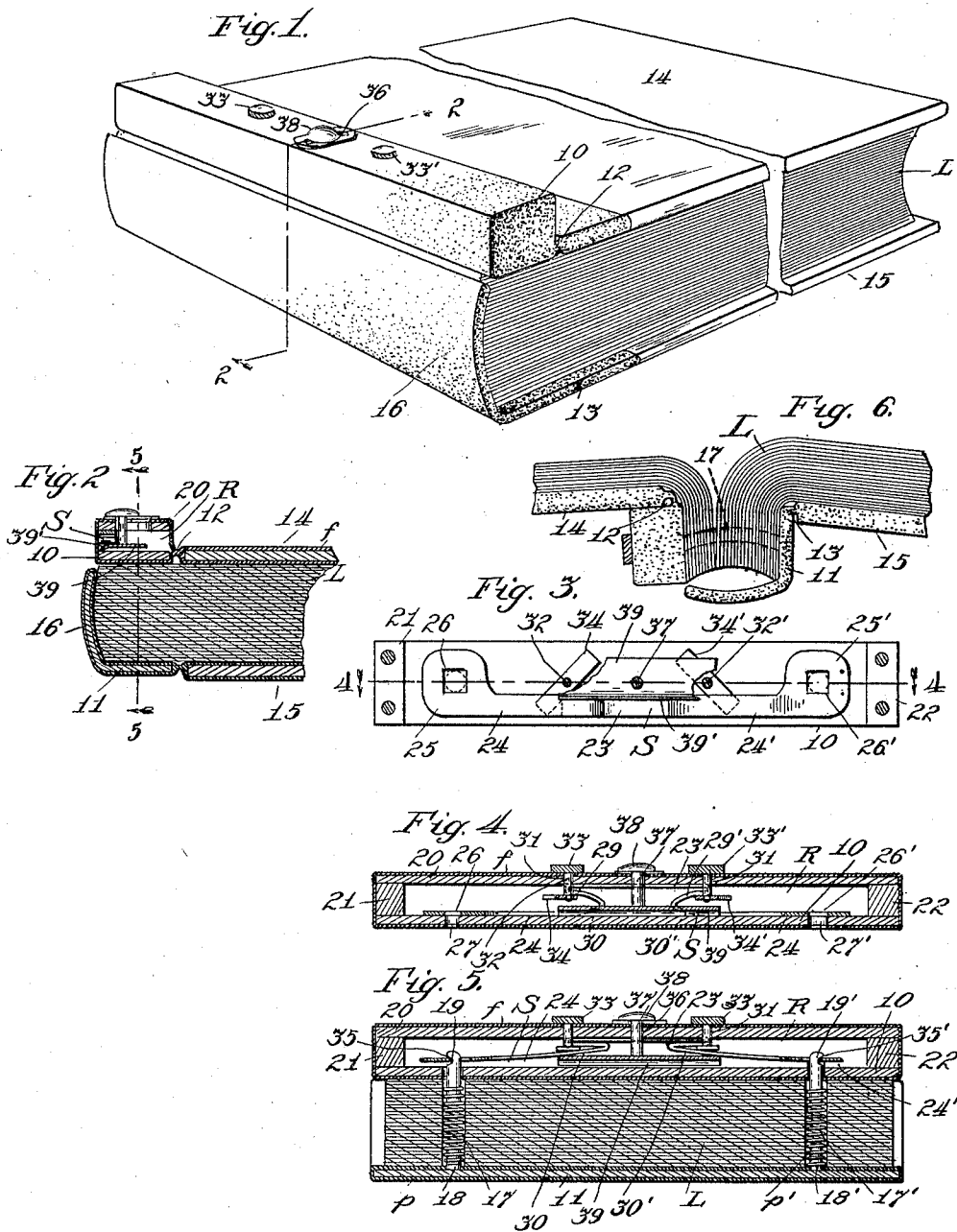


B. GLASER.
LOOSE LEAF BINDER.
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1,039,047.

Patented Sept. 17, 1912.



Witnesses
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UNITED STATES PATENT OFFICE.

BERNHARD GLASER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO ALEXANDER B. SEELENFREUND, OF CHICAGO, ILLINOIS.

LOOSE-LEAF BINDER.

1,039,047.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BERNHARD GLASER, a citizen of Germany, residing at Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Loose-Leaf Binders, of which the following is a specification.

My invention relates to loose leaf binders and concerns particularly improved mechanism for securing leaves to the binder members.

One of the important objects of the invention is to provide flexible and elastic pins for receiving the leaves which pins will follow the movement of the leaves as the binder is opened and which thus relieve the leaves from strains and prevent tearing thereof, and which will allow the leaves to lie more flat and will eliminate the tendency of the leaves to swing when the binder is opened.

Another object of the invention is to provide improved spring controlled locking and clamping mechanism for locking the binder jaws together and for comprising and clamping the leaf ends together and securely in the binder jaws.

In general, the invention contemplates simplified and more efficient construction and arrangement in devices of the character referred to.

In the accompanying drawings:—Figure 1, is a perspective view of a binder embodying the features of my invention, Fig. 2, is a sectional view taken substantially from plane 2—2, Fig. 1, Fig. 3, is a plan view of the spring locking and clamping structure with the top inclosing wall removed and showing the springs relaxed, Fig. 4, is a sectional view taken from plane 4—4, Fig. 3, Fig. 5, is a sectional view taken from plane 5—5, Fig. 2, Fig. 6, is a side view of the binder in open position.

The binder comprises upper and lower jaw plates 10 and 11 to which are hinged at 12 and 13 the covers 14 and 15. The lower plate 11 has the upward extension 16 at its outer edge, preferably integral therewith and forming the binder back. Also extending upwardly from the lower plate are the pins p and p' , for receiving the leaves L to be bound. These pins are preferably in the form of spiral springs 17 and 17', so as to be yielding and flexible whereby to eliminate strain on the leaves and tearing thereof from the pins as the covers are opened, and

also to allow the leaves to lie more flat and without tendency to swing over. The springs are secured at their lower ends about lugs 18 and 18' on the lower plate 11 and have cylindric heads 19 and 19' respectively, secured to their upper ends.

A top plate 20, together with end blocks 21 and 22, form with the upper jaw plate 10 a receptacle R for the locking and clamping mechanism. The plates and blocks may be soldered or riveted together or the receptacle may be formed of a single piece of metal bent up or cast into form. The sides of the receptacle may be as shown closed by finish fabric f such as leather, which entirely surrounds the receptacle and also the body 14' of the top cover, the fabric then forming the hinge at 12. Likewise the lower cover body 15' and the lower jaw structure 11, 16 are covered by suitable fabric which forms the hinge at 13. Within the receptacle is a leaf spring structure S whose body part 23 lies against the top plate 20 and whose ends 24, 24' terminate in expanded portions 25, 25' having openings 26, 26' for registering with openings 27, 27' in the upper jaw plate 10 so that the heads 19, 19' of the pins may extend therethrough into the receptacle. At the junctures of the body part and ends of the spring are reverse bends comprising upper loops 29, 29' and lower loops 30, 30'. The body part 23 and ends 24, 24' lie adjacent the outer edge of the top plate 20 and the expanded portion 25, 25', extend toward the inner edge of the plate with the openings 27, 27', at the middle line of the plate as shown in Fig. 3. Through the top plate 20 at the middle line thereof and adjacent the upper loops 29, 29' of the spring are holes 31, 31' for receiving the stems 32, 32' provided at their outer ends with knurled heads 33, 33' and at their inner ends with latch bars 34, 34', respectively, rigidly secured thereto. The arrangement is such, that upon turning of the knurled heads the bars will engage below the upper loops 29, 29' and will pinch these loops together, this causing the ends 24, 24' of the spring to be drawn toward each other to shorten the distance between the holes 26, 26', as shown in Fig. 5. As best shown in Fig. 5, the outer sides of the heads 19, 19' have notches 35, 35' respectively into which the outer edges of the holes 26, 26' engage when the spring ends are drawn together

by the latch bars, this operation securely locking the jaw plates together against the ends of the leaves L.

Midway between the holes 31, 31' in the top plate 20 is a transverse slot 36 through which extends a stem 37 terminating at its exterior end in a head 38 and having secured to its lower end within the receptacle a latch plate 39. This latch plate is normally in front of the lower loops 30, 30' as shown in Fig. 4, and its front edge 39' is deflected downwardly so that when the head 38 is moved outwardly in the slot the inclined end of the plate will engage under and compress and close the loops 30 and 30' against the latch bars 34, 34' as shown in Fig. 5, this tending to swing the spring ends 25 and 25' upwardly to exert full tension on the pins *p* and *p'*, the result being that the upper jaw plate 10 is drawn toward the lower jaw plate 11 and the ends of the leaves L pressed and clamped snugly together. Thus the latch bars 34, 34' serve to distort and to draw the spring into interlocking engagement with the leaf supporting springs and the latch plate 39 serves to distort the spring so that it will effect drawing together of the jaw members to clamp the leaves L. When it is desired to remove leaves, or add more, the head 38 is slid toward the covers to release the latch plate from the springs to relieve the pressure, and the heads 33, 33' are then rotated to remove the latch bars from the spring to unlock the springs from the pins L, whereupon the top jaw structure and cover can be readily removed. To apply the top jaw and cover, the reverse operation is performed.

Fig. 6 illustrates the flexible action of the spring pins *p*, *p'*, these pins bending so that the leaves may lie flat without being strained and without tending to swing over. These springs can obviously be of any length.

I do not desire to be limited to the precise constructions and arrangements herein shown and described, as changes and modifications are possible which would still come within the scope and spirit of the invention.

I claim as follows:—

1. In a loose leaf binder, the combination of upper and lower jaw members, posts extending from said lower jaw member and notched at their ends, a flat spring within said upper jaw member having holes for receiving the post ends, loops in said spring, and lever mechanism for engaging with said loops to shorten said spring whereby the edges of the spring adjacent said holes will enter said post notches to lock the upper jaw member to said posts.

2. In a loose leaf binder, the combination

of upper and lower jaw members, posts extending from the lower jaw member and having locking shoulders at their upper ends, a flat spring secured at its center to the upper jaw member and having holes at its ends for receiving the post ends, loops formed in said spring at intermediate points thereof, and lever mechanism for engaging with said loops to shorten said spring to bring the holes together whereby the edges adjacent said holes will be engaged by the shoulders on said posts and said jaw members connected together.

3. In a loose leaf binder, the combination of upper and lower jaw members, posts extending from the lower member and having locking abutments at their ends, a flat spring secured at its center to said upper jaw member and having holes at its ends for receiving the ends of said posts, reverse bends in said spring at intermediate points thereof, and levers for engaging with loops of said bends to close said loops to thereby cause the spring ends to approach each other and to engage with the post abutments to lock the upper jaw member to the post ends.

4. In a loose leaf binder, the combination of upper and lower jaw members, posts extending from the lower jaw member and each having a locking abutment at its upper end, a flat spring secured at its center to said upper jaw member and having holes at its ends for receiving the post ends, a reverse bend in said spring at each side of its center having an upper and a lower loop, latch levers for compressing the upper loops to cause the spring ends to be drawn together to carry the hole edges into locking engagement with the post abutments, and a latch plate for compressing the lower loops of the spring to thereby cause the spring ends to exert full tension on said posts.

5. In a loose leaf binder, the combination of upper and lower jaw members, a post extending from one of the jaw members and having a locking abutment at its end, a flat spring anchored to the other jaw member and having a hole for receiving the post end, a loop in said spring, and means for compressing said loop to thereby shorten the spring to cause the edge of its hole to engage with the post abutment to lock the jaw members together.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this 10th day of February, A. D. 1912, at Chicago, Illinois.

BERNHARD GLASER.

Witnesses:

GEO. G. PINES,

M. J. McKENDRY.