No. 847,039. PATENTED MAR. 12, 1907.

J. B. BARLOW.

LOOSE LEAF BINDER.

APPLICATION FILED APR. 9, 1906.

Fig. 1.

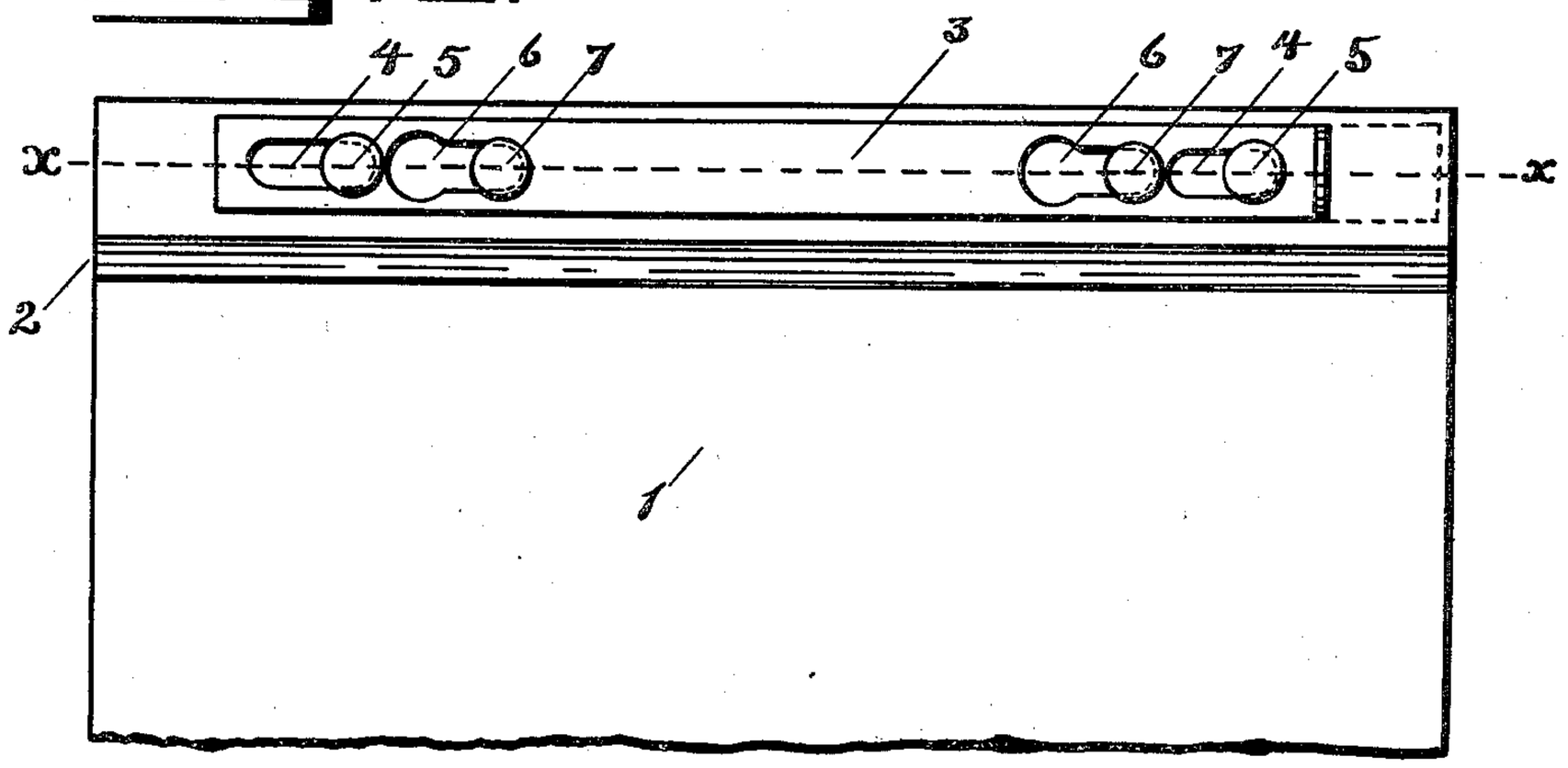


Fig. 2.

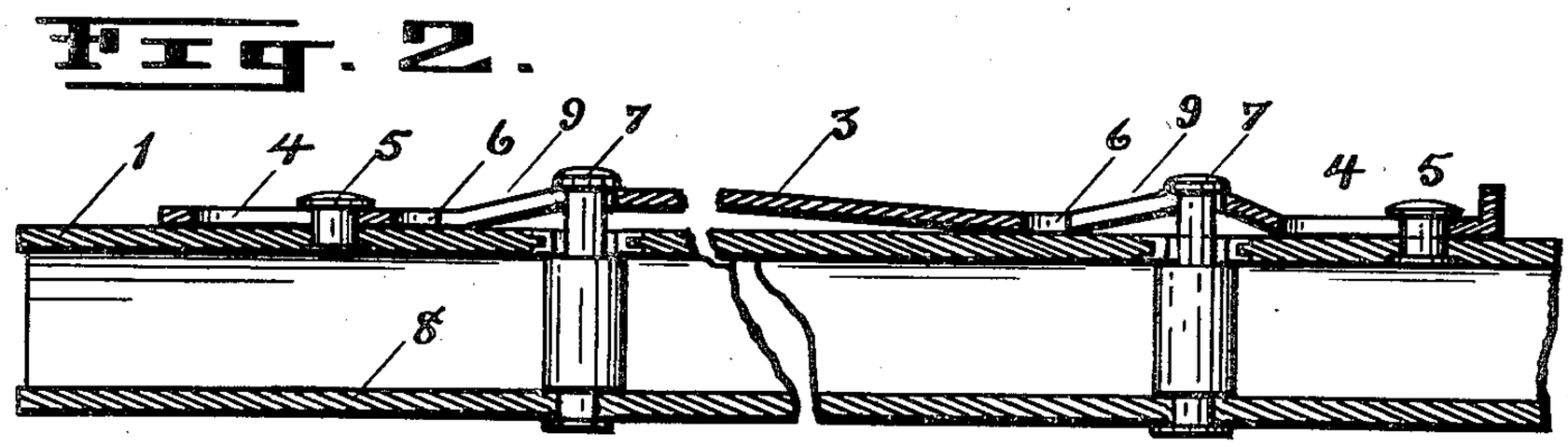


Fig. 3.

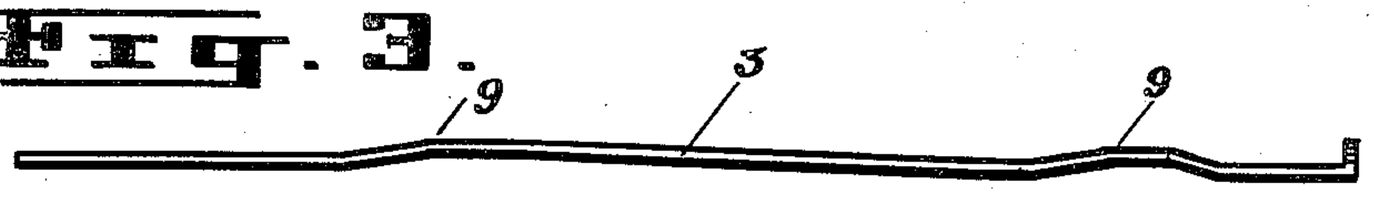


Fig. 4.

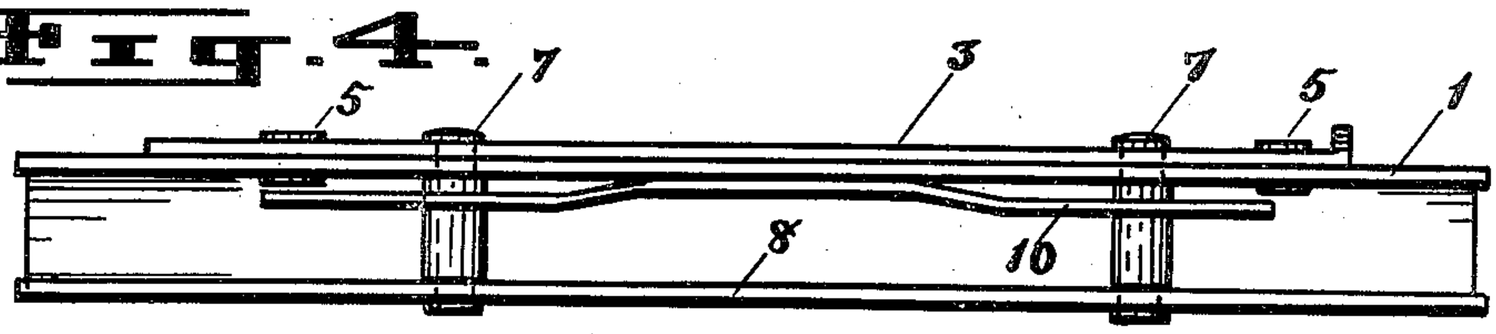
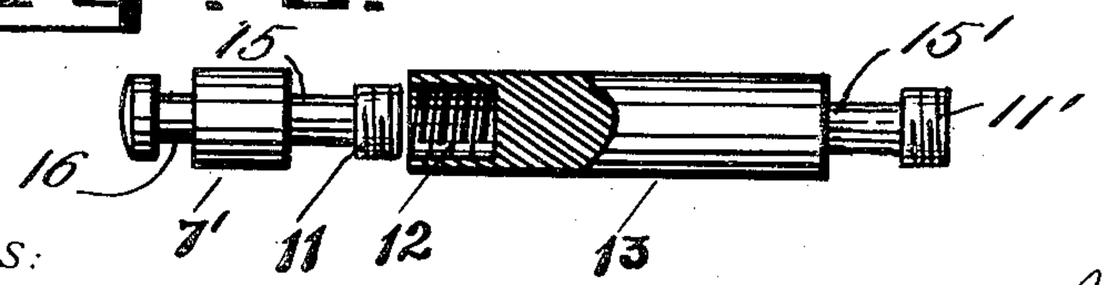


Fig. 5.



WITNESSES:

Charles W. Dake.

Mary S. Tooker

INVENTOR.

John B. Barlow

BY Edward Taggart

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN B. BARLOW, OF GRAND RAPIDS, MICHIGAN.

LOOSE-LEAF BINDER.

No. 847,039. Specification of Letters Patent. Patented March 12, 1907.

Application filed April 9, 1906. Serial No. 310,831.

To all whom it may concern:

Be it known that I, JOHN B. BARLOW, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

This invention relates to new and useful improvements in loose-leaf binders; and its principal object is to provide simple and efficient means for holding the parts in binding position and at the same time easily releasing them. This object I accomplish by the construction shown in the accompanying drawings, in which—

Figure 1 is a top plan view of the cover of a book, showing this binding device attached. Fig. 2 is a cross-sectional view of the same on the dotted line *x x* of Fig. 1 on an enlarged scale and with portions broken away. Fig. 3 is an edge view of the locking-strip. Fig. 4 is an edge view of the book with an alternative form of locking-strip and attachments. Fig. 5 is a view of a modified form of binding-post extension.

The top cover of the book is represented by the numeral 1 and the bottom cover by 8. The top cover should be provided with a flexible hinge, (indicated by 2,) and the bottom cover may also have the same, if desired. The locking-strip 3 is a strip preferably of thin sheet metal extending far enough along the cover near its edge so that it may engage with binding-posts located at suitable points. This locking-strip is provided near its ends with two similar parallel-sided slots 4 4. The studs 5 5 are rigidly and permanently attached to the top cover and have necks extending up through the slots 4 4 and heads extending beyond the edges of the slots. They are thus formed in the process of manufacture by any upsetting or riveting operation which expands the heads to a width greater than the width of the slot, but does not clench the same down upon the locking-strip. By this means the locking-strip is permitted to have a sliding motion longitudinally of itself upon the top cover, such motion being governed and limited by the length of the slots 4 4, and at the same time the locking-strip is permanently attached to the top cover and cannot accidentally fall away or be mislaid or lost.

At suitable points toward the center of the locking-strip from the slots 4 4 it is provided with the keyhole-slots 6 6. The parallel-sided portion of these keyhole-slots should be approximately the same length as the slots 4 4 and the enlarged portions thereof should be in the same position in both slots—that is to say, should be in each case either at the upper end or at the lower end of the keyhole-slot, according to the comparative arrangement of the slots 4 4. In the drawings I have shown both of these enlarged portions of the keyhole-slots at the left end thereof.

7 7 represent the binding-posts. They are rigidly attached to the lower cover 8 by any suitable means and extend of full normal diameter up through the space designed to receive the loose leaves, which loose leaves are to be properly provided with holes in order that they may be placed in position over the binding-posts. At the upper edge of the space designed for the loose leaves and at the point where the top cover is designed to be attached the diameter of these posts becomes smaller, thereby creating a shoulder and a neck, and at a suitable distance this neck is again expanded into a head, which may be of the full normal diameter of the post or in certain forms, as in Fig. 5, should be of somewhat less than the full normal diameter.

The top cover is provided with suitable holes, preferably surrounded with an eyelet and registering with the position of these binding-posts, so that when the top cover is put in position the heads and necks of the binding-posts will pass through these holes in the top cover and project above the same. If, however, the expanded heads of the binding-posts are of less diameter than the full normal diameter of the post, and if, as in my preferred form, the holes through the top cover are just large enough to permit these heads to pass through, the top cover will then rest upon the shoulders of the binding-posts and will be thus permanently held at a short distance away from the bottom cover. This arrangement I find useful, since it permits certain looseness of the leaves at the extreme rear edge and permits easier inspection of the same back to the rear edge than if they were bound absolutely tightly together at that point, while by the arrangement of extension binding-post which I provide the

post used will not be long enough to leave any great amount of its length unoccupied by the loose leaves.

The locking-strip being attached to the top cover by the rivets 5 5, it is evident that when the parts are in the position shown in Fig. 1 the top cover, through the means of the locking-strip, will be held upon the binding-posts and will thereby be connected to the bottom cover, thus making a complete binding, and no ordinary amount of force directly exerted could remove the top cover. The locking-strip, however, may be moved longitudinally upon the cover, taking the position shown by the dotted lines in Fig. 1, and thereby the expanded heads of the binding-post 7 will be made to register with the enlarged openings 6 of the keyhole-slots, and the heads will then pass through both the locking-strip and the cover, and the cover may be removed for the insertion or removal of leaves.

In order to cause the locking-strip to bind firmly against the under surface of the expanded heads of the binding-posts 7, I cause it to exert a spring-pressure thereon. The simplest means of causing such spring-pressure is shown in Fig. 3, in which the binding-strip is slightly bent at two points, so that central portions are elevated from the cover, and if it is constructed of a spring metal it thereby becomes a spring, insuring this binding engagement, so that it will not fall or be easily jarred out of its locking engagement with the binding-post heads. I show in Fig. 4 another form of accomplishing such binding engagement. In this form I make the locking-strip without any spring in itself; but I supply a supplementary spring, as 10, of any suitable form, portions of which exert a pressure downwardly upon the loose leaves contained within the covers, and thereby assist in holding them in proper position, and which at the same time thereby creates an upward spring-pressure against the cover, which is usually somewhat flexible, and against the locking-strip also, in this way causing sufficient binding engagement between the locking-strip and the heads of the binding-posts to prevent accidental displacement.

In Fig. 5 is shown a modified form of binding-post, whereby the same is made extensible, so that the same book may be used continually and become of increasing size and so that the size may be maintained in proper proportion to the contents. This modified form of post is indicated by 7′. The head which passes through the upper cover is indicated by 11, and the neck which is engaged by the sliding locking-strip is indicated by 15. The lower end of this post, which passes through the lower cover, is attached thereto by upsetting or other suitable means, as indicated by 16. Upon the outer portion of the head 11 I construct a screw-thread, as shown. I then provide an extension-piece 13, which is of the same diameter in its main portion as is the main body of the post 7′. The lower portion of this post I make hollow and provided with an internal screw-thread, as shown by 12, the diameter of this internal screw-thread being the same as the external diameter of the head 11. Upon the other end of the extension 13 I provide similar engaging head and neck 11′ and 15′. It is evident that in this way the binding-post can be extended, as may be desired, and the two sections 7′ and 13 become apparently one integral piece without any joint or exposed shoulder. In event the loose leaves do not occupy the full space between the covers the spring 10 will compensate for the unoccupied space and help to hold the covers 1 and 8 in proper relation with respect to each other, as well as produce a binding friction upon the locking-strip. It is evident that the proper length of the neck 15 depends upon the thickness of the upper cover and the locking-strip which may happen to be used, and, as shown in Fig. 5, the device is adapted to a somewhat thinner cover and locking-strip than that indicated in Fig. 2.

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

1. In a loose-leaf-binding device, the combination of top and bottom covers, binding-posts having one end connected to one cover, and the other end provided with a head, the other cover provided with openings to receive the binding-posts, a yieldable locking-strip upon the latter cover and slidably connected thereto, said strip being bent on itself to form offsets and having keyhole-slots engaging at one end the heads of the binding-posts and at the other end permitting such heads to pass therethrough.

2. In a loose-leaf-binding device, the combination of top and bottom covers, binding-posts having one end rigidly attached to the bottom cover, the top cover provided with openings permitting the binding-posts to pass therethrough, shoulders, necks and heads upon such binding-posts, the heads being of less diameter than the shoulders, and the holes in the openings on the top cover being of less diameter than said shoulders, a locking-strip having keyhole-slots for engagement with the heads of the binding-posts and being bent on themselves to form offsets to tension the top cover with respect to the bottom cover, and means for slidably connecting the locking-strip to the top cover.

3. In a loose-leaf-binding device and in combination with the top and bottom cover,

a binding-post rigidly attached to the bottom cover and having a shoulder, neck and head, such head being of less diameter than the full diameter of the binding-post, and an extension-post provided at one end with a similar shoulder, neck and head, and at the other end with means for detachably engaging the head upon the main body of the post.

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

JOHN B. BARLOW.

Witnesses:
A. C. DENISON,
MARY S. TOOKER.