

No. 693,767.

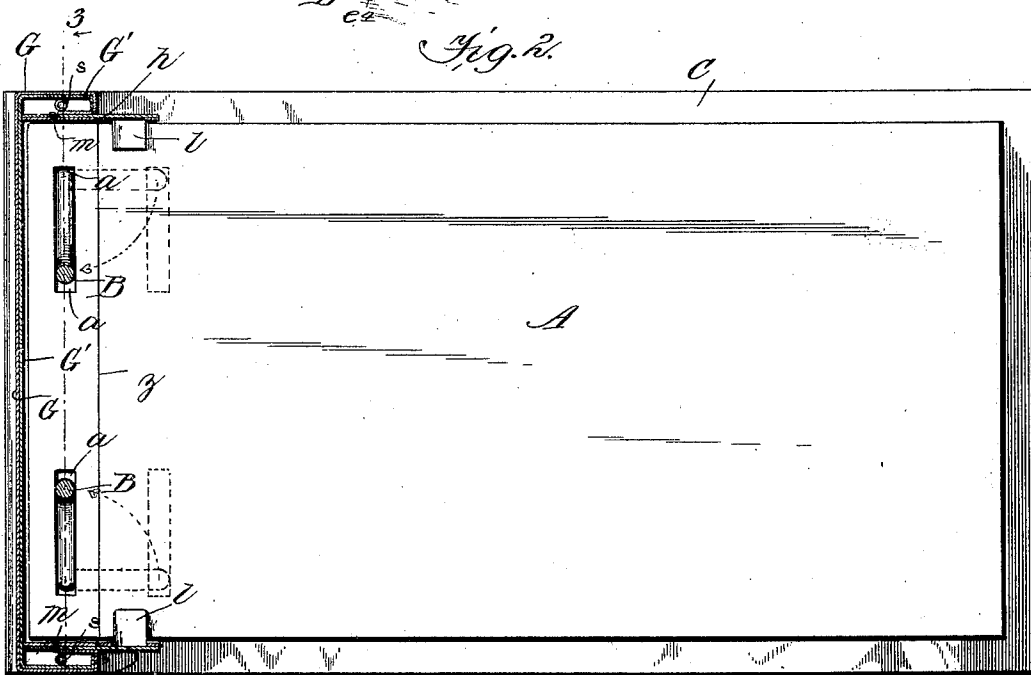
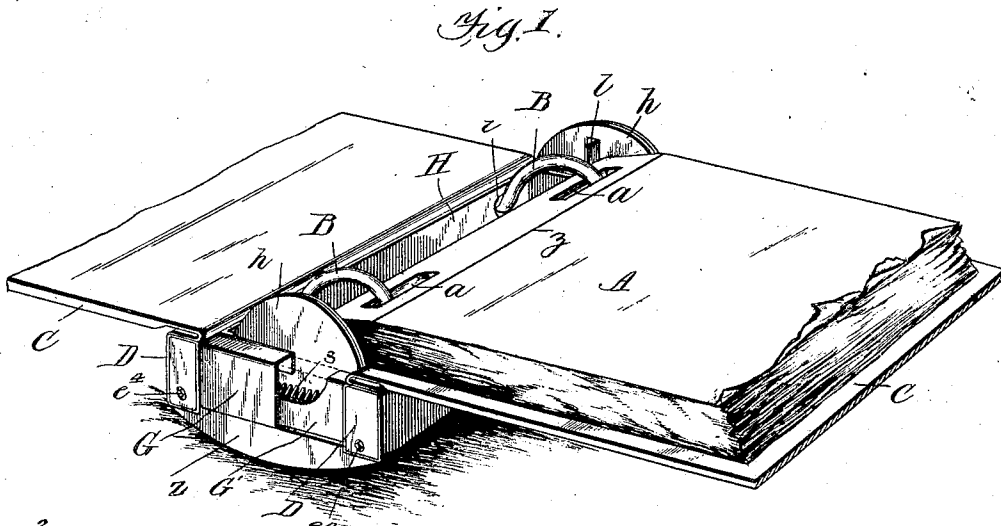
Patented Feb. 18, 1902.

A. V. WELLS.
LOOSE LEAF LEDGER.

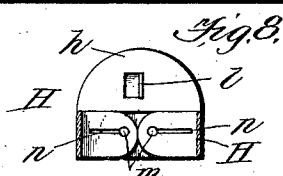
(Application filed Nov. 1, 1901.)

(No Model.)

3 Sheets--Sheet 1.



WITNESSES:
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Edw. W. Byrne



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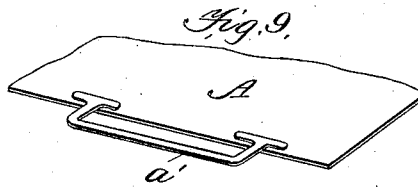
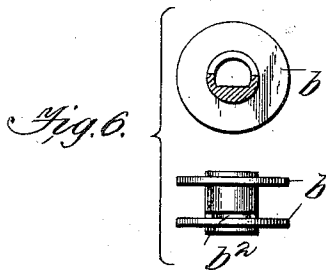
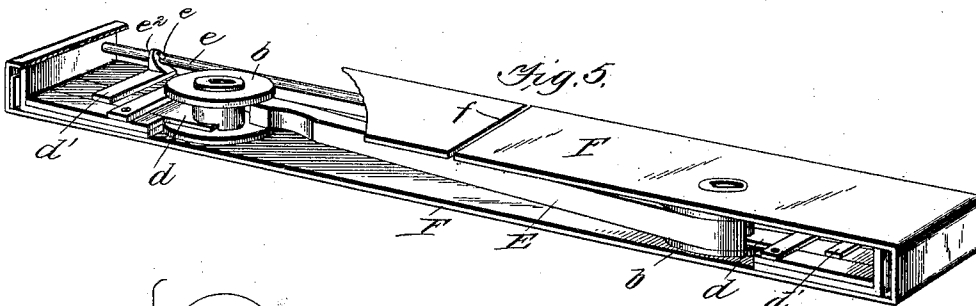
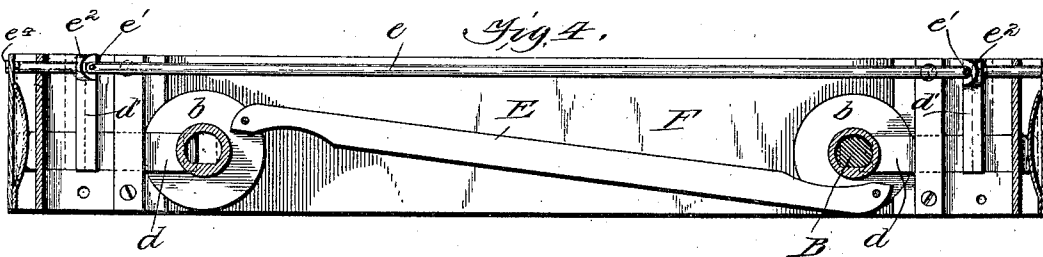
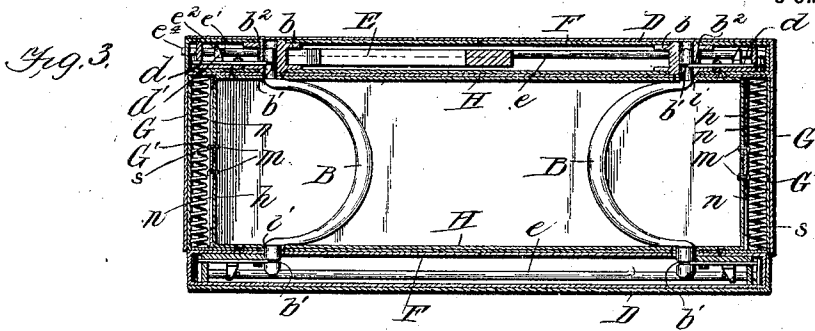
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A. V. WELLS.
LOOSE LEAF LEDGER.

(Application filed Nov. 1, 1901.)

(No Model.)

3 Sheets—Sheet 2.



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No. 693,767.

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LOOSE LEAF LEDGER.

(Application filed Nov. 1, 1901.)

(No Model.)

3 Sheets—Sheet 3.

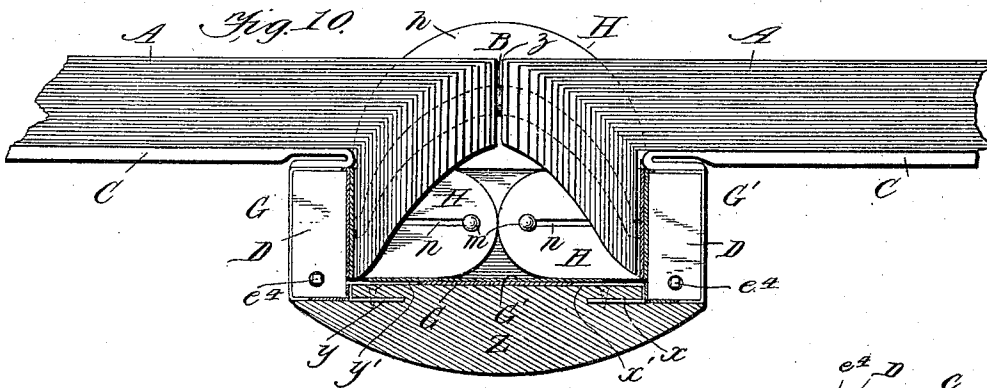


Fig. 11.

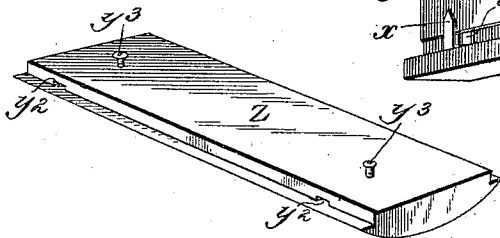


Fig. 12.

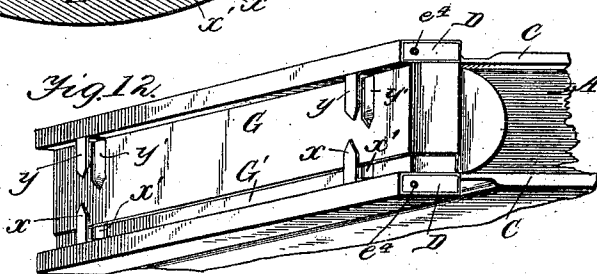


Fig. 13.

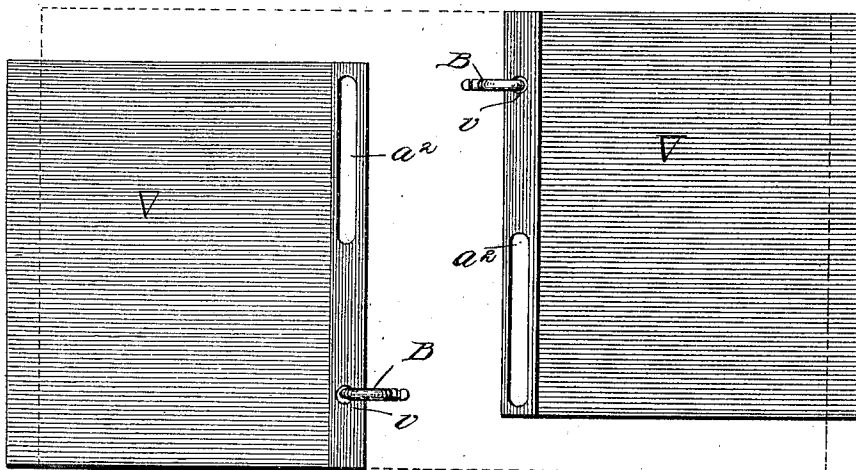
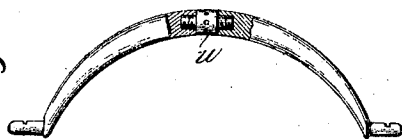


Fig. 14.



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UNITED STATES PATENT OFFICE.

ALMON V. WELLS, OF WASHINGTON, DISTRICT OF COLUMBIA.

LOOSE-LEAF LEDGER.

SPECIFICATION forming part of Letters Patent No. 693,767, dated February 18, 1902.

Application filed November 1, 1901. Serial No. 80,820. (No model.)

To all whom it may concern:

Be it known that I, ALMON V. WELLS, a citizen of the United States, and a resident of the city of Washington, in the District of Columbia, have made certain new and useful Improvements in Loose-Leaf Ledgers, of which the following is a specification.

My invention relates to that class of blank books known as "loose-leaf ledgers," in which any leaf in the book may be removed and replaced by another. This sometimes is a desirable thing to do whenever an account becomes "dead" or a sheet torn or disfigured with a blot. My invention is an improvement in this class of devices which is applicable to all kinds of blank books and which also is so constructed as to permit the leaves of the book when opened to lie flat in convenient position for the accountant or bookkeeper instead of bending with an inconvenient curve in the middle of the book.

It consists in the peculiar construction and arrangement of the parts of the book, which I will now proceed to fully describe with reference to the drawings, in which—

Figure 1 is a perspective view of the book-frame open and with only a part of the leaves in place. Fig. 2 is a section through the middle of the back of the book, taken parallel to the leaves. Fig. 3 is a transverse section through the back of the book on line 33 of Fig. 2. Figs. 4, 5, 6, 7, and 8 are details. Fig. 9 is a modification of one of the leaf attachments. Fig. 10 is a cross-section through the back of the book with all the leaves in place. Fig. 11 is a perspective view of the rest or curved rocker-strip at the back of the book. Fig. 12 is a perspective view of the back of the book, showing where and how the rocker-strip is applied. Fig. 13 is a face view of two specially tough blank thumb-leaves for sustaining the strain in opening the book, and Fig. 14 is a detail view of an adjustable bail as constructed for increasing the size of the book.

In the drawings, A represents the loose leaves of the ledger, which at their fastening edges are formed with two elongated slots *a*, running up and down the page. These slots form retaining eyelets or keepers for two transversely-arranged swinging bails B B,

which at their ends are journaled in bearings in the inner edges D D of the book-covers C C. These leaves may be secured to or removed from the bails by passing the slots *a* over the ends of the bails when one end is freed, as hereinafter described, and these bails swing in unison from a position where they project upwardly at right angles to the back when the book is open, as in Figs. 1 and 10, to a position parallel to and flat down against the back, as in Figs. 2 and 3, when the book is closed. The bails swing automatically from the pull and thrust of the leaves in opening and closing the book, and it is the uplift of the bails in opening and the bend or crease in the leaves along the line *z*, Figs. 1 and 10, that enables the sheets to lie flat when open without the curve or inward bend ordinarily found in a bound book. The sheets of the book are thus enabled when open to lie in a flat plane, greatly promoting the convenience of entries by the accountant. The object in making the slots *a* elongated up and down the page is to permit the traverse of the bail therein as it swings through an arc of ninety degrees, as indicated by dotted lines in Fig. 2. In closing the book the bails move toward each other, and to promote smoothness of action and avoid unequal strain on the leaves the two bails are geared to operate in unison. This is best shown in Figs. 3 to 6, in which *b b* are two double-flanged spools or sleeves which have holes through them that receive the ends of the bails, said ends of the bails being made with one flat side (shown on the right of Fig. 4 and also in Fig. 7) or of angular cross-section, so as to rotate rigidly with the spools and still be separable therefrom.

E is a connecting-bar, which at one end is hinged to a pin between the flanges of one spool *b* and at the other end is similarly hinged to a pin between the flanges of the other spool *b*, with this difference, that the opposite ends of the said bar E are hinged to the opposite sides of the two spools, so that the spools are coupled for a reverse motion, which is necessary in order to allow the bails to be arranged near the top and bottom of the book and fold toward each other, thus permitting the bails to be properly placed in relation to the leaves

and also neutralizing the thrust of the bails on the leaves. The spools *b* turn at their ends freely in bearings in a rectangular metal frame *F*, which incloses the bar *E* and also certain locking devices for detachably securing the ends of the bails in the spools, so that they will not accidentally come out. For this purpose each end of each bail is provided with a transverse slot or bolt-seat *b'*, Figs. 3 and 7, and each spool *b* has on its side a corresponding slot *b''*, Fig. 6, immediately opposite the bolt-seat *b'* in the bail end when the latter is in the spool. When these slots *b'* *b''* are thus in coincidence, a bolt *d* in the frame *F* at each end is arranged to be projected into said coinciding slots, as seen at the top of Fig. 3 and the right hand of Fig. 4, to lock the bail in the spool, but still allow the latter to turn in the slot *b''*, Fig. 6, which slot extends far enough around the spool to permit this. These bolts are formed on sliding plates *d'*, arranged in guides on the frame *F*, and are projected or withdrawn by a long rod *e*, which extends the full length of the frame *F* parallel thereto and has at each end a pin *e'*, arranged to bear against the cam-face of a sleeve *e''* on the bolt-plate *d'*, so that the rotation of the rod *e* will shoot or withdraw the bolts. This rod *e* is formed with a square end *e''* to receive a key, and this end is accessible to receive the key, as seen in Fig. 1, through a hole in the end of each pocket-frame *D* nearest the bookkeeper.

The frame *F* is detachable from and slides within a pocket in the inner edges *D* of the book-covers, and one side of the frame *F* is cut in two transversely, as seen at *f*, Fig. 5, and is sprung out slightly, so that the middle of the frame *F* expands as a spring and slides snugly with some friction in the pockets of the cover edges *D*. This severance at *f* of the frame-bar also permits the sides of the frame to be sprung apart far enough to remove the spools *b* from between the same and to place them in position again.

The pockets of the side edges *D* of the cover are lined with metal, and the flexible leather portion of the cover connects therewith, so as to form the hinging or bending line of the covers. The pockets in the edges *D* have holes in their inner sides to permit the protrusion therethrough of the ends of the bails in connecting with the locking devices within the pockets.

Both the edges *D D* of the book-cover are equipped exactly alike except that the one at the last page of the book (bottom of Fig. 3) has no spools *b* and bar *E* for connecting the bails, it being obviously unnecessary to have more than one set of such devices for giving unison of movement and a reversed action to the bails.

The back of the book is composed of two metal sections *G G'*, (see Figs. 1 and 12,) secured, respectively, to the inner faces of the parts *D D* of the cover, and these sections

have telescoping end portions that slide one over the other. The back of the book is provided with a detachable rocker-section *Z*, Fig. 11, which forms the bearing edge or rest and gives the necessary elevation to the middle part of the book, no matter at what point it may be opened. This rocker-section is preferably made of wood and has at each edge a rabbet which laps over the back edges of the pocket-frames *D*, as seen in Fig. 10. This rocker-strip is adjustably held to the telescoping sections *G G'* and the pocket-frames *D* as follows, reference being had to Figs. 11 and 12: Out of the sheet metal of the telescopic section *G* there are punched two metal tongues *y y'*, these tongues being formed by the material punched out of the slots *y' y'*, which tongues are bent twice, so as to offset them from the back of *G*. Similar tongues *x x* are punched from slots *x' x'* of the section *G'*. Corresponding channelways *y''* are formed transversely in the wooden rocker-back *Z* to receive these tongues *y* and *x*, so that when the two halves of the book-back are slipped together telescopically the tongues *x* and *y* enter the slots *y''* and hold the rocker-back in place. Set-screws *y'''* are provided to fix the tongues in the channelways, and this permits of the centralizing of the rocker on the back when the book is to be increased in size.

To hold the leaves of the book even at the top and bottom of the book, a rectangular inclosing frame *H*, Figs. 1, 2, 3, and 8, of sheet metal, incloses and houses the bail and the inner edges of the leaves and fits at the ends closely against the leaves. Separate wings *h* at the ends are slidably connected to the ends of the frame *H* and have inturned lips *l*, Figs. 1 and 2, that penetrate between the leaves of the book at the top and bottom in the exact middle of the book, so as to hold the wings *h* in the middle of the book, and as the wings are by means of slots *n* and pins *m*, Fig. 8, slidably connected to the ends of the frame *H* it will be obvious that an increased number of leaves may be put in the book at any time and the wings *h* be still adjusted to the middle of the book by simply placing the lips *l* into the middle of the book as thus increased in thickness by a fresh accession of leaves.

When leaves are to be removed from the book or additional ones inserted, one set of ends of the bails are unlocked by the key, the telescopic sections of the book separated, and one set of ends of the bails being thus freed any number of leaves may be slipped off over the ends of the bails and fresh ones put on. To permit this, the leaf-evening frame *H* is made in two parts and may be swung over around its pins connecting with the end wings, so as to be out of the way of the ends of the bail. Such frame *H* when the book is closed is held in place by holes *i i*, Figs. 1 and 3, which are slipped over the ends of the bails. When the two covers of the book, with their

telescopic back-sections, are released by the locking devices, the two telescopic sections are at once forced apart by springs *s*, Figs. 1 and 3. This facilitates the opening of the back-sections by causing them to separate instantly as soon as unlocked.

As the bails of my book are pulled out by the leaves in opening I provide means for relieving such strain on the leaves by two thumb sheets or pages of oil-board or other thicker and tougher material than paper. These are shown at *V V* in Fig. 13 and are inserted about the middle of the book. They are wider than the book-leaves, which latter are shown in dotted lines behind the sheet *V*, but are somewhat shorter. They do not have two slots for connection with the bail, but simply a hole *v* at one end and a slot *a*² at the other end of twice the length of *a* in Fig. 1. The right-hand sheet *V* has a downward sliding movement in closing the book and the left-hand one an upward sliding movement, because they are pivotally anchored to the bails at *v*, and consequently the slot *a*², which embraces the bail at the other end, must be twice as long as in Fig. 1. These sheets are made wider than the book-leaves, so as to be grasped at the edges with the thumbs in opening the book, and are made shorter than the book-leaves, so that they will disappear within the pages and will never project beyond the top and bottom margin of the leaves in any position.

In modifying my invention I may, as in Fig. 9, dispense with the cutting of the slots *a* in the leaves and apply to the edge of each leaf an elongated loop or keeper *a'*, which shall receive the bail, the important and distinctive feature of my invention being the connection of the leaves to movable bails which by the opening of the book throws the bails out and projects the anchorage of the inner leaves of the book outwardly to make the inner parts of the leaves lie flat. In Fig. 14 I also show a modification of the bail *B*, in which it is made in two parts connected extensively by a right and left screw-threaded section *u*, which gives elongation to the bail for increasing the size of the book.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A book having leaves with elongated keepers along their inner edges, combined with bails extended through said keepers and swinging outwardly when the book is opened.

2. A book having leaves with vertical slots along their edges, combined with bails extended through said slots and swinging outwardly when the book is opened.

3. A book having leaves with elongated keepers along their inner edges, combined with hinged bails extended through said keepers, and devices for locking or releasing the ends of the bails.

4. A book having leaves with elongated

keepers along their inner edges, combined with bails extended through said keepers, and coupling devices for connecting the bails for an equal and reversed movement.

5. A book having leaves with elongated keepers along their inner edges, combined with bails securing said leaves and journaled in the back of the book, wings at the top and bottom of the leaves, and a frame for the same locked in place by the protrusion of the bails therethrough.

6. The combination with a book having detachable leaves, with elongated keepers along their inner edges and hinged bails working therein, of a leaf-evener arranged at the end of the leaves.

7. The combination with a book having detachable leaves; of a leaf-evener arranged at the end of the leaves and having a lip adapted to be caught between the leaves of the book at the middle of the thickness of the same.

8. A book having detachable leaves, and a bail securing the same arranged transversely to the leaves, swiveling spools connected to the bails, a frame receiving the spools, and pockets for receiving said frames located in the inner edge of the covers of the book.

9. A book having detachable leaves, and a bail securing the same arranged transversely to the leaves, swiveling spools detachably connected to the bails, a frame receiving the spools, locking-bolts for locking the bails in the spools, and a longitudinally-arranged rod with key end connected to and operating the locking-bolts.

10. A book having detachable leaves, and transverse bails securing the same, swiveling spools detachably connected to the bails, a longitudinally-arranged frame receiving said spools and having locking-bolts and a parallel operating-rod for the same, said frame being bisected transversely on one side to give it spring action, and the book-covers having pockets along their inner edges adapted to receive the expansible frame.

11. A loose-leaf book, comprising a swinging bail, and sheets anchored thereto and having a longitudinal crease or hinging-line in each sheet outside of said anchorage-point substantially as described.

12. A loose-leaf book having its back portion made of two telescopic metal sections, each having inwardly-pointing transverse tongues, and a rocker-back having transverse channels to receive the tongues, and set-screws for adjustably locking the parts together substantially as described.

13. In a book of the kind described, the combination with the swinging anchorage-bails; of one or more thumb-sheets of tenacious material made wider than the leaves of the book and arranged about the middle of the book to bear the stress of strain in opening the book substantially as described.

14. In a book of the kind described, the combination with the swinging anchorage-

bails; of one or more thumb-sheets of tenacious material made wider and shorter than the book-page and having one end pivotally anchored to one bail and the other end slotted and embracing the other bail substantially as described.

15. In a book of the kind described the

swinging anchorage-bail made extensible in its length, and combined with the adjustable book-sections substantially as described.

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Witnesses:

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