L. M. MORDEN & J. BUCHANAN.

BOOK RING.

APPLICATION FILED DEC. 24, 1912.

1,119,786. Patented Dec. 1, 1914.

Fig. 1.

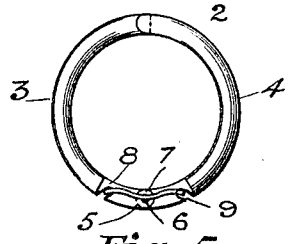


Fig. 2.

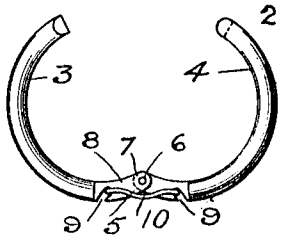


Fig. 3.

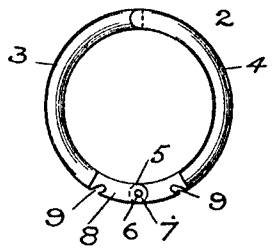


Fig. 5.



Fig. 4.

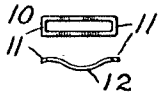


Fig. 6.

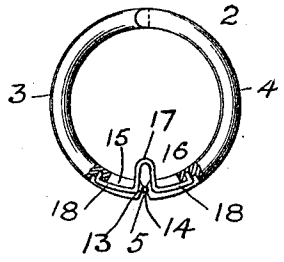


Fig. 7.

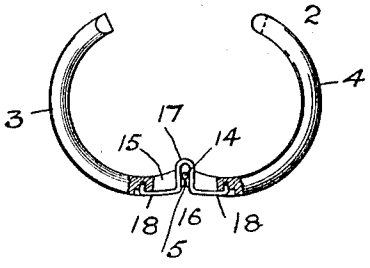


Fig. 11.

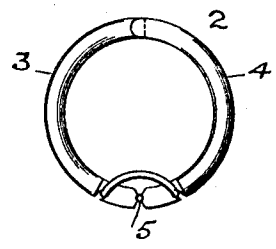


Fig. 8.

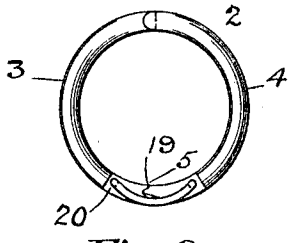


Fig. 10.

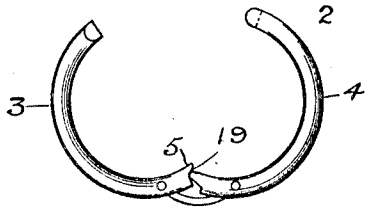
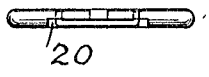


Fig. 9.



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UNITED STATES PATENT OFFICE.

LUCENA M. MORDEN AND JOHN BUCHANAN, OF WATERBURY, CONNECTICUT; SAID BUCHANAN ASSIGNOR TO SAID MORDEN.

BOOK-RING.

1,119,786. Specification of Letters Patent. Patented Dec. 1, 1914.

Application filed December 24, 1912. Serial No. 738,420.

To all whom it may concern:

Be it known that we, LUCENA M. MORDEN, a citizen of the United States, and JOHN BUCHANAN, a subject of the King of Great Britain, both residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Book-Rings, of which the following is a specification.

This invention relates to book rings adapted particularly for use with loose leaf books, the object of the invention being to provide an improved ring, which may be properly designated as a knuckle or toggle-joint ring, in which the ring, usually comprising two half sections hinged together, is provided with a spring so carried by the ring that when the ring is being opened it will, when it reaches a certain point in the opening thereof, fly open, and likewise on being closed it will, when it reaches a certain point in the closing thereof, fly closed, and will remain in either of these positions.

The object of the present improvement, therefore, is the provision of an improved ring of the character described constructed of two hinged members carrying a spring substantially equally and simultaneously effective on both members of the ring so that the ring has what may be termed a toggle joint connection.

The present improvement has to do with rings which are usually used independently of a back, and therefore they must have in themselves the means for opening and closing them, and for maintaining them in either of these positions, and not depend upon the back or a part connected therewith for accomplishing these results.

In the drawings accompanying and forming part of this specification, Figure 1 is a view of one form of ring closed; Fig. 2 is a view of the same ring open; Fig. 3 is a view of the ring without the spring; Fig. 4 is a view of the spring which may be used with this form of ring; Fig. 5 is an under side view of the ring shown in Fig. 1; Figs. 6 and 7 illustrate views of a ring of a somewhat different construction, closed and open respectively; Figs. 8, 9 and 10 illustrate a ring of a still different form of construction, the last figure illustrating the opposite side of the ring from that shown in Fig. 8, the ring being open; and Fig. 11 is a view of a somewhat different form of ring construction.

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

In all of the constructions illustrated herein it will be observed that the ring 2 comprises two semi-circular members 3 and 4 having some usual form of meeting ends 5, these members being hinge-connected at their opposite ends. In some forms the hinge connection comprises the usual pivotal connection or pintle between the members, as in Figs. 1 to 5, while in other forms the pintle or pivot is carried by pockets or notches in the meeting edges of the rings, as in Figs. 6, 7 and 11, while in Figs. 8 and 9 the pivotal connection is obtained by means of a projection or tongue carried by one member and extending into a recess or groove of the other, forming a hinge on the order of a butt joint, and in all of them a spring is provided so located with relation to the hinge connection that the ring has to all intents and purposes a toggle-joint connection, such spring having substantially equal efficiency on both members of the ring and in the present instance extending about the same distance at each side of the pivotal connection.

In the form shown in Figs. 1 to 5 the hinged ends of the ring members are pivotally connected by a pivot 6 extending through rabbeted or overlapping portions 7 of the ring members, which are for this purpose preferably cut away a predetermined distance at each side of the pivot, as at 8, and the outer margin of each ring member is provided with a notch 9 for the reception of the spring 10, which spring in the present instance is of an elongated loop formation and suitably bent to have its outer ends 11 extend into the notches 9 in the margins of the ring members and also bent intermediate such ends, as at 12, to conform to the periphery of the ring.

In the form shown in Figs. 6 and 7, the meeting ends of the ring members are provided with notches 13 for the reception of a pin 14 and are also provided with slots 15 through which a spring 16 extends, this spring being provided with a loop 17 extending into the interior of the ring, and a pair of laterally extending ends 18 having

bent portions projecting into openings in the ring members.

In the form shown in Figs. 8, 9 and 10, the ring members are provided with a tongue and groove connection 19 and are partially cut away adjacent to their meeting ends, while the spring fits in this cut away or recessed portion 20 and the laterally extending ends 21 of this spring extend into openings and may be headed over on the opposite side of the ring in any suitable manner.

In all forms of the improvement it will be observed that the spring is provided with ends of one form or another which engage directly with the ring members themselves and is also provided with what may be considered a loop intermediate portion extending around or past the hinge connection and conforming in some forms thereof to the peripheral shape of the ring. The spring is located in such a manner that the ring will be maintained closed or open, and both halves of the ring may be opened together equally, and when partially open the spring will cause them to fly open and remain open and when partially closed beyond a certain point the spring will cause them to fly closed and remain closed.

In all forms of the device shown, it will be observed that the spring is located centrally with relation to the pivotal point of the members forming the ring and that the spring has a part connected to each of said members, this connection being obtained by inserting an equal portion of the spring into each of the ring members so that the spring acts with equal force on both members of the ring.

It is to be understood that the various details may be more or less modified without departing from the spirit or scope of this improvement.

We claim as our invention:

1. A book ring comprising two half sections hinged together and a spring projecting into said sections and acting equally on both for maintaining the ring open or closed and effecting the opening or closing thereof after it is partially opened or closed.

2. A book ring comprising a pair of members having a joint connection, and a spring projecting into said members and located adjacent to such joint connection to form with such connection a toggle joint effective to assist in opening and closing such members.

3. A book ring comprising two half members having a joint connection, and a spring projecting into said members adjacent to such connection to form therewith a toggle joint effective to assist in opening and closing such members and to maintain them open or closed.

4. A book ring comprising two half members having a joint connection, and a spring projecting into said members adjacent to such connection and extending substantially the same distance beyond the hinged ends of said members to form with said joint connection a toggle joint effective to open or close the ring after it is partially opened or closed.

5. A book ring comprising a pair of hinged members, and a spring projecting into both of said members and forming with the hinged ends of such members a toggle joint connection effective to assist in opening and closing said members and to maintain them open or closed.

6. A book ring comprising a pair of hinged members, and a spring having parts carried by both of said members and provided with a curved portion conforming substantially to the peripheral shape of the ring and effective to assist in opening and closing said ring.

7. A book ring comprising a pair of hinged members, and a spring carried by said members and having parts projecting into both of said members and forming with the hinged ends of such members a toggle joint connection effective to hold the members open or closed.

8. A book ring comprising a pair of hinged members, and a spring carried by said members and having parts projecting through both of said members and effective to hold the members either open or closed with equal efficiency.

9. A book ring comprising a pair of hinged members, and a spring carried by said members and located adjacent to the hinge connection thereof and having a loop and a pair of ends projecting one into each of said members and forming with the hinged ends of such members a toggle joint connection.

10. A book ring comprising a pair of hinged members, and a spring carried by said members and located adjacent to the hinge connection thereof and having a loop extending across the hinged meeting ends of the ring and a pair of ends projecting one into each of said members and forming with the hinged ends of such members a toggle joint connection.

11. A book ring comprising a pair of similarly formed members having overlapping ends, a pivot connecting said ends, each member having a notch adjacent to said pivot, and a spring having portions located in said notches and forming with the pivotally connected ends a toggle joint connection.

12. A book ring comprising a pair of similarly formed members having overlapping ends, a pivot connecting said ends, each member having a notch adjacent to said pivot, and a loop-formed spring having portions located in said notches and forming

with the pivotally connected ends a toggle joint connection.

13. A book ring comprising a pair of similarly formed members having overlapping ends, a pivot connecting said ends, each member having a notch adjacent to said pivot, and a loop-formed spring having portions located in said notches and having a portion intermediate the notches conforming to the peripheral margin of the ring and forming with the pivotally connected ends a toggle joint connection.

14. A book ring comprising two half members pivotally connected and provided with notches, one at each side of their pivotal connection, and a spring carried by said ring and having portions extending into said notches and forming with the pivotally connected ends a toggle joint connection.

15. A book ring comprising two half members pivotally connected and provided with notches, one at each side of their pivotal connection, and a spring carried by said ring and having portions extending into said notches, said spring consisting of a loop.

16. A book ring comprising two half members pivotally connected and provided with notches, one at each side of their pivotal connection, and a spring carried by said ring and having portions extending into said notches, said spring being located to extend intermediate its connection with the rings across and at the outer side of the pivotal connection.

17. A book ring comprising two half members pivotally connected to form a joint, and a spring carried by said members and located adjacent to such joint, and having a part inserted into each member of the ring to form with such connection a toggle joint.

18. A book ring comprising two half members pivotally connected to form a joint, and a spring carried by said members and located adjacent to such joint and having a part inserted into each member of the ring and a loop or curved portion extending across the joint connection to form with such connection a toggle joint.

Signed at Waterbury, Conn., this 18 day of December, 1912.

LUCENA M. MORDEN.
JOHN BUCHANAN.

Witnesses:
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E. G. BOBBIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."