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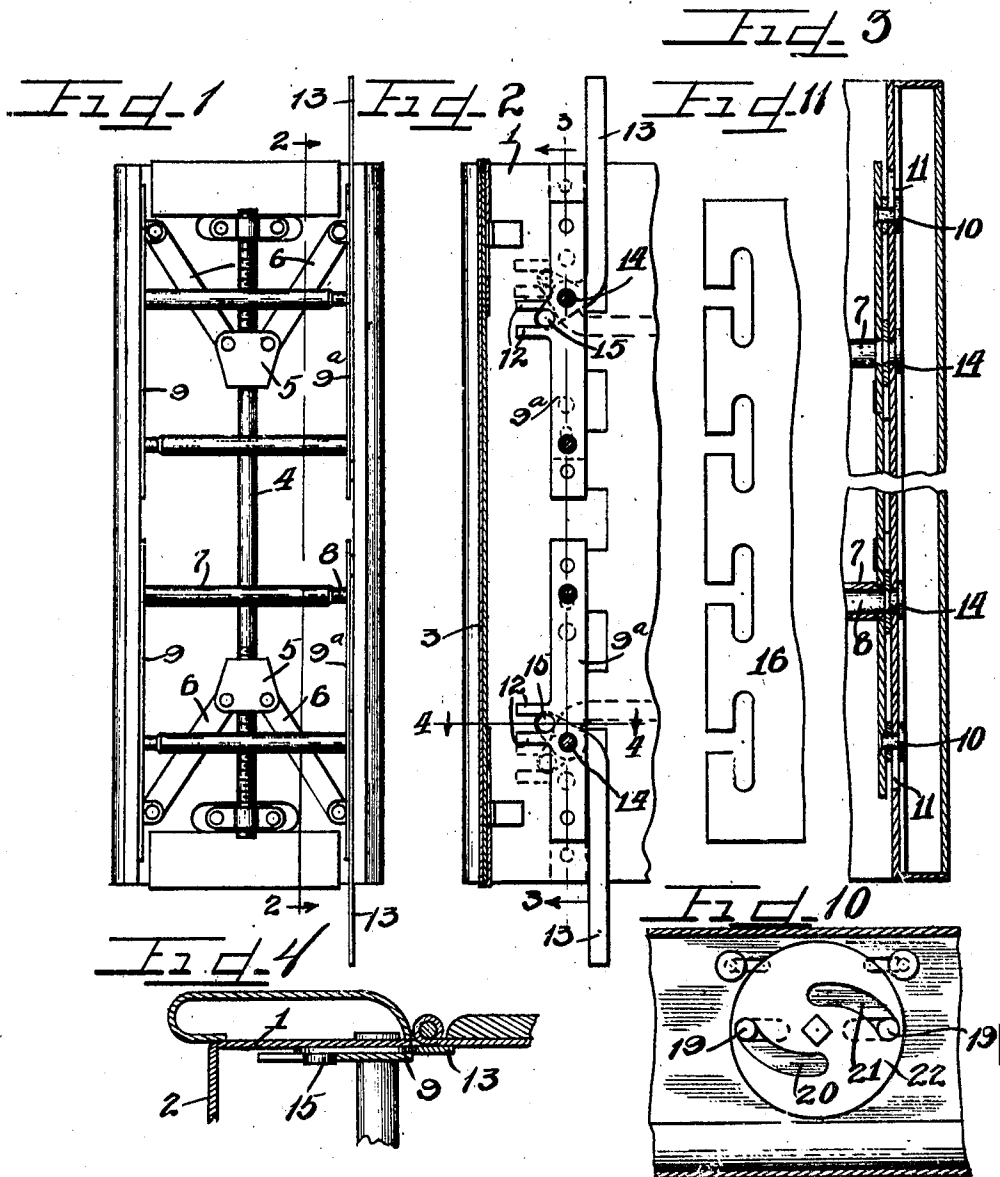
A. R. MEYER ET AL

1,479,919

LOOSE LEAF BINDER

Filed June '18, 1921

2 Sheets-Sheet 1



WITNESSES
J. W. Angell
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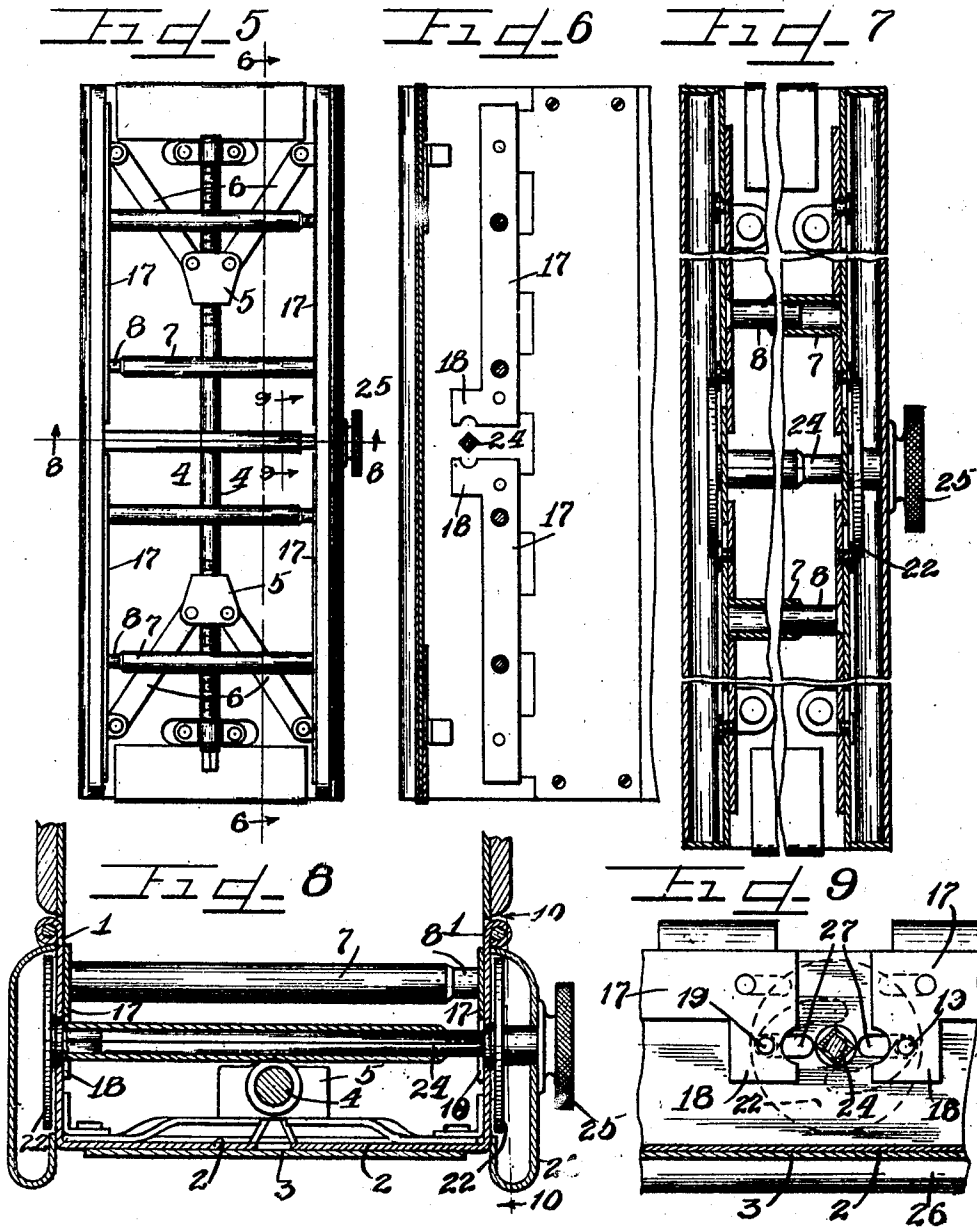
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UNITED STATES PATENT OFFICE.

ARTHUR R. MEYER AND ELMER A. REED, OF CHICAGO, ILLINOIS, ASSIGNORS TO WILSON-JONES LOOSE LEAF COMPANY, A CORPORATION OF ILLINOIS.

LOOSE-LEAF BINDER.

Application filed June 18, 1921. Serial No. 478,490.

To all whom it may concern:

Be it known that we, ARTHUR R. MEYER and ELMER A. REED, citizens of the United States, and residents of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Loose-Leaf Binder; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to loose leaf binders in which leaves can be readily inserted and removed and in which the leaves are locked by shiftable leaf-holding means as disclosed in our co-pending application, Serial No. 478,488, filed June 18, 1921, of which the devices illustrated in this application are improvements. In said co-pending application, the invention is directed broadly to shiftable leaf-holding means that cooperate with slots in the loose leaves, producing a binder that is adapted for either pen and ink or mechanical bookkeeping, while the present application relates more specifically to novel means for actuating said leaf-holding means.

It is therefore an object of this invention to provide cam actuating mechanisms for shifting the movable leaf-holding means or posts that provide an efficient and easy mode of operation.

With this and other objects in view which will be become more apparent in the following description and disclosures in the drawing, this invention comprises the novel features of construction and combinations hereinafter described and pointed out in the appended claims.

In the accompanying drawings, which illustrate certain preferred forms of our invention, and in which similar reference numerals refer to similar features in the different views:

Figure 1 is a front plan view of a binder embodying the invention.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a section on the line 3—3 of Figure 2 on an enlarged scale.

Figure 4 is a section on the line 4—4 of Figure 2.

Figure 5 is a view similar to Figure 1 illustrating a modified form of this invention.

Figure 6 is a section on the line 6—6 of Figure 5.

Figure 7 is a longitudinal section through the binder illustrating certain structural features.

Figure 8 is a section on the line 8—8 of Figure 5.

Figure 9 is a fragmentary section on the line 9—9 of Figure 5.

Figure 10 is a fragmentary section on the line 10—10 of Figure 8.

Figure 11 is a plan view of the rear end of a loose leaf.

As shown on the drawings:

The binder to which our invention is applied comprises the side walls 1 having the flanges 2 which slidably rest upon the base or back 3 of the binder having the ends bent or crimped over the side flanges 2. The side walls 1 are adapted to be drawn together or spread further apart by means of a screw element 4 having reversely threaded sections upon which the shiftable nuts or elements 5 are mounted, which are connected by means of links 6 to the side walls 1, as shown in Figures 1 and 5.

In referring to Figures 1 to 4, the leaf-engaging posts 7 and 8 are supported at a suitable height from the base or back 3 by slidable plate members 9 and 9^a which are slidably mounted upon the inner sides of the side walls 1 by means of headed studs or rivets 10, the shanks of which operate in slots 11 in said side walls. The slots are of such a length as to allow the posts to move sufficiently for locking and unlocking purposes. In the present instance, there are two slidable plate members on each side wall, those on one side lettered 9^a being provided with downwardly projecting spaced cam lugs 12 defining cam grooves for shifting purposes. Each plate member 9^a and the member 9, directly opposite constitutes a pair which supports one or more pairs of leaf-holding posts 7 and 8, which constrains said pair to move as a unit thus creating two pairs of shiftable leaf-holding devices that move as separate units.

This invention relates more directly to novel cam actuating means for shifting said units. In the form illustrated in Figures 1 to 4, the slidable plate members 9^a which are

5 specially provided with the aforementioned cam grooves are adapted to coact with rotatable cam levers or devices 13 which are located between the said slidable plate members 9^a and the side walls 1 upon pivot pins 14 extending through said side walls. The levers or devices 13 have their inner end portions inclined or at an angle, the pivots 14 passing through the inclined portions and the ends of the inclined or angled portions are provided with cam lugs or projections 15 operatively fitting in said cam grooves. The ends of the cam levers 13 project beyond the ends of the binder and by grasping these devices and rotating them on their pivots into upright positions, as indicated in dotted lines in Figure 2, the shiftable units will be moved outwardly into locking position, in which position the posts 7 and 8 will have moved into the outer portions of the mushroom slots of the loose leaves. When it is desired to insert or remove a leaf, the cam devices 13 are again rotated to full line position, in which position the leaf-holding posts are directly opposite the entrance necks of the slots. During the operation of the levers 13, the cam lugs operate in the cam grooves formed by the lugs 12, which grooves are of such a depth as to allow the lugs 15 to travel in the arc of a circle with pivots 14 as centers. The cam lugs 15 accordingly slide in the said grooves and exert a camming action against the walls thereof to shift said plates.

35 However, instead of using two separate levers, rotatable disks may be substituted therefor in which cam grooves may be cut and the cam lugs placed on the inner ends of said slidable plates, as illustrated in 40 Figures 5 to 10. In this form, in which two rotatable disks or devices are used, the slidable plates 17, which are supported similarly to the plates 9, are provided with downwardly extending lugs 18 at their inner ends and having projections or cam lugs 19 which engage in cam slots 20 and 21 formed in rotatable disks or devices 22 mounted upon an adjustable shaft 24 extending through both side walls of the binder. The adjustable shaft 24 consists of two telescopic sections of polygonal cross section affording relative sliding movement, but constrained to rotate as a unit. The said shaft 24 is supported in bearings in the side walls 1 and 55 just beyond the outer surface of said side walls, the said disks or devices 22 are affixed to said shaft to rotate therewith. At one side the shaft 24 projects beyond the protecting sheath 26 to receive an operating knob or handle 25. The lugs 19 on said plates 17 project through longitudinal slots 27 formed in the side walls 1 and into the said grooves 20 and 21 which are of such a contour that the lugs 19 will be shifted 65 from one end to the other in said slots as

the disks 22 are rotated to shift the plates 17 and the leaf-holding posts carried thereby. If necessary, the inner edges of the lugs 18 may be cut out (as shown in Figures 6 and 9) to fit around the shaft 24 when said 70 plates are shifted together. While I have illustrated two cam disks, it is apparent that one would answer the purpose, since the two pairs of plates 17 which support the leaf holding posts are constrained to travel as 75 units. The second disk or device will, however, effect a better balance of the force exerted.

It is obvious that by rotating the knob 25, the said disks or devices 22 will be rotated to shift the plates 17, through the cam-connection 19—20 and 21, either together or apart, the limits of the movements in either direction defining either the locking or unlocking position of the posts according to the arrangement of the slots in the loose leaves.

It is characteristic of this invention that the two forms of shifting means comprise pivoted and rotatable or oscillatable cam 90 actuating devices that have a certain amount of relative cam action with the slidable plates which they shift for locking and unlocking loose leaves having appropriate slots coacting with the posts carried by said slidable 95 plates.

We are aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and we therefore do not purpose limiting the patent granted 100 otherwise than necessitated by the prior art.

We claim as our invention:

1. In a loose leaf binder, a plurality of shiftable leaf-holding units, cam lugs projecting from said units, and a rotatable cam disk having cam grooves engaging said lugs and rotatable for shifting said units. 105

2. In a loose leaf binder, a plurality of pairs of shiftable post-supporting members, 110 each member having cam lugs projecting from its inner end, a rotatable shaft mounted in said binder, two cam disks having cam grooves mounted on said shaft, one adjacent each side of the binder, for engaging said 115 cam lugs, whereby said members may be shifted by the rotation of said shaft.

3. In a loose leaf binder, a leaf-holding device shiftable as a unit comprising a pair of slidably mounted plate members, leaf- 120 holding posts carried by said members, and a rotatable device pivoted adjacent said leaf-holding device, one of said devices having a cam groove and the other having a lug entering said groove whereby oscillation of said rotatable device will shift said leaf- 125 holding device.

4. In a loose leaf binder, a longitudinally shiftable leaf-holding unit comprising a pair of slidably supported and parallel plate

members, leaf-holding posts supported by said plate members and slidable therewith, and means for shifting said leaf-holding unit comprising an oscillatable member pivoted adjacent thereto and having a pin and slot connection with said unit. vice having a cam-like engagement with said unit.

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5. In a loose leaf binder, a longitudinally shiftable leaf-holding unit comprising a pair of leaf-holding posts, and means for shifting said unit comprising a rotatable cam de-

In testimony whereof we have hereunto subscribed our names in the presence of two subscribing witnesses.

ARTHUR R. MEYER.
ELMER A. REED.

Witnesses:

C. W. GLOSS,
R. B. ALDERSON.