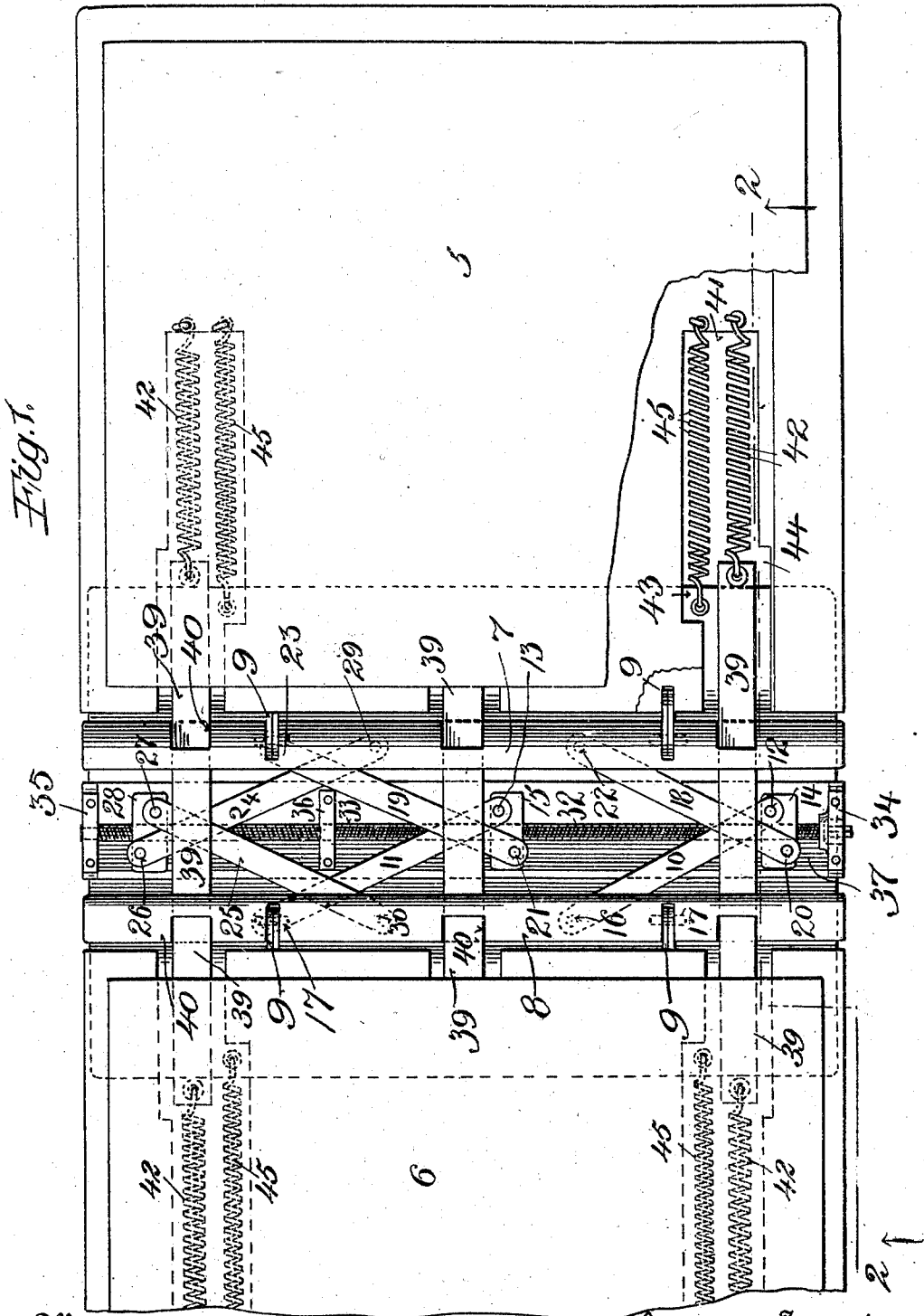


J. L. LESLIE.
 LOOSE LEAF BINDER.
 APPLICATION FILED AUG. 11, 1908.

950,769.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.



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Inventor
 John L. Leslie
 By his Attorney
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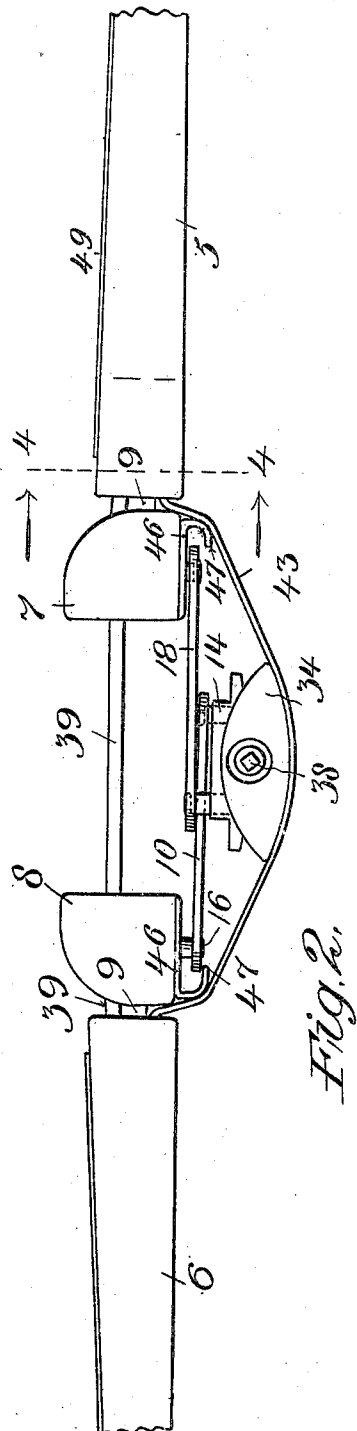


Fig. 2.

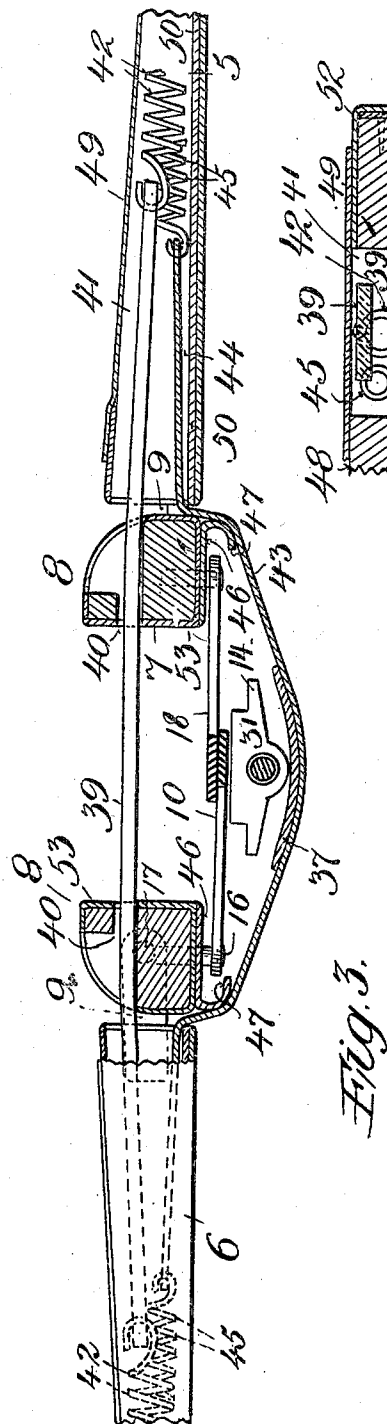


Fig. 3.

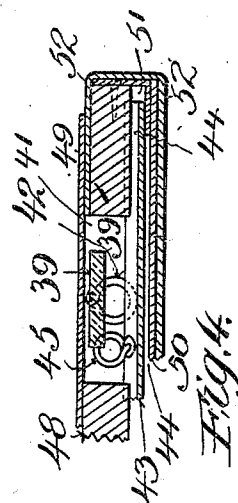


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN LEON LESLIE, OF LESLIE, NEW JERSEY.

LOOSE-LEAF BINDER.

950,769.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed August 11, 1908. Serial No. 447,959.

To all whom it may concern:

Be it known that I, JOHN L. LESLIE, a citizen of the United States, residing at Leslie, in the county of Bergen, State of New Jersey, have made a certain new and useful Invention in Loose-Leaf Binders, of which the following is a specification.

This invention relates to loose leaf binders.

The object of the invention is to provide a loose leaf binder of simple construction, which is strong and durable, economical to manufacture, and efficient in operation, and wherein the leaves are efficiently held and maintained in proper alinement whether the binder is opened or closed, and wherein one or any desired number of sheets or leaves may be efficiently clamped.

The invention consists substantially in the construction, combination, location, and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings, and to the various views and reference signs appearing thereon,—Figure 1 is a view in top plan of a loose leaf binder embodying the principles of my invention, parts broken out in only one of the covers to disclose the recessed construction and the spring connections thereof and parts broken off, the binder being opened, and the binder mechanism being separated. Fig. 2 is a broken end view of the same. Fig. 3 is a broken view in section on the line 2, 2, Fig. 1. Fig. 4 is a broken view in section on the line 4, 4, Fig. 2.

The same part is designated by the same reference sign wherever it occurs throughout the several views.

In the construction of loose leaf binders of the class in which the leaves are to be inserted and removed from the book at any point, it is desirable to provide means for securely clamping the leaves once inserted and for holding them in proper relative alinement whether the binder is open or closed. It is also desirable to provide means whereby one or a few leaves may be clamped and as securely held in the binder, when closed, as a large number. It is also desirable to provide means for permitting the expansion of the binder to accommodate varying quantities of leaves, and for maintaining a back cover for the binder in all posi-

tions of expansion thereof. The attainment of these and other desirable objects and purposes is among the special objects and purposes of my invention.

In carrying out my invention I provide the covers, of the general nature of book covers, and which are designated generally by reference signs 5, 6, each having a hinge or other suitable connection to the back pieces 7, 8, respectively, such as afforded by the hinge plates 9. The back pieces extend in parallel relation with respect to each other, and along the proximate or juxtaposed edges of the side covers 5, 6, as clearly shown.

The binder is opened and closed to vary the capacity thereof or to insert and remove leaves, by separating the back pieces 7, 8, or drawing the same together. This relative movement of the back pieces should be effected in such manner as to cause them to always move in parallel relation and to be brought tightly together to effect a clamping of one or a few leaves, or to be separated the maximum distance to accommodate the greatest number of leaves within the limits of the capacity of the binder.

Many specifically different constructions may be employed for accomplishing this result without departure from the spirit and scope of my invention. In the particular form shown to which, however, my invention is not to be limited or restricted, I suitably connect the back pieces through link devices so arranged as to effect the movement of said back pieces toward and from each other and in parallel relation with respect to each other. To this end I employ two parallel links 10, 11, respectively pivoted at one end as at 12, 13, to traveling blocks 14, 15, and at the other end thereof to the back piece 8, as at 16, 17. Similarly, the links 18, 19, are respectively pivoted at one end thereof to the blocks 14, 15, as at 20, 21, and at their other ends, as at 22, 23, to the back piece 7, said links 18, 19, being parallel to each other. The links 10, 18, and the links 11, 19, respectively, constitute members of pairs of links and are arranged to cross the one under the other, as clearly shown. I also employ links 24, 25, constituting a pair, and respectively pivoted as at 26, 27, to a traveling block 28, and at their other ends as at 29, 30, to the back pieces 7, and 8, respectively, the links 24, 25, crossing each other and presenting in opposite directions with ref-

erence to and crossing the links 11, 12. The link 25, is arranged in parallel relation with respect to the links 18 and 19, while the link 24 is parallel to links 11 and 10. The blocks 14, 15 and 28, are mounted to travel, as nuts, upon a threaded rod 31, the portion 32 thereof having screw threads in one direction, and the portion 33 having screw threads in the other direction. The blocks 14, 15, are both mounted on the portion 32, and hence they both travel in the same direction when the screw rod is turned, while the block 28 is mounted on the portion 33, and hence travels in the opposite direction with reference to the blocks 14, 15. The screw rod 31 is journaled in bearings 34, 35, and the cross brace 36, of a base plate 37, which lies between and below the back pieces 7 and 8, all the links being pivotally connected to the under sides of the back pieces. The screw rod may be turned to effect the travel of the nut blocks 14, 15, and 28, in any suitable manner, as for instance, by means of a key engaging a nib 38, on the end of the rod as clearly shown.

From the foregoing description it will be seen that by turning the screw rod in one direction the blocks 14, 15 and 28, are caused to travel in directions causing the back pieces 7 and 8, through the links to separate or move away from each other, while, by turning said rod in the opposite direction the back pieces are caused to approach or move toward each other.

It will be noticed that the pivots 12 and 20 of the links 10 and 18, and similarly the pivots 13 and 21 of the links 11 and 19, as well as the pivots 26 and 27, of the links 24 and 25, are out of transverse alinement with respect to each other. By reason of this arrangement the members of each pair of links may be brought very closely toward parallel relation with respect to each other thereby bringing the back pieces closely together, and hence enabling only one, or a few leaves to be clamped therebetween; while, on the other hand, said members may be moved into very nearly straightened out alinement with respect to each other thereby expanding the binder to the limit of its capacity. In this manner I am enabled to secure a very wide range of capacity of the binder without varying the efficient clamping action thereof upon the leaves whether in expanded or contracted condition.

In order to efficiently retain the leaves in position and in proper relation with respect to each other when inserted in the binder, and to hold them in place and against displacement while the binder is opened, I provide the bands, thongs or straps 39. These straps or bands extend transversely of the back pieces and through openings 40, therein, and their ends are received in recesses 41, formed in the side covers 5, 6, and are

yieldingly connected to said side covers, in any suitable manner, as, for instance, to coil springs 42, placed within the recesses 41 of the side covers. The recess and spring connections of only one of the covers are shown, but of course it will be understood that both covers embody the same construction in this regard. By this arrangement the straps or bands 39, are efficiently maintained in a desired state of tension while permitting a range of longitudinal flexibility to enable the side covers to be opened and folded or closed together after the fashion of opening or closing a book, and at the same time permitting the back pieces to be shifted toward and from each other to open or close the binder mechanism. The straps or bands are received in suitably cut slots or recesses in the edges of the leaves in a well known manner. While I have shown the straps or bands in the form of flat thongs, it is obvious that my invention is not limited or restricted in this respect.

In order to provide a finish for the binder and to give it the appearance of a book as well as to protect the binder mechanism, I propose to employ a back flap 43, arranged to pass transversely of the binder mechanism and on the under side thereof, as clearly shown in the drawings, and having its ends received in pockets 44, formed in the side covers 5, 6. In order to maintain this back flap in tension and centered relation with respect to the binder mechanism, and in whatever degree of expansion or contraction of the binder mechanism, I yieldingly secure each end of the back flap to its corresponding side covers 5 and 6, as for instance, by means of the springs 45, placed within the recesses 41 of said side covers. In this manner the back flap is constantly maintained under tension and in centered position in all positions of expansion or contraction of the binder mechanism, while at the same time permitting a desirable flexibility to permit the side covers to be opened or closed.

In order to protect the back flap during the manipulation of the binder, and to facilitate the movement of the back pieces 7 and 8, toward and from each other and relative to said back flap, while at the same time affording ample space for the link connections between the back pieces, I provide the under sides of the back pieces with facings 46, having downward curved outer edges 47, as most clearly shown in Fig. 3, the back flap 43 being arranged to bear against, and being downwardly guided and depressed by the downward curved edges 47 of said facings.

The side covers 5, 6, of the binder may be of any suitable or desirable construction. I have shown a simple structure which I have found efficient, but to which my invention is not to be limited or restricted, wherein the

main body of the covers comprises a wooden or veneer board 48, recessed as at 41, as above described, to receive the straps 39, and the springs 42, and 45. On the inside face 5 of the board 48, is placed a lining or facing 49, of suitable material such as card board, cloth or the like. A similar card board, cloth or other facing 50, may be applied to the outer face or surface of the board 48, but sufficiently offset therefrom to form the pocket 44, to receive the end 43, of the back flap. Angle plates 51 applied to the edges of the board 48, may serve to effect the offsetting of the facing 50. If desired and in order to provide a finished appearance for the covers I may apply an outer facing 52, of leather, corduroy or other suitable material. Similarly, and for the sake of producing a finished appearance, a facing 53, of leather or other suitable material may be applied to the back pieces 7 and 8, of the binder mechanism.

While I have shown and described a specific embodiment of my invention I do not desire to be limited to the exact and specific details thereof as many variations and changes in such construction and details might readily occur to persons skilled in the art and still fall within the spirit and scope of my invention.

What I claim as new and useful and of my own invention and desire to secure by Letters Patent is:—

1. In a loose leaf binder, the combination with a binder mechanism, and means for expanding and contracting the same, of holding means for the leaves and means for maintaining said holding means in centered relation with respect to the binding mechanism in all positions of expansion and contraction of the latter.

2. In a loose leaf binder, a binder mechanism, means for expanding and contracting the same, and side covers connected to said binder mechanism, in combination with leaf holding devices, and yielding connections between said holding devices and side covers.

3. In a loose leaf binder, a binder mechanism, means for expanding and contracting the same, and side covers connected to said binder mechanism, in combination with leaf holding devices and springs connecting the ends thereof to said side covers.

4. In a loose leaf binder, the combination with back pieces, devices for moving the same toward and from each other, and side covers hinged to said back pieces, of leaf holding devices passing transversely with respect to said back pieces and having yielding connection at their ends to said covers.

5. In a loose leaf binder, the combination with back pieces, devices for moving the same toward and from each other and side covers hinged to said back pieces, of leaf holding devices passing transversely with

respect to said back pieces and springs connecting the ends of said leaf holding devices to said side covers.

6. In a loose leaf binder, the combination with back pieces, devices for moving the same toward and from each other, and recessed side covers hinged to said back pieces, of leaf holding devices passing transversely with respect to said back pieces and having their ends extending into the recesses in said covers, and springs arranged in said recesses and forming connections between the holding devices and the covers.

7. In a loose leaf binder, the combination with back pieces, devices for moving the same toward and from each other, and recessed side covers hinged to said back pieces, of leaf holding cords or bands extending transversely with respect to said back pieces and having their ends extending into the cover recesses, and springs arranged in said recesses and connected at one end to the covers and at the other end to said cords, or bands.

8. In a loose leaf binder, the combination with back pieces, of links arranged in crossed relation and pivotally connected at one end to said back pieces, movable blocks to which the other ends of said links are connected, and means for moving said blocks.

9. In a loose leaf binder, the combination with back pieces, of links arranged in co-operating pairs, one member of each pair being pivotally connected to one of said back pieces, and the other member of each pair being connected to the other back piece, and both members of each pair being crossed with relation to each other and connected to a movable block, and means for moving said block.

10. In a loose leaf binder, the combination with back pieces, of links pivotally connected at one end to said back pieces, movable blocks to which the other ends of said links are connected, the points of connection of said links to said blocks being out of transverse alinement with each other, and means for moving said blocks.

11. In a loose leaf binder, the combination with back pieces, of links arranged in pairs, the members of each pair arranged to cross each other, and respectively connected at one end to said back pieces, movable blocks to which the other ends of said links are connected, and means for moving said blocks.

12. In a loose leaf binder, the combination with back pieces, of links arranged in pairs, the members of each pair being pivotally connected at one end to said back pieces respectively, a movable block to which the other ends of said pair are connected, the points of connection of the links to the blocks being out of transverse alinement with each other, and means for moving said blocks.

13. In a loose leaf binder, a binder mechanism, means for expanding and contracting the same, and side covers connected to said binder mechanism, in combination with a back flap and yielding connections between said back flap and side covers said yielding connections being independent of the means for expanding and contracting the binder mechanism.
14. In a loose leaf binder, a binder mechanism, means for expanding and contracting the same, and side covers connected to said binder mechanism, in combination with a back flap, and springs independent of said expanding and contracting means, for connecting the back flap to said side covers respectively.
15. In a loose leaf binder, a binder mechanism, means for expanding and contracting the same, and side covers connected to said binder mechanism, said side covers having pockets opening toward said binder mechanism, in combination with a back flap having its ends received in said pockets, and springs connecting said ends to said side covers.
16. In a loose leaf binder, a binder mechanism, including back pieces, facings having curved surfaces secured to said back pieces, means for moving said pieces toward and from each other and side covers connected to said back pieces, in combination with a back flap arranged to bear against said facings, and yielding connections between the ends of said back flap and said side covers.
17. In a loose leaf binder, a binder mechanism, including back pieces, links arranged in pairs, the members of each pair of links being crossed with relation to each other, and pivotally connected at one end to the respective back pieces, a screw rod arranged in parallel relation with respect to the back pieces and having right and left threaded portions, blocks mounted on said rod to

which the other ends of said links are pivotally connected whereby when said rod is turned said back pieces are moved toward and from each other.

18. In a loose leaf binder, a binder mechanism including back pieces, a screw rod having right and left threaded portions, blocks mounted on said rod, and links arranged in pairs and respectively connected to said blocks and back pieces, one pair of links being arranged in reverse relation with respect to the other pairs, the members of each pair of links being crossed with relation to each other.

19. In a loose leaf binder, a binder mechanism, means for expanding and contracting the same, and side covers connected to said binder mechanism, in combination with leaf holding devices and a back flap extending from one side cover to the other, and springs for independently connecting said leaf holding devices and back flap to said side covers.

20. In a loose leaf binder and in combination with the binder mechanism, and means for expanding and contracting the same, of side covers connected thereto and each including a body board, angle plates connected thereto, a cover plate applied to the angle plates, thereby forming a pocket with the body board, a back flap having its ends extending into said pockets, and springs connecting said back flap ends to said side covers said spring being independent of the expanding and contracting means.

In testimony whereof I have hereunto set my hand in the presence of the subscribing witnesses, on this 10th day of August A. D. 1908.

JOHN LEON LESLIE.

Witnesses:

J. KLEIN,
SAMUEL E. DARBY.