

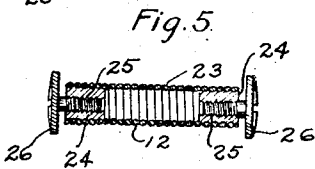
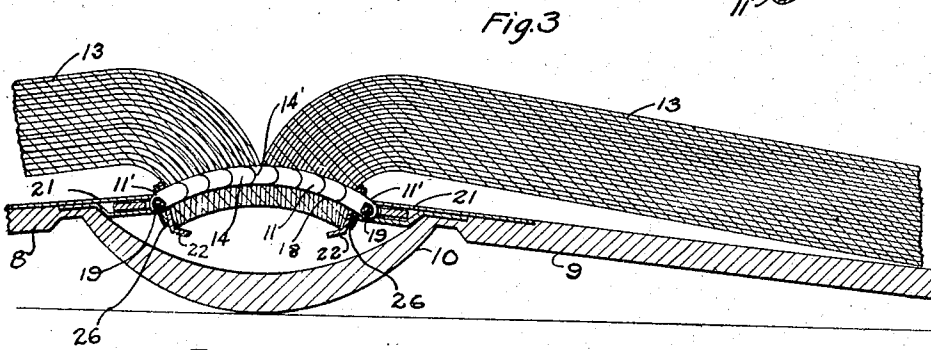
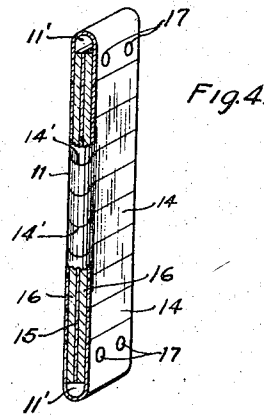
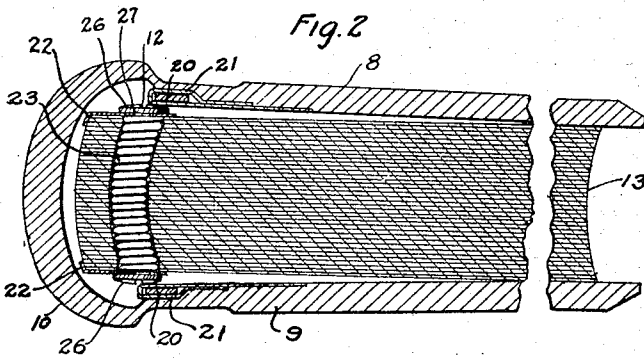
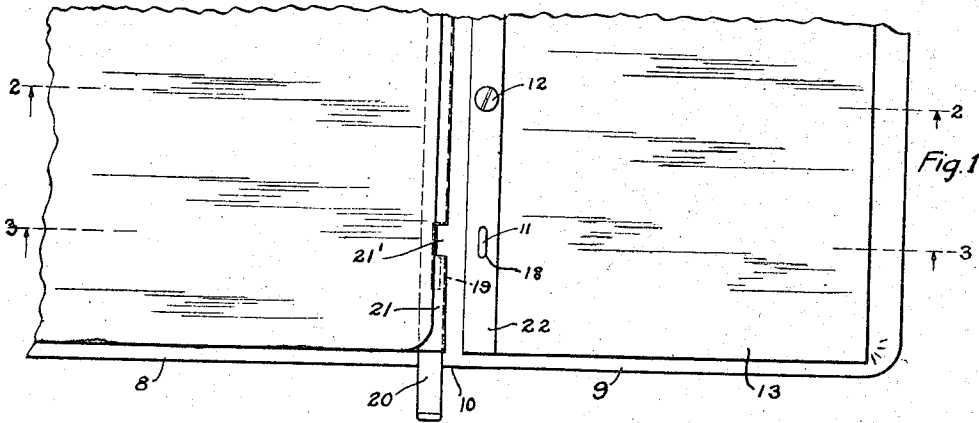
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H. C. MILLER

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LOOSE LEAF BINDER

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UNITED STATES PATENT OFFICE.

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LOOSE-LEAF BINDER.

Application filed January 3, 1921. Serial No. 434,618.

To all whom it may concern:

Be it known that I, HENRY C. MILLER, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Loose-Leaf Binders, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to improvements in loose leaf binders.

In loose leaf binders for preserving documentary records which are recorded in public offices, such as real estate conveyances, assignments, corporation articles, etc., the books are provided with a fixed number of leaves and a non-extensible cover and binding posts which permit the removal or replacing of leaves at the front or back portions of the book. In use the leaves are removed from the front portion of the book and the records are copied thereon and the filled leaves are then replaced serially in order in the back of the book. Binding posts used in binders of this character are flexible in one plane only and are non-extensible so that in the event that a less number of leaves are mounted in the binder than the binder is adapted to hold, the leaves are not clamped together with sufficient pressure to hold the leaves firmly together, with the result that the leaves work outwardly and tear at their points of engagement with the binding posts.

The loose leaf system is very desirable in binders for the use mentioned, as they permit typewriting the records on the sheets, but as hereinbefore constructed, it has the disadvantage as compared with books having sewed bindings, that the leaves will not open flat, and this not only makes the handling of the book more difficult in examining records, but a large amount of space in the crotch or inside edges of the leaves is lost, this space being variable because it is deeper towards the center than towards the outside. Furthermore, the binding in loose leaf binders is inflexible and is otherwise undesirable.

It is one of the objects of the present invention to overcome the before mentioned objectionable features and provide a loose leaf binder having means for yieldingly clamping the leaves in position in a manner to permit the inner edges of the leaves to flex

inwardly and outwardly as the binder is opened or closed.

A further object of the invention is to provide a loose leaf binder which will hold a more or less number of leaves firmly in position and still permit the flexing of the back portion of the binder.

A further object of the invention is to provide a flexible post binder in which some of the posts are formed of coiled springs.

A further object of the invention is to provide a loose leaf binder having means for locking and unlocking the leaves to the cover to permit the insertion or removal of leaves in a very simple manner.

A further object of the invention is to provide a loose leaf binder which is of simple construction, is strong and durable and is well adapted for the purpose described.

With the above and other objects in view, the invention consists of the improved loose leaf binder and its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawing in which the same reference characters indicate the same parts in all of the views:

Fig. 1 is a top view of the improved loose leaf binder with one of the covers in open position and shown disconnected from the binding posts;

Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1, with the cover shown in closed position;

Fig. 3 is a similar view taken on line 3—3 of Fig. 1 with the covers shown in open position;

Fig. 4 is a perspective view partly in section and on a larger scale of one of the binding posts which is flexible in one plane only; and

Fig. 5 is a longitudinal sectional view of one of the binding posts which is extensible and flexible in all planes.

Referring to the drawing, the numerals 8 and 9 indicate the side pieces forming the covers, 10 the flexible back portion proper, 11 and 12 the binding posts and 13 the leaves of the improved binder. The posts 11 are flat and formed of articulated tubular members 14 which enclose a flat spring 15 backed on opposite sides by leather strips 16. Said spring and strips at their opposite ends are fastened to the eyed ends 11' of the post 11 by rivets 17 to hold the curved end portions 14' of the articulated members 14 together. As the

curved portions 14' are formed on the side edges of the parts 14 the posts 11 can only flex or give sidewise. The inner edge portions of the leaves are formed with elongated openings 18 through which the binding posts 11 extend and their opposite eyed ends 11' are pivotally entered by the pivot tongues 19 of the slidable bolt bars 20 carried by tubular guideways 21 which are mounted on the inner edge portions of the covers 8 and 9. Inner edge portions 21' of the guideway 21 are recessed to receive the eyed ends 11' of the posts 11. As both ends of the posts 11 are eyed and removably connected to the cover portions, the leaves can be removed or replaced from either side of the binder. The said posts 11 also extend through angular clamping strips 22 mounted on the leaves adjacent the guides 21. These strips 22 are held in clamping position by means of the extensible posts 12 before mentioned. Each post 12 is formed of a closely wound coiled spring body part 23 having plugs or nuts 24 securely mounted on its opposite ends which are provided with threaded openings 25 extending therethrough for receiving milled headed screws 26. The heads of the screws are milled so they can be turned easily with the fingers and are also of larger diameter than the openings 27 of the strips 22 in order to cause said screw heads to clampingly engage the strips and the strips to clampingly engage the leaves.

As the spring posts 12 are of less length than the thickness of the number of leaves to be used in the binder, the springs are extended when the screws are threaded into the plugs, and even though a number of the leaves are removed, the posts will securely hold the remaining leaves in position. As the spring posts 12 yield laterally, the binder may be easily opened and the edges of the leaves will flex outwardly as shown in Fig. 3 without the loss of much space at the crotch of the opening. Furthermore, the combination of the two forms of binding posts provides for preventing the leaves from working out of alinement towards the upper or lower edges of the binder without interfering with the flexing of posts outwardly or inwardly. Another desirable feature of the combination is that the leaves may be unlocked and removed from the cover portion of the binder while the leaves are clamped together by the spring posts.

In use any number of the posts, and in any combination desired, may be used to meet different conditions.

What I claim as my invention is:

1. A loose leaf binder, comprising covers, and binding posts positioned between said covers, one of said posts being flexible in one plane only to maintain leaves mounted on the posts in alined position while another post is flexible in another plane.

2. A loose leaf binder, comprising covers, and binding posts positioned between said covers, one of said posts being flexible in one plane only to maintain leaves mounted on the posts in alined position while another post is flexible in other planes and including the plane of movement of the other post.

3. A loose leaf binder, comprising covers, and binding posts positioned between said covers, one of said posts being laterally flexible and another of said posts being extensible.

4. A loose leaf binder, comprising covers, and binding posts positioned between said covers, one of said posts being laterally flexible in one plane only to maintain leaves mounted on the posts in alined position and another post being laterally flexible and also extensible.

5. A loose leaf binder, comprising covers, and binding posts positioned between said covers, one of said posts being laterally flexible only in the plane of movement of the covers to open or closed position to maintain leaves mounted on the posts in alined position and another post being laterally flexible in the same plane and also extensible.

6. A loose leaf binder, comprising covers, and binding posts positioned between said covers, one of said posts being laterally flexible in one plane only and connected at one end to one of the covers and another post being laterally flexible in the same plane and extensible and free from connection with the covers.

7. A loose leaf binder, comprising covers, leaves positioned between said covers and having rear edge portion perforations, and binding posts extending through said perforations, some of said posts being laterally flexible in one plane and detachably connected at their opposite ends to the covers and other of said posts being laterally flexible in the same plane and clampingly engaging the leaves.

8. A loose leaf binder, comprising a back portion having covers connected thereto, leaves positioned between said covers and having rear edge portion perforations, eyed binding posts extending through some of said perforations and detachably connected at their eyed ends to the covers, said posts being laterally flexible in one plane only, and other posts extending through the other perforations and being laterally flexible and longitudinally extensible to clampingly hold the leaves together.

9. A loose leaf binder, comprising a back portion having covers connected thereto, leaves positioned between said covers and having rear edge portion perforations, eyed binding posts extending through some of said perforations and detachably connected at their eyed ends to the covers, said posts

being laterally flexible in one plane only, other posts formed of coiled springs extending through the other perforations, and threaded members threaded into the end portions of the springs for releasably clamping the leaves together.

10. A loose leaf binder, comprising a back portion having covers connected thereto, leaves positioned between said covers and having rear edge portion perforations, articulated binding posts flexible in one plane only extending through some of said perforations and having eyed ends which are detachably connected to the covers to hold the leaves between the covers, other posts formed of coiled springs extending through the other perforations and having threaded end portions, clamping strips positioned on the outer sides of the rear edge portions of the outer leaves of the leaves between the covers, and screws extending through the clamping strips and threaded into the threaded end portions of the spring posts to yieldingly clamp the leaves together.

11. A loose leaf binder, comprising covers, and binding posts positioned between said covers, one of said posts being laterally flexible in one plane only and another post

being laterally flexible and yieldingly and adjustably extensible.

12. A loose leaf binder, comprising covers, leaves positioned between said covers and having rear edge portion perforations, binding posts extending through said perforations, means for releasably securing the end portions of one of said posts to the covers, and means releasably engaging the opposite end portions of another post for yieldingly and clampingly engaging the leaves, said last mentioned post being free from connection with the covers.

13. A loose leaf binder, comprising covers, leaves positioned between said covers and having rear edge portion perforations, spiral spring binding posts extending through some of said perforations, means free from connection with the covers but engaging the opposite ends of the spring posts for yieldingly clamping the leaves together, other posts extending through other perforations and flexible in one plane only, and means releasably connecting the last mentioned posts to the covers.

In testimony whereof, I affix my signature.

HENRY C. MILLER.