L. M. MORDEN.

LOOSE LEAF BINDER.

APPLICATION FILED JUNE 4, 1913.

1,163,766.

Patented Dec. 14, 1915.

Fig. 1

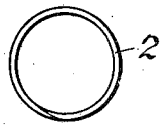


Fig. 2.



Fig. 3.

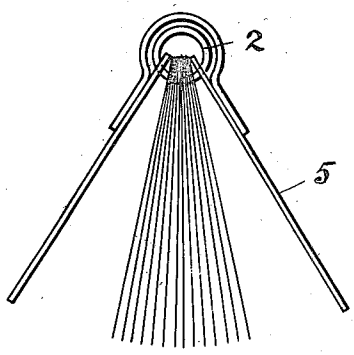


Fig. 4.

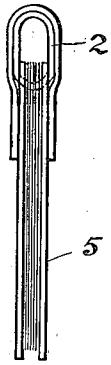
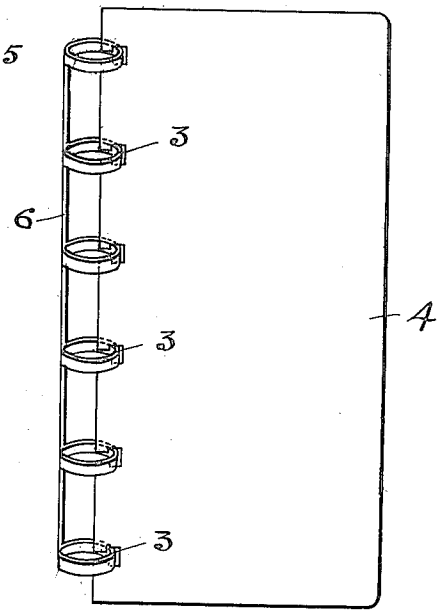


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

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LOOSE-LEAF BINDER.

1,163,766. Specification of Letters Patent. Patented Dec. 14, 1915.

Application filed June 4, 1913. Serial No. 771,587.

To all whom it may concern:

Be it known that I, LUCENA M. MORDEN, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

This invention has to do with loose leaf devices, the object of the invention being to provide an improved structure of this kind extremely simple and inexpensive, the gist of the present improvement residing in the provision of a flexible binding loop or ring whereby in addition to its inexpensive character the binding edges of the covers and the leaves or of the structure with which it may be used may be opened up flat.

In the drawings accompanying and forming part of this specification, Figure 1 is a view of one form of this improved binding ring; Fig. 2 is a view thereof in its flattened position; Fig. 3 illustrates the same applied to a loose leaf device; Fig. 4 illustrates the loose leaf book or device shown in Fig. 3, showing the extreme thinness of the book when closed; and Fig. 5 illustrates these improved rings connected by some suitable connecting means, although it is obvious that the rings may be used independently one of another.

Similar characters of reference indicate corresponding parts throughout the different figures of the drawings.

This improved flexible binding means 2 may be made of any suitable flexible material such as paper, tempered spring steel, cloth, or leather, the latter probably being the preferable material for some forms, while spring steel may be the preferable material for other forms. The leather, however, is tough, although some kinds of paper can be used with equal facility. The device may be of any desired formation. In the present instance, however, it is shown as of a flat form of stock, that is of angular stock, adapted to be received by angularly formed slots 3 of the leaves 4 or covers or sides 5, when the latter are used. The flexible binding means consists of loops formed either as complete or partially formed rings. In either form as shown the loops or rings are endless, that is to say they have no separable ends. The rings may be used singly or may be made in pairs or series, as for instance as shown in Fig. 5, being connected by any suitable material preferably, however, of the same material 6 of which the ring itself is made. If, however, the connecting member 6 is made of paper or fibrous or analogous material, and sewed or otherwise attached to the rings, it will be obvious that this paper strip can be readily pasted onto the back of the cover when such is used or onto any suitable support.

The present improvement will make a very inexpensive pocket memorandum book, price book, catalogue cover, or any form of loose leaf book or letter file, as it will be obvious that it will lie perfectly flat, and will permit the leaves of the books to open perfectly flat. Ordinary rigid metal rings such as heretofore have been used always bulge at the binding edge, in other words project beyond the leaves or edges of the back so that when such rings are used the structures are bulky in much the same way as shown in Fig. 3. In other words, rigid rings retain their shape and consequently the book is when closed of larger diameter at its binding edge than at any other point. By means of the present improvement however as shown in Fig. 4 the flexible rings permit the book to be substantially as flat at its binding edge as at its other points when the book is closed, so that in addition to the inexpensive material of which the rings may be made, it has the other advantages hereinbefore set forth. I have found by practical experience that these flexible rings may be made of paper and that when so made they are serviceable and also inexpensive. It is not essential, however, that the binding means be in the form of complete rings, as they may be in the form of partially formed rings or loops or any desired form suitable for the purpose and may be formed independently of the sides or covers or leaves, or integral therewith as preferred.

I claim as my invention:

1. A leaf holding ring that will fold closely around outside of such leaves as are held thereon to avoid unnecessary projection, and at the same time be of sufficient transverse width and rigidity to hold leaves having slots or notches open to the edge of the leaf.

2. A leaf holding, permanently closed, flexible ring formed of material adapted to permit the ring to be compressed for the re-

ception of loose leaves whereby the structure when closed may have extreme thinness.

3. A leaf holding, compressible, complete binding ring for the reception of loose leaves slotted to the edge thereof.

4. A leaf holding, compressible, non metallic binding ring for the reception of loose leaves slotted to the edge thereof.

5. A leaf holding, compressible, complete ring of fibrous stock for the reception of leaves slotted to the edge thereof.

6. A compressible, one-piece, linkless ring for the reception of leaves slotted to the edge thereof.

7. A leaf holding, compressible, leather-formed, permanently closed ring for the reception of leaves slotted to the edge thereof.

8. A leaf holding device comprising a plurality of compressible rings connected together.

9. A leaf holding device comprising a plurality of integrally connected compressible rings each permanently closed for the reception of leaves slotted to the edge thereof.

10. A leaf holding device comprising a plurality of connected rings each foldable closely around outside of such leaves as are held thereon to avoid unnecessary projection, and at the same time of sufficient transverse width and rigidity to hold leaves having slots or notches open to the edge thereof.

11. A loose leaf device comprising a cover and carried thereby one or more leaf holding rings that will fold closely around outside of such leaves as are held thereon to avoid unnecessary projection, and at the same time be of sufficient transverse width and rigidity to hold leaves having slots or notches open to the edge of the leaf.

12. A flexible complete linkless ring, non-stretchable lengthwise, formed of material adapted to permit the ring to be compressed, for a loose leaf device.

13. A compressible complete linkless binding ring, formed of non-elastic material, for a loose leaf device.

14. A compressible complete linkless ring adapted for use with loose leaf sheets, to permit the sheets to open flat.

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