No. 615,879. Patented Dec. 13, 1898.

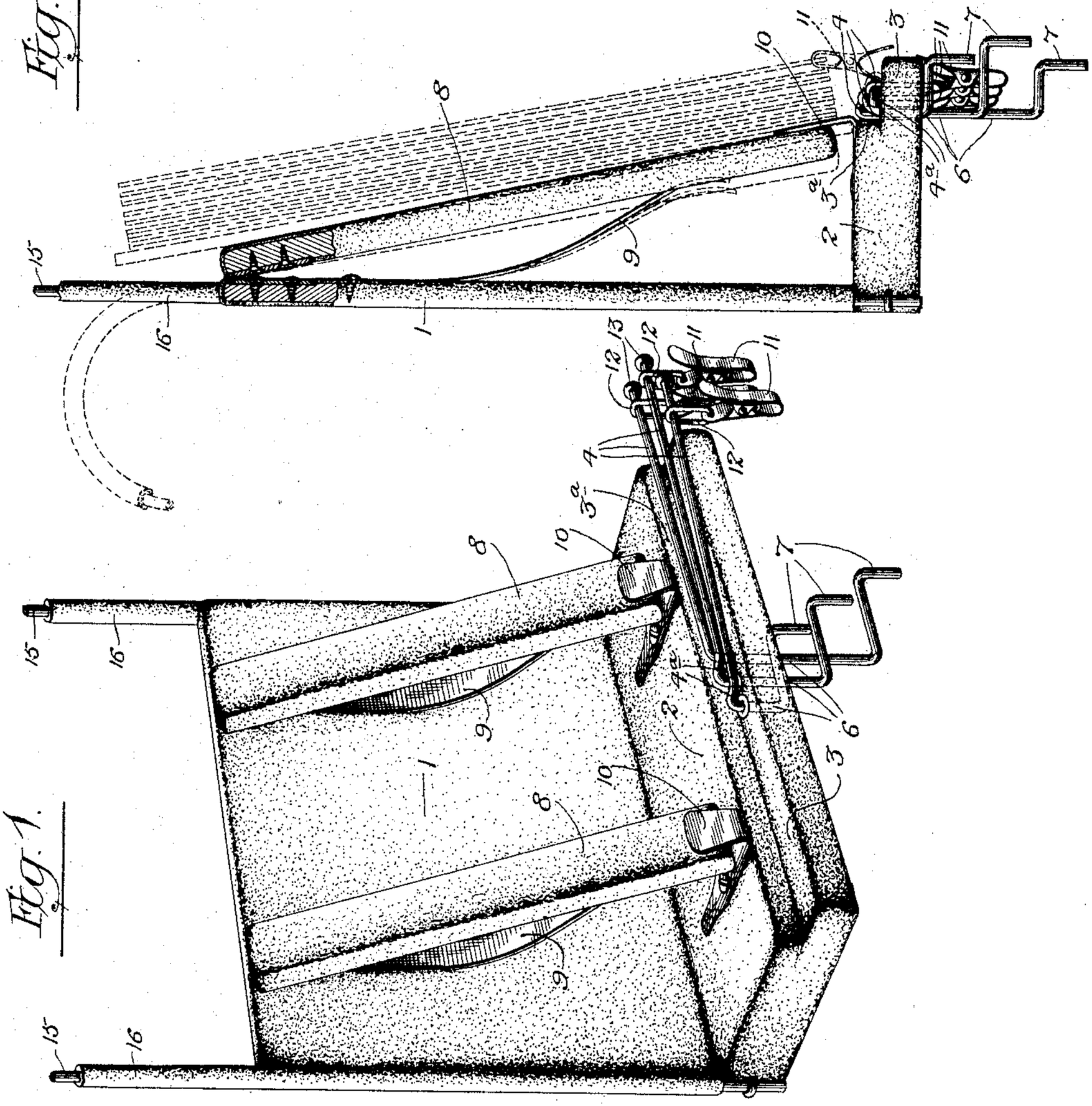
R. K. McDONALD.

BOOK HOLDER AND LEAF TURNER.

(Application filed Oct. 9, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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Inventor:—
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Fig. 5.

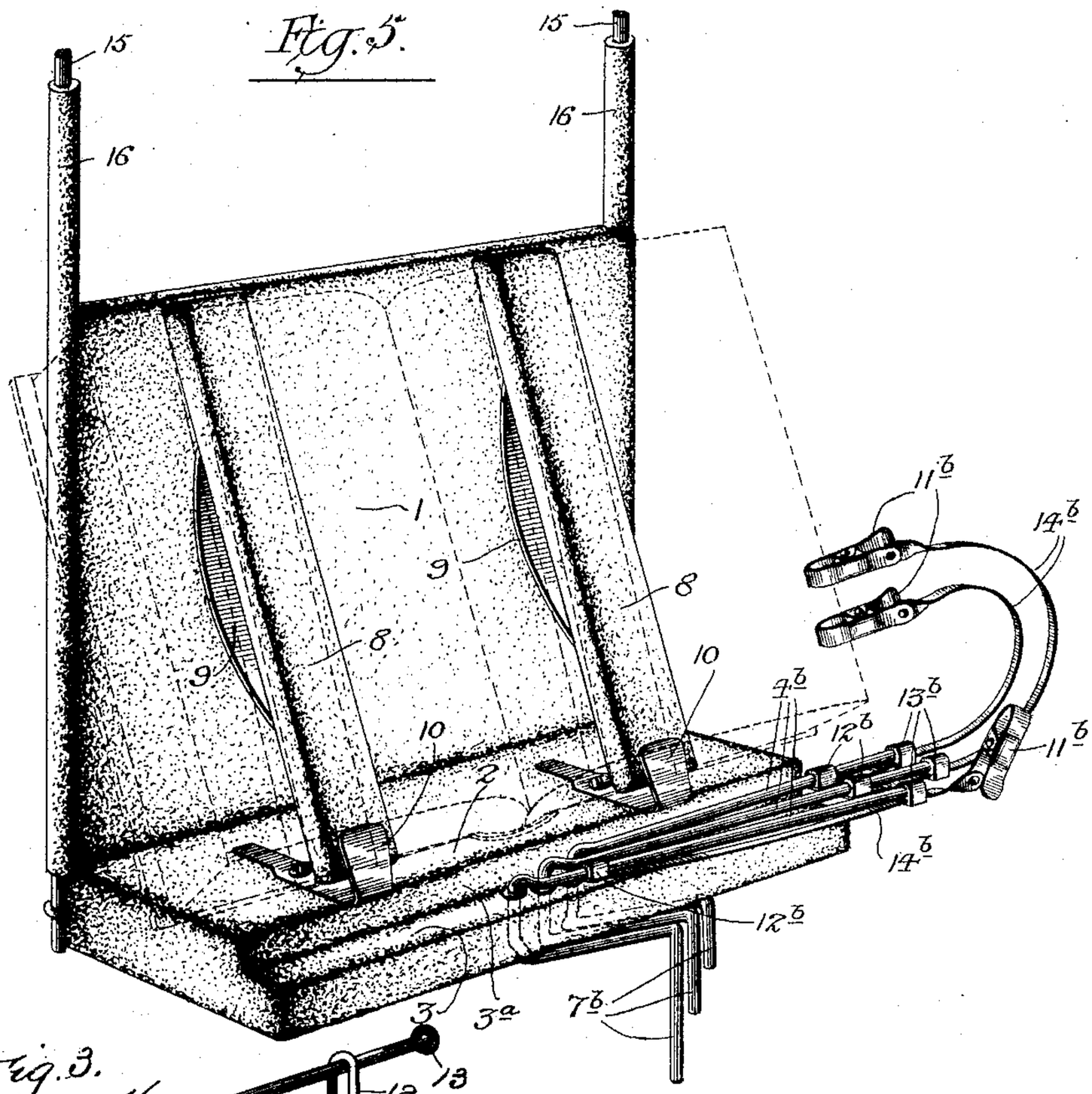

Fig. 3.

Fig. 6

Fig. 4.

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UNITED STATES PATENT OFFICE.

RUFUS K. McDONALD, OF NEWVILLE, INDIANA.

BOOK-HOLDER AND LEAF-TURNER.

SPECIFICATION forming part of Letters Patent No. 615,879, dated December 13, 1898.

Application filed October 9, 1897. Serial No. 654,689. (No model.)

To all whom it may concern:

Be it known that I, RUFUS K. McDONALD, a citizen of the United States, residing at Newville, in the county of De Kalb and State of Indiana, have invented a new and useful Book-Holder and Leaf-Turner, of which the following is a specification.

My invention relates to a book-holding and leaf-turning device, and has for its object to provide a simple and efficient construction and arrangement of parts adapted for supporting a book or music-sheet in a convenient position for reading, the same being provided with means for facilitating the turning of the leaves either forward or backward, as may be required.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a book-holder and leaf-turner constructed in accordance with my invention. Fig. 2 is a side view of the same, partly in section, in the plane of one of the back-holding clamps. Fig. 3 is a detail view in perspective of a turning-arm provided with a leaf-clamp, which is connected with the arm by a link. Fig. 4 is a detail view of a modified construction of turning-arm. Fig. 5 is a perspective view of a book-holder and leaf-turner, showing the preferred form of turning-arm. Fig. 6 is a detail view in perspective of the preferred turning-arm.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The holder embodying my invention consists of a back 1, provided at its lower edge with a forwardly-extending rest or ledge 2, the front portion of which is depressed, as shown at 3, to form a rabbet, in which operate turning-arms. Any desired number of these turning-arms may be employed, three only being illustrated in the drawings, Figs. 1 and 2, as indicating the construction and the relative arrangement of the parts. The turning-arms 4 (shown in Figs. 1 to 3, inclusive) have spindles 6 vertically mounted in suitable bearings in the ledge, whereby the arms swing parallel with the upper surface of the rabbet 3, and the arms which are arranged on each side of the central arm are preferably provided with offsets 4^a to adapt the arms when extending in a common direction toward one side of the holder to lie parallel with each other. The lower ends of the turning-arm spindles are provided with operating-handles, such as cranks 7, (shown in the drawings,) and as the spindles are of different lengths the cranks are disposed in different horizontal planes, and hence may be independently grasped to swing the desired arm from one position to the other. The shoulder 3^a at the back of the rabbeted portion of the ledge forms a stop to limit the swinging movement of the arms.

Hingedly mounted at their upper ends upon the back 1 are back-clamping bars 8, provided with actuating-springs 9, whereby they are yieldingly pressed forward in contact with stop-ears 10, arranged in an upright position contiguous to the front edge of the support or ledge 2 and approximately in the plane of the shoulder 3^a. The construction of spring illustrated in the drawings is a plate secured to the back 1 and having its lower extremity arranged in frictional contact with the rear side of the clamping-bar, and while the tendency of said bar is forward at its lower end toward the stop-ear it is obvious that it may be repressed to receive the back of a book or the exterior leaves of sheet-music to hold the same in a fixed position upon the device while the leaves thereof are being turned successively. The peculiar construction of the back-clamping devices adapts them to receive and securely hold either a single sheet or a book of considerable thickness.

The means which I have illustrated in the drawings for connecting the leaves of a book or sheet-music to the turning-arms consist of leaf-clamps 11, flexibly connected with said turning-arms by means of links 12, as in Figs. 1, 2, and 3, or their equivalents, and these flexible connections are preferably mounted for sliding movement upon the arms to adapt the leaf-clamps to be arranged at different portions thereof to suit the width of the pages of the book or sheet-music. In the construction illustrated these links are fitted to slide loosely upon the arms, and the latter are pro-

vided with terminal heads or stops 13 to prevent the displacement of the links; but in the modified construction illustrated in Fig. 4 the connection 14, in addition to being flexible, is of elastic material, such as rubber or its equivalent, whereby in turning a leaf any resistance offered thereby will cause the yielding of the connection, and hence avoid the tearing of the leaf. The flexible connection between the leaf-clamps and the turning-arms illustrated in Figs. 1 to 3 has the same effect of avoiding the tearing of the leaf by yielding to suit the position thereof and the direction of strain applied thereto. The preferred construction of turning-arm, however, is illustrated in Figs. 5 and 6, wherein the arm proper, 4^b, is provided in its terminal enlargement or stop 13^b with a guide or keeper consisting of an opening through which the flexible connection 14^b extends, one end of said flexible connection carrying a leaf-clamp 11^b, while the other end is provided with a slide or eye 12^b, fitted for longitudinal adjustment upon the body portion of the arm. The flexible connection consists of an elastic or spring-metal strip of thin material having flexibility to enable it to be bent into the desired bow for engaging the edges of narrow book-leaves and at the same time of sufficient strength to exert an outward strain upon such leaves to hold them in a flat condition while at rest and also during the turning operation. Obviously the flexibility of the connections 14^b provides for the engagement of the leaf-clamp with leaves of different widths without recourse to the sliding movement of the part 12^b; but it is also obvious that by reason of this sliding part the connections may be folded parallel with the body portions of the arms by moving the slides inwardly toward the pivots of the arms, and, furthermore, when an outward strain upon the leaves is not desired the said connections can be extended more or less to suit the width of the leaves. Thus this preferred form of flexible connection possesses the advantages not only of flexibility, as do the flexible connections shown in Figs. 3 and 4, and not only of elasticity, as shown in Fig. 4, but also of exerting a constant outward strain upon the leaves to which the leaf-clamps are attached, said connection 14^b having not only lateral flexibility, but flexibility in the plane of the turning-arm by which it is carried.

It will be seen, furthermore, that each form of turning-arm illustrated in the drawings embodies, in addition to the flexible connection between the leaf-clamp and the arm proper, a slide mounted for longitudinal adjustment upon the arm proper, whereby the position of the clamp may be adjusted to suit the width of the leaves to be turned.

Furthermore, in Fig. 5 the handles or cranks 7^b are attached to turning-arm spindles of equal lengths and are themselves of a common length in contradistinction to the construction shown in Figs. 1 to 4, inclusive, wherein said spindles are of different lengths. The downturned portions of the cranks 7^b are spaced apart in either adjustment of the cranks by reason of the eccentric positions of the turning-arm spindles, and hence either crank may be grasped without interfering with the others in the operation of turning the arms.

Projecting upwardly from the back, preferably at its upper corners, are holding-rods 15, preferably clothed by means of a soft sheath 16, said rods being pliable, and hence adapted to be bent to engage a contiguous portion of an instrument upon which the holder is placed. The clothing of the holding-rod prevents the latter from marring the finish of the instrument.

A special advantage of the peculiar construction of back-clamping bars above described resides in the fact that as said bars are arranged in an approximately vertical position parallel with each other and are spaced apart, the same being arranged upon opposite sides of the center of the back, the back of a book, clamped between the lower ends of the bars and the fixed stops, which are arranged in the paths of said bars, will rest against the front surfaces of the clamping-bars, with the binding of the book in the interval therebetween, thus holding the book in a flat and suitable position for reading.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a device of the class described, the combination of a back provided at its lower edge with a supporting shelf or ledge, vertical spring-actuated clamping-bars mounted upon the back and operating at their free ends contiguous to the plane of the ledge, said free ends being yieldingly held in their advanced position, and fixed stops arranged in the paths of the free ends of the clamping-bars whereby the back of the book or sheet-music may be engaged between the clamping-bars and the stops, when the back of the book rests against the front surface of the clamping-bars, substantially as specified.

2. In a device of the class described, the combination of a back provided at its lower edge with a forwardly-extending ledge having upturned stops, clamping-bars hingedly mounted at their upper ends upon the back, spaced apart a distance sufficient to receive the binding of a book, and arranged with their free ends in the planes of said stops, and means for yieldingly holding the free lower ends of the clamping-bars in their advanced positions, substantially as specified.

3. In a device of the class described, the combination with a back provided with a bottom supporting-ledge, of back-clamping devices mounted upon the back and consisting

of clamping-bars hinged at their upper ends, and yieldingly held at their lower ends in contact with stops on said ledge, and a plurality of turning-arms mounted upon the ledge in advance of said stops and carrying leaf-clamps, the spindles of the turning-arms being extended below the plane of the ledge and terminating in operating handles or cranks, substantially as specified.

4. In a device of the class described, the combination of a back, provided at its lower edge with a forwardly-extending ledge, having a depressed front portion or rabbet of which the rear wall forms a shoulder, fixed stops arranged in the plane of said shoulder, clamping-bars mounted upon the back and yieldingly held at their front ends in contact with said stops, turning-arms pivotally mounted upon the ledge contiguous to the plane of the depressed portion thereof, and in front of said shoulder, and hence below the plane of the body portion of the ledge, whereby the shoulder forms a stop to limit the rearward-swinging movement of the arms, and means for actuating the turning-arms successively, substantially as specified.

5. In a device of the class described, the combination with leaf-turning arms, of leaf-clamps connected respectively with said arms by outwardly-bowed spring-metal strips, exerting an outward strain on the clamps, and capable of yielding to allow vertical-swinging movement of the clamps in the planes of the turning-arms, substantially as specified.

6. In a device of the class described, the combination with leaf-turning arms, of leaf-clamps flexibly connected with said arms by elastic spring-metal strips, whereby the clamps are capable of swinging movement in the vertical planes of the turning-arms, said strips being torsionally elastic, substantially as specified.

7. In a device of the class described, the combination with leaf-turning arms, of leaf-clamps, and flexible connections between the leaf-clamps and said arms, the same consisting of cross-sectionally flat metallic strips, substantially as specified.

8. In a device of the class described, the combination with leaf-turning arms, of leaf-clamps, and connections between the leaf-clamps and said arms, the same consisting of pliable spring-metal strips connected at one end with said leaf-clamps and provided at the other end with slides fitted for longitudinal movement upon the turning-arms, substantially as specified.

9. In a device of the class described, the combination with leaf-turning arms, of leaf-clamps, and connections between the leaf-clamps and said arms, the same consisting of pliable spring-metal strips connected at one end with said leaf-clamps, and provided at the other end with slides fitted for longitudinal adjustment upon the turning-arms, said strips corresponding in length approximately with the turning-arms, substantially as specified.

10. In a device of the class described, the combination with turning-arms, of leaf-clamps, slides mounted upon the turning-arms, fixed guides on the extremities of the turning-arms, and flexible connections consisting of yielding spring-metal strips extending through said guides and terminally attached respectively to the slides and leaf-clamps, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

RUFUS K. McDONALD.

Witnesses:
JOHN T. HANDRICK,
HARRY AYRES.