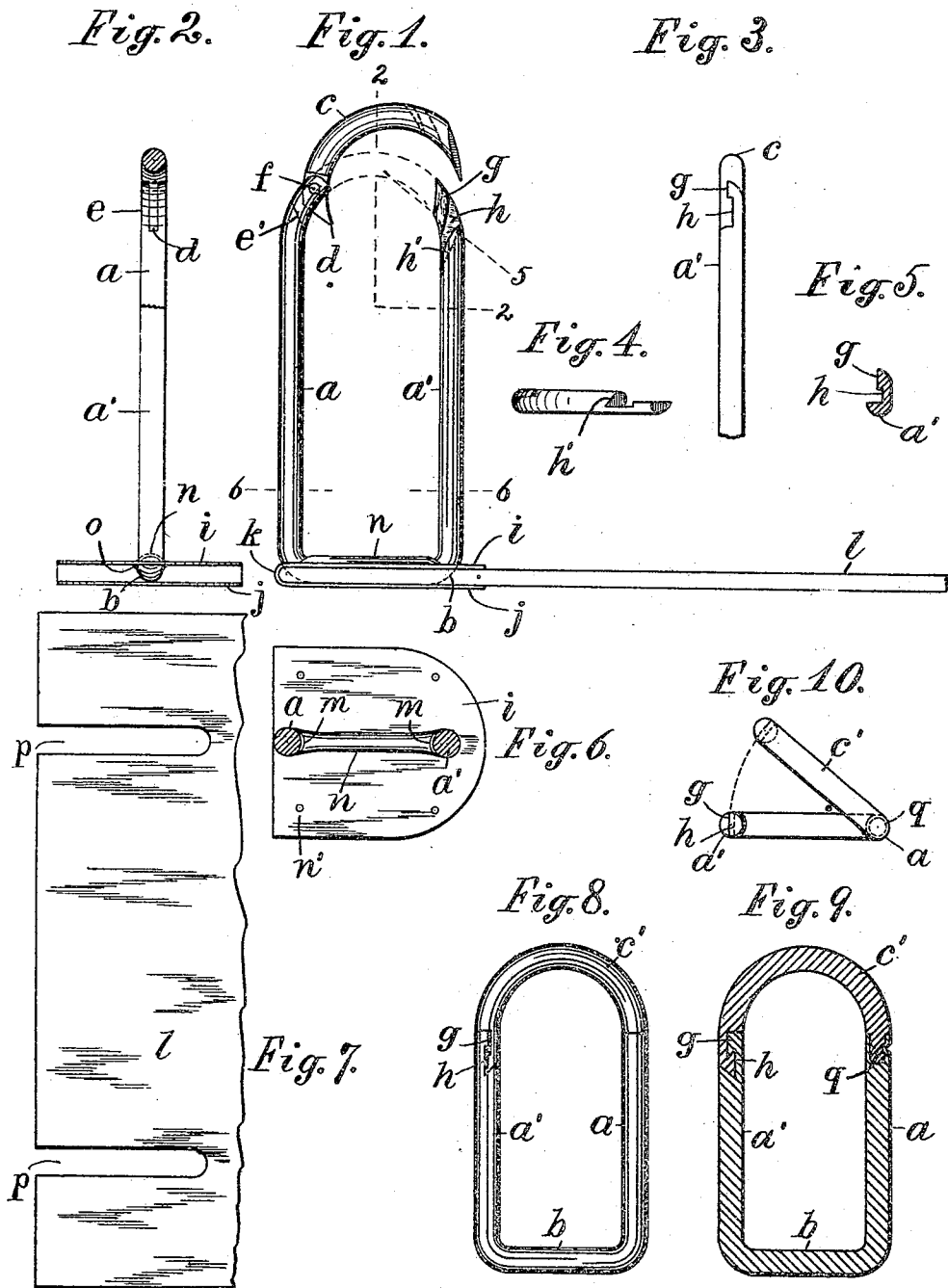


L. M. MORDEN.
BOOK RING WITH LOCK JOINTS.
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BOOK-RING WITH LOCK-JOINTS.

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To all whom it may concern:

Be it known that I, LUCENA M. MORDEN, a citizen of the United States, and a resident of 59 Grand street, Waterbury, county of New Haven, State of Connecticut, (whose post-office address is also the same,) have invented certain new and useful Improvements in Book-Rings with Lock-Joints, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of so-called "book-rings" which are used in connection with suitable covers to hold perforated leaves or sheets detachably, so that sheets can be inserted in and removed from the book at pleasure. Such book-rings are provided with a hinged opening-section which when turned on the hinge to open the section permits the application of the papers to one side of the ring and when the section is closed permits the transfer of the papers to the opposite side. Where the separable ends are brought together, they are commonly shaped to engage in some manner which permits the papers to be transferred smoothly from one side of the ring to the other; but to hold such separable parts engaged it has been common to employ some kind of spring-catch or other construction in which the parts are pressed elastically together. To avoid the adjustment of the parts to operate elastically, locking ribs and grooves are in the present invention formed upon the separable parts by which the joint may be locked and the displacement of the parts prevented by a rigid engagement independent of the elasticity of the parts. The engaging edges of such locking tongues and grooves are all formed concentric with the hinge of the opening-section, so that the section can be opened or closed without springing any of the parts or bending them out of their normal positions.

The invention is shown applied to book-rings made in the form of an oblong link, the bottom portion of which is in practice fastened securely to some form of book-cover or file-board, so as to be held erect thereon, and a sheet-metal clasp is shown herein for supporting such a ring or link upon the end of a cover or file-board.

In the drawings, Figure 1 is a side elevation of a ring having the opening-section hinged to move in the plane of the ring and

the bottom portion of the ring secured to a file-board by a sheet-metal clasp. In this figure the opening-section is partly turned upon its hinge to expose the half-lap joint upon one of the side portions of the ring. Fig. 2 represents the ring in edge view with the opening-section closed and the parts cut away on the line 2 2 in Fig. 1. Fig. 3 is an edge view of the upper part of the ring with the opening-section closed, showing the ribs upon the half-lap joint. Fig. 4 is a plan of the opening-section viewed from the top of Fig. 1. Fig. 5 is a cross-section like that on line 5 5 in Fig. 1, but the ribs formed without dovetail edges. Fig. 6 is a plan of the clasp for the file-board with the ring in section on line 6 6 in Fig. 1. Fig. 7 shows the end of the file-board notched to fit two of the clasps and clear the bottom of the rings. Fig. 8 is a side view of a ring having the opening-section fitted to swing laterally and the opening-section jointed by ribs to the inner side of the ring portion *a'*. Fig. 9 is a vertical section through the center plane of a similar ring with the opening-section jointed by ribs to the outer side of the ring portion *a'*. Fig. 10 is a plan of the ring shown in Fig. 9 with the opening-section turned laterally.

The rings illustrated have parallel side portions *a'*, an integral bottom or foot portion *b*, and an opening-section, (designated *c* in Fig. 1 and *c'* in Figs. 8, 9, and 10.) In Figs. 1 and 2 the opening-section is hinged to the portion *a* by a tongue *d*, fitted to a pivot *f* in a fork *e* upon such portion. The end of the tongue is fitted to the slot *e'* of the fork to form a stop for the opening-section when the section is closed. The opposite end of the opening-section and the top of the side portion *a'* are jointed by cutting each down to nearly the middle of its thickness and forming upon the side of each a rib *g*, which is fitted to groove *h* in the opposite portion. The side of the groove *h* is preferably beveled, as shown at *h'*, upon the portion *a'* in Fig. 1 and at *h'* upon the section *c* in Fig. 4; but the ribs and grooves may be fitted to one another without beveling their edges, as shown by the alternative construction in Fig. 5, which represents the appearance of a cut through the portion *a'* on line 5 5 in Fig. 1, if the edges of the grooves and ribs were not beveled.

The edges of the ribs and grooves are all formed concentric with the pivot *f* of the

opening-section, so that they can be slid together or separated without springing any of the parts to release them.

It will be observed that the pivot *f* of the opening-section lies above the greater part of the joint at the opposite side of the ring, so that the curved edges of the ribs slope inwardly at their bottom—that is, toward the middle line of the ring—and any outward pull upon the portion *a'* operates thus to draw the opening-section closer into its joint instead of separating the parts. The fitting of the ribs and grooves thus tends absolutely to lock the opening-section to the side portion whether the joint has dovetailed ribs or not.

By dovetailing or beveling the edges of the grooves the opening-section is also prevented from displacement in another direction—that is, laterally from the plane of the ring—and the opening-section is by such a dovetail joint thus held firmly from any displacement in the use of the ring. Two or more of such rings are commonly used together for holding suitably-perforated sheets upon a base or between book-covers, and to hold the ring erect upon the base I provide the sheet-metal clasp, having upper leaf *i* and lower leaf *j*, formed by bending a single piece with fold *k* at one edge. The opposite leaves are thus adapted to clamp elastically upon the edge of a book-cover or file-board *l* at any suitable interval to hold the rings at any desired distance apart.

The leaf *i* is shown formed with two holes *m*, through which the side portions *a a'* of the ring are inserted before the leaves of the clasp are folded together, and the leaf *i* is preferably stamped with a channel *n*, which embraces the upper side of the foot portion *b* of the ring. Before the leaves *i* and *j* are folded together such foot portion is also secured to the leaf *i* by solder, (indicated at *o* in Fig. 2,) which flows into the channel *n* and attaches the ring securely to the metal. The file-board or cover *l* is formed with notches *p* at suitable distances to set the rings at the desired interval apart, and when the sheet-metal clasp is pressed upon the edge of such file-board or cover the foot portion of the ring fits into such groove, and the ring is held firmly upon the board. The clasp is shown in Fig. 6 with holes *n'* for rivets to fasten it permanently on the board, if desired.

The rings shown in Figs. 8 to 10, inclusive, have the opening-section pivoted by a pintle *q* in a socket upon the top of the ring portion *a*, and thus adapted to swing laterally in opening, as shown in Fig. 10. The lock-joint of the ring-section is shown in Figs 8 and 9 provided with the dovetail rib *g* and the dovetail groove *h*, which are made concentric with the pintle *q* and exactly transverse to the wire of the portion *a'*, as shown in Fig. 10.

The interlocking of the dovetail ribs and grooves with the construction shown in Figs. 8 and 9 wholly resists any outward movement of the portion *a'* when the section *c'* is engaged therewith and prevents in like manner any strain outward of the section *c'* when engaged with the portion *a'*. As book-rings are made oblong and round and also of various dimensions, it will be understood that the invention is not limited to any particular form or size of ring, provided such ring has an opening with a separate section hinged to one of its sides and jointed to the opposite side in the manner described.

Having thus set forth the nature of the invention, what is claimed herein is—

1. A book-ring having an opening-section with hinge at one end and lock-joint at the other end, the engaging surfaces of the lock-joint being made concentric with the hinge.

2. A book-ring having an opening-section with hinge at one end and lock-joint at the other end, the engaging surfaces of the lock-joint being made concentric with the hinge and formed with engaging ribs.

3. A book-ring having an opening-section with hinge at one end and lock-joint at the other end, the engaging surfaces of the lock-joint being made concentric with the hinge and formed with engaging ribs having undercut or dovetailed edges.

4. A book-ring having side portions and opening-section, one end of the opening-section being jointed to one of the side portions by a fork forming a stop to its closing movement, and the other end of the opening-section being jointed to the other portion by engaging surfaces concentric with the hinge.

5. A book-ring having side portions and an opening-section, one end of the opening-section being jointed to one of the side portions by a fork forming a stop to its closing movement, and the other end of the opening-section fitted to the other portion by a half-lap joint provided with interlocking ribs, the edges of the ribs being concentric with the hinge.

6. A book-ring having parallel side portions with integral foot portion at the bottom and opening-section at the top, a sheet-metal foot-plate folded to clasp the edge of a file-board and perforated to fit upon and embrace the foot of the ring.

7. A book-ring having parallel side portions with integral foot portion at the bottom and opening-section at the top, a sheet-metal foot-plate folded to clasp the edge of a file-board and having the perforations *m* for the passage of the side portions of the ring, and bent upon the foot portion to clamp and embrace the same.

8. A book-ring having parallel side portions with integral foot portion at the bottom and opening-section at the top, a sheet-

metal foot-plate folded to clasp the edge of a
file-board and having the perforations *m* for
the passage of the side portions of the ring,
and bent upon the foot portion to clamp and
5 embrace the same, with the foot portion sol-
dered to the sheet metal.

In testimony whereof I have hereunto set

my hand in the presence of two subscribing
witnesses.

LUCENA M. MORDEN.

Witnesses:

L. LEE,

THOMAS S. CRANE