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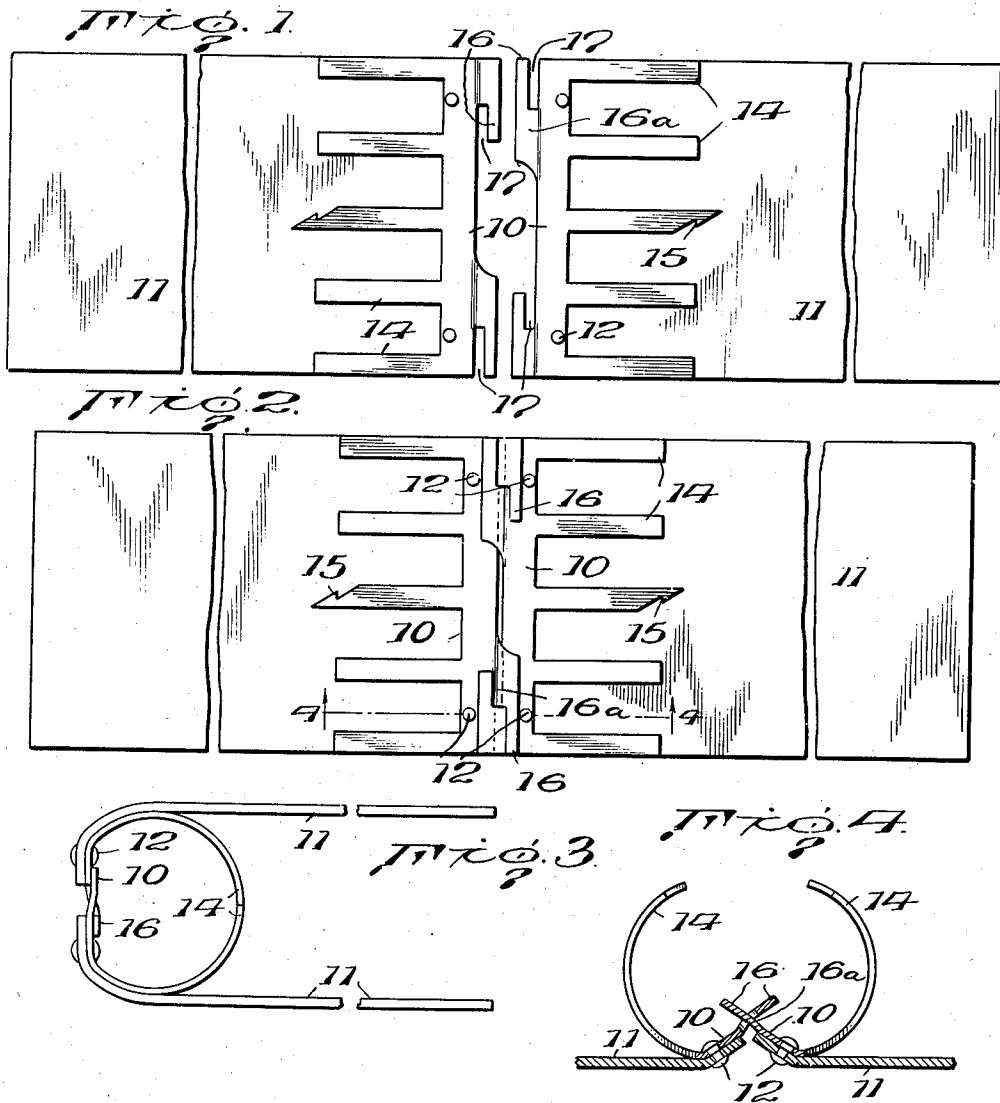
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LOOSE-LEAF BINDER

Filed Nov. 6, 1940

2 Sheets-Sheet 1



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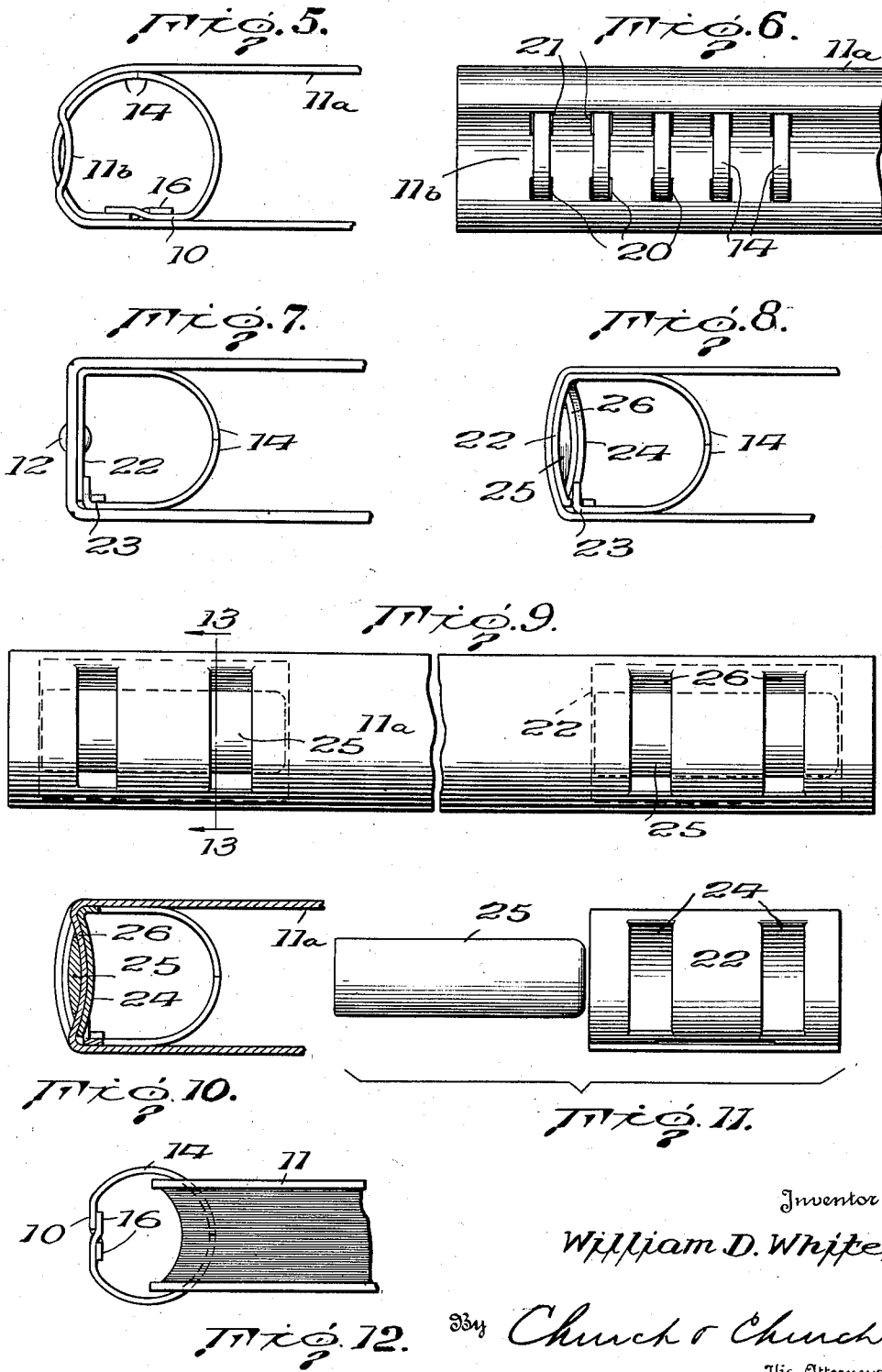
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UNITED STATES PATENT OFFICE

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LOOSE-LEAF BINDER

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9 Claims. (Cl. 129—17)

This invention relates to improvements in loose-leaf book binding appliances.

The primary object is to provide a loose-leaf book binder that is inexpensive and which can be very readily assembled and disassembled. Specifically, the invention contemplates a binder preferably, but not necessarily, composed of two parts or members which are identical with each other whereby a single die may serve the purpose of blanking out both members constituting the appliance. In connection with the assembly feature, the two members are adapted to be held against lateral separation from one another by interlocking elements formed integrally with said members. Preferably, these interlocking elements can be easily operatively engaged with each other simply by a longitudinal movement of one member lengthwise of the other member.

Still another object of the invention is to provide said members with interlocking elements which will not interfere with the pivoting of said members so that the usual leaf-retaining prongs carried by the members can be readily separated to permit the insertion and removal of leaves.

A further object of the invention is to provide a binder comprising two members each having leaf-engaging prong sections formed integrally with the body portion of the member which body portion is of sufficient width to permit direct attachment of the book covers thereto and conforms to the contacting surfaces of the cover.

With these and other objects in view, the invention consists in certain details of construction and combinations and arrangements of parts, all as will hereinafter be more fully described and the novel features thereof particularly pointed out in the appended claims.

In the accompanying drawings—

Figure 1 is a plan view illustrating the preferred embodiment of the present invention, the prongs being shown in flattened position prior to curling, the binder members being shown detached from each other to more clearly disclose their design;

Fig. 2 is a plan view of the binder members interlocked or pivotally attached to each other;

Fig. 3 is an end view of a book bound with the binder illustrated in Figs. 1 and 2;

Fig. 4 is a sectional view on the line 4—4 of Fig. 2;

Fig. 5 is an end view illustrating a modified form of attachment for the cover;

Fig. 6 is a rear edge view of the binder illustrated in Fig. 5;

Fig. 7 illustrates a still further shape for the binder members;

Fig. 8 is an end view and Fig. 9 is a rear edge view showing still another form of attachment of the cover;

Fig. 10 is a sectional view on the line 13—13 of Fig. 9;

Fig. 11 is a detail view illustrating the rear face of the binder and the cooperating cover-locking member;

Fig. 12 is an end view illustrating a number of pages or book leaves with separate covers held in the binder.

Referring particularly to Figs. 1 and 2, illustrating the preferred embodiment of this invention, each binder member comprises a plurality of elements 14 formed on a common base portion 10 and, when the two members are properly associated with each other, the prong sections of one member register and cooperate with those of the other member to form the leaf-retaining rings, as shown. As will be understood, the two members 10 are pivotally associated so the retaining rings formed by the mating prongs 14 can be opened for the insertion and removal of book leaves. To releasably hold the binder rings against opening accidentally, the ends of at least one pair of mating prongs should be formed with locking means. For reasons which will be stated later, it is preferred that these fastening means be in the form of interengaged hook-shaped ends 15 on at least one pair of prongs, preferably the centrally located pair.

As previously stated, the members 10 have their base or body portions pivotally associated with each other. In the preferred embodiment of the invention, this is accomplished by merely interlocking the two members directly with one another. For instance, the members comprise interlocking projections 16 which may be formed integrally with the base or body portions 10. These projections are of hook-shaped formation with the so-called bill portion of the hook spaced laterally from the body portion but extending lengthwise of the member. The projections of the two members extend in opposite directions when placed in position preparatory to assembly and can be interlocked with each other, as shown in Fig. 2, merely by a movement of one member longitudinally of the other. When so interlocked, the members cannot be separated by a lateral movement and, as will be readily appreciated, so long as there are book leaves on the prongs, the two members cannot be moved longitudinally with respect to one an-

other a distance to accidentally disconnect them. In this connection, it will be observed that the hook-shaped ends 15 of the prongs are so formed that the bill of the prong on each member faces in a direction opposite to that in which the interlocking extensions of that member are disposed. Consequently, when the binder is assembled and the prong ends 15 hooked together, the hooked ends of the prongs cannot move laterally away from each other because the interlocked extensions cannot move any further in that direction and, at the same time, the interlocking extensions cannot move in a direction to become disengaged because the interengaged hooked ends of the prongs cannot move away from each other. This locking relationship between the hook-shaped prong ends and the interlocking extensions may be materially strengthened by making the prongs somewhat resilient so that the prong ends must be sprung or flexed slightly in hooking them together and so that there is a tendency of said hook ends to bind when once interengaged. Preferably, the shank portions 16^a of the projections 16, where the latter merge into the body portion 10, are offset from the plane of said portion 10 a distance substantially equal to the thickness of the material of which the members are made whereby the functioning of the parts, particularly in opening or closing the binder, is facilitated. In actual use, the shank portions 16^a of the extensions on each member are received in the spaces or slots 17 formed between the interlocking extensions and body portion of the other member and the edge portion of each member engaging the other member rocks freely on the latter in opening and closing the leaf-retaining rings formed by the prongs.

It will be seen that this preferred form of the invention is quite simple and can be produced at very little expense over and above the cost of materials. It is preferably stamped from sheet material such as metal or molded plastic, initially taking the flat form illustrated in Fig. 1. Both members are of identically the same form so they can be stamped out with the same die and the only operations necessary to be performed on the stamped blank are to offset the portions 16^a and roll or curl the prongs 14, both of which are duplicate operations on the two members of a finished binder.

It will be understood that the attachment of the book covers direct to the body portions of the two members is optional, depending upon the nature of the cover. For instance, the covers may be such that it might be considered preferable to perforate them the same as the leaves and bind them together with the leaves merely by retaining them in the rings formed by the prongs.

The present binders permit the covers of different types, either one-piece covers or separate front and back covers, to be readily and securely attached. For instance, in Figs. 3 and 4, the back of the binder is formed by having the prongs 14 formed on base portions 10 of like shape and of sufficient size or width to permit attachment of separate front and back covers 11 by suitable fastening means, for instance, rivets 12. However, if desired, these separate covers may be perforated the same as the pages to be bound, and the prongs 14 placed through the covers as well as the leaves, as illustrated in Fig. 12. Two or more binders can be used in this form of binder, spaced lengthwise of the bound pages, and the exposed portions of the binders serve to

protect the inner or rear edges of the pages. Also, with a plurality of prongs on each binder, the rings formed by the prongs cannot tilt relatively to each other, so as to damage the bound material.

The so-called ring form of binder can also be used with a one-piece cover 11^a, as shown in Figs. 5 and 6. In this arrangement, the prongs 14 pass through openings 20, 21, in the cover, so that the medial portion 11^b of the cover is located inside the prong rings. Preferably, with this form of cover binding, the hinged base portions, whether connected by interlocking members or by a hinge pin, are positioned entirely within the cover so that only a small portion of the prong surfaces are exposed at the rear edge of the book, thus presenting a very neat appearance.

Other forms of binder especially adapted for a one-piece cover are illustrated in Figs. 7 to 11 in which one set of prongs 14 is formed on a comparatively wide base 22 and the other set has a comparatively narrow base 23. The wide base 22 affords a broad surface to which the medial portion of the cover can be attached as by the rivets 12 or, if desired, the wide base 22 can be slit as shown in Figs. 8 to 11 and the portions 24 bent in to a concave formation while the remainder of the base 22 is of convex formation, thus forming a more or less elliptical passage for reception of a retainer member or locking key 25. In this type of binding, the cover is also slit so that portions 26 thereof can be depressed into the concave portions 24 before the key 25 is inserted so that the cover is retained on the binder by said portions 26 underlying, so to speak, the locking key. Here, again, the hinge connection, whether of the interlocking, or of the hinge pin type, is preferably completely concealed by the cover.

What I claim is:

1. A loose-leaf binder consisting of two members each comprising a body portion and prong sections, the prong sections of the two members being aligned with each other to form leaf-retaining rings, and the body portions of said members having cooperating interlocking elements preventing lateral separation of said members, said interlocking elements being movable into and out of cooperative interlocking engagement axially of said leaf-retaining rings.

2. A loose-leaf book binder formed of two members, interlocking projections on said members, said interlocking members alone normally preventing lateral detachment of said members, and prong sections on the respective members movable into and out of engagement with each other to form leaf-embracing rings.

3. A loose-leaf book binder formed of two members each having a longitudinally extending slot therein, a projection on each member engageable in the slot of the other member to releasably interlock said members, and cooperating leaf-engaging prong sections on said members.

4. A loose-leaf book binder formed of two members each comprising a body portion, lateral hook-shaped extensions on said body portions engageable with each other to interlock the two members together, and leaf-engaging prong sections on said body portions, said members being movable with respect to each other to separate their respective prong sections to permit insertion and removal of leaves.

5. A loose-leaf book binder formed of two members, each member having a substantially flat body portion, lateral extensions on said body

portions offset from the plane of the body portions, each extension being spaced laterally from its respective body portion for a portion of its length, each extension of one body portion being engaged in the space formed by an extension of the other body portion to interlock said members, and leaf-engaging prongs carried by said members movable into and out of leaf-retaining engagement with each other.

6. A loose-leaf book binder composed of two members each comprising a body portion and leaf-engaging prong sections, and interlocking elements on said members, the interlocking elements of each member having a rocking contact on the other member whereby the prong sections of the respective members can be moved into and out of engagement with each other and said two members being releasably attached to each other solely by said interlocking elements when said prong sections are in open, leaf-receiving position.

7. A loose-leaf binder comprising two members, means on said members solely releasably interlocking the same together against lateral separation and in a pivotally associated relationship, said interlocking means being disengageable by movement of one member relatively to the other, prongs on each member, the prongs of one member mating with those of the other

member, and releasable interlocking portions on at least one pair of mating prongs, said interlocking portions of said prongs being fixed with respect to each other in the direction of movement required for disengaging the first-mentioned locking means.

8. A loose-leaf book binder comprising two members each having a body portion, interlocking elements on said body portions movable into interlocking engagement with each other by longitudinal movement of one member relatively to the other, and laterally disposed prongs on said body portions, the prongs of one member mating with those of the other member to retain book leaves in the binder, at least one pair of mating prongs having interlocking portions movable into interlocking engagement in a direction opposite to that required for effecting interlocking engagement of said interlocking elements.

9. A loose-leaf binder member having a body portion, an interlocking element on said body portion, and a prong section on said body portion, said prong section having a hook-shaped extremity with the hook on said extremity and said interlocking element disposed in opposite directions.

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