J. W. GRIMSLEY.

MUSIC TURNER.

APPLICATION FILED FEB. 8, 1909.

991,613.

Patented May 9, 1911.

2 SHEETS—SHEET 1.

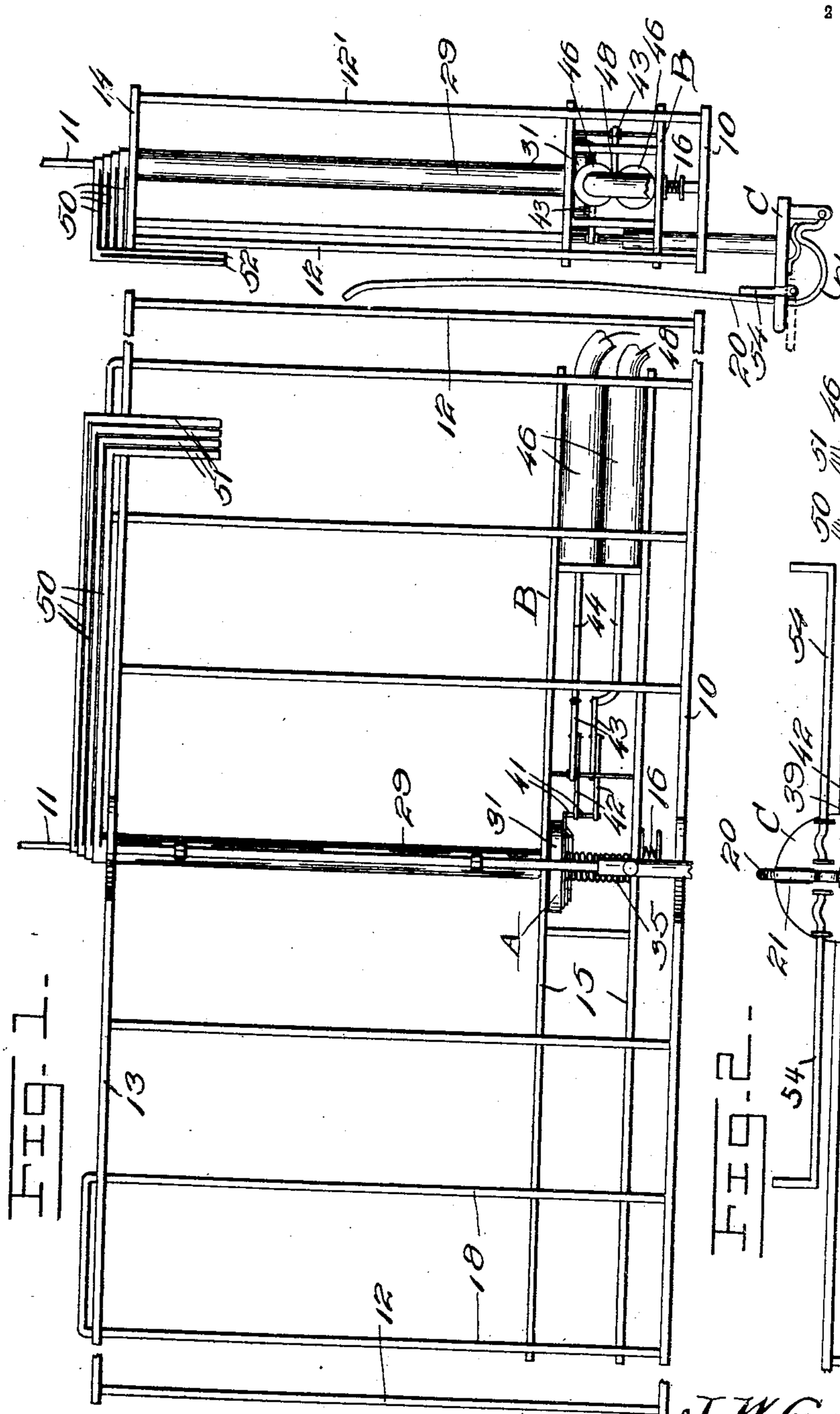

FIG. 1.

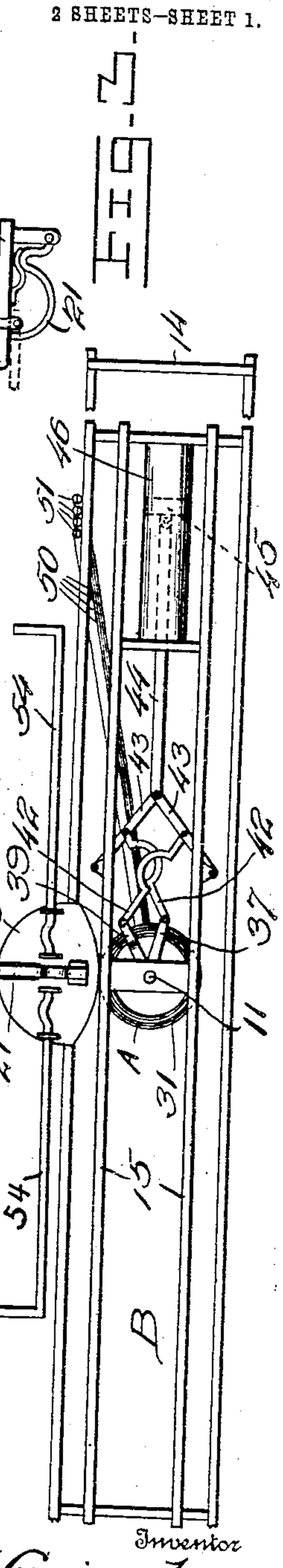

FIG. 2.

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2 SHEETS—SHEET 2.

FIG. 5.

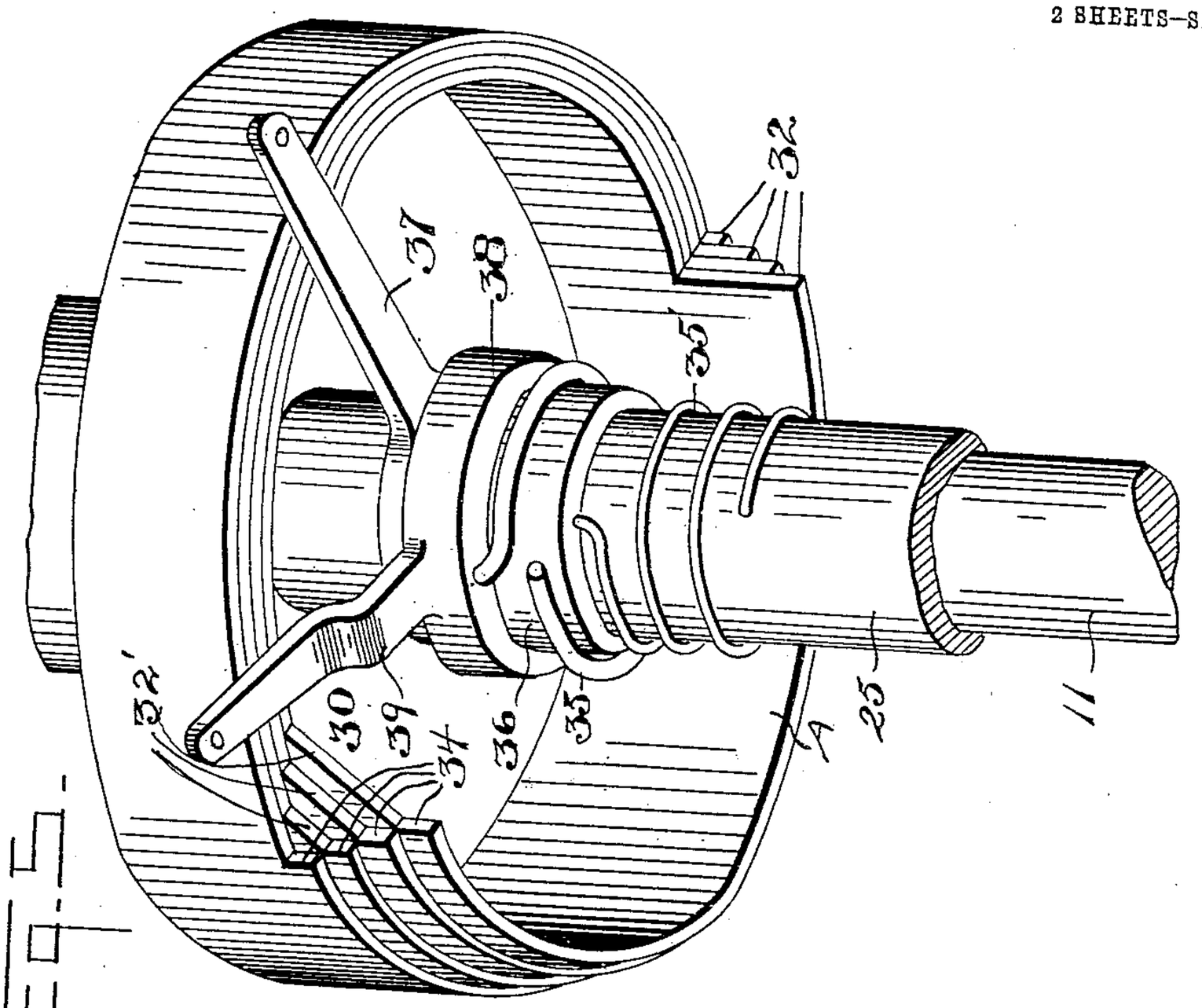
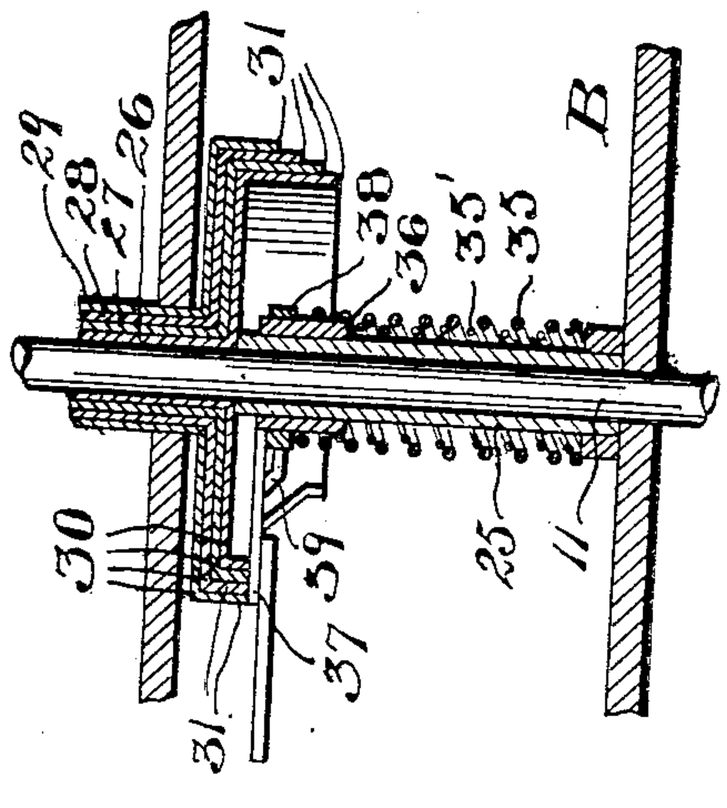


FIG. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES W. GRIMSLEY, OF WASHINGTON, DISTRICT OF COLUMBIA.

MUSIC-TURNER.

991,613. Specification of Letters Patent. Patented May 9, 1911.

Application filed February 8, 1909. Serial No. 476,712.

To all whom it may concern:

Be it known that I, JAMES W. GRIMSLEY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Music-Turners, of which the following is a specification.

This invention relates to music turners, and more particularly to such devices adapted for detachable engagement either with a piano or for incorporation upon music stands.

It has for an object the provision of a novel foot operating means for turning leaves, which is positive and silent in operation.

Another object is to provide such a device by means of which leaves may be turned forwardly or backwardly at will without readjustment of the machine between such operations.

A further object is to provide such a mechanism whereby any number of leaves may be turned successively forwardly or backwardly as may be desired.

A particular object of the invention is to provide a novel construction of actuating mechanism for the turning of the leaves.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims, and that any suitable materials may be used without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a front view of the device in initial position. Fig. 2 is a bottom view of the device, the music clamp being shown in inoperative position. Fig. 3 is an edge view of the device, the clamp being shown in operative position. Fig. 4 is a fragmentary vertical sectional view of the device through the operating mechanism. Fig. 5 is a fragmentary perspective view of the operating mechanism in initial position.

Referring to the drawings, there is shown a supporting framework comprising a base member 10 carrying a central pivot rod 11 and a plurality of uprights 12 and 12′, the uprights 12′ being disposed to the rear of those 12. It will be understood that as many uprights may be utilized as desired, or other suitable modifications in the framework made. The uprights 12 are engaged with an upper cross piece 13 extending the full width of the turner, and the uprights 12′ are connected by cross pieces 14 spaced on opposite sides of the turner, and secured in rigid spaced relation with the piece 13 in any suitable manner. Engaged upon the uprights and pivot rod there is a vertically slidable framework B, having suitable guide members 15 engaged with the uprights and provided with suitable fastening means 16 arranged to engage the pivot rod 11 to secure the framework adjustably at various points in its movement. Carried in vertical slidable engagement with the framework B there is a vertically adjustable music support C adapted to support the leaves of a music book in open position when placed upon the support C. The support C is provided centrally with an upwardly extending resilient clamp 20, comprising a rod having its lower end pivoted to the base of the support C and provided with a downwardly extending yoke 21, its outer portion being bent inwardly over the support C and extended vertically thereabove for resilient engagement centrally of sheets of music or music books to retain them firmly upon the support. The upper end of the clamp 20 is bent outwardly to facilitate the engagement of music thereunder as will be subsequently described.

Carried centrally of the framework B there is a vertical sleeve 25, engaged slidably over the central rod 11. Engaged revolubly and slidably upon the rod 11 and resting revolubly upon the upper end of the sleeve 25, there is a plurality of telescoped sleeves 26, 27, 28, and 29, respectively, though it will be understood that as many such sleeves as desirable may be utilized. It will be noted that the inner sleeves are greater in length than the outer ones, the length of the intermediate sleeves being graduated therebetween, and at their lower ends each sleeve carries a horizontal disk portion 30 having a pendant flange 31 at its periphery, the disks being so graduated in size that the flange of each projects downwardly below the edge of the flange of the next disk thereabove.

Each of the flanges 31 is cut away on one side leaving an enlargement A extending as shown approximately for a distance equal to 7/17 of its circumference and forming shoulders 32 and 34 at its ends. The shoulder

of the inner sleeve is square, as shown, and the shoulder on each successive outer sleeve is increased in height, a distance equal to the height of the first shoulder. Each of the shoulders of the disks, inwardly of the outer one, is provided with an inclined guide portion 32′ extending outwardly therefrom beginning at a point equal to the height of the next inner shoulder, and leaving a vertical portion 34 for a purpose to be subsequently indicated. Suitable washers may be interposed between the disks 30, if desired, to facilitate the relative rotation of the sleeves 26 to 29 inclusive which occurs during the operation of the device.

Two helical springs 35 and 35′ are disposed around the sleeve 25 and secured at their bases against rotation. The outer spring is somewhat heavier than the inner one. Engaged revolubly around the sleeve 25 at its upper end, there is a collar 36 carrying a reverse operating arm 37. The collar 36 is supported upon and engaged by the inner spring 35′ to hold it yieldably at the upper limit of its movement in engagement with the flanges 31, and against outward rotation. Engaged revolubly around the collar 36, there is another collar 38, carrying a similar forward turning arm 39 supported upon and engaged by the spring 35 to hold the arms 39 yieldably against the flanges 31 and against inward rotation. Each of the arms 37 and 39 is provided with downwardly projecting wrist pins 41 receiving thereover levers 42 connected intermediately of levers 43 carried by the frame B, and pivoted inwardly of the ends of the links 42 and laterally thereof as shown. Connected to the outer ends of the levers 43, there are connecting rods 44 connected to pistons 45 carried in suitable cylinders 46 secured to the framework B and suitably connected at their ends with flexible pipes 48 for the transmission of pneumatic or other fluid pressure to the piston 45 within the cylinder. Preferably such operation is accomplished by two pedal operated bellows which may be of any suitable type and should be disposed at a convenient point for engagement by the operator's feet. As the construction of this bellows forms no essential portion of the invention, and as it is believed that it is not essential to show their operation, these are not illustrated in the drawings.

It will be noted that each of the links 42 is provided with an outwardly extending arcuate portion centrally thereof, and upon communication of pressure to the piston, the arms 37 and 39 will be operated, the arcuate portions of the links 42 engaging outwardly of the springs 35 and 36 and allowing the movement of the arms to their full limit oppositely of the piston.

At their upper ends the sleeves 26 to 29 inclusive, are provided with horizontal arms 50 provided at their outer ends with pendant engaging clips 51, all adapted to rotate in independent arcs, the clips shown comprising resiliently spaced arms 52 adapted to be engaged oppositely with the respective leaves of music to be turned.

In use, the framework B is adjusted at a height to bring the arms 50 to a point near that at which it is desired to dispose the top edges of the music to be turned, and the platform C is adjusted at the proper height to engage the lower edge of the music. The book or sheets of music may then be opened, and the clamp 20 engaged therewith at the pivotal point of the leaves, after which the clips 51 are engaged respectively with the separate leaves. It will be noted that in initial position, the shoulders 32 are all disposed at the rear side of the turner, and the shoulders 34 at the forward side and upon actuation of the arm 39 by means of communication of pressure to the proper cylinder 46, the inclined portion 32′ of the inner member A will engage the arm and guide it downwardly beyond all of the flanges except the inner one, the vertical shoulder portion 34 of which it will engage to rotate the respective sleeve 26, and the arm 50 thus turning the first page of the music. If it should be desired to turn the page back again, the opposite arm 37 may be operated, which will engage the opposite shoulder of the flange in a similar manner for reverse movement of the leaf. If the leaf is not reversed, a second operation of the arm 39 will engage the next to the outer flange 31 in a similar manner and so on, each operation turning a new sheet. It will be seen that the arms 37 and 39 will be returned to their initial position after each operation by means of the springs 35 and 35′.

Carried at opposite sides of the support portion C, there are two engaging clamps 54 adapted to be engaged with the cover of a book, or pages that are not to be turned to retain these against casual movement by the suction created by turning of the leaves or otherwise. For adjustment of the movable framework B upon the central rod of the apparatus, there is a yieldable clamp member 16 of any suitable type adapted to engage the central rod to support the framework B at any point in its movement.

The support C is provided with a vertical sleeve 55 engaged slidably over the lower end of a rod 18 carried by the frame B and having a lock bolt 56 for securing the support at different points in its vertical movement.

The rod 20 is held yieldably in vertical position by means of a suitable spring G having a recessed portion adapted to snap over a rounded hump 57 formed in the rod outwardly of its pivot point.

What is claimed is:—

1. In a device of the class described, the combination with an axial shaft, of a plurality of revoluble sleeves carried thereon in concentric relation, leaf turning arms on said sleeves, said sleeves having a plurality of radially spaced longitudinally extending projections, a revoluble sleeve upon the axial member and having a projecting arm adapted to engage one side of said projections upon the sleeves, a spiral spring encircling the axial member and adapted to support the sleeves and arm in resilient engagement against said projecting portion and to hold the sleeves yieldably in initial position, a second sleeve revoluble upon the first and carrying a similar arm adapted for engagement with the opposite sides of said projections, and a second spring encircling the first and adapted to press the second named arm against said projection and hold it yieldably in initial position, and means for oscillating said arm.

2. In a music turner of the class described, the combination with a supporting framework of centrally pivoted concentrically arranged and relatively revoluble sleeves, leaf turning arms on said sleeves each of said sleeves except the outer one having a projecting portion disposed below that carried by the adjacent outer sleeve, said projecting portions being provided with pendant peripheral flanges arranged in step formation, each of the flanges having a guide portion: and oppositely revoluble arms disposed in sliding contact with the projecting portions for selective engagement therewith by engagement with the guide portions; said sleeves being adapted for independent rotation forwardly under action of the respective arms, and separate operative connections for the arms.

3. A device of the class described comprising a stationary support, a central pivot rod carried thereby, a plurality of concentric and independently revoluble sleeves carried thereby, leaf engaging members carried at the upper extremities of the sleeves, flanges carried by the sleeves at their lower ends having shoulders thereon arranged in step formation for movement in separate paths, operating means pressed resiliently against the flanges, certain of the flanges carrying inclined portions arranged to fend the operating means from engagement with all but such one of said flanges as may be in initial position for successive forward movement of the leaf engaging members, and means for returning the members to initial position.

4. A device of the class described comprising a stationary support, a central pivot rod carried thereby, a plurality of concentric and independently revoluble sleeves carried thereon, leaf engaging members movable in respective paths carried by the upper ends of said sleeves, lateral flanges carried by the lower ends of the sleeves, said flanges having downwardly extended portions at one side, spaced radially for movement in respective paths certain of the extended portions having inclined edges stopping short of their lower extremities at a point on a level with the lower extremity of the adjacent shorter extension, radially extending arms pivoted upon the pivot rod, means engaged with the operating arms to hold them yieldably against the flanges, and in initial position, and means engaged with the arms for rotation thereof respectively in opposite directions, said inclined portions of the flanges being adapted to fend an engaged operating arm from engagement with the adjacent shorter flanges.

5. A device of the class described comprising a stationary support, a central pivot rod carried thereby, a plurality of concentric and independently revoluble sleeves carried thereby, leaf carrying members movable in independent paths carried respectively by the upper ends of said sleeves, a plurality of superposed flanges carried respectively by the lower ends of said sleeves, said flanges having downwardly extended portions cut away in a manner to form shoulders arranged in step formation, certain of said flanges having inclined portions connected with the shoulders respectively at a point on a level with the adjacent shorter shoulder, operating arms pivoted upon the rods, spiral springs engaged respectively with the arms and encircling the rods to hold the arms yieldingly against the flanges and in initial position yieldably against oscillation, fluid operated pistons carried by the stationary support, and connections between said pistons and the arms, for rotation of the arms respectively in opposite directions to engage said shoulders for rotation of the sleeves, said inclined portions upon the flanges being adapted to fend an engaged arm out of engagement with all but one of such shoulders as may be in initial position, for successive forward movement of the leaf carrying members.

6. In a device of the class described, the combination with a support, of an axial member, a plurality of music turning devices concentrically and revolubly engaged thereon, said devices having a series of radially spaced annular members provided with oppositely disposed sets of stepped shoulders and fender portions, an inner sleeve member revoluble around the axial member and having a radial arm adapted to engage one set of shoulders, a helical spring encircling the axial member engaged with the sleeve to support the arm in resilient engagement against the annular members and to hold it yieldably in initial position, a second sleeve revoluble upon the first

and having a radial arm for engagement with the second set of shoulders, and a second spring encircling the first slidably and engaged with the second named sleeve for holding said second named sleeve yieldably in initial position, and means for oscillating the arms independently.

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

JAMES W. GRIMSLEY.

Witnesses:
ALBERT H. MOLER,
W. B. DENHAM.