

M. B. WILLIAMS.
 LOOSE LEAF DEVICE.
 APPLICATION FILED SEPT. 15, 1911.

1,031,220.

Patented July 2, 1912.

Fig. I.

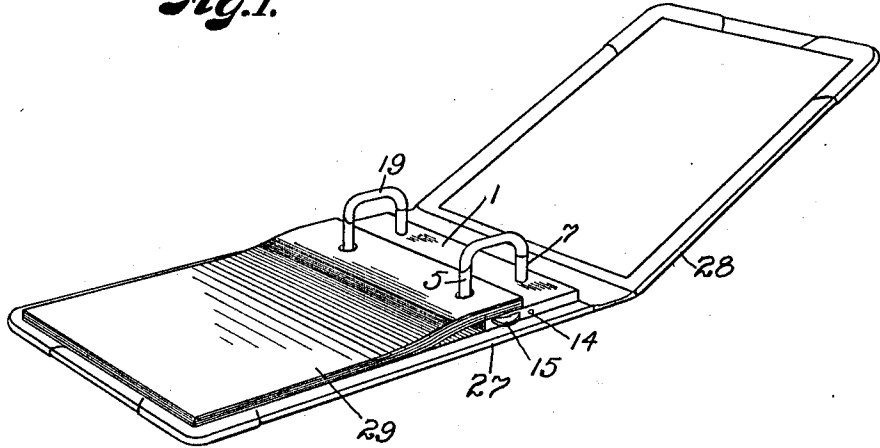


Fig. II.

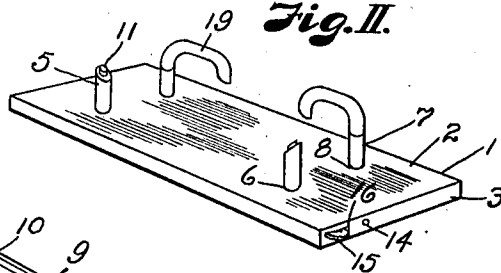


Fig. III.

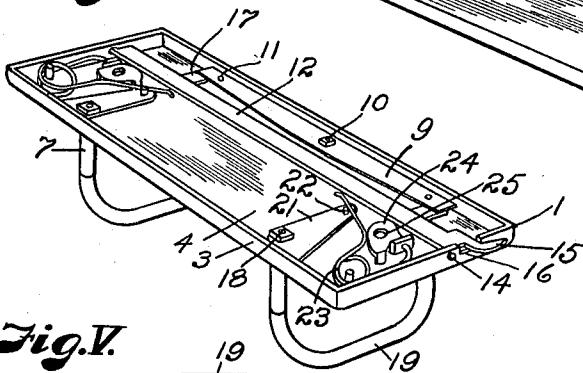


Fig. IV.

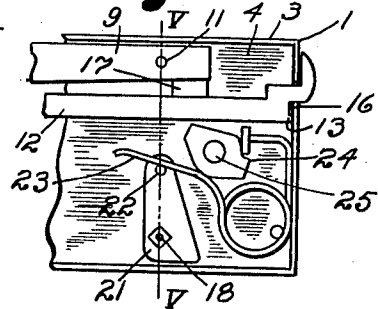
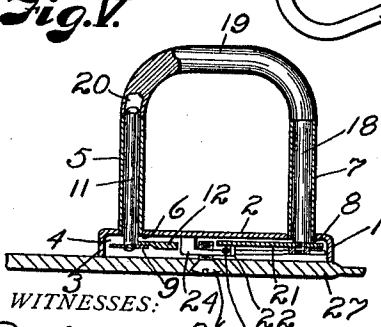


Fig. V.



WITNESSES:
 Arthur W. Cap.
 Myrtle Dr. Jackson.

INVENTOR.
 M.B. Williams.
 BY Arthur W. Cap.
 ATTORNEY.

UNITED STATES PATENT OFFICE.

MORTIMER B. WILLIAMS, OF INDEPENDENCE, MISSOURI.

LOOSE-LEAF DEVICE.

1,031,220.

Specification of Letters Patent.

Patented July 2, 1912.

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To all whom it may concern:

Be it known that I, MORTIMER B. WILLIAMS, a citizen of the United States, residing at Independence, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Loose-Leaf Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to loose leaf devices and has for its principal object to provide a loose leaf binder which is partially automatic, in that keepers, when released, are turned back by spring action to expose posts upon which the loose sheets are bound.

It is a further object of my invention to provide the improved details of structure hereinafter described and illustrated in the accompanying drawings, wherein:—

Figure I is a perspective view of a loose leaf device constructed according to my invention. Fig. II is a similar view of the binder head, showing the keepers open. Fig. III is an inverted perspective of the head, showing the operating mechanism. Fig. IV is an enlarged, inverted plan of one end of the head. Fig. V is an upright cross section on the line V—V, Fig. 1V.

Referring more in detail to the parts:—1 designates the head of the device which preferably comprises a metal plate 2 having downturned edge flanges 3 for forming an under chamber 4. Fixed on the top of head 1, near the front, are tubular posts 5, the upper ends of which are beveled at their facing sides and the channels of which register with apertures 6 in said head. Fixed on the head 1, near the back and in transverse alinement with the posts 5, are tubular posts 7, the channels of which register with apertures 8 in the head. Extending longitudinally within the chamber 4 is a flat spring 9, the central portion of which is anchored to the inner side of the top plate 2 by a bolt 10, or the like, and the outer ends of which carry pins 11 which extend through the channels of the tubular posts 5 and project thereabove; the upper ends of said pins being beveled parallel with the beveled ends of the posts. Also ex-

tending longitudinally within said chamber is a bar 12 having end shanks 13 revolubly mounted in apertures 14 in the end flanges 3 of the head, and having an offset ear 15 projected through a slot 16 in one of the end flanges, so that said bar may be rocked from the outside of the head. Bar 12 has laterally directed ears 17 projected between the ends of the flat spring and the under face of the head plate 2, so that said bar is yieldingly held by the tension of said spring.

Extending through the channels of the tubular post 7 are pins 18, the upper ends of which carry U-shaped keepers 19, the free ends of which are adapted to extend over the forward posts 5 and have lower faces beveled oppositely to the beveled upper ends of said posts and the pins 11, so that when the keepers are in locking position their ends will lie flat on the ends of the forward posts, said keepers having recesses 20 in their free ends for receiving the upper ends of the pins 11. The lower end of each of pins 18 extends into the chamber 4 and is there rigidly fixed to a plate 21, which is preferably triangular, with the pin attached to one corner of the base, and the base elongated so that it will lie close to and parallel with the rear side flange of the head when the parts are closed, and act as a stop for the pins 18 when the latter are moved into closing contact with the posts 5. On the free ends of the plates 21 are pins 22 which are engaged by ends of springs 23 that are suitably anchored within the chamber 4, so that when the pins 18 are free the plates 21 will be turned inwardly by the tension of said springs. On the under side of the head plate 2 are bosses 24 having threaded sockets 25 for receiving screws 26, by which the head 1 may be attached to a back cover, or the like 27. The cover 27 is preferably provided with a loose member which may be folded over the head 1 and is adapted for protecting the loose sheets that are carried on posts 5.

In using my device, presuming the binder to be open as illustrated in Fig. II, loose sheets are applied thereto by placing the apertured portions thereof over the front posts 5; the keepers 19 are then revolved forwardly bringing the beveled edges of the free ends thereof into contact with the beveled upper ends of the pins 11. When the beveled parts engage, pressure of the keep-

ers will force the pins 11 down, against the tension of the flat spring 9 which carries said pins, to enable the ends of the keepers to seat against the beveled ends of the post

5 5. When the keepers assume the latter position the recesses 20 therein will be in registration with the channels of the posts and spring 9 will force the upper ends of the pins 11 into said recesses, so that the keepers are held in place. When the keepers are
10 revolved forwardly, the pins 22 engage the springs 23 and tension same so that when the device is closed there is a tension on the keepers tending to move them back to open
15 position.

When it is desired to open the binder for the purpose of removing loose sheets therefrom or inserting new sheets, the operator presses downwardly on the ear 15 of the
20 longitudinal bar 12, so that the ears 17 lower the ends of the flat spring 9. The pins 11 being fixed on the ends of the spring 9 are lowered therewith sufficiently to remove their upper ends from the recesses in the
25 ends of the keepers so that said keepers are freed to the action of springs 23 which, immediately upon the release of the keepers, rock the plates 21 and move the keepers back to their open position, (Fig. II).

30 It is apparent that the opening action of the binder is automatic and that both of the keepers are actuated simultaneously, so that the use of but one hand is necessary to open the binder.

35 Having thus described my invention, what I claim as new therein and desire to secure by Letters-Patent is:—

1. A loose leaf device comprising posts having pins slidable therein and adapted
40 for yielding projection therefrom, keepers adapted for coöperation with said posts and pins, and means for withdrawing the pins and tensioning said keepers away from position for coöperation therewith.

45 2. A loose leaf device comprising posts having pins slidable therein and adapted for yielding projection therefrom, keepers adapted for coöperation with said pins, and devices for simultaneously withdrawing said
50 pins and tensioning said keepers away from their coöperative position.

3. A loose leaf device comprising posts, keepers adapted for coöperation with said posts, pins slidable in said posts and adapted
55 for yielding projection therefrom into locking engagement with said keepers, means for tensioning said pins toward their projecting position, means for withdrawing the pins, and means for automatically moving the
60 keepers away from said posts when said pins are withdrawn.

4. A loose leaf device comprising tubular posts, keepers adapted for movement over
65 said posts and provided with recesses, pins slidably mounted in said posts and adapted

for projection into the keeper recesses, yielding means for turning said keepers when released from the pins, and means for retracting said pins.

5. A loose leaf device comprising tubular
70 posts, keepers adapted for movement over said posts and provided with recesses, pins slidably mounted in said posts and adapted for projection into the keeper recesses, yielding means for simultaneously turning said
75 keepers when released from the pins, and means for simultaneously retracting said pins.

6. A loose leaf device comprising tubular posts, pins slidably mounted in said posts
80 and adapted for projection therefrom, means for yieldingly tensioning said pins toward projecting position, keepers adapted for movement over said posts and for locking engagement with said pins when in coöperative
85 relation with the posts, means for retracting said pins, and means for automatically moving said keepers out of coöperation with the posts when released by said pins.

7. A loose leaf device comprising tubular posts, pins slidably mounted in said posts
90 and adapted for projection therefrom, the projecting ends of said pins being beveled, means for yieldingly tensioning said pins toward projecting position, keepers adapted
95 for movement over said posts and for locking engagement with said pins when in coöperative relation with the posts, means for retracting said pins, and means for automatically moving said keepers out of coöperative
100 relation with the posts when released by said pins.

8. A loose leaf device comprising tubular posts, pins slidably mounted in said posts
105 and adapted for projection therefrom, the free ends of said posts and said pins being beveled, means for yieldingly tensioning said pins toward projecting position, keepers adapted for movement over said posts
110 and for locking engagement with said pins when in coöperative relation with the posts, the engaging portions of said keepers being beveled oppositely to the beveled portions of the posts and pins, means for retracting said
115 pins, and means for automatically moving said keepers out of coöperation with the posts when released by said pins.

9. A loose leaf device comprising tubular posts, a spring located beneath the posts,
120 pins carried by said spring and adapted for sliding movement in said posts and for projection therefrom, keepers adapted for yielding coöperation with the posts and for locking engagement with the pins, and
125 means for retracting said pins against the tension of said spring, to release said keepers.

10. A loose leaf device comprising tubular posts, a spring located beneath the posts,
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pins carried on opposite ends of said spring and adapted for sliding movement in said posts and for projection therefrom, keepers adapted for yielding coöperation with the posts and for locking engagement with the pins, and a bar having ears engaging said spring, for the purpose set forth.

11. A loose leaf device comprising tubular posts, a spring located beneath the posts, pins carried by said spring and adapted for sliding movement in said posts and for projection therefrom, keepers adapted for yielding coöperation with the posts and for locking engagement with the pins, and a pivotally mounted bar having ears engaging said spring and having a handle member.

12. A loose leaf device comprising a chambered head, tubular posts mounted on said head and communicating with the chamber therein, a flat spring located within the head chamber and having its central portion fixed to the under side of said head, pins mounted on the ends of said spring and projecting through the posts, keepers adapted for coöperation with said posts and for locking engagement with said pins, a bar pivotally mounted in said head, and having ears overlying the spring, and having a handle member located exteriorly to the head, and means for tensioning said keepers away from said pins.

13. A loose leaf device comprising a head having depending flanges forming a chamber, tubular posts carried by said head and opening into the chamber, the upper ends of said posts being beveled, a flat spring located within the chamber and having its central portion attached to the head, pins mounted on the ends of said spring and extending through the tubular posts and adapted for projection from the upper ends of same, the upper ends of said pins being beveled, revoluble keepers having beveled members adapted for engaging said pins to depress same against the tension of their spring and for coöperative engagement with said posts, the beveled members of said keepers having recesses for receiving said pins, means for yieldingly tensioning said keepers away from the posts, a bar pivotally mounted within the head chamber and having ears overlying said spring, and a han-

dle portion on said bar extending through the head, for the purpose set forth.

14. In a loose leaf device, paired posts, a pin slidably mounted in one of the posts of each pair and adapted for projection thereabove, means for yieldingly tensioning said pins toward their projecting position, a pin revolubly mounted in the second post of each pair, keepers carried by said revoluble pins and adapted for coöperation with the first posts and for locking engagement by said sliding pins, means for yieldingly tensioning said revoluble pins to carry the keepers away from the first named posts, and means for actuating said sliding pins to release the keepers.

15. In a loose leaf device, paired posts, a pin revolubly mounted in one of the posts of each pair, U-shaped keepers fixed on said pins and adapted for coöperation with the other post of each pair, springs for yieldingly tensioning the revoluble pins to carry the keepers away from said other posts, and means for locking said keepers to the other posts against the tension of said springs.

16. In a loose leaf device, a head having a chamber therein, tubular, paired posts mounted on the head and having communication with the chamber, a flat spring fixed to the head and extending beneath relative posts of the different pairs, pins mounted on said spring and slidably projected through said posts and yieldingly extended thereabove, a bar pivotally mounted in said head and having ears overlying said spring, said bar having a handle portion extending exteriorly to the head plates and pivotally mounted on the head, pins mounted on said plates and extending through the other posts of said pairs, keepers fixed on said last named pins and adapted for coöperation with the first named posts and for locking engagement with said sliding pins, and springs for rocking said plates to move the pairs out of coöperation with the first named posts.

In testimony whereof I affix my signature in presence of two witnesses.

MORTIMER B. WILLIAMS.

Witnesses:

MYRTLE M. JACKSON,
ARTHUR W. COPS.