

J. G. GRIESINGER.
LOOSE LEAF BINDER.
APPLICATION FILED APR. 4, 1910.

982,593.

Patented Jan. 24, 1911.

2 SHEETS-SHEET 2.

Fig. 5.

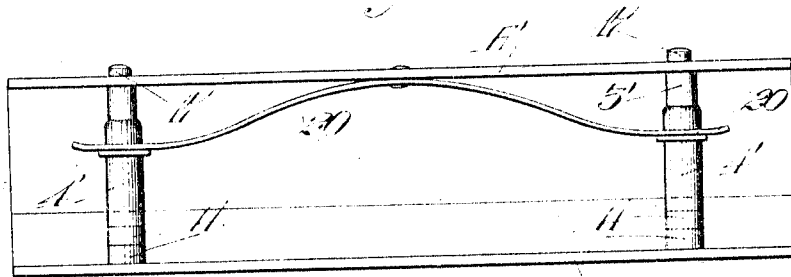
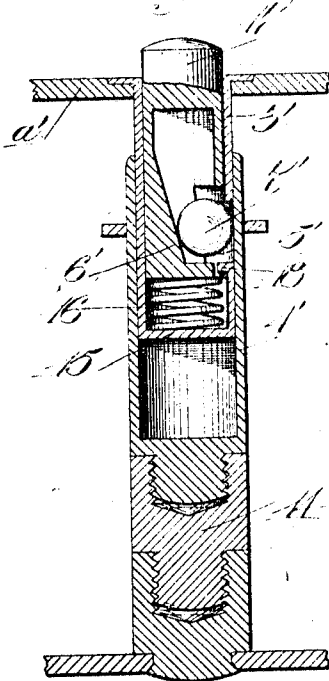


Fig. 6.



Witnesses:
Charles Berg
F. E. Maynard.

Inventor:
John G. Griesinger.
By
G. H. Strong,
Attorney.

UNITED STATES PATENT OFFICE.

JOHN G. GRIESINGER, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO WESTERN LOOSE-LEAF MANUFACTURING COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

LOOSE-LEAF BINDER.

982,593.

Specification of Letters Patent. Patented Jan. 24, 1911.

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To all whom it may concern:

Be it known that I, JOHN G. GRIESINGER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

My invention relates to loose-leaf binders.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a perspective view broken away, showing the invention. Fig. 2 is a similar view showing the telescoping tubes. Fig. 3 is another perspective showing the locking mechanism. Fig. 4 is an enlarged section of the locking mechanism. Fig. 5 shows a modified form of construction. Fig. 6 is an enlarged section of the locking mechanism, shown in Fig. 5.

In Figs. 1 to 4, representing the gravity lock binder, A and B indicate, respectively, the top and bottom covers of a loose-leaf book or other device to which the invention is applicable. Each of these cover members has a respective, rigid back strip *a-b* flexibly connected with its cover, as shown at 2, to enable the back to be opened out for use. The bottom cover strip *b* carries a tubular stud 3 telescoping within a corresponding tubular stud or post 4 on the opposed top cover strip *a*. The outer end of the tube 3 is cut away on a bevel or diagonal, as shown at 5, and opposite this diagonal cut-away space 5, and within and secured to tube 3 near its open end, is a wedge 6 thickest at its outer end, which wedge is adapted to contact with a ball or equivalent wedging member 7 carried within the sleeve 3. Laying the book with the cover A downward and with tube 3 pointing upward, the ball 7 drops by gravity into tube 3 and away from the wedge 6, releasing the two sleeves 3-4 and allowing the book to be opened. Reversing the book, so that it rests on cover B, with tube 3 uppermost and pointing downward, the ball drops by gravity into the open space 5 and cooperates with wedge 6 and tube 4 to bind the covers together. Thus the binding of the book is locked and

unlocked by the combined action of gravity and sufficient pressure. Ordinarily when the parts are locked together there is no danger of their being accidentally unlocked. Furthermore, this means provides a form of secret lock, the nature of which is not apparent from an inspection of the outside of the book, and unless one knows how to unlock the book, it is safe against being tampered with. There may be any number of these locking devices used in a book, and the sleeves or tubular studs 3-4 may be of any appropriate size or length. In Fig. 1, I have shown one of these locking devices midway between two telescoping tubular guides 8-9, with a spring 10 acting normally to press these guides apart; these springs likewise tending to move the two sleeves 3-4 in opposite directions, so that when the ball 7 is released by pressing the backs together with the tube 3 inverted, and then releasing the pressure, the springs will force the covers apart.

11 is simply a cross-head guide hinged to one back strip, as *b*, and working between two guide flanges 12 on the other backing member to hold the protective back strips in parallelism, and also preventing the tubes 3 and 8 from being completely withdrawn from their respective guides 4 and 9 when the binder is loosened for the insertion or removal of new sheets.

In Figs. 5 and 6, there is represented a sectional post binder, and also a manually and mechanically controlled wedging ball 7'. That is to say, the locking member 4' is made of variable length by the insertion of one or more sets of sections or couplers 14. The top stud or sleeve member 3' in this case is rigidly connected to the top back strip *a'* and slides inside of member 4', but the lower end of member 3' is closed, as shown at 15, to provide a seat for spring 16 which bears against the inner end of the wedge block 6'; this wedge block being hollowed out to accommodate the ball 7', which latter is adapted to project through an opening 5' in the sleeve 3'. This hollow wedge member 6' has a button projection 17 extending up through the sleeve 3' and backing so as to be easily pressed upon by the thumb, this button and wedge 6' having a limited free sliding movement in sleeve 3' and against the ten-

sion of spring 16. The lower lip of the opening 5' in sleeve 3' is turned inwardly to provide a stop 18 which is adapted to arrest the motion of the ball 7' and support it whenever the button 17 and wedge 6' are pushed in to compress spring 16 and release the grip or the wedge against the ball.

To operate this mechanism, lay the binder with the cover B' down, and buttons 17 up. To bring the covers together, press on the top cover, which forces tube 3' inward and carries wedge 6' along with it, causing the ball 7' to roll back on the wedge 6', releasing tube 3' and tube 4'. The moment the pressure is released on the covers, the ball 7' binds against the opposed faces of wedge 6' and the fixed tubular stud 4'. To move the covers A'—B' apart, so as to put in new leaves, or remove old ones, it is only necessary for the operator to press on the buttons 17, which causes the wedge 6' to release the ball 7' from tube 4', the ball falling against the stop 18, thus preventing the ball from binding between the wedge 6' and tube 4'. As long as there is pressure on the buttons 17 the covers may be moved apart or together, at will. Releasing pressure on the buttons allows spring 16 to throw the wedge up and clamp the ball against the outer fixed tube 4'. Ordinarily the buttons are used only to release the covers and separate them; while to lock the leaves in place, it is merely necessary to press the two covers together, the operation being essentially similar to that of the simpler form of device previously described in connection with Figs. 1 to 4. The spring 20 which is connected to the top cover centrally of its ends, and also yieldingly connected with the studs 4', is compressed when the book is closed, and acts to cause the top cover A' to rise when the buttons 17 are pressed in. In both instances shown, the locking device comprises essentially two telescoping members and a movable wedging member cooperating to prevent the extension of the tubular members.

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

1. In a loose-leaf binder, a locking device comprising a pair of telescoping sleeve members, a fixed wedge in one member and a loose ball therein, said wedge-carrying member having a lateral opening opposite to the wedge to permit the ball to project there-through and bind against the opposite member and prevent relative outward movement of the two members.

2. In a loose leaf binder, the combination of front and back covers, a hollow post on one cover, a tubular post on the other cover telescoping with the first-named post, and a loose gravity-actuated wedging device between the two posts, said wedging device be-

ing carried by one of the posts and said post having an opening through which the wedging device projects so that it may engage and lock with the inner wall of the companion post, to prevent the extension of said posts.

3. In a loose leaf binder, the combination of front and back covers, telescoping posts and a sliding wedge member carried by one post, said post having the portion opposite the wedge member cut-away, and a ball in one of the posts operable over the wedge member so that its periphery may be exposed through the cut-away portion in the post to enable the ball to frictionally engage the inner wall of the companion post.

4. In a loose leaf binder, the combination of front and back covers, telescoping posts and a sliding wedge member carried by one post, said post having the portion opposite the wedge member cut-away, a ball in one of the posts operable over the wedge member so that its periphery may be exposed through the cut-away portion in the post to enable the ball to frictionally engage the inner wall of the companion post, and a stop to limit the movement of the ball without binding, when the wedge is moved in one direction.

5. In a loose-leaf binder, the combination of front and back covers, telescoping posts, a sliding wedge member carried by one post, a ball acting on said wedge member and through an opening in one post and against the other post, a stop to limit the movement of the ball, without binding, when the wedge is moved in one direction, and a spring acting on the wedge to move it in the other direction so as to bind against the ball.

6. In a loose-leaf binder, the combination with the two covers, of hollow, telescoping posts on the two covers, one post having a projecting button, said button carrying a wedge, and a locking device operative by said wedge.

7. In a loose-leaf binder, the combination with the two covers, of hollow, telescoping posts on the two covers, one post having a projecting button, said button carrying a wedge, and a locking device operative by said wedge, said locking device comprising a ball housed within the wedge and operative through a slot in one post and against the inner walls of the other post.

8. In a loose-leaf binder, the combination with the two covers, of hollow, telescoping posts on the two covers, one post having a projecting button, said button carrying a wedge, a locking device operative by said wedge, said locking device comprising a ball housed within the wedge and operative through a slot in one post and against the inner walls of the other post, and a spring operative on the wedge to move it outward.

9. In a loose-leaf binder, the combination

of two covers, a pair of posts on one cover telescoped by a pair of posts on the opposite cover, cooperating locking devices on the telescoping posts, and a bow-spring connected to one cover and to a pair of posts on the other cover tending to press the covers apart.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN G. GRIESINGER.

Witnesses:

L. MOËN,

MILNARD L. ORCUTT.