(No Model.)

W. F. MITCHELL.

LEAF TURNER.

No. 434,718. Patented Aug. 19, 1890.

Fig. 1.

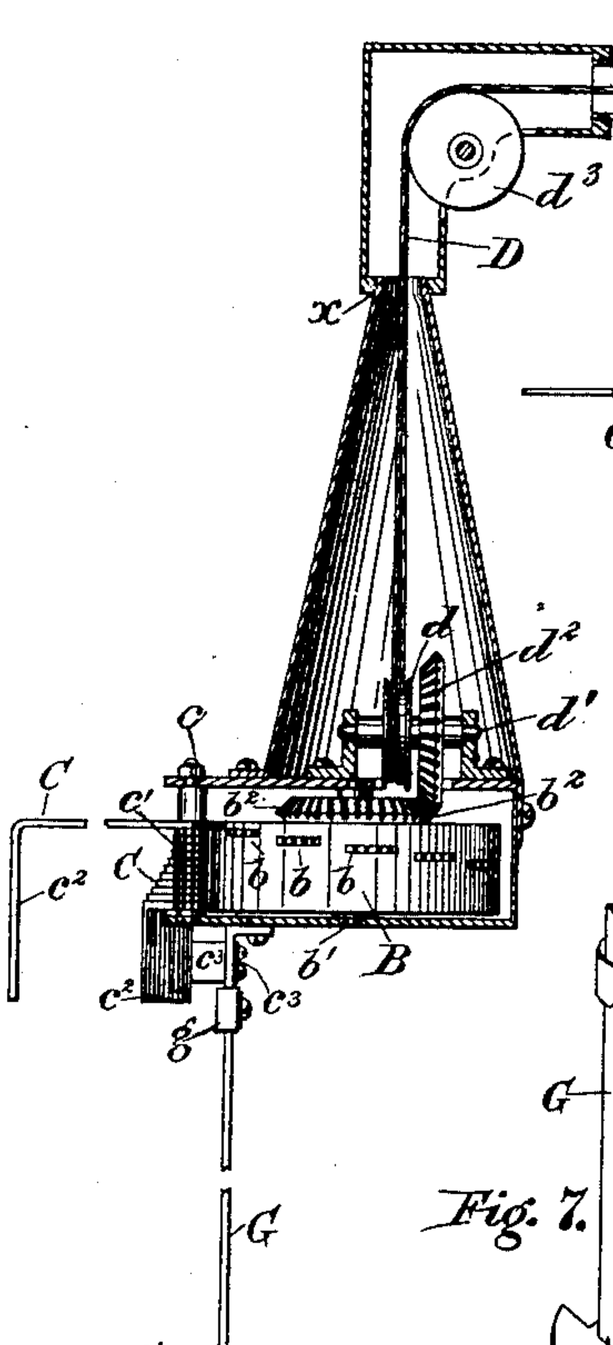


Fig. 5.

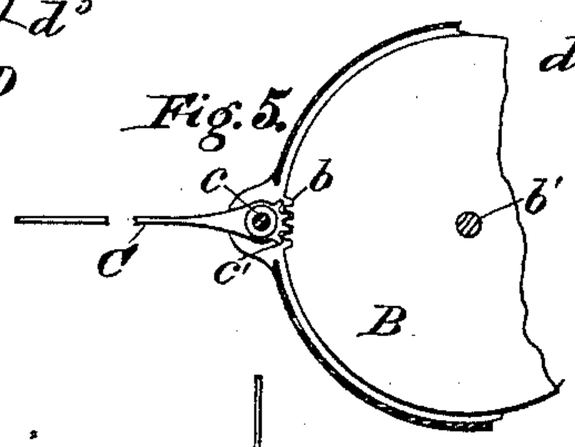


Fig. 4.

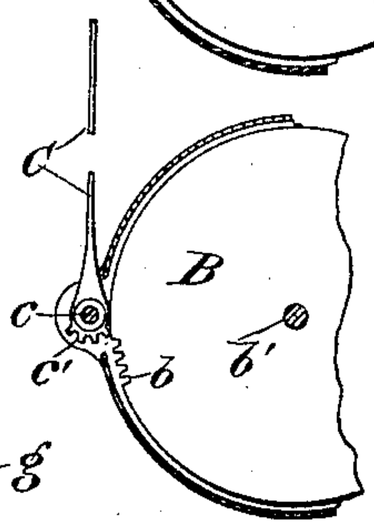


Fig. 7.

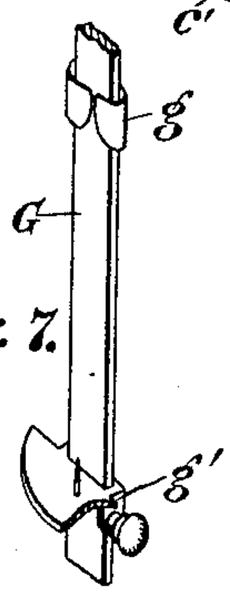


Fig. 2.

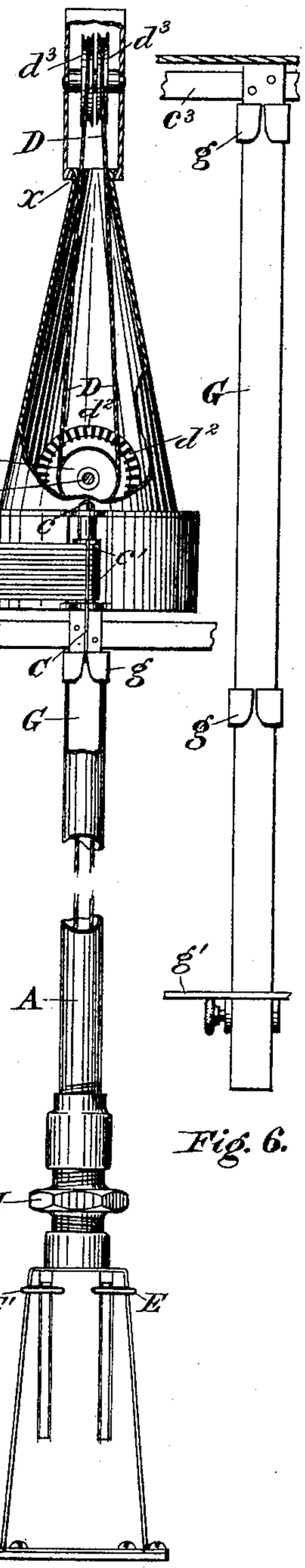


Fig. 6.

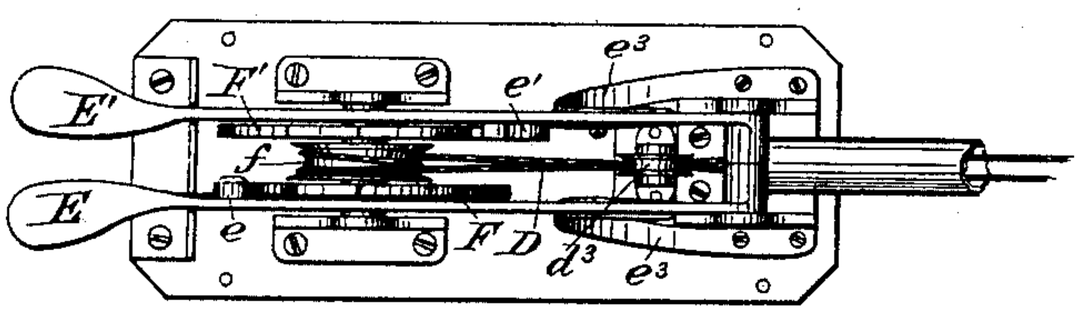
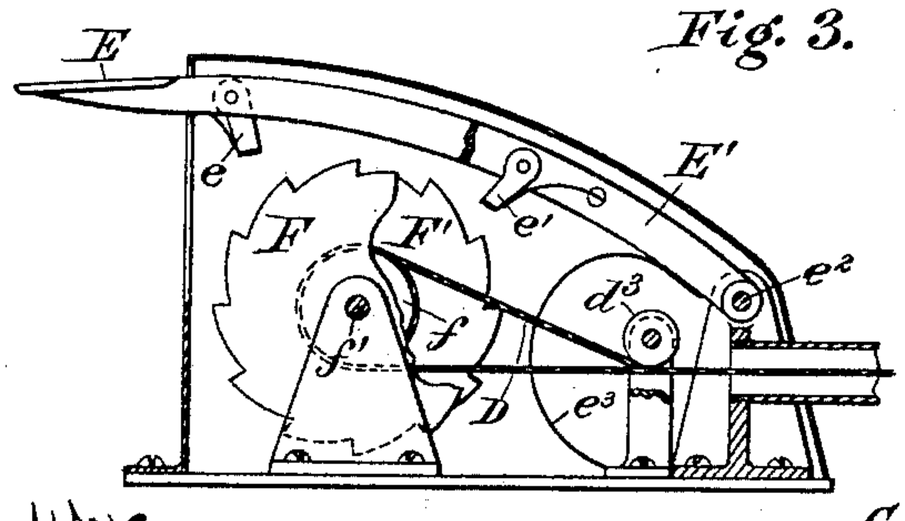


Fig. 3.



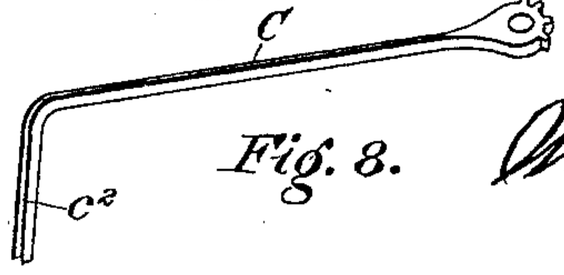


Fig. 8.

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LEAF-TURNER.

SPECIFICATION forming part of Letters Patent No. 434,718, dated August 19, 1890.

Application filed September 27, 1889. Serial No. 325,281. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. MITCHELL, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented an Improved Leaf-Turning Device, of which the following is a specification.

My invention consists, essentially, of a stand or frame for supporting the leaves at a suitable height, a device for turning the leaves, pedals suitably arranged to operate the turning device, and other details of construction, all of which will be fully described hereinafter.

The object of my invention is to provide a simple, durable, and efficient device for turning leaves successively, but more particularly adapted to sheet-music. I attain this object by means of the devices illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation. Fig. 2 is a front elevation, portions being broken away to more clearly illustrate it. Fig. 3 is a plan view of the pedal mechanism, the case being removed. Figs. 4 and 5 are details of the turning-fingers; Fig. 6, a clamping or holding device; Fig. 7, a detail of clamping device; Fig. 8, a detail of finger.

Referring to the drawings, A is the stand; B, finger-turning drum; *b b b*, segmental toothed racks on B; *b'*, pivot of B; b^2, bevel-gear secured concentrically to B; C, leaf-turning fingers; *c*, pivot of turning-fingers; *c'*, toothed segment of fingers, meshing into circular toothed rack on B; c^2, split end of fingers; c^3, spring; D, operating-cord; *d*, grooved wheel rotated by cord D; *d'*, pivotal shaft upon which *d* is secured; d^2, bevel-gear secured on shaft *d'*, meshing into and operating b^2; d^3, sheaves or guide-pulleys. E E are pedals; *e e'*, spring-pawl attached to pedals; e^2, pivot of pedals; e^3, raising-springs for pedals; F F', ratchet-wheels adapted to be engaged by pawls *e e'*; *f*, grooved wheel, around which cord D is wound and operated thereby; *f'*, pivot of ratchet and grooved wheels; G, leaf-support; *g*, spring-clamps for holding leaves; *g'*, adjustable support for leaves; H, cord-tightening device.

The construction of my device is as follows: The stand or frame A consists, preferably, of tubing, in the interior of which the cord D is guided by means of the guide-pulleys d^3 from the pedal mechanism to the finger-turning device. The drum B consists of a series of short toothed segments ranged around its periphery, each segment being placed below and in advance of the preceding one in such position as to engage successively with the toothed segment on the pivot end of the fingers, the fingers being all loosely journaled one above another on the same spindle C. The fingers extend horizontally from the shaft for a suitable length, and are then bent at a right angle vertically, the vertical portion being split, as shown at c^2. To the upper side of drum B is concentrically secured the gear b^2, which meshes into the gear on the shaft *d'*. On the same shaft *d'* is secured the grooved wheel *d*, around which is wound the cord D. The lower end of the cord is wound around the grooved wheel *f*, which is secured on the shaft *f'*, to which are also secured the ratchet-wheels F F', the ratchet-teeth of which are reversed, the teeth of one being in reverse direction to the teeth on the other. The pedals E E' are pivoted at a point to the rear of the ratchet-wheels, and are provided with spring-pawls *e e'*, adapted to engage, respectively, with ratchet-wheels F F'. Curved springs e^3 are placed below the pedals to raise them, and a suitable case incloses the pedal mechanism. A case also incloses the finger-moving mechanism to protect it from dust and injury. From the lower side of this last-mentioned inclosing-case depends the leaf-support G, provided with its spring-clamps *g* and adjustable support *g'*. A cord-tightening device H is placed at any suitable position in the frame A, consisting, preferably, of a coupling having a right and left hand thread with threaded sockets on the ends of the pipes so coupled. The finger-moving mechanism, together with its inclosing-case, is loosely journaled to the frame A at *x*, thereby permitting the book or sheets to be faced in any direction.

The operation of my device is as follows: The leaves or sheets to be turned over being placed in position and securely clamped by the spring-clamps, the pedal E is depressed, This brings the spring-pawl *e* into engagement with the ratchet-wheel F and so moves it through the space of one tooth. The grooved

wheel *f*, being secured upon the same shaft with the ratchet-wheel, is also partially rotated. This motion is transmitted by the cord D to the grooved wheel *d* and bevel-wheel d^2, and thence to the drum *b* by the meshing of the bevel-gears. The rotation of the drum B brings one of the segmental racks upon its periphery into working contact with the teeth on the pivot end of one of the fingers, which is thereby rotated through approximately half a circle, carrying with it the leaf or sheet, which is inserted between its split end. To reverse the motion the pedal E′ is depressed, which, owing to the reverse direction of its teeth, rotates the mechanism in opposite direction, so that each operation of a pedal turns a leaf forward or backward, depending upon the pedal depressed. The spring c^3 presses slightly upon the fingers at each end of their journey, and so causes them to come into engagement with the racks as the racks move into position, and the smooth surface of the drum holds the fingers, and consequently the leaf, in correct position at the end of the stroke, as shown in Fig. 4.

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

In a leaf-turning device, the combination of the fingers C, having gear-teeth *c′* and bent split ends c^2, spring c^3, to assist in engaging the fingers with the racks, the drum or cylinder B, provided with gear-racks *b b b*, as described, operating the fingers C C, the frame A, with its adjusting device H, the pedal mechanism consisting of the pivoted pedals E E′, provided with spring-pawls *e e′* and raising-springs e^3, right and left hand ratchet-wheels F F′, operated by the spring-pawls *e e′* on the pedals, the transmitting mechanism consisting of the bevel-gears b^2 and d^2, grooved wheels *d* and *f*, around which the cord is wound, cord D, with its guide-pulleys d^3, leaf-supporting bracket G, with its adjustable support *g′* and clamping-springs *g*, and suitable casings inclosing the pedal and finger-moving mechanisms, all arranged and operating substantially as described.

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