end of the part 53.
 Upon depressing the inner end of the pedal

13 the trip 9 is operated to lower the left
 hand end of the lever 53, with the result
 that the right hand end of said lever is
 lifted and by means of the link 55 lifts the
 right hand end of the resetter, thereby dis-
 engaging the stop 44 from the stop 45 when
 the spring 40 will operate in the manner
 stated to turn a leaf of the musical composi-
 tion backward or to the right. A lifter 60
 projects laterally from the release lever 53
 and extends beneath the detent 24, so that
 when the right hand end of the release lever
 is elevated the corresponding end of the de-
 tent 24 is likewise lifted to cause the stop
 26 to clear the stop 23, whereby the carrier
 15 may move forward with the resetter.

From the foregoing description, taken in
 connection with the accompanying draw-
 ings, the advantages of the construction and
 of the method of operation will be readily
 apparent to those skilled in the art to which
 the invention appertains, and while I have
 described the principle of operation of the
 invention, together with the device which I
 now consider to be the embodiment thereof,
 I desire to have it understood that the de-
 vice shown is merely illustrative, and that
 such changes may be made when desired as
 are within the scope of the claims appended
 hereto.

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

1. In an appliance of the character set
 forth, the combination of a rectilinear mov-
 able carrier, leaf turners mounted upon the
 carrier, stationary actuating means for suc-
 cessively operating the leaf turners, a spring
 normally exerting a pressure upon the car-
 rier to move the same in one direction, a
 detent adapted to engage the carrier to limit
 the movement thereof in one direction, oper-
 ating means provided upon the carrier and
 detent for effecting release of the detent
 from the carrier, and complementary means
 for limiting the movement of the carrier
 when moved by the aforesaid spring to
 effect operation of a leaf turner.

2. In an appliance of the character speci-
 fied, the combination of a movable carrier,
 a series of leaf turners mounted thereon,
 actuating means for operating the leaf turn-
 ers in successive order, two sets of stops pro-
 vided upon the said carrier, a detent having
 two stops to alternately engage with the sets
 of stops provided upon the carrier to limit
 the movement thereof, means for moving
 the carrier in one direction, and actuating
 means for the said detent to throw one stop
 thereof out of the path of one set of stops
 of the carrier and at the same time to throw
 the other stop into the path of the other set
 of stops of said carrier to limit the move-
 ment of the latter and insure a step-by-step
 movement of the carrier, whereby the leaf
 turners are successively operated.

3. In an appliance of the character set forth, the combination of a carrier, a series of leaf turners mounted thereon, actuating means for the leaf turners stationarily mounted and adapted to engage the same in successive order, means for moving the carrier in one direction, two sets of stops mounted upon the carrier, a pivotally mounted detent, and stops upon the detent upon opposite sides of its pivotal support and adapted to cooperate with the sets of stops of the carrier to insure a limited step-by-step movement thereof.

4. In an appliance of the character set forth, the combination of a carrier, a series of leaf turners mounted thereon, actuating means for the leaf turners stationarily mounted and adapted to engage the same in successive order, means for moving the carrier in one direction, two sets of stops mounted upon the carrier, a pivotally mounted detent, stops upon the detent upon opposite sides of its pivotal support and adapted to cooperate with the sets of stops of the carrier to insure a limited step-by-step movement thereof, and alining means between the detent and carrier attached to one of the parts and having sliding engagement with the other part.

5. In combination a rectilinear movable carrier having a slot, leaf turners mounted upon said carrier, a stationary actuator for operating the leaf turners in succession, means for exerting a pressure upon the carrier to move the same positively in one direction, a pivoted detent provided with stops upon opposite sides of its pivotal support, sets of stops provided upon the said carrier to be alternately engaged by the stops of the detent, actuating means for the detent, and a pin secured to the detent and passing through the slot of the carrier.

6. In an appliance of the character set forth, the combination of a movable carrier, means for imparting a step-by-step movement thereto in one direction, leaf turners mounted upon said carrier, operating means for rotating the leaf turners actuated by movement of the carrier, a resetter, means for resiliently moving the resetter in an opposite direction to the carrier, sets of stops between the carrier and resetter to enable engagement between the two being effected at any relative movement of the carrier, and other means for limiting the movement of the resetter so that one leaf turner at a time is rotated.

7. In an appliance of the character set forth, the combination of a movable carrier, means for imparting a step-by-step movement thereto in one direction, leaf turners mounted upon said carrier, operating means for rotating the leaf turners actuated by movement of the carrier, a resetter, means for resiliently moving the resetter in an op-

posite direction to the carrier, sets of stops between the carrier and resetter whereby engagement between the two may be effected at any relative position assumed by the parts, a fixed stop, a set of stops provided upon the resetter to cooperate with said fixed stop, and other stops between the resetter and a part of the framework to insure an intermittent movement of the resetter.

8. In an appliance of the character set forth, the combination of a rectilinear movable carrier, a series of leaf turners mounted upon the carrier, means for rotating the leaf turners in succession, means for imparting a step-by-step movement to the carrier, a resetter mounted to have both a pivotal and a sliding movement, means for imparting a step-by-step movement to the resetter in an opposite direction to the movement of the carrier, and interlocking means between the carrier and resetter to effect engagement between them at any relative position in their movement.

9. In combination a rectilinear movable carrier, leaf turners mounted thereon, actuating means for rotating the leaf turners, means for effecting a step-by-step movement of the carrier in one direction, a spring normally exerting a pressure upon the carrier to move the same in a given direction, a resetter, a spring normally exerting a pressure upon the resetter to move the same in an opposite direction to the carrier and of superior strength to the carrier operating spring, interlocking means between the carrier and resetter to cause the carrier to move with the resetter for turning the leaves backward, and means for releasing the resetter and limiting the movement thereof.

10. In combination a rectilinear movable carrier, leaf turners mounted thereon, actuating means for the leaf turners, a pivoted detent, stops between said detent and carrier, a resetter mounted to have both a pivotal and a longitudinal movement, engaging means between the carrier and resetter, means for limiting movement of the resetter, and a release lever for operating the resetter.

11. In combination a rectilinear movable carrier, leaf turners mounted thereon, actuating means for the leaf turners, a pivoted detent, stops between said detent and carrier, a resetter mounted to have both a pivotal and a longitudinal movement, engaging means between the carrier and resetter, means for limiting movement of the resetter, a release lever for operating the resetter, and a lifter between the release lever and detent whereby the latter is operated simultaneously with the release lever.

12. In combination a carrier mounted to have a rectilinear movement imparted thereto, a series of leaf turners mounted upon the carrier, operating means therefor, a pivoted

detent, sets of stops between the detent and carrier to limit the step-by-step movement of the latter, a resetter mounted to have both a rectilinear and a pivotal movement imparted thereto, sets of stops between the carrier and resetter, a fixed stop, a set of stops upon the resetter to engage said fixed stop, a fixed stop provided upon the resetter, a set of stops provided upon the framework to be engaged by the fixed stop of the resetter and of variable length, a release lever

mounted in line with the said detent, connecting means between the release lever and said resetter, and a lifter between the release lever and detent, whereby the latter is operated simultaneously with the release lever.

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

ISIDORE J. PONSTEIN.

Witnesses:

GEO. G. DELVAILLE,
JNO. M. SHERIDAN.