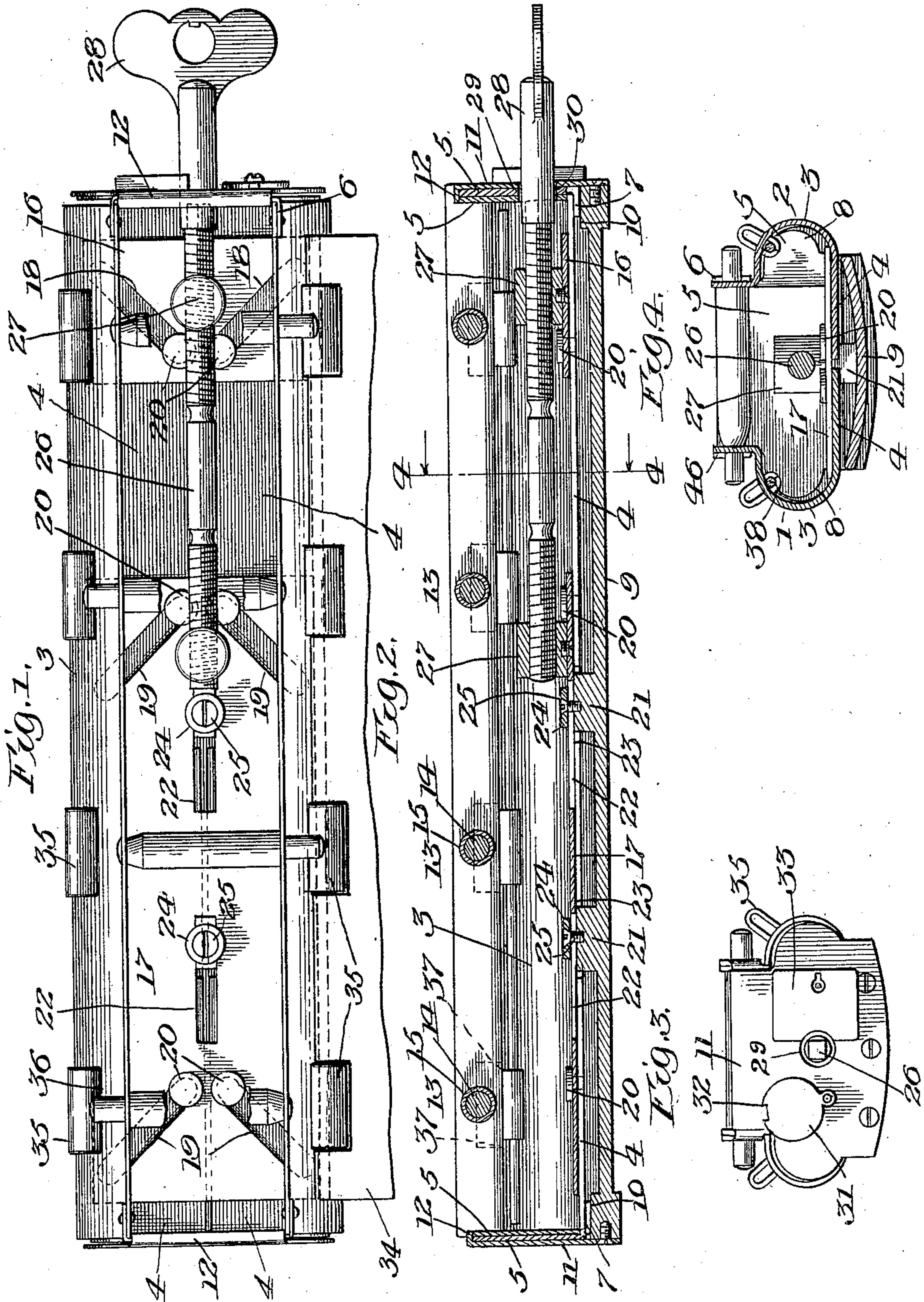


J. BYSTROM.
 LOOSE LEAF LEDGER.
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933,885.

Patented Sept. 14, 1909.



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UNITED STATES PATENT OFFICE.

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LOOSE-LEAF LEDGER.

933,885.

Specification of Letters Patent. Patented Sept. 14, 1909.

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To all whom it may concern:

Be it known that I, JOHN BYSTROM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Loose-Leaf Ledgers, of which the following is a specification.

One of the objects of this invention is the production of an improved clamping mechanism for holding the leaves in a loose-leaf ledger.

Another object of the invention is to arrange the parts of the binder so as to produce a binder which is approximately flat-opening.

A further object is the production of an improved means for holding the movable side clamping-members in proper relation to the stationary portion of the binder.

The invention also has reference to an improved construction of the ends of the side clamping-members adapted to permit of conveniently securing in place the leather covering of the ledger back.

The invention further refers to an improved construction of the actuating mechanism of the binder, whereby only one length of screw-threaded shaft is needed for all the different sizes of ledger-backs.

The invention also relates to the other and further improvements in loose-leaf ledgers hereinafter set forth.

In the accompanying drawings Figure 1 is a top plan view of a binder for loose-leaf ledgers embodying the features of my invention. Fig. 2 is a longitudinal vertical central section through said binder. Fig. 3 is an end view thereof, and Fig. 4 is a transverse section taken on the plane of dotted line 4 4 of Fig. 2.

The embodiment herein shown of my invention comprises two side clamping members 1 and 2, each consisting of a side portion 3 and a bottom plate 4 formed of an integral piece of sheet metal. The ends of said side members are closed by overlapping end plates 5, one of which is secured to each end of each side member by means of ears 6 and 7 on said end plates, said ears being riveted to said side members. One edge of each of the end plates 5 is shaped, as indicated at 8,

so as to leave an opening between said end plate and the adjacent portion of the side member. In covering the binder with leather or other covering material, said covering material is tucked into said openings and secured to the side members by gluing or in any other suitable way.

The side members 1 and 2 are mounted upon a back 9 provided with ways 10 at its ends upon which the side members, or more accurately speaking, the ears 7 of the end plates of said side members, slide. The side members 1 and 2 are held in proper relation with the back 9, partly by means to be later herein described, and partly by cap plates 11 screwed or otherwise fastened to the ends of the back 9, said plates having in-turned upper edges 12 adapted to overlie the upper edges of the end plates 5.

To the opposing faces of the side members 1 and 2 are secured the leaf-holding posts 13, each of said posts comprising a pin 14 and a tube 15 attached to opposite side members and arranged to telescope one with the other in the usual manner.

The means for moving the clamping members 1 and 2 toward and away from each other to clamp between them the leaves placed upon the posts 13 comprises two plates 16 and 17. The plate 16 is relatively short and is made of the same length for all sizes of binders. The plate 17 is longer, and varies in size with the different sizes of binders, but is always placed at the same distance from the plate 16. In the plate 16 are formed two cam slots 18 arranged at a right angle with each other and converging, in this instance, toward the left. Near the opposite ends of the plate 17 are formed two pairs of cam slots 19 converging toward the right, the slots of each pair extending at a right angle with each other. In the bottom plates 4 of the side members 1 and 2 are fixed headed rivets 20 adapted to travel in said cam slots. The back 9, the side members 1 and 2, and the plates 16 and 17 are held in proper relation to each other by means comprising two studs 21, in this instance formed integral with the back 9, the plate 17 having two elongated openings 22 therein through which said studs project,

and the meeting edges of the bottom plates 4 of the side members 1 and 2 being notched at 23 to accommodate said studs between them. A washer 24 overlies the edges of each of the slots 22 and is secured to one of the studs 21, in this instance, by screws 25.

For moving the plates 16 and 17 to cause the rivets 20 to move inwardly or outwardly through the cam slots 18 and 19 I provide a shaft 26 having right and left-hand screw-threads upon its opposite end portions, said shaft having a screw-thread engagement with a nut or post 27 fixed to each of the plates 16 and 17. The plate 16 in all sizes of binders being the same, and the plate 17 always being placed at the same distance from the plate 16, only one size of screw-threaded shaft is required for the different sizes of binders manufactured. One end of the shaft 26 is made angular for engagement by a key 28, said key being inserted through an opening 29 formed in the adjacent cap 11 and through elongated openings 30 in the overlapping end pieces 5. To prevent unauthorized operation of the binder, the opening 29 is arranged to be closed by a cover 31 pivoted upon the outer face of the cap 11, said cover having a locking notch 32 therein adapted to receive the bolt of a lock mechanism 33 fixed to the outer face of the cap 11.

The covers 34 for the ledger are secured to the binder by means of ears 35, said ears consisting of substantially elliptical sheet metal loops seated in openings 36 in the side members 1 and 2, said loops having shoulders 37 thereon overlying said side members. The loops 35 are held in place in said openings by means of two rods 38, each rod passing through all of the loops upon one side of the binder at the inner side of the side member.

In operation the shaft 26 is rotated to move the slotted plates 16 and 17 toward or away from each other and thereby cause a movement of the side members 1 and 2 toward or from each other by reason of the cam action of said slotted plates upon the rivets 20. It will be noted that the plate 16 is near one end of the binder and that the end of the plate 17 engaged by the shaft 26 is near said first mentioned plate, thereby permitting the employment of a comparatively short shaft. The shaft 26 is located above the plates 16 and 17, between said plates and the leaf-holding devices, thus utilizing the space always present between the leaf-holding devices and the operating mechanism, and permitting the construction of a relatively thin or low-lying binder back. The slots 18 and 19 of each pair of slots being inclined at a right angle with each other, the actuating mechanism is balanced, in other words, there is no tendency of the side members 1 and 2 to skew or pull over

to one side or the other. The provision of three pairs of cam slots makes the binder exceedingly rigid.

I recognize the practicability of making various changes in the construction and arrangement of the parts constituting the embodiment here shown and described, therefore, no undue limitation should be understood from the foregoing detailed description.

I claim as my invention:

1. In a binder, in combination, two side members; a short plate and a long plate provided with cam slots, said short plate being located near one end of said side members, and one end of said long plate being relatively near said short plate; a screw shaft located at one end of the binder and adapted to engage said plates; and means attached to said side members and traveling in said slots.
2. In a binder, in combination, two side members; a short plate and a long plate provided with cam slots, said short plate being located near one end of said side members, and one end of said long plate being relatively near said short plate; a nut fixed to each of said slotted plates; a shaft having oppositely screw-threaded end portions lying in said nuts, said shaft being supported solely by said nuts and being located at one end of the binder; and means attached to said side members and traveling in said slots.
3. In a binder, in combination, two side members; a short plate and a long plate, said short plate having one pair of cam slots therein, and said long plate having two pairs of cam slots therein, said short plate being located near one end of said side members, and one end of said long plate being relatively near said short plate; a nut attached to the upper side of said short plate; a nut attached to the upper side of said long plate at the end near the short plate; a shaft having oppositely screw-threaded end portions lying in said nuts, said shaft being supported solely by said nuts; and means attached to said side members and traveling in said slots.
4. A binder having openings in one of its sides, in combination with loops extending into said openings; and a rod extending through said loops for securing them in place in said openings.
5. In a binder, in combination, a binder back having an opening in one end thereof; an operating shaft in said binder back arranged to be rotated by means of a device inserted through said opening; a pivoted member adapted to close said opening; and a lock for securing said pivoted member in its operative position.
6. In a binder, in combination, a binder back having an opening in one end thereof;

an operating shaft in said binder back arranged to be rotated by means of a device inserted through said opening; a cover pivoted upon the outer face of one end of the
5 binder back and adapted to close said opening, said cover having a locking notch therein; and a lock mechanism fixed to the end of said binder back and comprising a bolt adapted to engage said locking notch.

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