

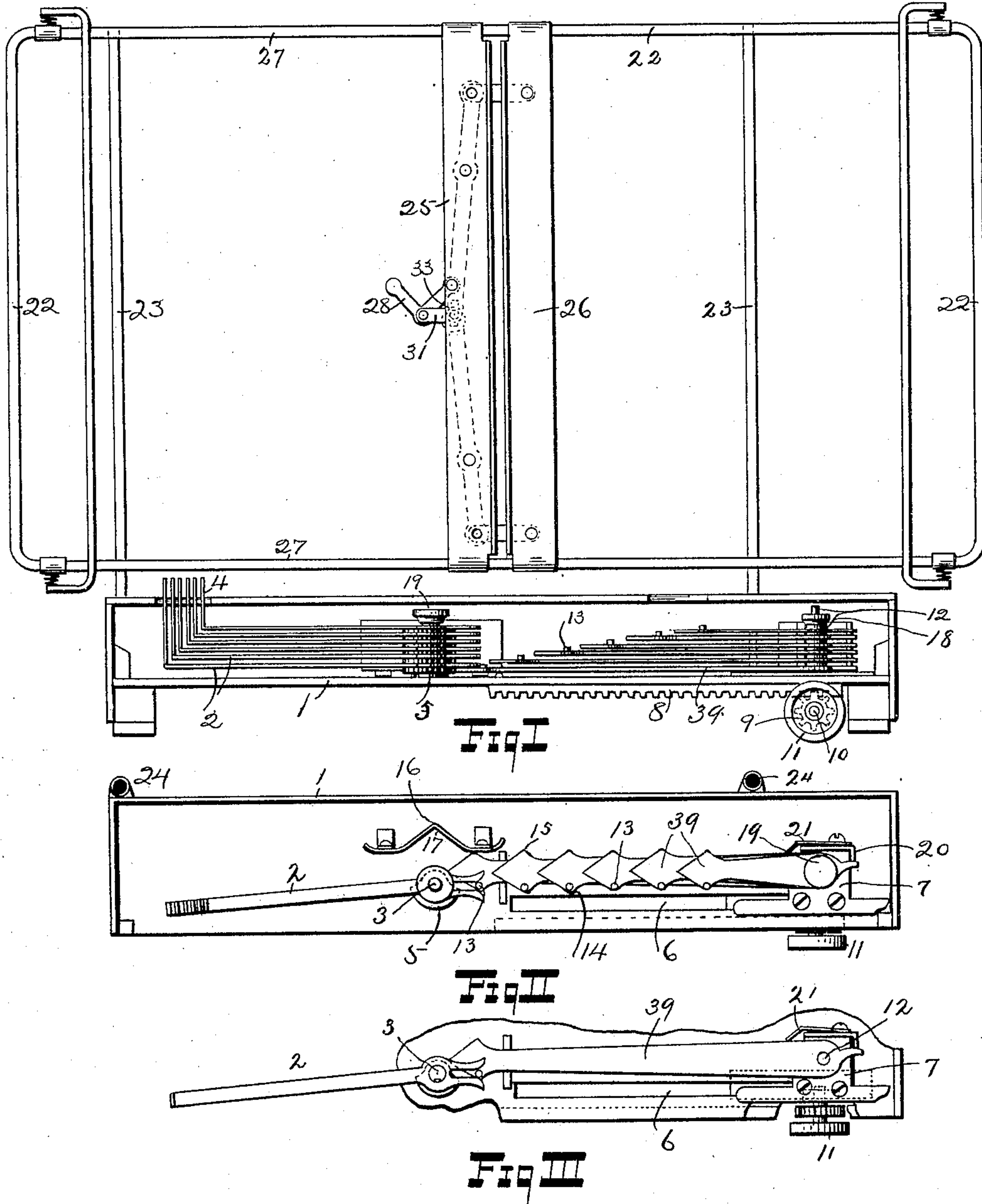
(No Model.)

2 Sheets—Sheet 1.

W. O. CAMPBELL.  
LEAF TURNING DEVICE.

No. 576,656.

Patented Feb. 9, 1897.



WITNESSES:

W. O. Campbell,

INVENTOR

K. M. Imboden  
J. M. Phelps

BY  
House & Hadley,  
HIS ATTORNEYS.

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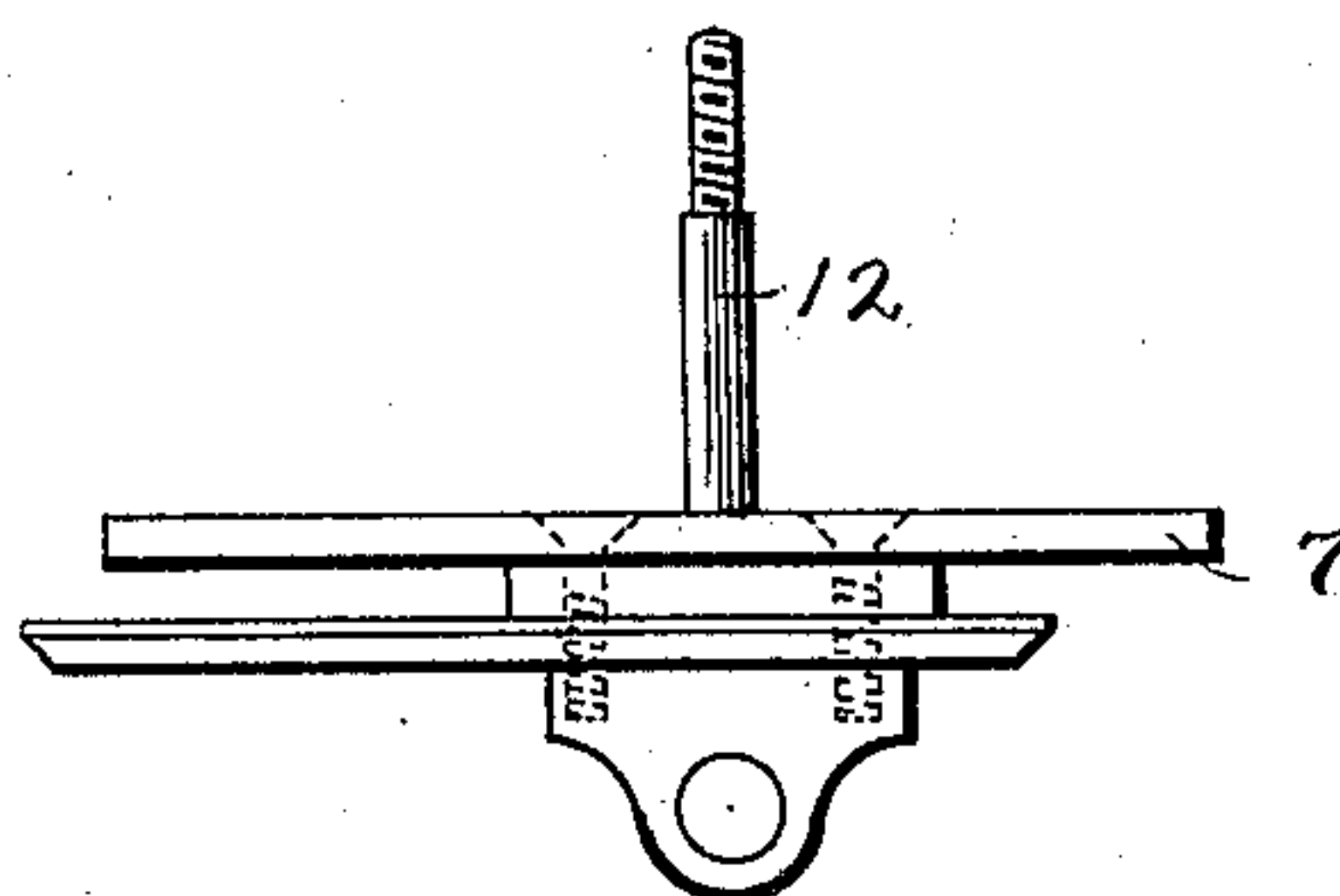
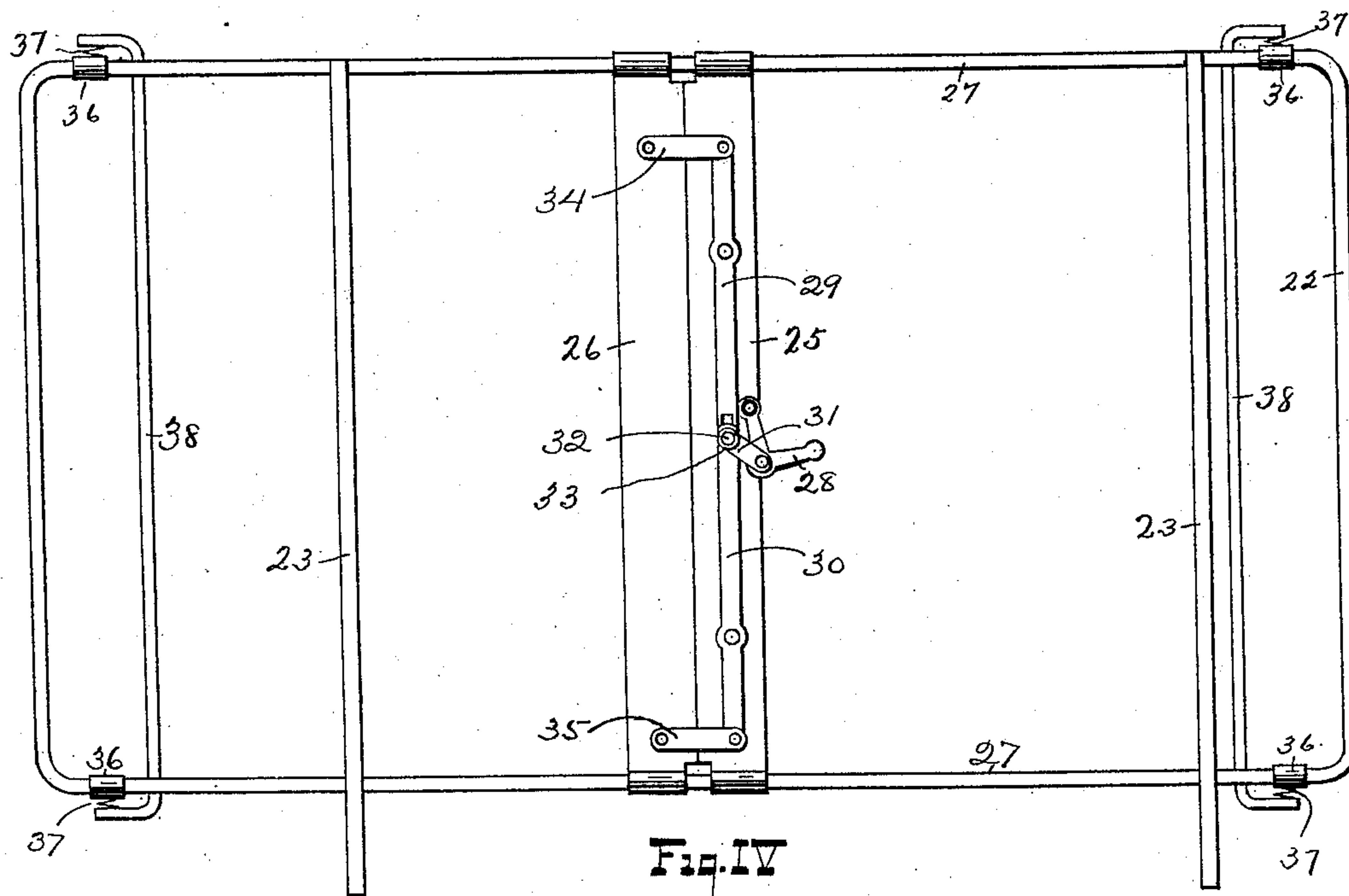


Fig. V



Fig. VI W. O. Campbell, INVENTOR.

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# UNITED STATES PATENT OFFICE.

WINDSOR O. CAMPBELL, OF KANSAS CITY, MISSOURI.

## LEAF-TURNING DEVICE.

SPECIFICATION forming part of Letters Patent No. 576,656, dated February 9, 1897.

Application filed April 20, 1896. Serial No. 588,410. (No model.)

*To all whom it may concern:*

Be it known that I, WINDSOR O. CAMPBELL, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Leaf-Turning Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in leaf-turning devices.

The object of my invention is to provide a device for turning the leaves of sheet-music.

My invention further provides an improved rack or support which may or may not be used in connection with the leaf-turning device. The function of the said rack or support is to securely hold the book or sheets of music.

My invention consists in certain peculiarities of construction hereinafter fully described, and set forth in the claims.

In the accompanying drawings, illustrative of my invention, Figure 1 represents a front elevation view. Fig. 2 represents a top view with the box-cover removed. Fig. 3 represents a plan view of one of the leaf-arms engaged with its operating cam-arm and the operating-pinion and movable block to which the cam-arms are attached. Fig. 4 represents a rear elevation of the music-rack. Fig. 5 represents a front elevation of the sliding block and cam-post. Fig. 6 represents a plan view of one of the cams which is mounted on the central pivot-post.

Similar numerals of reference indicate similar parts.

1 indicates a rectangular inclosing casing provided with a longitudinal opening in its front side, which permits the passage to and from of the leaf-arms 2.

Secured to the upper side of the bottom plate of the casing is a vertical post 3, upon which are pivoted several horizontal arms 2, the outer ends of each of the said arms being provided with a vertical projection 4, to which is secured the leaf-engaging device. The leaf-engaging device may be of any well-known form and may be attached to the leaf-arm in any suitable manner. The opposite end of each of the leaf-arms is bifurcated.

The lowest leaf-arm is the longest. The one immediately above is slightly shorter, and so on, the uppermost arm being the shortest. By this construction the arms may be folded together without interference one with the other. Beneath each leaf-arm is a cam-disk 5, rigidly secured in any suitable manner to the post 3, each of the said cam-disks being provided with a central opening in which the post 3 is fitted. The rear edge of each of the cam-disks 5 is forwardly beveled upon each side of the post 3. The bottom plate of the casing is provided with a longitudinal slot 6, in which is movably fitted a metallic block 7. Upon the under side of the bottom plate is secured an inverted rack 8.

The teeth of the rack are on the under side, and engaging therewith is a pinion 9, which is rigidly secured upon the rear end of a horizontal rearwardly-extending shaft 10, the forward end of which is provided with a hand-wheel 11, and the rear end of which is pivoted in the lower side of the block 7.

Rigidly secured to the upper side of the block 7 is a vertical post 12, upon which is pivoted at their right ends a series of cam-arms 39, corresponding in number to the leaf-arms, each of which near its opposite end is provided with a projection or pin 13, located upon the upper side of the cam-arm and adapted to engage the bifurcated end of the corresponding leaf-arm. Each of the cam-arms is provided near its left end and on its front edge with a convex-shaped portion 14, adapted to engage the corresponding cam-disk 5. The rear edge of each of the said cam-arms near its left end is also provided with a convex-shaped portion 15, adapted to engage a vertical guiding-plate 16, secured to the bottom of the casing to the rear of the post 3. The said guiding-plate is provided with a vertical depression 17, located directly to the rear of the post 3. Upon the post 12 and above each of the cam-arms is located a collar 18. Each of the posts 3 and 12 is shouldered at its upper end, which is screw-threaded and to which is fitted a thumb-nut 19.

To the rear of the post 12 is a vertical plate 20, the right edge of which is bent forwardly. The said plate is secured at its lower end to the block 7. Secured to the rear side of the



plate 20 is a vertical plate 21, the left edge of which serves as a stop for the cam-arms and prevents their moving rearwardly too far. The right end of each cam-arm is adapted to come in contact with the bent edge of the plate 20, the said bent portion preventing the right ends of the cam-arms from moving to the rear too far. The cam-arms are of different lengths, the lowest one being the longest, the one above shorter, and so on, the top arm being the shortest of the series. The distance between the projections 13 of adjacent cam-arms is sufficient to permit the engagement and turning of the leaf-arm by one cam-arm before the one next following engages its leaf-arm.

The music-rack is constructed as follows:

A rectangular frame 22 has secured to it two vertical rods 23, the lower ends of which project below the frame and are adapted to engage, respectively, two vertical tubes 24, secured, respectively, to the rear side of the casing 1. Near the center of the frame 22 is rigidly secured thereto a vertical plate 25, the inner edge of which is bent forwardly, so as to clamp the rear edge of the sheet-music.

To the right of and parallel to the plate 25 is a plate 26, the inner edge of which is bent forwardly similar to the bent portion of the plate 25. The upper and lower ends of the plate 26 are formed cylindrically, so as to encircle, respectively, the upper and lower rods 27 of the frame 22. The cylindrical portions of the plate 26 are movably fitted to the rods 27, so that the plate 26 may be moved toward and from the plate 25. Secured pivotally to the plate 25 near its center is a bell-crank lever 28, one end of which is pivoted to the said plate and the other end being free to be moved vertically.

A lever 29 is pivoted at its center to the rear side of the plate 25 at a point above the pivotal point of the bell-crank lever. A similar lever 30 is pivoted at its center to the rear side of the plate 25 at a similar distance from the pivotal point of the bell-crank lever, but below it. A horizontal link 31 has one end pivoted to the angle of the bell-crank lever and the other end pivoted to a post 32, which is rigidly secured to the upper end of the lever 30. The lower end of the lever 29 is provided with a slot in which the post 32 is adapted to move, the outer end of the said post being provided with a washer 33, secured thereto for preventing the disengagement of the post with the slot. The upper end of the lever 29 has pivoted to it the one end of a link 34, the opposite end of which is pivotally secured to the plate 26. A similar link 35 similarly connects the lower end of the lever 30 with the plate 26. Near each end of the rods 27 and movably fitted thereto is a tube 36, to which is secured the end of a vertical coil-spring 37, the opposite end of which is secured to the outer end of the horizontally-bent portion of a vertical rod 38. The rods 38 are longer than the width of the frame 22

and normally bear against the front side of the said frame.

My invention is operated as follows: The bell-crank lever 28 is upwardly raised at its free end, thus forcing the plate 26 away from the plate 25, so as to permit of the insertion of the rear edge of the sheet-music leaves. The bell-crank lever is then depressed, causing the plates 25 and 26 to clamp the leaves firmly. If the music-leaves are provided with outside covers, the clamping-rods 38 are raised from the frame and the covers inserted thereunder, the tension of the coil-springs 37 causing the rods 38 to hold the covers against the frame. The leaves are then attached to the ends of the leaf-arms in any suitable manner, the leaf-arms at the time of attaching being in the position to the left and the cam-arms in the right-hand position. The hand-wheel is then turned in a direction such as will revolve the pinion in a direction such as will cause the block 7 to move to the left. The longest cam-arm will then engage the bifurcated end of the lowest leaf-arm, to which the first leaf to be turned is attached. By continuing to revolve the hand-wheel the front convex face of the cam-arm follows the rear face of the cam-collar, against which it is adapted to operate and is thus forced rearwardly at its left end until the center of the post 3 has been passed, after which it is forced forwardly by the guide-plate. When the front convex face of the cam-arm has passed to the end of the cam-collar on the post 3, the leaf-arm has been revolved on the post 3 one-half around. By continuing to revolve the hand-wheel 11 all of the cam-arms may be made to engage their appropriate leaf-arms and rotate them one-half a circle. By rotating the hand-wheel in the opposite direction all of the leaves may be oppositely turned.

My invention is subjective to many modifications without departing from its spirit.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a leaf-turner, the combination with a suitable frame, of one or more leaf-turning arms pivotally mounted upon the said frame, a corresponding number of cam-arms adapted to engage with and partially rotate the leaf-engaging arm or arms, a support for the cam-arms mounted upon and longitudinally movable upon the said frame, a rack secured to the said frame and a pinion pivotally mounted upon the said support, substantially as described.

2. In a leaf-turner, the combination with a suitable frame, of one or more leaf-turning arms pivotally mounted thereon, a corresponding number of cam-arms adapted to engage with and partially rotate the leaf-turning arm or arms, a support for the cam-arms mounted and longitudinally movable upon the said frame, a rack secured to the said frame, a shaft pivoted in the said support, a pinion adapted to operate within the rack and



secured upon the said shaft, and means for rotating the said shaft, substantially as described.

3. In a leaf-turner, the combination with a  
5 suitable frame, of a post secured to the said  
frame, one or more leaf-turning arms pivotally  
mounted upon the said post, a block longitudinally  
movable upon said frame, a rack secured to the  
said frame, a pinion adapted to engage said rack  
and pivotally mounted upon the said block, a post  
secured to the said block and cam-arms corresponding  
in number to the number of leaf-turning arms, and  
pivotally mounted upon the post which is secured  
to the said block, the said cam-arms being provided  
with means for engaging the said leaf-turning arms  
and partially rotate the same when the said block  
is moved longitudinally on the said frame, substantially  
as described.

4. In a leaf-turner, the combination with a  
suitable frame, of one or more leaf-turning  
arms pivotally mounted thereon, a block longitudinally  
movable upon the said frame, cam-arms pivotally  
mounted upon the said block and corresponding in  
number to the number of leaf-turning arms and  
adapted to engage the said leaf-turning arms for  
the purpose of partially rotating them, a rack  
secured to the said frame, a pinion engaging  
therewith pivotally mounted upon the said block,  
and cams corresponding in number to the number of  
cam-arms and adapted to engage the same for the  
purpose of deflecting them during their engagement  
with the leaf-turning arms whereby rotary motion  
is imparted to the leaf-turning arms during their  
engagement with the cam-arms when the said block  
is moved longitudinally substantially as described.

5. In a leaf-turner, the combination with  
the frame 1, of a music-rack provided with means  
for engaging the leaves to be turned, one or more  
supporting-rods secured to the said rack for the  
purpose of supporting the same and also secured to  
the said frame, the leaf-turning arms 2, pivotally  
mounted upon the said frame, the cam-arms 39, adapted  
to engage the leaf-turning arms, the block 7,

movably mounted upon the said frame 1, and  
upon which the cam-arms 39, are pivotally  
mounted, the rack 8, secured to the said frame  
1, a pinion 9, adapted to engage therewith, and  
the shaft 10, to which the pinion is secured, and  
which is pivotally mounted upon the block 7,  
substantially as described.

6. In a leaf-turner, the combination with  
the main frame, of an auxiliary frame, one or  
more rods secured to and connecting the two  
frames, two plates between which the leaves may  
be clamped, one of the plates being secured rigidly  
to the auxiliary frame and the other plate mounted  
upon the said auxiliary frame and movable toward  
and from the rigid plate, one or more leaf-turning  
arms pivotally mounted upon the main frame, a  
corresponding number of arms adapted to engage  
with and partially rotate the leaf-turning arm  
or arms and movably supported upon the main  
frame, a rack secured to the main frame, a pinion  
engaging therewith, and means by which the  
operating-arms are moved when the pinion is  
rotated, substantially as described.

7. In a leaf-turner, the combination with  
the main frame, of an auxiliary frame supported  
thereby, two plates between which the leaves may  
be clamped, one of the plates being secured rigidly  
upon the auxiliary frame and the other plate mounted  
upon the auxiliary frame and movable toward and  
from the rigid plate, a lever pivotally connected  
to one of the plates, means by which the movable  
plate is moved toward or from the rigid plate  
when the lever is moved in the proper direction,  
one or more leaf-turning arms pivotally mounted  
upon the main frame, a rack secured to the main  
frame, a pinion engaging therewith, and means  
by which the leaf-turning arms are operated upon  
their pivotal support when the pinion is rotated,  
substantially as described.

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

WINDSOR O. CAMPBELL.

Witnesses:

L. CARRICK,  
U. G. CRANE.