Jan. 17, 1950 E. M. PHILLIPS 2,495,180

BINDER

Filed Dec. 17, 1945

Fig. 1

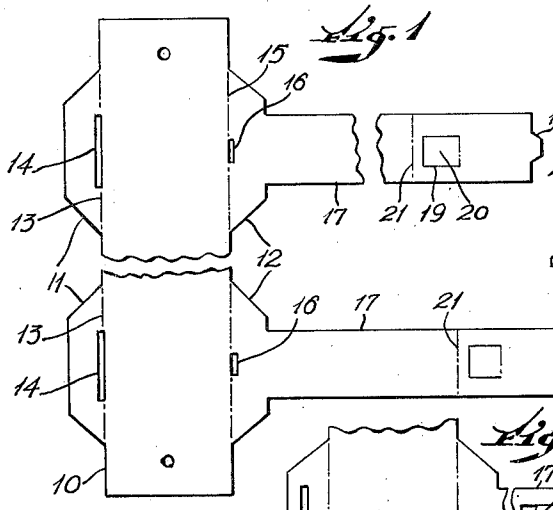


Fig. 2

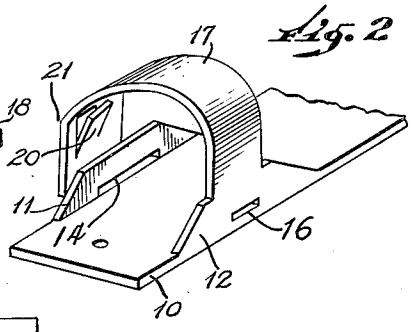


Fig. 3

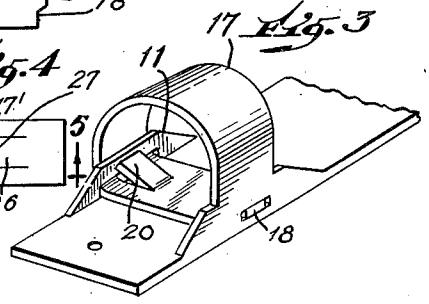


Fig. 4

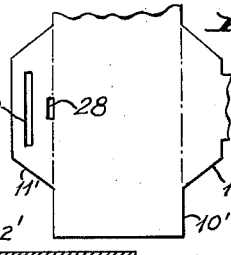


Fig. 5

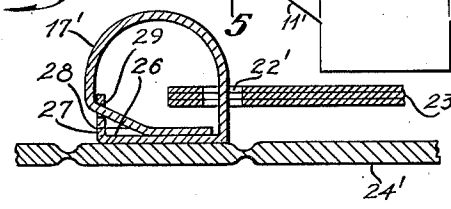


Fig. 8

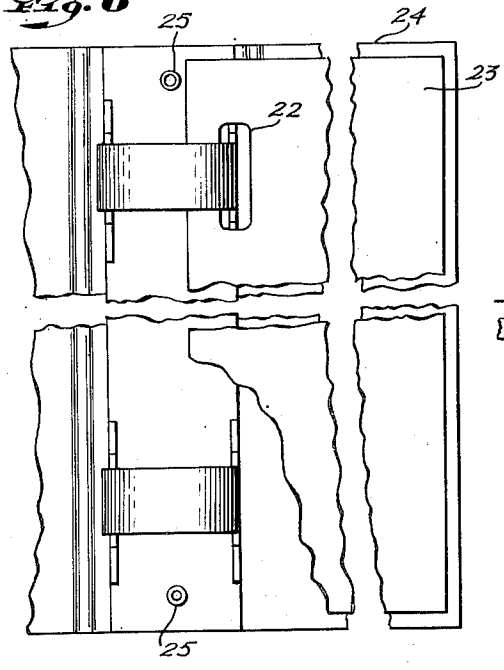


Fig. 6

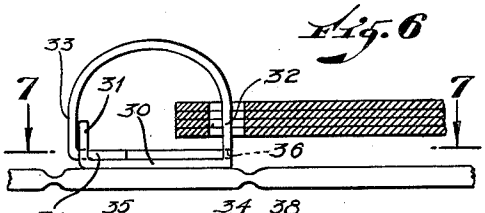
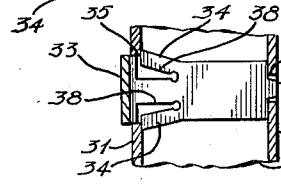


Fig. 7



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BINDER

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6 Claims. (Cl. 129—1)

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This invention relates to the binding of sheets in a cover member in what is generally known as ring-binders. More particularly, the invention deals with the construction of an economical form of ring binder which can be applied to books or folders of various kinds and classes for the support of perforated sheets therein. Still more particularly, the invention deals with a binder comprising a back or mounting strip with ring forming portions constituting an integral part of one side edge portion of said strip and coupled with the other side portion thereof in forming ring members disposed over said strip. The novel features of the invention will be best understood from the following description, when taken together with the accompanying drawing, in which certain embodiments of the invention are disclosed and, in which, the separate parts are designated by suitable reference characters in each of the views and in which:

Fig. 1 is a plan view of a blank from which one form of binder is produced, with parts of the construction broken away.

Fig. 2 is a perspective view showing one part of the binder in a partially formed position.

Fig. 3 is a view similar to Fig. 2 showing the completion of the formation of a ring on a binder.

Fig. 4 is a view similar to Fig. 1 showing only a part of the construction and showing a modification.

Fig. 5 is a sectional view through the binder structure of Fig. 4, illustrating the same mounted upon a support, the section being taken centrally through the ring forming portion of the binder of Fig. 4.

Fig. 6 is a view similar to Fig. 5 showing another adaptation of my invention.

Fig. 7 is a sectional view on the line 7—7 of Fig. 6 omitting part of the construction; and

Fig. 8 is an inside face view of a binder mounted in a folder or book with parts of the construction broken away and in section, this view being applicable to the structures shown in all of the other figures.

My invention contemplates the use of inexpensive sheet material for forming means to bind together a number of sheets and, while the binder element, as a whole, may be used for this purpose, in most instances, the binder will be mounted in a folder or cover portion at the back or bound portion thereof. Such materials as fibre, plastics or paper can be used for the purposes stated and, in some instances, thin sheet metals may be employed.

In Figs. 1–3 inclusive, I have shown one adaptation of my invention, wherein the binder includes an elongated back or mounting strip 10, having spaced longitudinally of side edges thereof flange portions 11, at one side and other flange portions 12, at the opposite side. The flange portions 11 have, adjacent the folds 13, elongated apertures 14. The flanges 12 have, adjacent the folds 15, apertures 16. Extending centrally from the flanges 12 are ring forming strips 17 terminating at their ends in projecting bevelled tongues 18 adapted to be inserted into the apertures 16, as later described. The ring-forming strips, which may be defined as ring members, have adjacent the free end portions thereof U-shaped cuts 19 forming spring lock elements 20. The ring members 17 also have transverse folds or score lines 21 adjacent the elements 20. In the use of the binders, it is preferred that they be pre-formed to the position shown in Fig. 2, wherein the flanges 11 and 12 extend upwardly at side edges of the strip 10 with the ring-forming strips 17 free and unattached. In this position, the members 17 may be freely passed through apertures 22 formed in sheets 23 to be mounted in a folder or support 24, after the back strip 10 has been secured to the back or binder portion of the folder, as by eyelets 25, or in any other desired manner. When all of the sheets have been arranged upon the ring-forming members 17, the ends thereof are then passed inwardly through the apertures 14, then across the upper surface of the strip 10 with the tongues 18 projecting into the apertures 16 and, when in this position, the lock elements 20, which have yieldably passed through the apertures 14, will spring upwardly, substantially into the position shown in Fig. 3, to engage the inner surface of the upstanding flanges 11, thus locking the ring members 17 against displacement.

The tongues 18 form shoulder portions 18', which will abut or, substantially abut, inner surfaces of the flanges 12, maintaining the ring members against twisting movement.

The flanges 11 and 12 form strong supports for the ring members in connection with the back or supporting strip 10. It will be understood that two, three or more of the ring members may be arranged along a binder strip depending entirely upon the requirements. In referring to the folder or support 24, references have been applied to Fig. 8 of the drawing, but it will be apparent that the other forms of binders, later described, would also have substantially the same appearance as the assemblage in Fig. 8.

In Figs. 4 and 5 of the drawing, I have shown a modification, in which 10' represents the back

strip of the binder, 11' flange portions similar to the flange portions 11, and 12' similar to the flange portions 12, and 17' are ring-forming strips, similar to the strips 17, excepting that the elements 20 are not pre-flexed inwardly, in the manner shown in Fig. 2 of the drawing. Instead, locking elements 26 are employed having a tendency to maintain their normal straight position, so that tongue ends 27 of the elements 26 are adapted to snap into small apertures 28 at the base of the flanges 11' and these flanges will have larger apertures 29 outwardly of the apertures 28, through which the ring elements 17' pass, as clearly seen in Fig. 5 of the drawing. In other words, in forming the inwardly tensioned elements 20 in fibre and other materials, pre-heating of the materials may be necessary to accomplish this result, whereas with the structure of Figs. 4 and 5, the bending of the ring members and passage of the same through the apertures 29 will simply cause the lock elements 26 to assume their normal straight position and snap into the apertures 28, thus retaining the ring-members against accidental opening.

In Fig. 5 of the drawing, I have shown at 24' a shoulder or mounting, to which the binder is attached in the manner illustrated in Fig. 8 of the drawing. In Fig. 5 is also shown a few sheets 23', through the apertures 22', over which one of the ring members 17' passes.

In Figs. 6 and 7 of the drawing, I have shown another adaptation of my invention, wherein 30 represents a binder back; 31 and 32 represent flange portions, similar in all respects to the flange portions 11 and 12; 33 one of the ring members and this ring member, instead of having elements, such as the elements 20, 26, has a pair of outwardly flexed or tensioned lock elements 34, formed at opposite sides of the members 33 and flexed outwardly a sufficient degree to require inward yielding in passing through the aperture 35 and, after clearing the aperture, these elements flex outwardly and engage the inner surface of the flange 31, locking the ring member against displacement. The free end of each ring member 33 terminates in a projecting tongue 36, operating in an aperture 37 in the flange 32, similar to the aperture 16. The lock elements 34 are formed by substantially L-shaped cutouts 38 in the ring members, as illustrated in Fig. 7. With the construction shown in Figs. 1–3 inclusive, the lock elements flex upwardly for a locking engagement. In Figs. 4 and 5, the lock elements flex downwardly or are disposed downwardly with respect to adjacent portions of the ring member, whereas in Figs. 6 and 7, the lock elements 34 flex laterally into locking engagement. In all cases, the lock elements will be tensionally forced through the apertures in the flanges and, while these elements will provide a more or less closed ring binder, it is possible to make a loose-leaf structure of the ring elements by inserting a blade into position to flex the lock elements 20, 26 to registering alinement with the aperture through which it may be drawn and, with the structure of Figs. 6 and 7, a suitable tool can be provided to draw the pair of elements 34 simultaneously toward each other for this purpose.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A binder of the class described comprising an elongated mounting member, said member having a flat bottom with alined raised flange portions at opposite sides thereof, one of the flanges having an integral ring-forming member extending therefrom, the other of said flanges being apertured to receive the free end portion of said member in forming a ring member on said mounting member between said flanges, yieldable means on said ring member engaging said apertured flange in retaining the ring member in ring formation on said mounting member, said yieldable means comprising a lock element formed from the material of the ring member and adapted to engage the inner surface of said apertured flange, the first named flange having an aperture therein, and the free end portion of said ring member having a projecting tongue adapted to enter the last named aperture when the ring member is in locked position.

2. A binder of the class described comprising an elongated mounting member, said member having a flat bottom with alined raised flange portions at 90° to the bottom at opposite sides thereof, one of the flanges having an integral ring-forming member extending therefrom, the other of said flanges being apertured to receive the free end portion of said member in forming a ring member on said mounting between said flanges, the free end portion of said member being adapted to seat flatly on the inner surface of said mounting between said flanges, and yieldable means on said ring member inwardly of said free end portion and engaging the inner surface of said apertured flange in retaining the ring member in ring formation on said mounting member.

3. A binder of the class described comprising an elongated mounting member, said member having a flat bottom with alined raised flange portions at 90° to the bottom at opposite sides thereof, one of the flanges having an integral ring-forming member extending therefrom, the other of said flanges being apertured to receive the free end portion of said member in forming a ring member on said mounting between said flanges, the free end portion of said member being adapted to seat flatly on the inner surface of said mounting between said flanges, yieldable means on said ring member inwardly of said free end portion and engaging the inner surface of said apertured flange in retaining the ring member in ring formation on said mounting member, and said yieldable means comprising a lock element formed from the material of the ring member and engaging the inner surface of said apertured flange above the aperture therein.

4. A binder of the class described comprising an elongated mounting member, said member having a flat bottom with alined raised flange portions at 90° to the bottom at opposite sides thereof, one of the flanges having an integral ring-forming member extending therefrom, the other of said flanges being apertured to receive the free end portion of said member in forming a ring member on said mounting between said flanges, the free end portion of said member being adapted to seat flatly on the inner surface of said mounting between said flanges, yieldable means on said ring member inwardly of said free end portion and engaging the inner surface of said apertured flange in retaining the ring member in ring formation on said mounting member, said yieldable means comprising a lock element formed from the material of the ring member and engaging the inner surface of said apertured flange below the aperture therein.

5. A binder of the class described comprising an elongated mounting member, said member having a flat bottom with alined raised flange portions at 90° to the bottom at opposite sides thereof, one of the flanges having an integral ring-forming member extending therefrom, the other of said flanges being apertured to receive the free end portion of said member in forming a ring member on said mounting between said flanges, the free end portion of said member being adapted to seat flatly on the inner surface of said mounting between said flanges, yieldable means on said ring member inwardly of said free end portion and engaging the inner surface of said apertured flange in retaining the ring member in ring formation on said mounting member, said yieldable means comprising a lock element formed from the material of the ring member and engaging the inner surface of said apertured flange in alinement with the aperture therein.

6. A binder of the class described comprising an elongated mounting member, said member having a flat bottom with alined raised flange portions at 90° to the bottom at opposite sides thereof, one of the flanges having an integral ring-forming member extending therefrom, the other of said flanges being apertured to receive the free end portion of said member in forming a ring member on said mounting between said flanges, the free end portion of said member being adapted to seat flatly on the inner surface of said mounting between said flanges, yieldable means on said ring member inwardly of said free end portion and engaging the inner surface of said apertured flange in retaining the ring member in ring formation on said mounting member, said yieldable means comprising a lock element formed from the material of the ring member and engaging the inner surface of said apertured flange below the aperture therein, the second named flange having a second aperture, and said lock element having a projecting tongue adapted to enter said last mentioned aperture.

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