No. 724,599. PATENTED APR. 7, 1903.

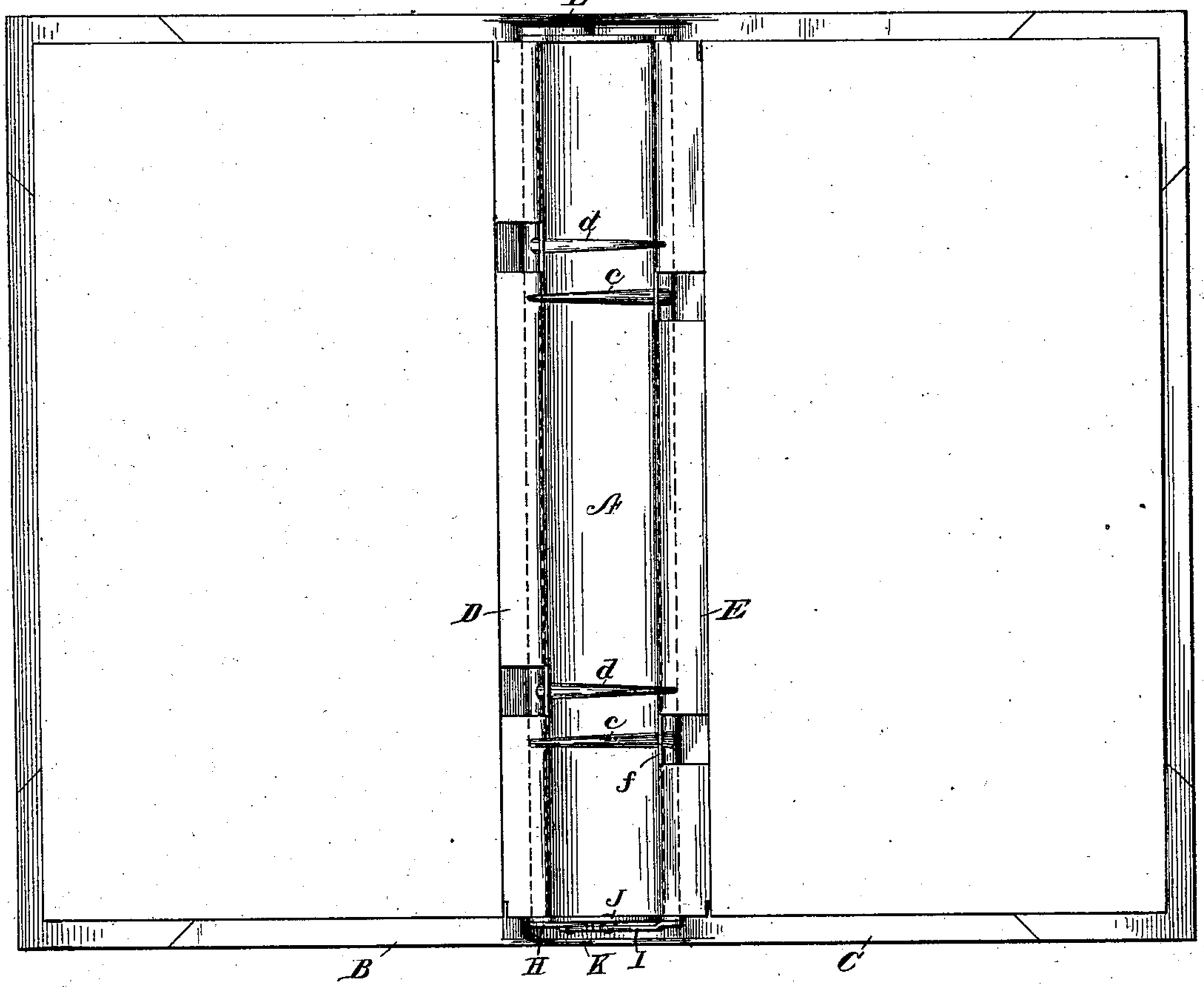
J. L. McMILLAN.

LOOSE LEAF BINDER.

APPLICATION FILED JUNE 2, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.



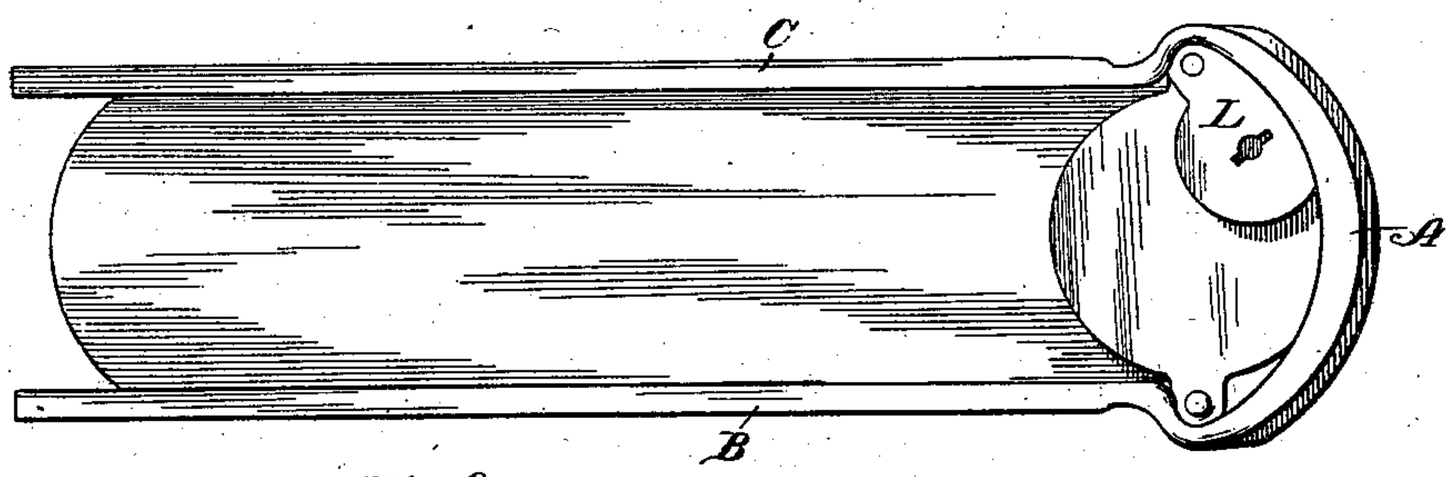


Fig. 2.

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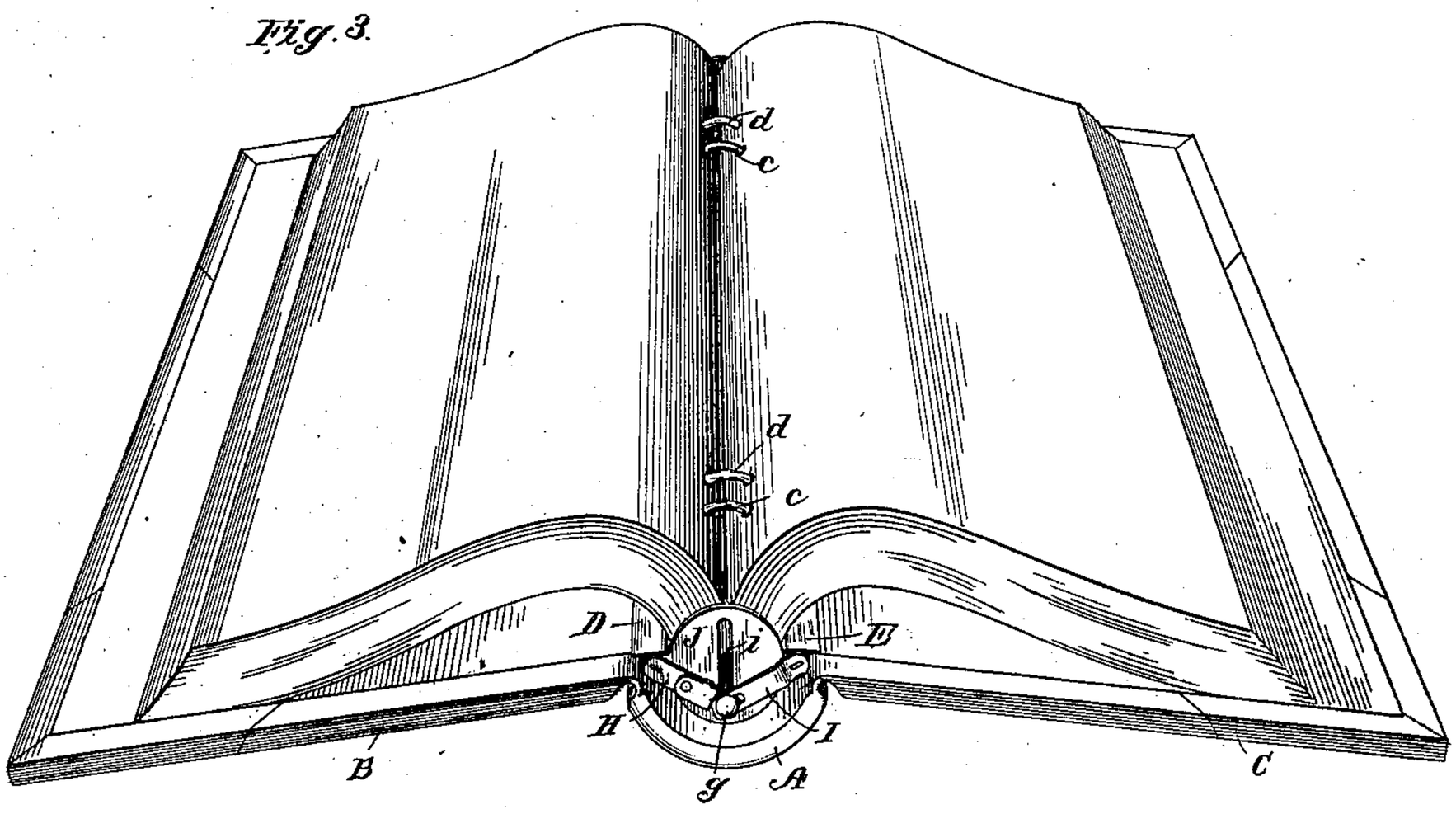
LOOSE LEAF BINDER.

APPLICATION FILED JUNE 2, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.



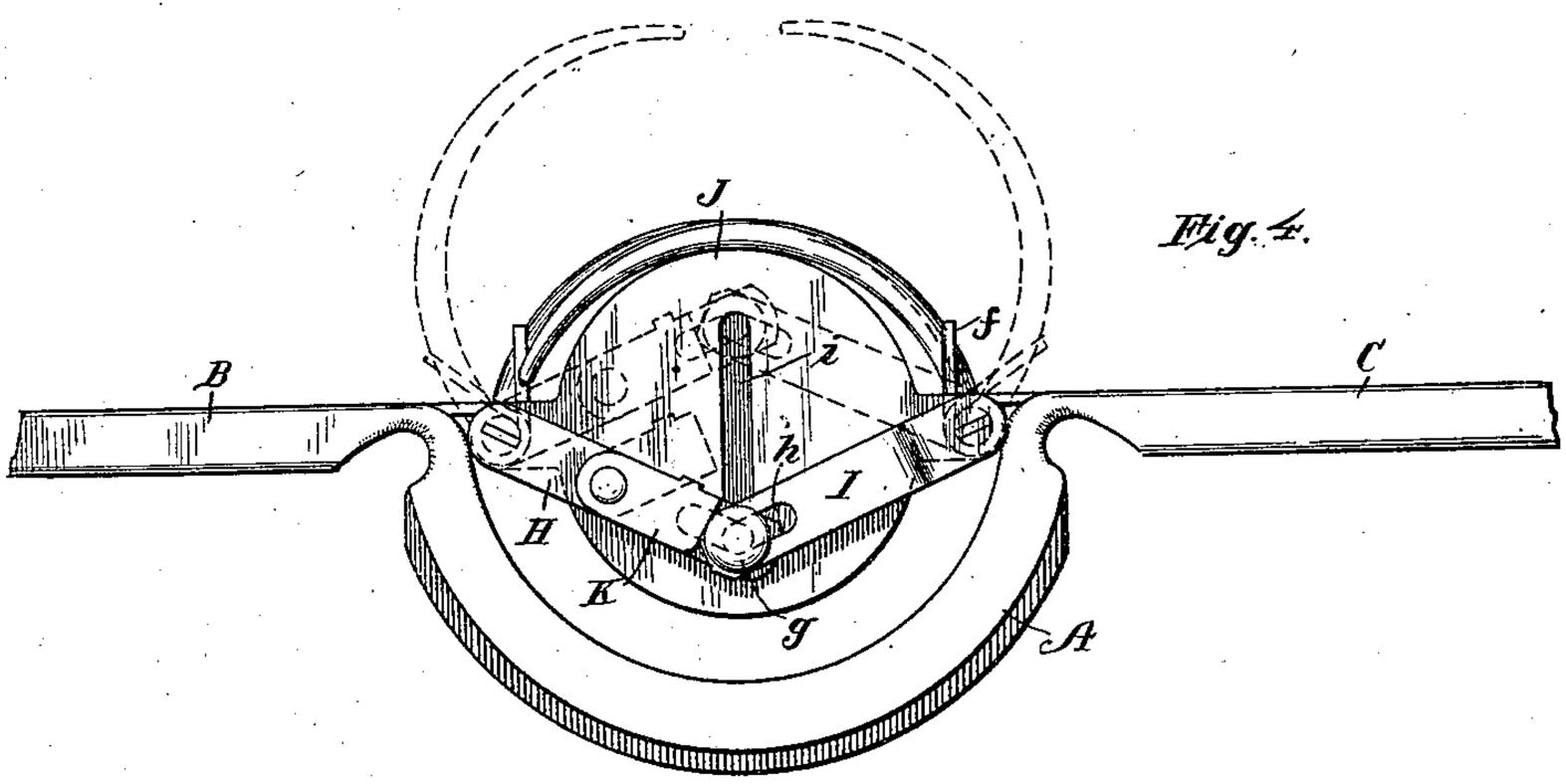
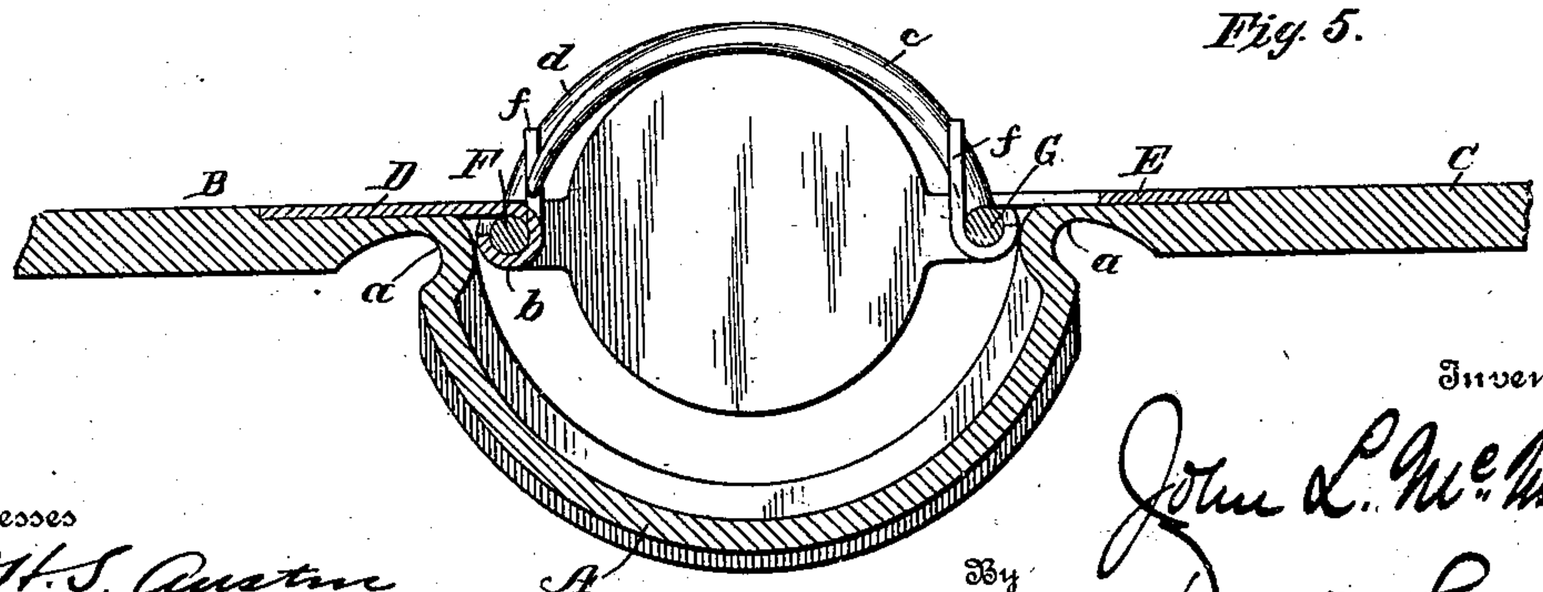


Fig. 4.

Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN L. McMILLAN, OF SYRACUSE, NEW YORK.

LOOSE-LEAF BINDER.

SPECIFICATION forming part of Letters Patent No. 724,599, dated April 7, 1903.

Application filed June 2, 1902. Serial No. 109,982. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. McMILLAN, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

My invention pertains to loose-leaf binders, and is designed more particularly for temporary binders or as a cheap permanent binder for books or packages of leaves or sheets which have been taken from another temporary binder and are to be stored away for such occasional reference as may be desired.

The object of the present invention is to produce a simple and efficient binder which shall serve all the purposes of such occasional use or reference as is commonly desired and which will permit any leaf or leaves to be quickly and easily removed and replaced.

The construction will be readily understood upon reference to the accompanying drawings, in which—

Figure 1 is an inside face view of the cover without any leaves or sheets therein; Fig. 2, an end view of the same with the sheets in place; Fig. 3, a perspective view showing the book thrown open; Fig. 4, an end view with the cover-boards partially broken away, showing the impaling-pins in full lines in their normal or holding position and in dotted lines thrown toward releasing position, or that which they assume when the leaves are to be inserted or removed; and Fig. 5, a cross-section through the back of the binder with the impaling-pins in their normal or holding position.

The binder here shown consists of the usual back or middle portion A, which is advisably curved and may be made up to simulate more or less closely the corresponding portion of ordinary book-bindings, and cover-boards B and C, flexibly connected with the back or middle portion A in any usual or convenient manner.

Riveted, screwed, or otherwise made fast to the cover-boards B and C are metal plates or strips D and E, the inner edges of which project inwardly beyond the hinges *a* or flexible portions uniting the back and cover-boards and are curved or fashioned into tubular barrels *b*, as best seen in Fig. 5. Within the barrels *b* thus formed are placed rods or shafts F and G, to which are rigidly secured curved and preferably tapering impaling-pins *c* and *d*.

To form an abutment or to confine the inner edges of the sheets in their proper position, I provide tongues or bearing-plates *f*. Each of the strips D and E is cut away in line with the impaling-pins, and the tongues or bearing-plates *f* are secured at their inner ends to the rods F and G at these points. The upwardly-extending end of each of the tongues *f* is perforated, and the impaling-pins pass therethrough. A drop of solder preferably unites each tongue to its impaling-pin, so that each tongue and pin swings or rotates with its rod. As above stated, these tongues or bearing-plates serve to confine the innermost edges of the sheets in their proper position and prevent the sheets from being accidentally torn out from the impaling-pins.

It is manifest, of course, that the tongues may be placed upon the rods at any point throughout their length independent of the pins. It is requisite, however, that the tongues should be rigidly secured to the rods, so as to rotate in unison with the impaling-pins and be properly positioned relatively thereto.

Secured upon the ends of the rods F and G are arms or bars H and I, the conjoint length of which is greater than the distance in a straight line from the rod F to the rod G. The bars H carry headed studs *g*, the stems of which pass through slots *h* in the bars H and I and also into or through a slot *i* in a plate J, connecting the rods F and G, a plate J being employed at each end of the cover or binder. The plates J prevent the spreading of the back or middle section A and maintain a fixed distance between the rods F and G and also serve (by means of the slots *i*) to guide the studs *g* in their movements.

The bars H and I being rigidly secured to the rods F and G, it follows that if the stud *g* be moved to one extremity of the slot *i*—that nearest the back A—the impaling-pins will be thrown toward each other and their points will be caused to approach the barrel at the opposite side of the back, as indicated in Figs. 4 and 5. If, however, the stud *g* be

moved to the other extremity of the slot *i*, or to the position indicated by the dotted lines in Fig. 4, the rods F and G will be rocked in the reverse direction, and the impaling-pins *c* and *d* will be carried away from each other and their extremities slightly separated, as will also the ends of tongues *f*, as shown by dotted lines in said Fig. 4, thus permitting the insertion of sheets at will.

To prevent the accidental outward swinging of the pins, I provide a latch or fastening K, which being pivoted upon one of the bars H or I and of a length to engage the sliding stud *g* when the latter is at either extremity of the slot *i* serves to prevent the accidental change of position of bars H and I, and consequently of the pins *c* and *d*.

When it is desired to open the pins to insert or remove a leaf or leaves, the latch K is thrown back to the position indicated by dotted lines in Fig. 4, in connection with the bars H and I, as shown in full lines, and the stud *g* being then free the bars H and I may be easily moved up or down.

If it be desired to hold the ends separated and open, the latch may be thrown back into locking position, with the bars in their raised or elevated position. (Shown by dotted lines in Fig. 4.) Thus by simply throwing back the latch the pins may be manipulated as desired, leaves inserted or removed, and when it is desired again to lock the parts the bars H and I are thrown into the position shown by full lines in Fig. 4 and the latch is thrown to its locking position, thus retaining all the parts in proper place.

A lock (indicated at L in Fig. 2) may be provided, the same being made fast to one of the rods F or G and provided with a stud or stem to enter the end plate J, over which it swings. This lock is simply to guard against surreptitious mutilation or change of records and may be employed where records are removed from the binder in which they were originally written or made up and placed in other binders for occasional reference.

It is obvious that details may be varied considerably without departing from the spirit or scope of my invention and that the materials employed may be varied at will. The barrels in which the rocking rods F G are mounted may be shortened to form mere eyes or bearings for said rods, and it is immaterial in what manner the strips D E are attached to the cover-boards provided the barrels come to the proper positions.

It will be noted that under the construction above set forth the strips D and E, with their barrels *b*, are attached to the cover-boards B C and not to the back A, and being connected with each other through the rods F and G and the end plates J they prevent the spreading of the back A. The barrels *b* project, as best shown in Fig. 5, inwardly into or over the back A, and as a consequence of the construction shown and described the rods F G are raised upwardly as the cover-boards B and C are opened outwardly and are lowered as said parts are brought together, as in closing the book or binder. As a consequence of this movement of the rods F and G, the leaves constituting the book or the letters, leaves, or sheets held in the binder are bodily raised in the act of opening the book and brought sufficiently out of the back to permit them to fall more readily back upon the cover-boards and to lie more nearly flat than they could otherwise do. When the cover-boards are brought together, as in closing the book, the rods F G are dropped downwardly in the back and the leaves, sheets, letters, or the like are drawn well into the cover. This is a feature of considerable importance and together with the form of the back causes the book to have and to maintain a pleasing appearance closely approximating that of a well-bound volume. So, too, the rods F and G when actuated by the arms H I maintain their position and do not at all affect the position of the cover-boards or back, all of which remain stationary during the movement of the rods when the impaling devices are being opened and closed to release the leaves or to secure them in the binder.

The form and construction of the locking-latch may be varied as desired, the only requirement being that it be such as to normally hold the arms H I against shifting their position or swinging outward relatively to the back A.

Having thus described my invention, I claim—

1. The herein-described binder, comprising back A; cover-boards B, C hinged thereto; barrels *b* carried by the cover-boards; rocking rods F, G carried by said barrels and provided with impaling-pins *c*, *d;* bars H, I rigidly secured to said rods and slotted at their overlapping ends; connecting-plates J provided with slots *i;* and studs *g* extending through the slots of the plates and of the bars H, I, substantially as and for the purpose set forth.

2. In a binder, the combination with a cover comprising a back, and cover-boards hinged to said back; of rocking rods or shafts provided with impaling-pins and carried by the cover-boards; arms or bars rigidly secured to said rods and adapted to overlap at their ends; a stud carried by one of said arms or bars and extending through a slot in the other; and a locking device carried by one of said arms and serving to lock the stud against movement in the slot, whereby the impaling-pins are held in fixed position.

3. In a binder, the combination of a cover comprising a back, and cover-boards hinged thereto; barrels carried by the cover-boards and projecting inwardly over the back; rocking rods or shafts mounted therein and provided with impaling-pins adapted to project past each other from the respective rods or shafts; arms or bars rigid with the shafts or rods, arranged to overlap at their ends; a

sliding connection between said ends; and a locking device to prevent movement in said sliding connection.

4. In a binder, the combination of a cover comprising a back, and cover-boards hinged thereto; barrels carried by the cover-boards and projecting inwardly over the back; rocking rods or shafts mounted therein and provided with rigid impaling-pins, and with overlapping arms applied to the rods in such manner as to be thrown out of alinement when the impaling-pins are thrown to either extreme of their movements about the axes of their carrying-rods; and a locking device applied to said arms and serving to prevent the straightening or alining of the arms, substantially as shown and described.

5. In a binder, the combination of a cover comprising back A and cover-boards B and C; rods or shafts F, G swiveled in bearings carried by said cover-boards at opposite sides of the back A, and provided with impaling-pins *c*, *d* extending from each rod or shaft toward the other; rigid bars or arms H, I, secured to the said rods or shafts and having their overlapping ends provided with slots; end plate J connecting said rods and provided with slot *i;* and stud *g* extending through slot *i* and through the overlapping ends of bars or arms H, I, as and for the purpose set forth.

6. In a binder, the combination of a cover comprising a back, and cover-boards hinged thereto; barrels carried by the cover-boards at opposite sides of the back; rocking rods or shafts mounted therein and provided with impaling-pins adapted to project past each other from the respective rods or shafts; tongues or bearing-plates carried by said rods, the tongues or bearing-plates impinging against the inner edges of the sheets or pages when the parts are brought to their fixed position; and means for holding the parts in their fixed position.

7. In a binder substantially such as described, the combination of a suitable cover; plates D, E secured thereto and provided with barrels *b;* rods or shafts F, G carried in said barrels; tongues *f* carried by said rods; impaling-pins *c*, *d* also carried by the rods or shafts and projecting through the tongues *f;* arms H, I carried by the rods or shafts F, G; and means for holding said arms and consequently the rods and their attached members in fixed position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN L. McMILLAN.

Witnesses:
JOHN W. EDDY,
E. I. MORAN.