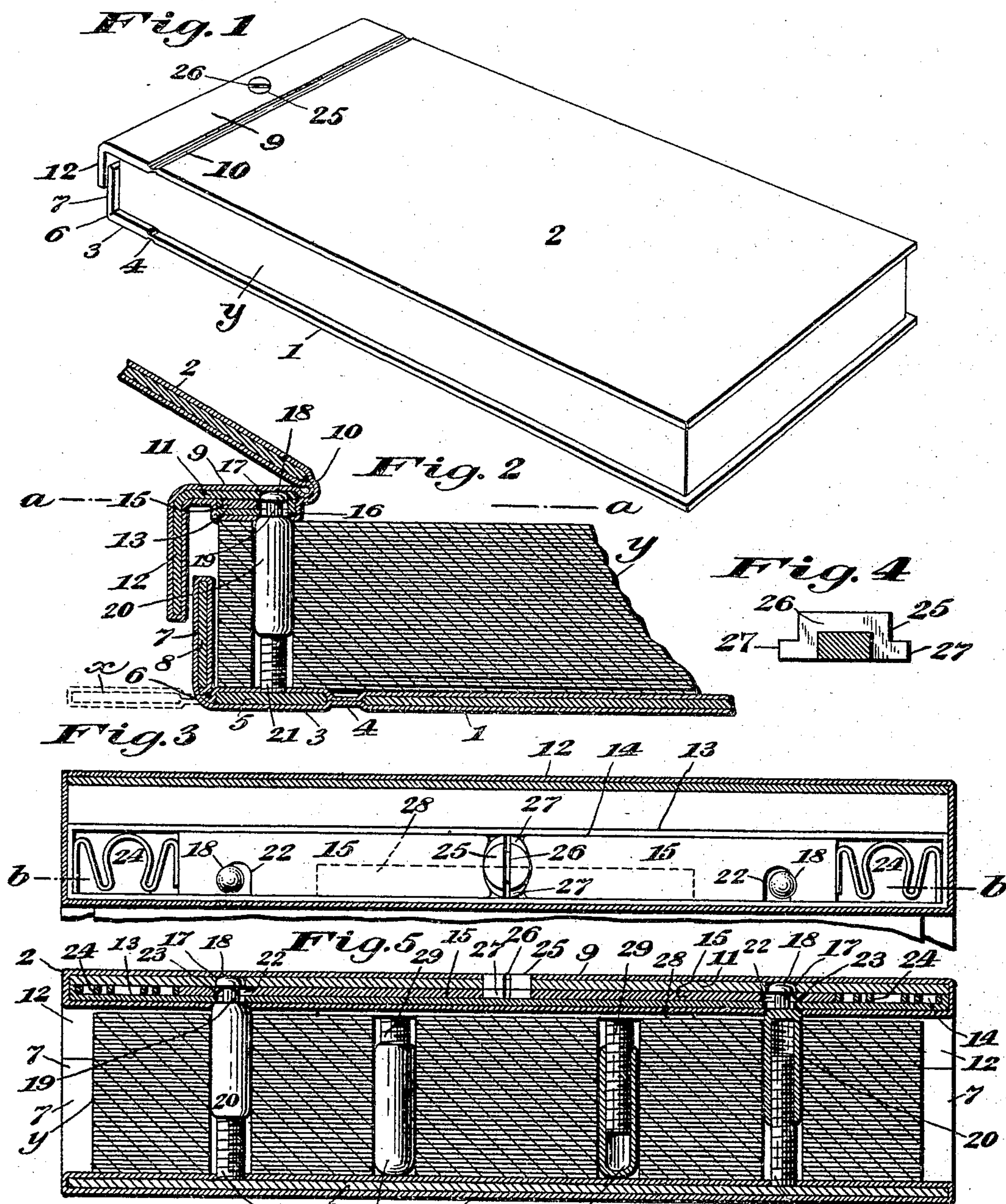


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C. C. MALTBY.  
LOOSE LEAF BINDER.  
APPLICATION FILED DEC. 7, 1903.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## LOOSE-LEAF BINDER.

SPECIFICATION forming part of Letters Patent No. 767,159, dated August 9, 1904.

Application filed December 7, 1903. Serial No. 184,058. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES C. MALTBY, a citizen of the United States of America, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

This invention relates to certain improvements in binders such as are especially designed for holding loose leaves or sheets in book form while permitting ready withdrawal of such loose leaves or sheets from the binder either singly or all together; and the object of the invention is to provide a device of this general character of a simple and inexpensive nature and of a strong, compact, and durable construction by means of which the loose leaves or sheets are capable of being securely locked and held in position, but are at the same time capable of being conveniently and quickly detached from the binder when it is desired so to do.

The invention consists in certain novel features of the construction, combination, and arrangement of the several parts of the improved binder whereby certain important advantages are attained and the device is rendered simpler, cheaper, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a perspective view showing a binder constructed according to my invention. Fig. 2 is an enlarged fragmentary section taken transversely through the devices at the back or binding edge of the improved binder and showing certain features to be hereinafter referred to. Fig. 3 is a partial section taken through the devices at the back or binding edge of the improved binder, the plane of the section being indicated by the line *a a* in Fig. 2. Fig. 4 is an enlarged sectional detail view showing the eccentric bolt-operating device, this part being shown detached. Fig. 5 is a sectional view taken through the devices at the bind-

ing edges of the loose leaves or sheets, the plane of the section being indicated by the line *b b* in Fig. 3.

As seen in the views, the improved binder is constructed with backs or covers 1 and 2, respectively, the cover 1 being lowermost as the device is herein shown and being provided with a thickened portion 3, extended along it adjacent to the back of the binder and adapted to rest beneath the binding edges of the loose leaves or sheets, (indicated at *y* on the drawings,) and said thickened portion 3 is united with the body or main portion of the cover 1 by a flexible connection 4, formed by the leather or other coating of the back and cover 1 and is formed of a metal strip or piece 5, inserted within the two thicknesses of material of which the connection 4 is formed. Along the back or rear edge of the thickened portion or reinforce 3 the leather or other coating is extended to produce a flexible or hinge connection 6, whereby a flap or strip 7 is united to the said reinforce, the said flap or strip 7 being formed, by preference, of an elongated strip or piece of binder's board held within said leather or other coating, as indicated at 8 on the drawings. The flap or strip 7 is by means of said hinged connection 6 adapted to be bent upward, so as to stand at right angles to the cover 1, and in this position the flap or strip 7 forms a part or section of the back of the binder, and the hinge connection 6 also permits the flap or strip to be flattened out horizontally, as indicated at *x* in dotted lines in Fig. 2, whereupon it will lie in the same plane as the cover 1 and will not interfere in any way with the ready and convenient removal of the loose sheets or leaves from the binder. Adjacent to the back of the binder the cover 2, which is uppermost, as seen in the drawings, is also provided with a thickened portion or reinforce 9, adapted to overlies the binding edges of the loose sheets or leaves *y*, and this thickened portion or reinforce is also united with the main or body portion of this cover 1 by means of a flexible or hinge connection 10, which may also be conveniently formed of the leather or other coating of the cover 1. The reinforce 9 is formed of



a metal plate or piece 11, inserted within the leather or other coating of cover 1 back of the hinge connection, and one edge portion of said metal plate 11 is bent over at right angles, as seen at 12, the leather or other coating being also extended around this bent or angular part of the plate, as seen on the drawings, and the location and arrangement of the parts being such that said bent or angular portion also forms a part or section of the back of the binder and is adapted to extend part way across the back thereof outside of the flap or strip 7, above described as forming another part or section of said back and connected flexibly by the joint 6 with the cover 1.

The dimensions of the flap or strip 7 and of the bent or angular portion 12 of the reinforce 9 of cover 2 are such that said parts or sections of the back of the binder are caused to overlap each other, the rigid angular portion 12 of plate 11 being outermost, so that when the covers are in relation and the sheets or leaves are locked in place between them the hinged flap 7 will be maintained by engagement on angular part 12 in a position at right angles to the cover 1 and may not be flattened down in line with said cover. By means of these parts the back of the binder is entirely closed and covered over, so that the binding edge of the leaves or sheets is not at all visible.

The thickened portion or reinforce 9 of the cover 2 also comprises a metal strip or plate 13, arranged beneath the horizontal part of plate 11 and held thereto between the thicknesses of the leather or other coating of the cover in any desired way, and said metal strip or plate 13 is hollowed out or recessed upon its upper surface, so as to form therein a chamber 14, extended along the binding edge and covered over upon its outer side by means of plate 11. Within the chamber 14 thus produced are arranged to play endwise two similar but reversely-arranged bolts 15 15, said bolts being each formed of a metal strip extended lengthwise of the chamber 14 and having means for engagement with parts to be hereinafter described and which are extended from the plate 5, embedded in the reinforce 3 of cover 1, and passed through openings in the leaves or sheets  $\gamma$  and have extremities adapted to be engaged and locked by the said engaging means of bolts 15 15. These leaf or sheet holding parts are in the form of pins or projections comprising screw-threaded portions 21, extended upward from the metal plate 5 at the back part of cover 1, and caps or end portions 20, made in tubular form with closed upper ends and with interior screw-threads which are engaged with the threads of the portions 21, as seen in the drawings, this arrangement permitting a certain degree of adjustment of the leaf-holding parts in the directions of their lengths, so that the same are adapted to accommodate a greater or less

number or thickness of the leaves or sheets  $\gamma$ , interposed between the covers 1 and 2 of the binder.

The upper extremities of the caps or end pieces 20 are provided with rounded heads or enlargements 18, beneath which are produced annular grooves 19, forming shoulders surrounding the caps or end pieces beneath said heads or enlargements, and the said heads or enlargements are made in slightly less diameters than the lower tubular parts of the caps and are adapted to pass upward into and through circular openings or perforations 16 and 17, formed, respectively, in the metal plates 13 and 11 of the reinforce of cover 2, said openings or perforations 16 and 17 being alined with each other and being of diameters to snugly receive the rounded heads or enlargements 18 of the caps or end pieces 20 of the leaf or sheet holding means.

Since the main parts of the caps 20 are larger in diameter than the heads or enlargements 18, it will be seen that when the heads are inserted in openings 16 and 17 the upper ends of the enlarged parts of the caps 20 below grooves 19 will rest on the under side of reinforce 9, so as to properly position the parts for engagement with the bolts 15 15 in the chamber 14, as will be hereinafter explained.

There are two of the leaf or sheet holding parts comprising portions 21 and 20, one of said parts being adapted to be engaged by each of the bolts 15 15, and to receive the headed upper ends of the said two parts the plates 13 and 11 will of course be provided with two sets of alined openings or perforations 16 and 17. The leaf or sheet holding parts are located adjacent to the opposite ends of the reinforces and are adapted to be passed through openings previously formed in the leaves or sheets  $\gamma$ , and for engagement with the said leaf or sheet holding parts each bolt 15 is provided near its outer end with a notch or opening 22 of a size adapted to permit the passage of the head or enlargement 18 of the corresponding leaf-holding part through it. At the ends of the chamber 14 are arranged metal springs 24, bearing on the outer ends of the respective bolts 15 15 and adapted to press said bolts inward toward each other in such a way as to engage the metal of the bolt at the outer edge of the opening 22 therein beneath the shoulder formed on the cap 20 below its head 18 by means of the annular groove 19, above referred to.

The metal at the outer edge of each opening 22, which is, as above explained, adapted to be engaged under the shoulder below the head 18 of the corresponding leaf-holding part, is made beveled, as seen at 23 in Fig. 5, upon its under surface, and the bevels of the respective bolts are adapted to be engaged by the rounded upper ends or heads 18 of the leaf-holding parts in such a way that when



the said heads 18 are inserted through openings 16 of plate 13 they will engage the said beveled surfaces and tend to move the bolts 15 15 outwardly in chamber 14, so that 5 springs 24 24 are placed under tension. In this way the heads are permitted to pass through openings 22 into the openings 17 in plate 11, and when the heads are in openings 17 springs 24 will again act to press the 10 bolts 15 endwise toward each other to engage the metal at the outer edges of openings 22 beneath the shoulders below heads 18, so as to effectively lock the parts in position to hold the leaves or sheets  $y$ .

15 In order to permit of reversely operating the bolts 15 15, so that the leaf-holding parts may be released and the covers separated when it is desired to remove and replace the leaves or sheets  $y$ , I provide in chamber 14 between 20 the bolts an eccentric device formed of an elongated body portion 27, engaged between the adjacent ends of the bolts 15 15 and having a circular head 25 extended upward from it and passed through an opening in the upper or outer surface of the reinforce 9 of 25 cover 2, so as to be exposed on the outer face thereof, as seen in Figs. 1 and 5. The head 25 is formed with a kerf or cut 26 similar to the kerf of a screw-head and adapted to receive a key by means of which it may be conveniently turned. The sides of the kerf 26 30 may be made deeper at the opposite sides of the head 25 to receive a key the end of which is suitably formed to fit this peculiar formation of the kerf, which is best seen in Fig. 4.

35 When the head 25 is turned by means of the key inserted in kerf 26, it will be seen that the eccentric body portion 27 is also turned and its extended portions are caused to bear 40 upon the bolts 15 and to press the said bolts in opposite directions, whereby the openings 22 are caused to correspond or come in alignment with openings 17 and 16 to permit withdrawal of the heads 18 from said openings, so 45 that the covers may be separated and the leaves or sheets  $y$  may be removed and replaced at will.

In connection with the leaf or sheet holding means carried on cover 1, as above described, 50 I prefer to employ, especially for binders of considerable width, an intermediate or auxiliary leaf or sheet holding means, which is illustrated in detail in Fig. 5 and comprises a metal plate 28 of elongated form, separate 55 from but arranged beneath the reinforce 9 of cover 2 and formed with leaf-holding parts somewhat similar to the parts above described and arranged between the first-mentioned parts and also passed through openings previously formed in the leaves or sheets to receive them. These auxiliary intermediate 60 leaf-holding parts comprise threaded shanks 29, extended down from the plate or strip 28 and having their lower ends engaged by interiorly-screw-threaded caps or end pieces 30,

the extremities of which are made rounded, so as to freely pass through the perforations in sheets or leaves  $y$  without catching therein. The caps 30 may be adjusted lengthwise on 70 shanks 29 to accommodate a greater or less thickness of the leaves or sheets  $y$ .

From the above description it will be seen that the improved binder constructed according to my invention is of an extremely simple and inexpensive nature and is especially well 75 adapted for use, since it is capable of ready and convenient adjustment of its leaf-holding parts to accommodate greater or less thicknesses of leaves or sheets to be held between its covers. 80

The improved locking means herein shown and forming part of the invention also permits of readily and quickly detaching the covers when it is desired to remove and replace or 85 transpose the leaves or sheets and is of such a nature as to automatically lock the parts together when they are assembled in proper position for use without requiring the insertion of a key or the manual operation of any part for this purpose. 90

It will also be obvious that the provision of the flexibly-connected or hinged flap 7 upon the lower cover 1 permits ready and convenient access to all of the sheets when the covers are separated, being capable of being bent 95 down in line with the body of the cover 1, as seen in dotted lines at  $x$  in Fig. 2, at such times, and when the device is in use, with the covers locked together, this hinged flap 7 is held in position beneath the inflexible flap 11 100 of the upper cover 2, so that it will effectively cover the back of the binder and hide the binding edges of the leaves or sheets.

It will also be obvious from the above description that the device is capable of considerable modification without material departure from the principles and spirit of the invention, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the several parts 110 of the device herein set forth in carrying out my invention in practice.

Having thus described my invention, I claim—

1. In a binder, the combination of covers, 115 leaf-holding means between the covers, means for holding the covers in position with their binding edges on opposite sides of the binding edges of interposed leaves or sheets, a back comprising a flap flexibly connected with one 120 cover at the binding edge thereof and means extended across the back of the device and adapted for engagement with said flap to hold the same in position across the back of the device when the covers are in relation. 125

2. In a binder, the combination of covers, leaf-holding means between the covers, means for holding the covers in position with their binding edges on opposite sides of the binding edges of interposed leaves or sheets, a back 130



comprising a flap flexibly connected with one cover at the binding edge thereof and capable of movement to extend it in line with and at right angles to said cover and means carried 5 by the other cover and extended across the back of the device and adapted, when the covers are in relation, to engage said flexibly-connected flap to hold the same in position at right angles to the cover to which it is secured.

10 3. In a binder, the combination of covers, leaf-holding means between the covers, means for holding the covers in position with their binding edges on opposite sides of the binding edges of interposed leaves or sheets, a flap 15 flexibly connected with one cover at the binding edge thereof and capable of movement to extend it in line with and at right angles to said cover and a rigid portion extended at right angles from the binding edge of the other 20 cover and adapted, when the covers are in relation, to extend outside of and engage said flexibly-connected flap of the first-mentioned cover and hold the same against movement.

4. In a binder, the combination of covers, 25 leaf-holding means carried on one cover, means for holding the covers in position with their binding edges on opposite sides of the binding edges of interposed leaves or sheets, a back comprising a flap flexibly connected with the 30 cover whereon the leaf-holding means are carried and capable of movement to extend it in line with and at right angles to said cover and means extended across the back and engaged with the flexibly-connected flap for 35 holding the same in position across the back of the device when the covers are in relation.

5. In a binder, the combination of covers, leaf-holding means carried by one cover, means for holding the covers in position with their 40 binding edges on opposite sides of the binding edges of interposed leaves or sheets, a flap flexibly connected with the cover whereon the leaf-holding means are carried and capable of movement to extend it in line with and at 45 right angles to said cover and a rigid portion extended at right angles from the binding edge of the other cover and adapted, when the covers are in relation, to extend outside of and engage said flexibly-connected flap of the 50 first-mentioned cover and hold the same against movement.

6. In a binder, the combination of covers

having reinforces to rest at opposite sides of interposed sheets, leaf-holding parts on the reinforce of one cover and adapted to pass 55 through openings in the interposed sheets, the reinforce of the other cover being formed of metal plates between which is a chamber, said metal plates being formed with openings to receive the leaf-holding parts, aligned bolts in 60 the chamber and adapted for engagement, when moved in one direction, with the leaf-holding parts when engaged in the openings of the plates to lock the covers in relation, springs at the outer ends of the bolts to move 65 the same into locking position and an eccentric device interposed between adjacent ends of the bolts and adapted, when turned, to move the bolts away from each other to disengage them from said leaf-holding parts. 70

7. In a binder, the combination of covers having reinforces to rest at opposite sides of interposed sheets, leaf-holding parts on the reinforce of one cover and adapted to pass 75 through openings in the interposed sheets, each leaf-holding part comprising a screw-threaded portion held to the reinforce of said cover and a cap screwing on the end of the screw-threaded portion and provided with a headed end the under side of which forms a 80 shoulder, and devices carried on the reinforce of the other cover and adapted for engagement with the shoulders of said leaf-holding parts to hold the covers in relation.

8. In a binder, the combination of covers 85 having reinforces to rest at the sides of interposed sheets, leaf-holding parts on the reinforce of one cover and adapted to pass through openings in such interposed sheets, locking means on the reinforce of the other cover and 90 engageable with said leaf-holding parts to hold the covers in relation, a strip loosely held between the covers and independent of each cover and leaf-holding parts on said strip and adapted to pass through openings in the in- 95 terposed sheets and each formed of a screw-threaded shank extended from said strip and a cap screwed on said shank.

Signed at Dallas, Texas, this 1st day of December, 1903.

CHARLES C. MALTBY.

Witnesses:

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