April 27, 1943. W. A. PETERS 2,317,345

BINDER

Filed Sept. 23, 1941 2 Sheets-Sheet 1

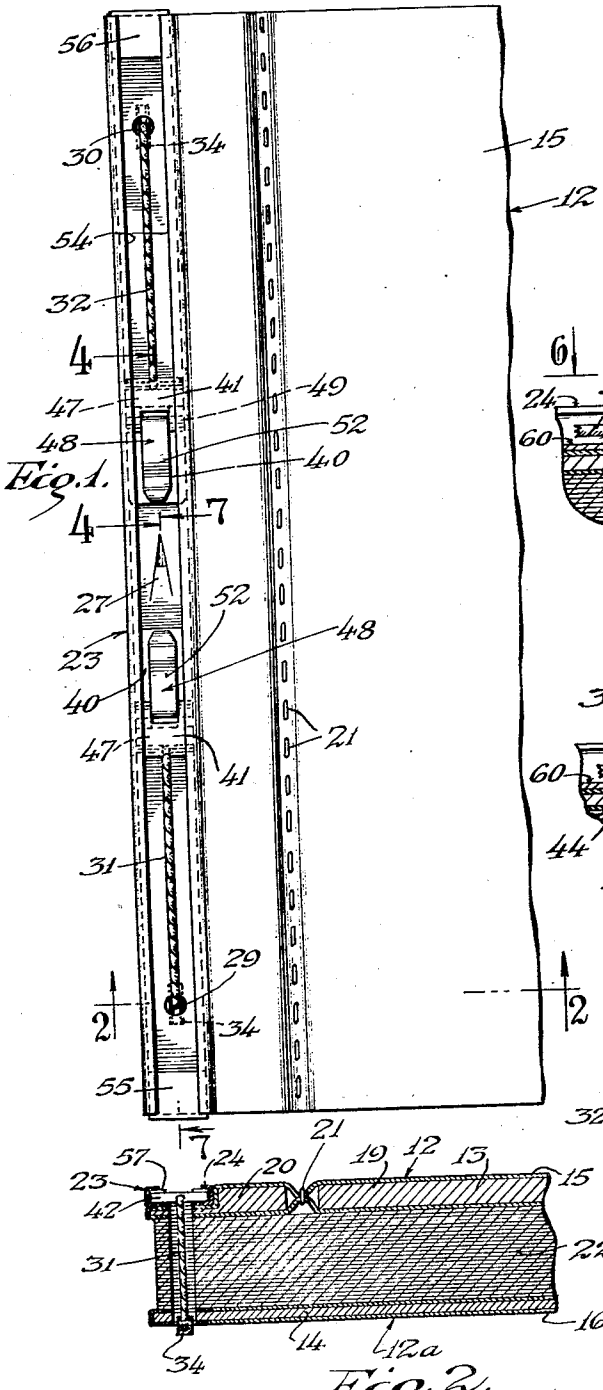


Fig. 1.

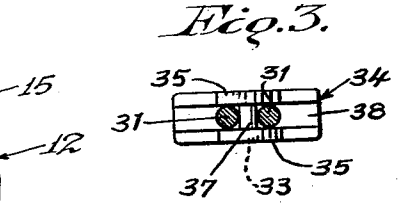


Fig. 3.

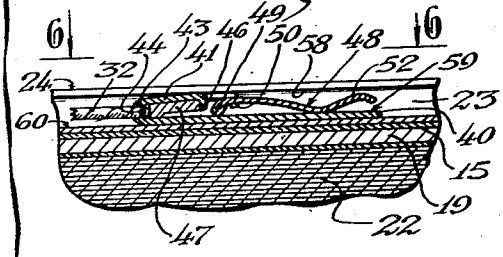


Fig. 4.

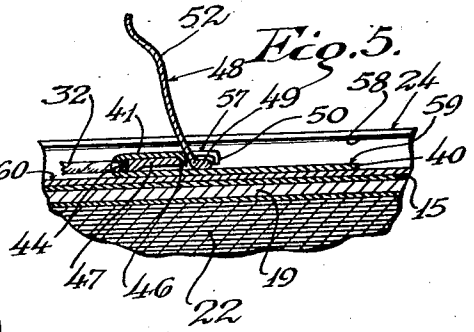


Fig. 5.

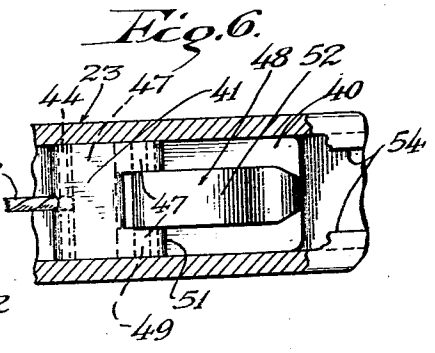


Fig. 6.

Fig. 2.

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BINDER

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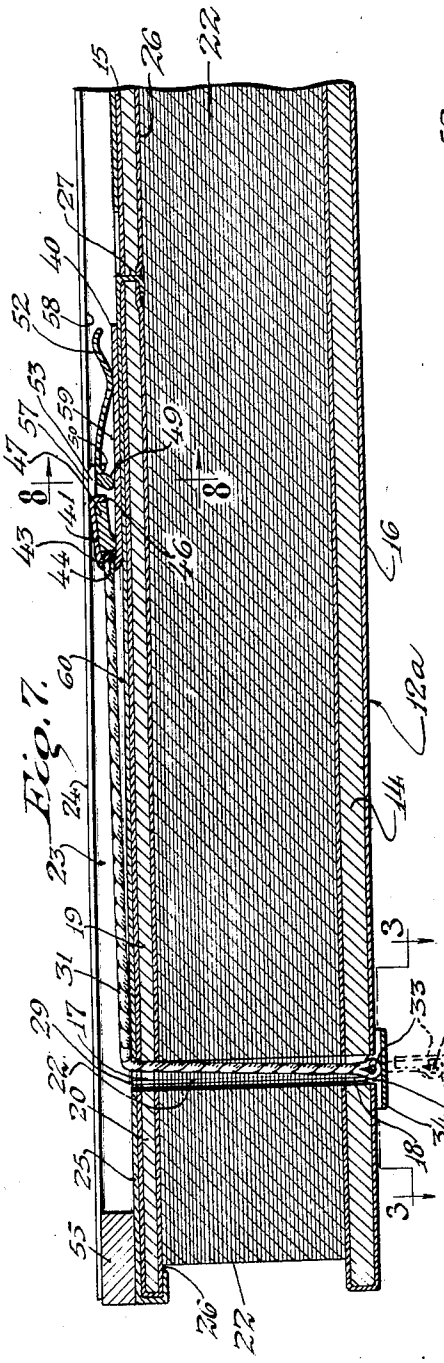


Fig. 7.

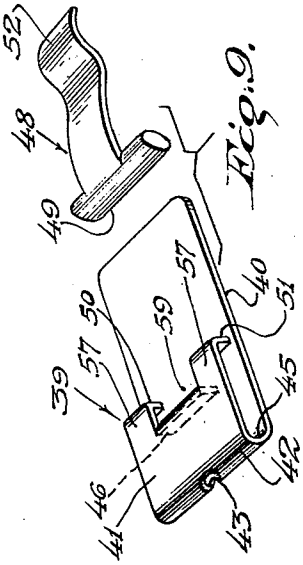


Fig. 9.

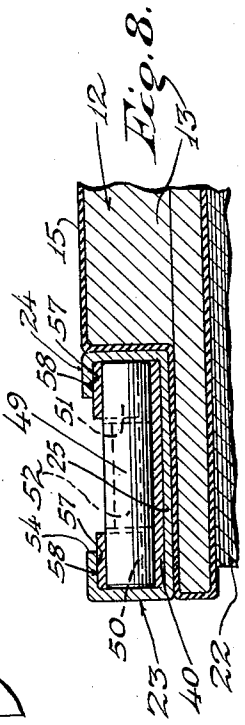


Fig. 8.

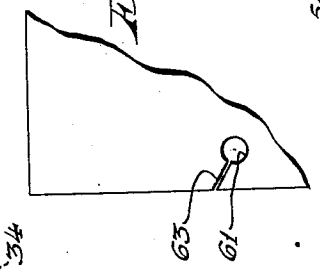


Fig. 11.

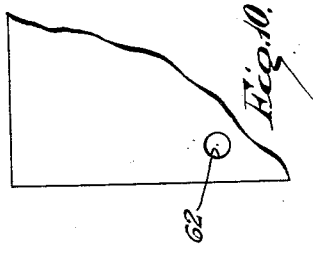


Fig. 10.

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Patented Apr. 27, 1943

2,317,345

UNITED STATES PATENT OFFICE

2,317,345

BINDER

William A. Peters, Chicago, Ill., assignor of one-half to William E. O'Connor, Chicago, Ill.

Application September 23, 1941, Serial No. 411,983

12 Claims. (Cl. 129—41)

This invention relates to a new and improved binder usually referred to as a loose leaf binder, and has, for one of its principal objects, the provision of a pair of flexible or pliable members which have their one end removably connected to the bottom cover of the binder and their other end adjustably associated with the top cover of the binder, and also the provision of simple and positive means for locking said flexible members in their adjusted position relative to said top cover.

Still another object of this invention is to provide a loose leaf binder which will enable one to quickly insert additional leaves into the binder and securely bind the same in alignment with the other sheets already in the binder.

Another object of this invention is the provision of simple and positive adjustable locking means for adjusting the covers of the binder relative to each other to permit the insertion or withdrawal of an indefinite number of loose leaves between the covers and for securely binding the covers and loose leaves together.

Another object of this invention is to provide a loose leaf binder which is simple in construction and operation and inexpensive to manufacture and which will permit a large or minute adjustment of the covers of the binder relative to each other.

Other features of advantage will become apparent from the following description taken in conjunction with the appended claims and the accompanying drawings forming part of this specification and in which:

Fig. 1 is a fragmentary top plan view of a portion of the binder.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 7.

Fig. 4 is an enlarged sectional view taken on line 4—4 of Fig. 1 showing the movable locking element in locked position.

Fig. 5 is a view similar to Fig. 4 but showing the movable locking element in an unlocked position.

Fig. 6 is a fragmentary top plan view of Fig. 4.

Fig. 7 is an enlarged sectional view taken on line 7—7 of Fig. 1.

Fig. 8 is an enlarged sectional view taken on line 8—8 of Fig. 7.

Fig. 9 is a perspective view of the movable locking element disassembled.

Fig. 10 is a fragmentary plan view of a loose leaf showing a hole.

Fig. 11 is a fragmentary plan view of a loose leaf showing a split hole.

As shown by the drawings:

The binder comprises a top cover 12 and a bottom cover 12a as best shown in Fig. 2 and they are of the same rectangular size. These covers may be made of any suitable material such as cardboard or pressed paper 13 and 14 and of such resiliency so as to produce either a flexible, semi-flexible or a non-flexible cover, depending on the extent of the rigidity of the covers desired. In the drawings non-flexible covers are shown. The covers are provided with a fabric or leather or other suitable material covering 15 and 16, respectively, which is suitably attached to the cardboard by glue or other suitable adhesive material. Each of said covers is provided with a pair of holes which are so spaced and located in the covers that the pair of holes in the top cover fall in alignment with the pair of holes in the bottom cover when the covers are placed together, one of the holes in the top cover being sectionally shown at 17 and one of the holes in the bottom covering being sectionally shown at 18 in Fig. 7.

The cardboard in the top cover 12 is provided in two parts or pieces 19 and 20 and they are slightly separated from each other and the covering 15 is stitched or sewed together at 21, as shown in Fig. 2, so as to provide a hinge effect to permit the longer portion or free end of the top cover to be lifted and turned back while the binder lies flat and to permit access to the leaves or material 22 bound together between the covers of the binder.

Part 20 of the cardboard 13 is cut away or reduced in size at one end, as shown in Fig. 2, for purposes to be hereinafter described. This reduced portion extends throughout the width of the top cover.

Secured to and in said reduced portion is an oblong rectangular member 23 made of metal or other suitable material and is of such size that it fits into and fills up said reduced portion and throughout said reduced portion so that the top faces 24 of the member 23 are substantially flush with the covering 15 of the top cover 12 and its outer side is substantially flush with the covering 15 at the outer end of said reduced portion as shown in Fig. 2. The member 23 is secured in position as follows: the flat or bottom portion 25 of the member 23 is extended slightly at either end so that said ends extend beyond the width of the top cover 12 and these ends are turned down sharply and tightly over the side or edge of said

reduced portion and are then turned back against the bottom face or surface 26 of the top cover 12 as is sectionally shown in Fig. 7. The flat portion 25 of the member 23 is also cut through approximately at the center and in the middle of said member 23 so as to provide a V-shaped lug 27 which lug 27 is turned down at right angles to said flat portion 25 and extends through a suitable opening in the reduced portion of the top cover 12 and the end of said lug 27 extending beyond the bottom surface 26 of the cover 12 is turned sharply over and against and is depressed into the lower surface or face 26 of the top cover 12 as is sectionally shown in Fig. 7.

The member 23 is provided with a pair of holes 29 and 30 which are so positioned that they fall in alignment with the pairs of holes in the top and bottom covers. Fig. 7 best shows the alignment of one of the pairs of holes in the member 23 and top and bottom covers and of course the other holes fall likewise in alignment near the other end and side of the binder but are not specifically shown as it is not thought necessary for a clear understanding of my invention. However, the pair of holes 29 and 30 are shown in Fig. 1 which holes are transposed upon the corresponding holes in the top and bottom covers of the binder.

For adjustably associating the top and bottom covers together relative to each other and for securely binding the loose leaves 22 or other material desired to be bound together between said covers and to permit the withdrawal of said leaves or the insertion of additional leaves, the following simple and readily adjustable means are provided: a pair of flexible or pliable members 31 and 32 made of any suitable flexible metal or pliable material are provided and since each of said members 31 and 32 is identical and is associated with the top and bottom binder covers in the same identical manner only one will be described and only one is sectionally shown in detail in the drawings. One end of the flexible member 31, Fig. 7, is provided with an orifice 33. A plate 34 is provided which has a pair of centrally located ears 35 which ears are provided with suitable centrally located holes 36, and the end of the flexible member 31 is inserted between said ears whereupon the orifice 33 registers with the holes in said ears and a suitable pin 37 is inserted into said holes and orifice 33 and is held in position in the holes of said ears 35 by frictional engagement. The orifice 33 in the end of the flexible member 31 is slightly larger than the diameter of said pin 37 to permit the plate 34 to be rotated about the end of the member 31 and the face 38 of the plate 34 is slightly concave or hollowed out so as to permit said plate to engage the flexible element 31 parallel to each other as shown in broken lines in Fig. 7 for the purpose of permitting said plate 34 to be drawn through the hole 18 in the bottom cover 12a.

Said member 31 engages the holes in the loose leaves 22 and the holes 17 and 29 in the top cover 12 and member 23 respectively and has its end secured to the movable locking means. The movable locking means consists of a semi-U-shaped member 39, Fig. 9, one leg 40 of which is longer than its other leg 41, and this semi-U-shaped member 39 is of such size to permit its being received internally within the member 23 and to permit its free longitudinal movement within said member 23. The semi-U-shaped member is made of a suitable metal so as to produce a slight spring effect at the point 42 so that its legs 40 and 41 are inclined to spring slightly toward each other. An opening 43 is provided in said member 39 through which the end of the flexible member 31 is inserted and said end is provided with a hole through which a pin 44 is inserted, and this pin 44 engages the arch portion 45 of said member 39 whereby the said end of said member 39 is securely attached to said semi-U-shaped member. In the central end portion of the short leg 41 a portion of said leg is cut through in two places, the lines of cutting being parallel to each other, and this portion lying between the lines of cutting is then turned down at right angles to said short leg 41 and towards said long leg 40 thus providing a lug 46. Between this lug 46 and the pin 44 is inserted a plug 47 to hold the said pin 44 and end of the flexible member 31 in position against longitudinal movement, said plug 47 being held in position by frictional engagement.

A combination cam and finger lever member 48 made integrally of any suitable metal is provided as shown in Fig. 9. The cam portion 49 of this member 48 is inserted between the long and short legs, 40 and 41 respectively, of the member 39, and the ends 50 and 51 of said short leg are then turned down at right angles and toward the long leg 40, the finger lever 52 being in alignment with the slot 53 in said short leg 41, said slot 53 being slightly wider than the width of said finger lever to permit said lever to freely engage said slot; thus the combination cam and finger lever member 48 is held in place between the lug 46 and the turned down ends 50 and 51 and between the short and long legs 40 and 41 of the member 39.

The oblong rectangular member 23 attached to the top cover is provided with an oblong rectangular slot 54 throughout its entire length and is of such width to receive and permit the finger lever 52 to freely move within said slot 54 for purposes to be hereinafter described. Plugs 55 and 56 are also provided which are of such size and shape to permit their insertion into the ends of the member 23 and are held in said ends by frictional engagement and serve to reinforce the ends of the member 23 and to protect the said ends from becoming distorted in case the binder should be dropped or pushed against some substantial object and to also prevent the ends of the member 23 from catching on to other objects and to give a better appearance to the binder.

Operation

To connect or associate the top and bottom covers of the binder together so that loose leaves, pamphlets or other material, may be securely bound together between said covers and parallel to each other and at a point adjacent to the pairs of holes in said covers, the pair of movable locking elements are inserted into the rectangular member 23 as follows, reference being made particularly to Figures 4, 5, 7 and 8 of the drawings: the finger lever 52 is moved to its unlocked position, as shown in Fig. 5, which position permits the legs 40 and 41 to spring sufficiently towards each other to permit the semi-U-shaped member 39 to be inserted into one end of the member 23, while the finger lever 52 engages the slot 54 in said member 23, said member 39 and the combination finger and cam member 48 are then as a unit slid along within said member 23 until said member 39 passes the hole 29 in said member 23. The plate 34 attached to the other end of the flexible member 31 is now rotated about the end of the flexible member 31 until said plate becomes parallel with said member 31, and said plate 34 and member 31 are held in this position between the fingers and are then

inserted into and drawn through the holes 29 and 17 in the member 23 and top cover 12 respectively and then through corresponding holes in the loose leaves and then through the hole 18 in the bottom cover 12a whereupon said plate 34 is rotated back to a position at right angles to said end of the flexible member 31. The plug 55 is now inserted in position in the end of the member 23. The other movable locking element is now inserted into the opposite end of the member 23 and the manner of assembly is identical with that just described, it being remembered that holes are likewise provided in said member 23 and top and bottom covers and near said opposite end and further description is not thought necessary.

Now to draw the covers and loose leaves tightly together all that is required is to move the movable locking elements toward each other and intermediate the holes in the member 23, which movement causes the flexible members 31 and 32 to be drawn toward each other within the member 23 thereby causing the binder covers and loose leaves to move compactly together and when the covers and loose leaves are drawn tightly together as desired the finger levers are moved to their locked position as shown in Fig. 4. Of course both movable locking elements are not usually simultaneously moved toward each other, but one is first adjusted and then the other one is adjusted although they may be simultaneously adjusted if desired.

When the finger lever 52 is moved to its locked position the legs 40 and 41 of the semi-U-shaped member are spread apart by the cam 49 rotating between said legs whereupon the surface or face 57 of the leg 41 is pressed against the interior surface or face 58 of the member 23 and the surface or face 59 of the leg 40 is pressed against the face or surface 60 of said member 23 and said semi-U-shaped member 39 is thus held securely in place by the frictional engagement now existing between the surfaces of said member 39 and member 23. The finger lever is shaped as shown in Fig. 9 so as to permit the same to be easily seized by the fingers when in its locked position as shown in Figures 4 and 7. It is thus apparent that the semi-U-shaped members will remain in one position and cannot move within the member 23 for the cam 49 assumes a position slightly off perpendicular to the legs 40 and 41 as shown in said Figures 4 and 7, but such position of the cam 49 does not sufficiently effect the frictional engagement of said legs with the member 23 to permit movement of said member 39. The cam being so positioned when the lever 52 is in its locked position sufficient pressure is exerted upon said lever to maintain it in its locked position.

To add additional loose leaves of the type shown in Fig. 10 and to bind the same between the covers of the binder, all that is required is to lift up and move the finger levers 52 to their unlocked position as shown in Fig. 5 thereby destroying the frictional engagement existing between the semi-U-shaped members 39 and the member 23; this will permit the movable locking elements to be moved within the member 23, and said locking elements upon being moved away from the middle and toward the holes 29 and 30 respectively in said member 23, the flexible members 31 and 32 are freed or loosened and may now be drawn down through the covers and the other loose leaves already in said binder by pulling on the plates 34 which will permit the plates 34 to be withdrawn from the bottom cover sufficiently so that said plates may be rotated to a position as shown in broken lines in Fig. 7 and as described above so that said plates may be drawn back through the holes in the bottom cover 12a. The plates are free now to be pulled through the holes in the loose leaves to be added to the binder and when this is done the plates are again inserted in and drawn through the holes in the bottom cover 12a where the plates are rotated back at right angles to the flexible members 31 and 32 and the locking elements are then moved toward each other within the member 23 and toward the middle of said member 23, and when the covers and loose leaves are drawn sufficiently together as desired the levers are moved to their locked position as described above and the leaves so added are securely held or bound in position between the covers.

If the type of loose leaf is used as shown in Fig. 11 which has a split hole 61 instead of a closed hole 62 as shown in Fig. 10, the operation in adding additional leaves is the same except that it is not necessary to remove the bottom cover as described above for the reason that the split hole permits the leaf to be added to the flexible members 31 and 32 by sliding the leaf on to the members 31 and 32 through corresponding slots 63 to the holes 61. Of course, each loose leaf has a pair of holes which are spaced to correspond with the holes in the binder covers. To remove leaves from the binder a very similar operation is required and which operation will be readily understood from the foregoing and further description is not thought necessary for a clear understanding.

Thus it is apparent that my invention among other things permits any number of sheets to be securely and positively bound together to approximately the extent of the length of the flexible members 31 and 32 and that after exhausting the capacity of said flexible members still other sheets may be added by merely substituting longer flexible members thereby utilizing the binder to a greater extent and at the same time permitting a large amount of the same subject matter to be contained in one binder. It is further apparent that my invention permits a positive and minute adjustment of the binder covers relative to each other and that I have provided simple and positive adjustable means for securely locking the binder covers in rigid bound book form and that I have produced a binder which readily permits the withdrawal of loose leaves or other loose material from the binder or to add additional leaves or other loose material to the binder.

I am aware that many changes may be made and numerous details of construction varied throughout a wide range without departing from the principles of this invention, and I, therefore, do not propose limiting the patent granted hereon otherwise than is necessitated by the appended claims.

I claim as my invention:

1. A binder of the class described consisting of a pair of covers, a pliable member having its one end removably connected to one of said covers, a hollow member attached to said other cover, a semi-U-shaped movable member attached to the other end of said pliable member and engaging said hollow member, and a combination cam and lever member associated with said movable member for locking said movable member at various positions within said hollow member.

2. A binder having a pair of covers, a pair of

flexible or pliable members each having its one end removably connected to one of said covers, a pair of semi-U-shaped movable locking members connected to the other ends of said pair of flexible members, and a hollow member secured to the other of said covers for receiving said movable locking members, and a pair of combination cams and levers assocated with said movable locking members for operating said movable locking members to either a locked or unlocked position relative to said hollow member.

3. A binder consisting of a pair of covers, a pair of flexible members each having its one end connected to one of said covers, a pair of adjustable semi-U-shaped locking members associated with the other of said covers and connected to the other ends of said pair of flexible members, said pair of adjustable locking members being movable in a parallel line relative to said other cover, and means for locking said movable locking members in position relative to said other cover.

4. A binder having a pair of covers, a pliable member having its one end connected to one of said covers, a hollow member secured to the other of said covers for receiving the other end of said pliable member, a semi-U-shaped member attached to said other end and movable within said hollow member for moving said other end to various positions within said hollow member, and a member associated with said movable member for locking said movable member within said hollow member against movement.

5. A binder consisting of a pair of covers, a pair of pliable members each having its one end associated with one of said covers, a hollow member secured to the other of said covers and provided with a pair of holes for receiving the other ends of said pliable members, a pair of semi-U-shaped movable members freely engaging the interior of said hollow member, one of said movable members being connected to one of said other ends of said pliable members and the other of said movable members being connected to the other end of said other ends of said pliable members, and individual manually operated levers for moving said pairs of movable members within said hollow member to permit said covers to be variously adjusted in a plane relative to each other.

6. A binder consisting of a pair of covers, a pair of flexible members associated with said covers, and a pair of adjustable locking devices, consisting of semi-U-shaped members and combined cam and lever members, permanently connected to said pair of flexible members and movably associated with one of said covers for adjusting sad flexible members independently of each other and relative to said covers to permit sad covers to be spaced a various distances relative to each other.

7. A binder consisting of a pair of covers adapted to receive loose leaves desired to be bound between said covers, a pair of pliable members associated with said covers and for engaging said loose leaves, and a pair of adjustable locking devices, consisting of semi-U-shaped members and combined cam and lever members, permanently connected to said pair of pliable members for adjusting said pliable members independently of each other in said covers and in said loose leaves to permit the withdrawal of a part or all of said loose leaves from between said covers or to permit other loose leaves to be added between said covers.

8. A binder consisting of a pair of covers adapted to receive loose leaves between them, a pair of pliable members associated with said covers, and a pair of adjustable locking devices, consisting of semi-U-shaped members and combined cam and lever members, associated with one of said covers and permanently connected to said pair of pliable members for manipulating said pair of pliable members independently of each other and relative to said covers and loose leaves so as to draw said covers and loose leaves compactly together and to securely lock said pair of pliable members in position relative to said covers so that said covers and loose leaves are compactly held together.

9. A binder consisting of a pair of covers, a pair of pliable members associated with said covers, and a pair of movable locking devices, consisting of semi-U-shaped members and combined cam and lever members, associated with one of said covers and permanently connected to said pair of pliable members for adjusting said pair of pliable members independently of each other and relative to said last mentioned cover to effect an increase or decrease of the space between said covers.

10. A binder consisting of a pair of covers, a hollow member secured to one of said covers, a pair of pliable members removably connected at their one end to the other of said covers and having their other end threaded through holes in said first mentioned cover and said hollow member, and movable locking means, consisting of semi-U-shaped members and combined cam and lever members, engaging said hollow member and permanently connected to said other end of said pliable members for moving said pliable members independently of each other to various positions within said hollow member to variously adjust the position of said covers relative to each other.

11. A binder consisting of a pair of covers, a hollow member secured to one of said covers, a pliable member having its one end removably connected to the other of said covers, a semi-U-shaped member engaging said hollow member and connected to the other end of said pliable member, a combination cam and lever member connected to said semi-U-shaped member and operable to one position to effect a frictional engagement of said semi-U-shaped member with said hollow member to prevent movement of said semi-U-shaped member within said hollow member, and operable to another position to destroy said frictional engagement to permit the free movement of said semi-U-shaped member within said hollow member.

12. A binder having a pair of covers, a hollow member secured to one of said covers, a pliable member having its one end connected to the other of said covers and its other end running through holes in said first mentioned cover and said hollow member, and a movable locking device, consisting of a semi-U-shaped member and a combination cam and lever member, engaging said hollow member and permanently secured to said other end of said pliable member for adjusting and locking said other end of said pliable member at various positions within said hollow member.

WILLIAM A. PETERS.