

March 24, 1936.

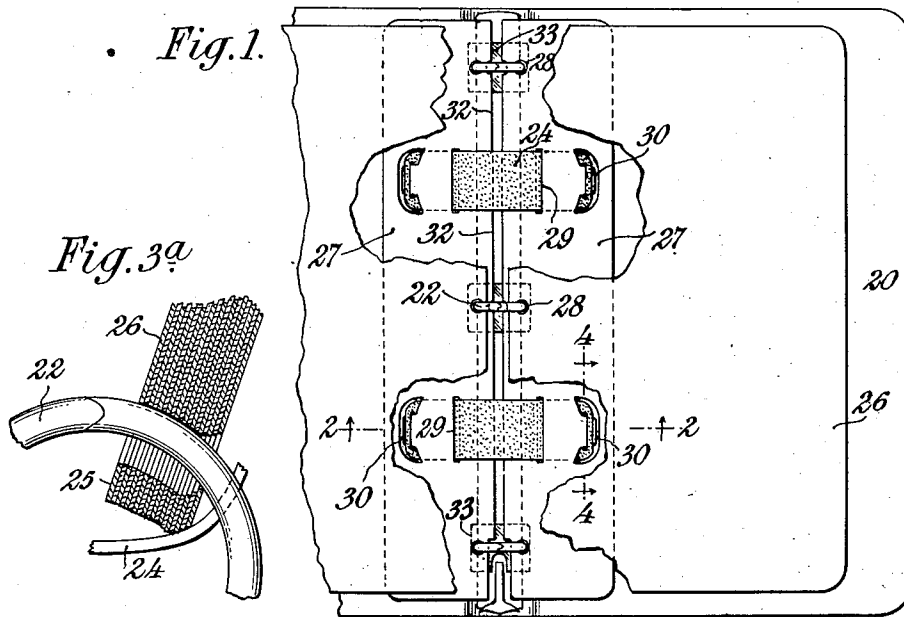
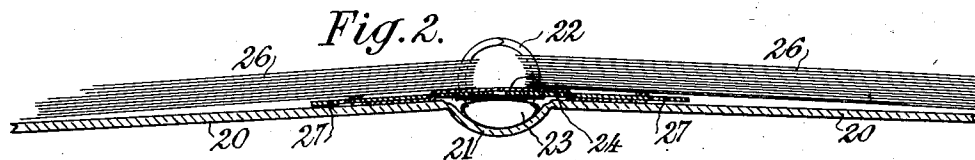
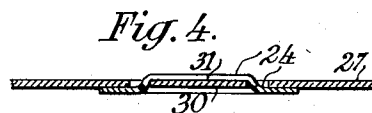
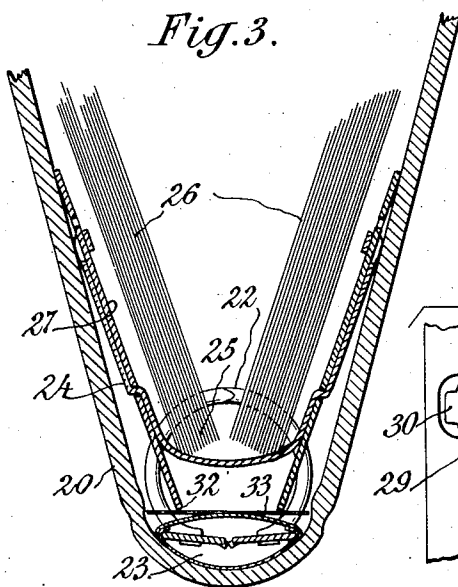
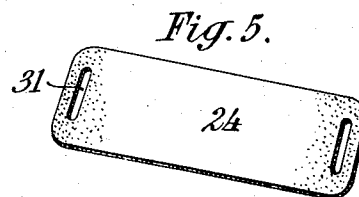
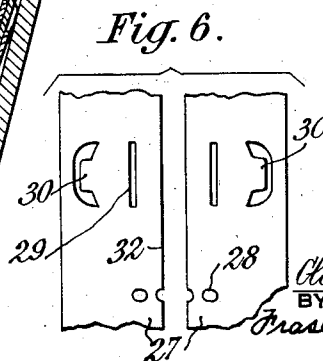
C. D. TRUSSELL

2,035,284

SHEET LIFTER TO FACILITATE THE CLOSING OF RING BOOKS

Filed Nov. 2, 1934

2 Sheets-Sheet 1



INVENTOR

Clarence D. Trussell,

BY

Fraser, Myers & Manley,
ATTORNEYS.

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SHEET LIFTER TO FACILITATE THE CLOSING OF RING BOOKS

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2 Sheets-Sheet 2

Fig. 16.

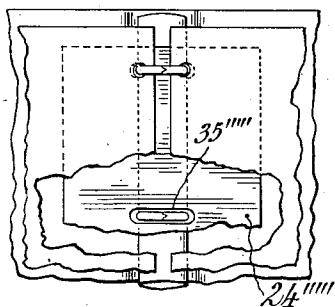


Fig. 7.

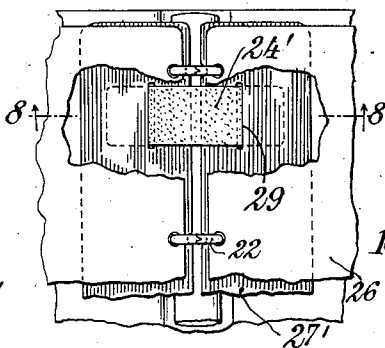


Fig. 9.

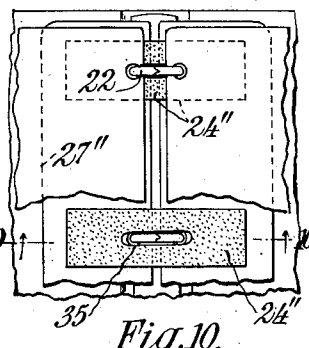


Fig. 17.

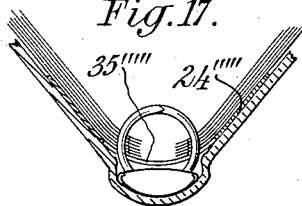


Fig. 8.

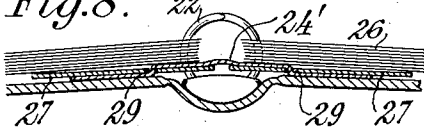


Fig. 10.

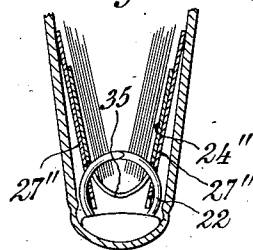


Fig. 11.

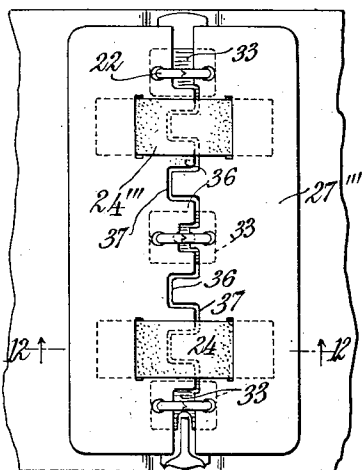


Fig. 12.

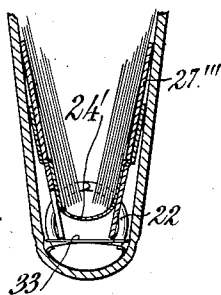


Fig. 13.

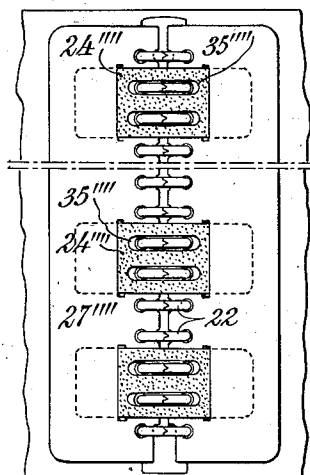


Fig. 14.

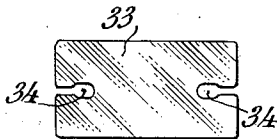


Fig. 15.

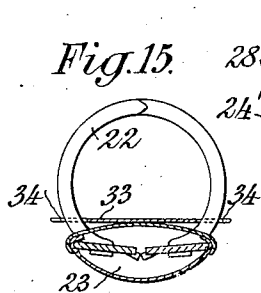
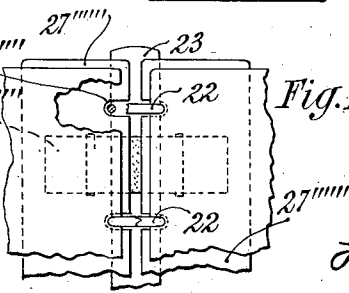


Fig. 18.



INVENTOR

Clarence D. Trussell

BY

Fraser, Myers & Manley,
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,035,284

SHEET LIFTER TO FACILITATE THE
CLOSING OF RING BOOKS

Clarence D. Trussell, Poughkeepsie, N. Y., as-
signor to Trussell Manufacturing Company,
Poughkeepsie, N. Y., a corporation of New York

Application November 2, 1934, Serial No. 751,157

24 Claims. (Cl. 129—4)

This invention relates to improvements in loose-leaf binders of the form commonly known as ring books. Considered generically it consists of a lifting device to facilitate the closing of a ring book without injury to the inserted leaves, the said device comprising a hammock disposed crosswise with respect to the back of the book and having its marginal portions extended beyond the opposite sides of the book back along the inner surfaces of the covers so that the central portion of the hammock will underlie the inner marginal portions of leaves attached to the rings of the book, the lifting device and the covers of the book being so correlated that the closing of the covers will cause the portion of the hammock underlying the inner marginal portions of the sheets attached to the rings of the book to be raised or separated from the underlying structure of the book back and cause the marginal portions of the sheets to be moved around the attaching rings toward their centers. Such correlation of the lifting device with respect to the covers of the book may be effected in various ways. For example, the hammock may be attached to a pair of fly leaves adapted to have engagement with or to be attached to the attaching rings of the book, the zones of attachment between the hammock and the leaves being so positioned that when the fly leaves are tilted as a result of the closing of the covers of the book, the ends of the hammock will be pulled outwardly and upwardly to a sufficient extent to raise its central portion from the underlying structure of the book back and move overlying marginal portions of leaves attached to the rings about the rings toward the center. When so constructed the hammock may be made of any suitable flexible material, which may also, but need not necessarily, be resilient. The fly leaves should be of a sufficient degree of rigidity to remain flat when tilted during the closing of the book covers and serve as satisfactory supports for the hammock.

Another manner in which the lifter and the book covers may be so correlated as to cause the hammock to facilitate the movements of the sheets around the rings during the closing of the book covers would consist in making the hammock of a resilient material of a degree of stiffness such that, on closing the book covers, the ends of the hammock will slide along the inner surfaces of the covers in directions away from the book back and cause parts of the hammock lying under the marginal portions of inserted leaves to be flexed and lifted away from the underlying structure of

the book back so as to move the margins of the sheets about the rings toward their centers. When thus constructed the simple hammock constitutes a satisfactory lifter without the addition of fly leaves or other means for raising its ends.

The hammock embodying the invention may, if desired, extend throughout the entire length of the book back, or throughout any desired portion thereof, transverse slots being provided, wherever necessary, through which the attaching rings may be extended so that the rings will serve as a means of maintaining the hammock in a centered position with respect to the book back. Preferably the lifter may comprise a plurality of relatively narrow hammocks spaced along the book back, and such hammocks may also preferably be so positioned as to lie between the rings and be secured at their ends to fly leaves attached to or having engagement with the rings at their inner margins. If the sheet lifter comprises a plurality of hammocks constructed of resilient material of a stiffness such that no fly leaves are required, the hammocks will preferably be so positioned as to be held in their centered relationship with respect to the book back by the rings of the book, which may extend through transversely disposed slots in the hammocks provided for such purpose.

When fly leaves are used, the hammocks may be satisfactorily secured thereto by passing their end portions through slots in the fly leaves and then either cementing them to the fly leaves or interengaging them with portions of the fly leaves of a form such as to provide a physical attachment of any appropriate character.

If desired, the fly leaves, when used, may be alternately recessed and extended along their inner margins, the recesses and extensions of the respective leaves being arranged in a staggered relation in order that marginal portions of the leaves, which move along the underlying structure of the back of the book when the fly leaves are tilted by the closing of the book covers, may extend over and beyond the center line of the book back without any conflict of one fly leaf with respect to the other; and when embodying the invention in a form in which fly leaves are used, it may be found desirable to insert one or more sheets of smooth lining material in the book back over the mounting element of the ring structure over which the inner marginal portions of the fly leaves may move without obstruction when tilted by the book covers. Such lining may consist of a single sheet of material extending the entire length of the back and of a width such as to cover the entire back without

interfering with the closing of the book covers, or a plurality of relatively narrow lining strips may be used, the strips being spaced along the back and having recesses therein of forms such

5 that the strips may be readily sprung into and out of engagement with the attaching rings.

In the accompanying drawings illustrating the preferred and various modified forms of the foregoing invention:—

10 Figure 1 is a plan view of a portion of an opened ring book embodying the invention, parts being indicated as having been torn away to reveal underlying structure.

Fig. 2 is a transverse sectional view through a 15 part of the ring book, the section being taken along the plane indicated by the line 2—2 of Fig. 1 and viewed in the direction indicated by the arrows.

Fig. 3 is a transverse sectional view, drawn to 20 a larger scale, through the book illustrated by Figs. 1 and 2, the same being represented as having been partly closed.

Fig. 3a is a fragmentary, transverse sectional view of a portion of the book illustrated by Fig. 25 3 drawn to a still larger scale.

Figs. 4, 5, and 6 are detail views of portions of the lifting device illustrated by Figs. 1, 2, and 3, to more clearly indicate one manner in which 30 parts of the device may be satisfactorily secured one to another.

Fig. 7 is a plan view, and Fig. 8 is a transverse sectional view, corresponding to Figs. 1 and 2 but illustrating a ring book having the invention applied in modified form.

35 Fig. 9 is a plan view, and Fig. 10 a transverse sectional view along the line 10—10 of Fig. 9, illustrating another modified form of the invention, the figures corresponding with Figs. 7 and 8 except that the sectional view represents the covers as having been partly closed instead of 40 lying open.

Fig. 11 is a plan view of a portion of a ring book illustrating another modified form of the invention, and Fig. 12 is a transverse cross-sectional 45 view of the book, the section being taken along the plane represented by the line 12—12 of Fig. 11 and viewed in the direction indicated by the arrows, the book being indicated with its covers partly closed.

50 Fig. 13 is a plan view of a portion of a ring book lying open, and illustrating another modified form of the invention.

Fig. 14 is a plan view of a lining plate which may be used as an element of one form of the 55 invention.

Fig. 15 is a cross-sectional view through a portion of the ring structure of a ring book, the lining plate illustrated by Fig. 14 being represented in association with the attaching ring and 60 being shown in cross-section.

Fig. 16 is a plan view of a portion of an opened ring book illustrating another modified form of the invention, and Fig. 17 is a transverse sectional view of the same book, the covers being 65 represented as having been partly closed.

Fig. 18 is a plan view of a portion of an opened ring book illustrating another modified form of the invention.

70 In Figs. 1 to 6, inclusive, the invention is illustrated as applied to a ring book comprising covers 20, 20, a back 21, and the usual ring structure having attaching rings 22 and ring-mounting metal construction 23 by which the parts of the rings are operatively secured together and at- 75 tached to the back of the book. The form of the

invention which has been represented in association with the ring book illustrated by Figs. 1 to 6, inclusive, consists of a plurality of strips 24 of relatively thin sheet material disposed cross-wise with respect to the back of the book so as to 5 lie between the book back and the inner marginal portions 25 of sheets 26 of paper attached to the rings of the book. In order that these sheets 24 may serve their intended purpose it is important that they be provided with means 10 whereby their central portions which underlie the inner marginal portions of the sheets 26 may be lifted from the underlying structure of the book back during the initial closing movements of the covers of the book so as to facilitate the 15 closing of the book by lifting the marginal portions and moving them around the rings toward their centers. When no such means is employed, the sheets of paper attached to the rings which lie near the inner surfaces of the covers on each 20 side when the book is open engage portions of the rings which incline outwardly from the ring-mounting means, the sheets thus having a material angle of inclination as compared with planes radiating from the center of the rings. 25 On closing the covers of such a book, the sheets are first lifted by the covers at a material distance from the rings, thus further bending the sheets where they engage the rings and increasing their angle of inclination. The burden of 30 lifting the sheets and moving them about the rings falls most heavily upon the underlying sheets which make the greatest inclination with the rings, the inner marginal portions of the uppermost sheets being disposed more nearly in 35 conformity with planes radiating from the center of the rings. The result is that in thus lifting or pulling the sheets around the rings by the closing of the covers without the aid of special sheet-lifting means, the inner marginal portions of the 40 lowermost sheets which are disposed at quite an abrupt angle with respect to parts of the rings which they engage are crimped and worn at the margins of their perforations, and in course of time the perforated portions become badly 45 mutilated and sometimes torn open to the edges of the sheets so as to release the sheets from the rings altogether. It is the purpose of this invention to provide means for lifting the parts of the sheets 24 lying beneath the attached marginal 50 portions of the sheets of paper 26 immediately on the commencement of the closing of the book covers 20 before the sheets are bent along their points of engagement with the rings by the closing of the covers, and to shift the lowermost 55 sheets to positions such that the strain will be relieved from the parts adjacent the outer surface portions of the rings, as best indicated in Fig. 3a.

One satisfactory means of lifting the ends of 60 the sheets 24, which may not inappropriately be designated "hammocks" in view of the manner in which they support and hold the sheets of paper in the ring book, consists in providing a pair of fly leaves 27, 27, which may be perforated 65 along their inner margins as at 28, so as to be attached to the rings of the book, from which they may extend outwardly along the inner surfaces of the covers as clearly indicated in Figs. 1 and 2. The perforations 28 of the fly leaves 70 serve as clearances through which the rings may extend, thus permitting the fly leaves to be moved freely along the rings with their inner margins extended into the space within the rings.

The hammocks 24 may be secured to the fly 75

leaves in any appropriate manner, as, for example, by passing their end portions through slots 29 in the fly leaves and by thrusting outwardly disposed attaching tabs 30, which may be formed by cutting away surrounding portions of the fly leaves, through slots 31 in the ends of the hammocks. This results in a physical attachment of the hammocks to the fly leaves without the use of glue or other adhesive material, the effective zones of attachment being along the slots 29, which should preferably be spaced from each other more widely than are the perforations 28 of the fly leaves which engage the rings of the ring book to an extent such as to afford the desired degree of lifting of the central portion of the hammock when the covers of the book are closed. It will be observed on comparing Fig. 3 of the drawings with Fig. 2 that, as the covers of the book are closed, the fly leaves 27 are tilted upwardly as their perforated portions 28 move along the rings while the margins 32 of the fly leaves move along the surface of the underlying structure of the book back. During the initial part of the tilting of the fly leaves by the covers the fly leaves are caused to move outwardly or to be separated from each other by the engagement of the outer surfaces of the outwardly inclined portions of the rings adjacent the ring-supporting structure, thus causing the inner margins of the fly leaves to slide outwardly along the underlying supporting surface as their outer ends are lifted. This outward and upward movement of the fly leaves is communicated to the attached end portions of the hammock, which is thus lifted from the instant the covers begin to close and is caused to continuously impart movements to the edges of the leaves about the rings in advance of the movements which would be imparted to them without the aid of the lifting device, until they are all moved to positions illustrated in Fig. 3 in which their marginal portions are disposed in planes which are not materially divergent from planes which radiate from the ring centers, the outermost leaves which have the greatest degree of divergency from such radial planes being supported by the hammock rather than by the rings, as clearly illustrated in Figs. 3 and 3a, so as to avoid the crimping or mutilating of the sheets on which would otherwise be thrown the heaviest burden.

The extent to which the hammocks of the sheet-lifting devices illustrated in Figs. 1 to 6 will be lifted on closing the book covers will be dependent upon the extent to which the margins 32 of the fly leaves extend inwardly with respect to the perforations 28 by which they are attached to the rings, and the degree of lifting of the hammock will also be dependent to a slight extent upon the positions of the slots 29 in the fly leaves which define the effective zones of attachment between the hammock and the fly leaves.

The hammocks 24 may be constructed of leather, cloth, or any other appropriate material. They should be flexible, and may, although they need not necessarily, be resilient. The fly leaves 27 should be relatively rigid as compared with the hammocks in order that they may serve their intended purpose as supports for the hammocks without being unduly distorted.

As a feature of refinement, but not in any sense a necessary feature of the invention, smooth lining plates 33, best shown in Figs. 14 and 15, may be inserted between the inner marginal portions of the fly leaves and the supporting structure for the attaching rings. Such lining plates

may be constructed of celluloid or other suitable smooth and somewhat resilient material such as will provide a substantially flat and even surface over which the inner ends of the fly leaves may slide when tilted by the closing of the covers, as clearly illustrated by Fig. 3. The lining plate should be of a length such as to extend well across the back of the book, but not of a dimension such as would interfere with the closing of its covers. It may be of any desired dimension lengthwise of the book back, but need not necessarily extend continuously throughout the length of said back. Preferably a number of lining plates would be used, said plates having recesses or cutaway portions 34 therein of a form such as to enable the plates to be readily sprung into and out of engagement with any desired number of the attaching rings of the book, as indicated, for example, in Fig. 1.

The form of the invention illustrated by Figs. 7 and 8 differs from that illustrated by Figs. 1 to 6, inclusive, already described, in that the end portions of the hammocks 24', after passing through the slots 29 in the fly leaves 27', are represented as having been secured to the fly leaves by glue or other suitable adhesive material.

It is not essential that the hammocks by which the sheets are moved around the rings of the ring book be supported at their ends by fly leaves or equivalent means in accordance with the forms of the invention illustrated by Figs. 1 to 8, inclusive. If constructed of relatively thin material of a sufficient degree of resiliency, such, for example, as very thin spring metal, or of somewhat thicker sheet celluloid, or of any other appropriate smooth, resilient material, the hammocks may have their ends free, although, if desired, fly leaves may be interposed between the ends of the hammocks and the inner surfaces of the covers as illustrated by Figs. 9 and 10, in which the hammocks are designated by reference character 24'' and the fly leaves by reference character 27''. When so constructed the hammocks may preferably be slotted transversely, as at 35, along their centers so that the rings 22 of the ring book may extend through the hammocks, when the hammocks are assembled between the back and covers of the book, and sheets of paper attached to the rings, the rings thereby affording means for keeping the hammocks centered in the book.

When making a sheet lifter in accordance with the form of the invention illustrated by Figs. 9 and 10, it is essential that the hammocks be of a resiliency such that they will normally tend to lie flat and return to such normal, flat form after being bent. The resiliency should also be such that when the ends of the hammock are deflected upwardly during the initial parts of the closing of the book covers, they will slide outwardly and upwardly along the inner surfaces of the fly leaves 27'' and cause the central portion of the hammock to be raised sufficiently along the zones which underlie the marginal portions of the outermost sheets of paper attached to the rings of the book to lift said sheets and remove the strain which would otherwise be thrown upon the parts of said sheets which would ordinarily be crimped and worn as a result of excessive pressure between the sheets and the rings. In this form of the invention the fly leaves do not serve as supports for the ends of the hammock, but merely afford relatively smooth surfaces, thus making it unnecessary to use any special lining material for the book covers.

The form of the invention illustrated by Figs. 75

11 and 12 differs from forms already illustrated and described in that the fly leaves 27''' which support the ends of the hammocks 24''' are indicated as being provided with a plurality of extensions 36 and recesses 37, the said extensions and recesses of the respective fly leaves being disposed in a staggered relation so that portions of each fly leaf may extend inwardly beyond an imaginary line through its points of connection with the rings of the ring book beyond the center of the back without any conflict between the extended portions of one fly leaf and extended portions of the other. This form of the invention may be resorted to when it is desired to provide a degree of lifting of the hammock, during the closing of the covers of the book, greater than that which might be attained by the use of fly leaves the inner margins of which could not extend beyond the center line of the back.

In Fig. 13 is illustrated a form of the invention which may be used when the rings of the ring book are spaced very closely together. When applying the invention to a ring book of that particular type the hammocks 24''' may be of any desired width and may be provided with transversely disposed slots 35''' through which any rings which would conflict with the hammock may be extended. The hammocks may, if desired, be secured to the fly leaves 27''' in any appropriate manner, the form illustrated by Fig. 13 conforming with that illustrated in Figs. 7 and 8, although it will be apparent from the description of Figs. 9 and 10 that the hammocks need not necessarily be secured to the fly leaves at all.

In Figs. 16 and 17 is disclosed a form of the invention which conforms substantially with that illustrated by Figs. 9 and 10, except that the fly leaves 27'' have been omitted. In this form of the invention the resilient hammock 24'''' is represented as of a greater width than the hammock 24'' of Fig. 9. The hammock may extend the entire length of the book back, or might be of limited width, in which case any desired number of hammocks may be used. When applying the invention in the form illustrated by Figs. 16 and 17 it is essential that the inner surfaces of the book covers with which the end portions of the hammock make contact be sufficiently smooth to permit the end portions of the hammock to spread and move outwardly and upwardly along the surfaces of the book covers as they are closed. The hammock may be provided with slots 35''''', wherever necessary, to avoid conflict with the attaching rings of the book.

It is not essential that the fly leaves when used as supports for the hammocks be perforated so as to be attached to the rings of the ring book. As indicated in Fig. 18, fly leaves 27'''''' may be slotted as at 28'''''' to provide clearances for parts of the attaching rings and thereby permit marginal portions of the fly leaves to extend within the spaces between the attaching rings, in which case the hammocks 24'''''' which connect the fly leaves with each other and which lie between the back of the binder and sheets of paper attached to the rings of the book serve as a means of holding the fly leaves in their engaging relationship with the rings.

It will be apparent that many features of the invention herein disclosed are common to all of the various modifications which have been illustrated by different figures of the drawings. For example, in any form of the invention in which the ends of the hammocks are supported by fly

leaves, one might use either the form of attachment illustrated by Fig. 1 or the form illustrated by Fig. 7. The fly leaves having extensions and recesses arranged in a staggered relation as illustrated by Fig. 11 might be used as a feature of any form of the invention in which the fly leaves serve as hammock-supporting means, and the same is true of the liners one form of which is illustrated by Figs. 14 and 15. Liners of such form or of any other appropriate form might be used in association with any of the hammock-supporting fly leaves. In some of the figures of the drawings the hammock has been illustrated as of a greater dimension lengthwise of the back of the book than in others. It is not intended that there shall be any limitation as to such dimension of the hammock. As already explained, the hammock might extend continuously from one end of the book to the other, transverse slots being provided, where needed, to avoid conflict with the attaching rings. Otherwise, any number of relatively narrow hammocks may be provided, which may, if desired, be so spaced as to avoid conflict with the attaching rings.

The invention is not intended to be limited to the specific forms which have been selected for purposes of illustration, but should be regarded as covering modifications and variations thereof within the scope of the appended claims.

What is claimed is:—

1. The combination, with a ring book, comprising a pair of covers, a back and sheet-attaching rings extending inwardly from the back, of a sheet lifter comprising a hammock of sheet material crossing the back and having its margins extended beyond the back so that its central portion will lie between the back and the inner marginal portions of sheets of paper when engaged with the rings of the book, the book covers and the lifter being so correlated as to size, form and character of material that the closing of the covers will cause a portion of the hammock underlying said sheets to be lifted from the back and facilitate the movements of the sheets around the rings toward their centers, the book and the lifter having interengaging portions serving as means for holding the latter centrally positioned in the former.

2. The combination, with a ring book, comprising a pair of covers, a back and sheet-attaching rings extending inwardly from the back, of a sheet lifter comprising a pair of spaced fly leaves of relatively rigid material having clearances for the attaching rings spaced along their inner marginal portions and having their inner margins extended inwardly from their points of engagement with the rings toward the center of the book back, and a hammock of relatively flexible sheet material having end portions secured to oppositely disposed portions of the respective fly leaves spaced at material distances from their inner margins, the parts of the lifter being so related that when the covers of the book are open and the fly leaves are turned outwardly along the inner surfaces of the covers, the hammock will lie substantially flat along portions of the ring structure of the book back and adjacent portions of the inner surfaces of the fly leaves, so as to underlie the inner marginal portions of sheets of paper which may be engaged with the attaching rings.

3. The combination, substantially as defined by claim 2, but having a plurality of hammocks, of the type specified, connected with portions of the fly leaves spaced along the length of the book.

4. The combination, substantially as defined by claim 2, in which the clearances in the fly leaves comprise perforations by means of which the leaves are attached to the rings of the book.

5. 5. The combination, substantially as defined by claim 2, in which the hammock is slotted transversely to provide a clearance for an attaching ring.

10 6. The combination, substantially as defined by claim 2, in which the hammock is slotted transversely at its opposite ends and of which the fly leaves are slotted along their effective zones of attachment with the hammock and have portions of the material of which they are constructed cut away beyond their slotted portions to leave outwardly directed portions adapted to serve as hammock-attaching lugs, the opposite end portions of the hammock being passed through the slots in the fly leaves and the attaching lugs of the fly leaves being thrust into the slots in the ends of the hammock.

15 7. The combination, substantially as defined by claim 2, in which the fly leaves are slotted along their effective zones of attachment with the hammock, the end portions of the hammock being passed through the said slots and cemented to the under surface portions of the fly leaves.

20 8. The combination, substantially as defined by claim 2, having a smooth lining plate inserted between the inner surface of its ring-mounting structure and inner marginal portions of its fly leaves to provide an even, unobstructed surface upon which the fly leaves may move when tilted by the closing of the book covers, said lining plate being of a size such as to extend across and lie within the back of the book without interfering with the closing of the covers and having recesses therein of forms and locations such that the plate may be readily snapped into and out of engagement with the ring structure.

25 9. The combination, substantially as defined by claim 2, having a plurality of lining plates inserted between the inner surface of its ring-mounting structure and inner marginal portions of its fly leaves to provide even, unobstructed surfaces upon which the fly leaves may move when tilted by the closing of the book covers, said lining plates being of sizes such as to extend across and lie within the back of the book without interfering with the closing of the covers and having recesses therein of forms and locations such that the plates may be readily snapped into and out of engagement with the attaching rings.

30 10. A sheet lifter for a ring book, comprising a pair of spaced fly leaves of relatively rigid material having clearances cut along their inner marginal portions for the sheet-attaching rings of a ring book so that their inner margins may extend beyond their points of engagement with the rings of a book with which they may be assembled toward the center of the book back, and a hammock of relatively flexible sheet material having end portions secured to oppositely disposed portions of the respective fly leaves spaced at material distances from their inner margins, the parts of the lifter being so related that when assembled in a ring book with the rings in the clearances in the fly leaves and the book covers opened the fly leaves will extend outwardly along the inner surfaces of the covers and the hammock will lie substantially flat along portions of the ring structure of the book back and adjacent portions of the inner surfaces of the fly leaves, so as to underlie the inner marginal

portions of sheets of paper which may be engaged with the attaching rings.

11. A sheet lifter, substantially as defined by claim 10, having a plurality of spaced hammocks connecting different portions of the fly leaves.

12. A sheet lifter, substantially as defined by claim 10, in which the clearances in the fly leaves comprise perforations by means of which the leaves may be attached to the rings.

13. A sheet lifter, substantially as defined by claim 10, in which the hammock is slotted transversely to provide a clearance for a sheet-attaching ring.

14. A sheet lifter, substantially as defined by claim 10, in which the hammock is slotted transversely at its opposite ends and of which the fly leaves are slotted along their effective zones of attachment with the hammock and have portions of the material of which they are constructed cut away beyond their slotted portions to leave outwardly directed portions adapted to serve as hammock-attaching lugs, the opposite end portions of the hammock being passed through the slots in the fly leaves and the attaching lugs of the fly leaves being thrust into the slots in the ends of the hammock.

15. A sheet lifter, substantially as defined by claim 10, in which the fly leaves are slotted along their effective zones of attachment with the hammock, the end portions of the hammock being passed through said slots and cemented to the under surface portions of the fly leaves.

16. The combination, with a ring book, comprising a pair of covers, a back and sheet-attaching rings extending inwardly from the back, of a sheet lifter comprising a hammock of resilient sheet material including a portion extending across the inner surface of the back so as to lie between the back and the inner marginal portions of sheets of paper when engaged with the sheet-attaching rings, and marginal portions extended materially beyond the opposite sides of the back so as to be engaged and flexed as a result of the closing of the covers, the book and lifter having interengaging portions serving as means for holding the latter centrally positioned in the former.

17. The combination, substantially as defined by claim 16, in which the lifter has a transversely disposed slot through which one of the rings of the book may be extended, the size and location of the slot being such that the material surrounding the slot may cooperate with the ring as the means for maintaining the lifter centered with respect to the book.

18. The combination, substantially as defined by claim 16, in which the lifter has transversely disposed slots through which rings of the book may be extended, the sizes and locations of the slots being such that the material surrounding the slots may cooperate with the rings as the means for maintaining the lifter centered with respect to the book.

19. The combination, substantially as defined by claim 16, having fly leaves of relatively smooth, stiff material, perforated along their inner edges, engaged with rings of the book and extended outwardly in opposite directions along the inner surfaces of its covers so as to lie between the covers and the opposite marginal portions of the hammock and facilitate the flexing of the hammock on closing the covers by permitting the ends of the hammock to slide along the smooth surfaces of the interposed fly leaves.

20. The combination, with a ring book, comprising a pair of covers, a back and sheet-attach-

ing rings extending inwardly from the back, of a plurality of spaced sheet lifters each comprising a hammock of resilient sheet material including a slotted portion extending across the inner surface of the back so as to lie between the back and the marginal portions of sheets of paper when engaged with the sheet-attaching rings, with one of the rings extended through the slot, and marginal portions extended materially beyond the opposite sides of the back, and a pair of fly leaves of relatively smooth, stiff material, perforated along their inner edges, and engaged by means of the perforations, with rings of the book so as to extend outwardly in opposite directions between the inner surfaces of the covers and the opposite marginal portions of the hammocks, whereby on closing the covers the hammocks will be flexed and their ends caused to slide along the smooth inner surfaces of the fly leaves.

21. A sheet lifter for a ring book, comprising a hammock of resilient sheet material to be inserted in the book with its marginal portions extended materially beyond the opposite sides of the book back and its intermediate portion in a position such as to lie between the book back and the inner marginal portions of sheets of paper when engaged with the ring structure of the book, the lifter including portions to be so positioned with respect to adjacent portions of the ring book as to hold the former in place when so inserted in the latter.

22. A sheet lifter, substantially as defined by claim 21, having a transversely disposed slot

therein, the slot being so positioned as to permit a sheet-attaching ring to extend through the lifter when inserted in the ring book, the slot being of a size compared with the size of the ring such that portions of the material of the lifter surrounding the ring may serve as means for maintaining the ring in its intended position in the ring book.

23. A sheet lifter, substantially as defined by claim 21, having transversely disposed slots therein, the slots being so positioned as to permit sheet-attaching rings to extend through the lifter when inserted in the ring book, the slots being of sizes compared with the sizes of the rings such that portions of the material of the lifter surrounding the rings may serve as means for maintaining the rings in their intended positions in the ring book.

24. The combination, substantially as defined by claim 2, having a smooth lining plate inserted between the inner surface of its ring-mounting structure and inner marginal portions of its fly leaves to provide an even, unobstructed surface upon which the fly leaves may move when tilted by the closing of the book covers, said lining plate being of a size such as to extend across and lie within the back of the book without interfering with the closing of the covers, the book and the lining plate having interengaging portions serving as means for holding the latter centrally positioned in the former.

CLARENCE D. TRUSSELL.