Feb. 18, 1941. E. N. FARKAS ET AL 2,232,058

BINDER

Filed Oct. 10, 1938

Fig. 1.

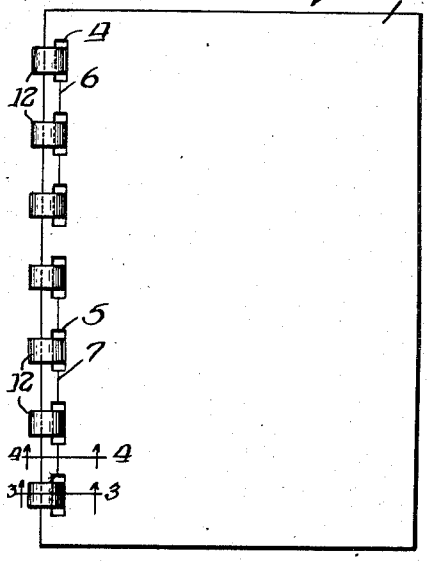


Fig. 2.

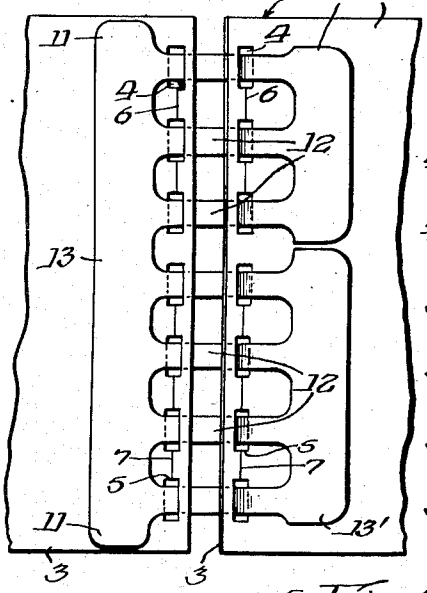


Fig. 6.

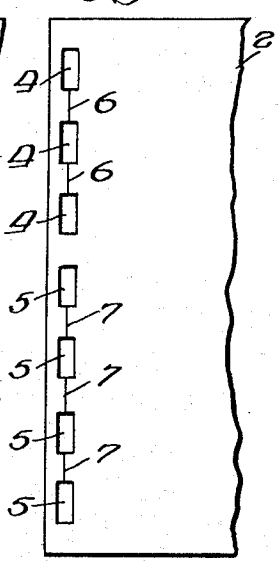


Fig. 3

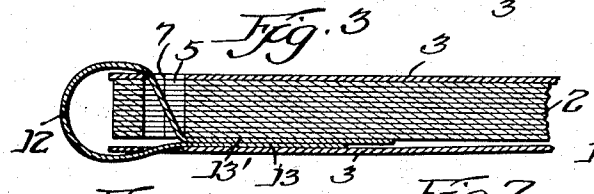


Fig. 4.

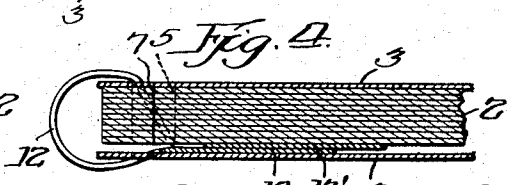


Fig. 5

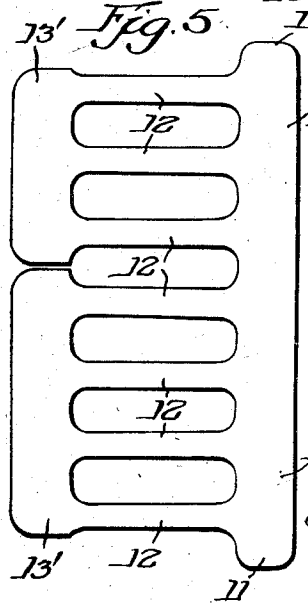


Fig. 7.

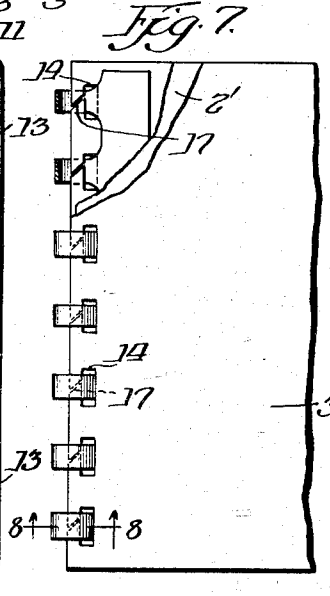


Fig. 9.

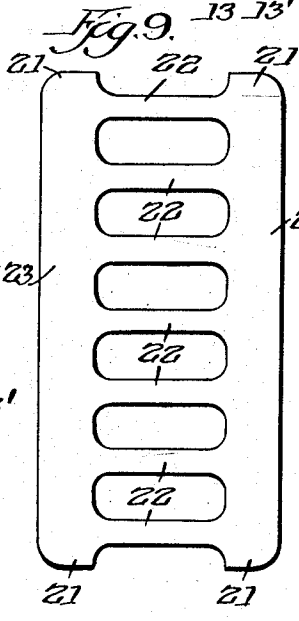


Fig. 10.

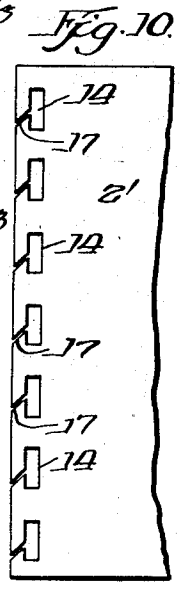
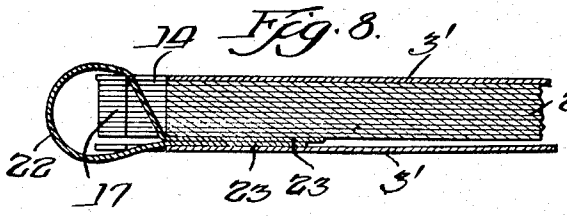


Fig. 8.



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By Hill & Hill Attys:

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UNITED STATES PATENT OFFICE

2,232,058

BINDER

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Application October 10, 1938, Serial No. 234,180

3 Claims. (Cl. 129—1)

The invention relates to a means for binding leaves together and more particularly to such a means formed preferably of paper or material similar to that used in the book.

The invention has among its objects the production of a binding which will present a very attractive appearance, and will simulate the appearance of a plurality of individual rings, although constructed from a flat sheet of material not preformed in that shape, and assembled while still in the unformed state, thereby preventing injury or weakening of the elements which might occur were it necessary to distort and force a preformed retaining means into engagement with suitably shaped leaves. The present invention therefore ideally adapts itself for use with the retaining elements formed completely of paper. The paper used may be of a single thickness or if desired, may be laminated or provided with a special coating of varnish or other suitable material.

Another object of the invention is the production of a binding in which the retaining member is so designed that it may be engaged as a unit with the leaves of the book, the engagement being accomplished in substantially one operation with the parts of the retaining member substantially simultaneously engaging the leaves. Also, the leaves are so constructed that they may be flexed slightly to facilitate such assembly and engagement.

Another object of the invention is the production of such a binding, which due to its novel construction requires relatively few operations to form and assemble the same, which operations may be performed with the ordinary equipment found in the usual printing shop or bindery.

A further object of the invention is the construction of a binding which is simple, inexpensive, and durable for the purposes intended, thus providing a binding which provides the maximum in utility and appearance with relatively very small cost.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

To this end our invention consists in the novel construction, arrangement and combination of parts herein shown and described and more particularly pointed out in the claims.

In the drawing wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a plan view of a book in closed position;

Fig. 2 is a plan view of the book shown in Fig. 1 with one of the covers open;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a plan view of the retaining member used in conjunction with the books shown in Figs. 1 and 2;

Fig. 6 is a plan view of one of the leaves used in the book;

Fig. 7 is a plan view of a book with a modified form of binder, portions of the book being cut away to disclose the latter;

Fig. 8 is a sectional view taken on the line 8—8 of Fig. 7;

Fig. 9 is a plan view of the retaining member used in the construction shown in Fig. 7; and

Fig. 10 is a plan view of one of the pages used with the retaining member of Fig. 9.

Referring to Figs. 1 through 6, 1 represents generally a book comprising a plurality of leaves 2, the two outer leaves being formed from heavier material, if desired, to provide covers 3. These covers are constructed substantially the same as the leaves 2, all being provided with a plurality of apertures 4 and 5 adjacent one end thereof, the portion of the leaf intermediate these apertures being cut or slit as shown at 6—7. These cuts, preferably merely knife edge cuts with none of the material being removed, may extend between all of the adjacent apertures, or, as shown in Fig. 6, merely between particular groups of apertures, as for example, the cuts 6 extend between the apertures 4 and the cuts 7 between apertures 5. As illustrated in Fig. 5, the retaining member 11 is substantially ladder shaped and comprises a plurality of cross members or rungs 12 connected at their ends by the laterally extending side portions 13 and 13'. If the cuts extend consecutively between all of the apertures 4 and 5, the portions 13' will be formed in a unitary construction similar to the portion 13, but if the cuts extend merely between groups of apertures as shown in Fig. 6, the side member will be divided into as many sections as there are groups of connected apertures and cuts. As shown in Figs. 2 and 5, each portion 13' is equivalent to the aggregate length of the apertures and cuts in a respective group; for example, the portions 13' illustrated are substantially equal in length to the aggregate length of the apertures 5 and cuts 7 or the apertures 4 and cuts 6.

To assemble the device, the leaves 2 are stacked with the two cover leaves 3 side by side, the sur-

faces thereof forming the outer faces in the finished book being adjacent one another, after which the portions 13' of the retaining member 11 are passed through the respective apertures and cuts of the two cover members 3, then through the respective apertures and slits in the leaves.

This engaging of the retaining member with the leaves may be facilitated by flexing the leaves slightly so that each leaf will tend to separate at the knife edge cuts 6 and 7, so that the retaining member may easily be passed as a unit through the leaves, after which the latter will readily resume their normal position and prevent any disengagement between the parts.

Following the engaging of the retaining member and leaves, the cover members are rotated in place, as shown in Figs. 3 and 4, the portions 13 and 13' of the retaining member being adjacent the inner face of one of the cover members so that the outward appearance is merely that of a plurality of rings passing through the respective apertures. Obviously, the retaining member 11 could be inserted in the reverse direction; namely, first, through the leaves and then through the cover members, although this would not provide quite as secure an engagement as the former construction, and likewise, as a matter of choice, the portions 13 and 13' could be positioned between any two leaves desired. Also, if desired, the cuts 6 and 7 could be curved and angular as well as in a single straight line and with the respective cuts formed transverse to one another so that in either case, it would be necessary to bend or flex the retaining member slightly when inserting it through the leaves, thereby providing a still more positive interlocking between the elements.

Illustrated in Figs. 7, 8, 9, and 10 is another manner in which the cuts 6 and 7 might be modified. In this construction, the cuts 17 are in the form of very narrow slits, these being so formed merely as a convenience in assembling the device, and if desired, may be in the form of a cut only instead of the slit as shown. These cuts or slits extend directly to the end leaves, thereby indirectly connecting the apertures as do the cuts 6 and 7 in the first construction and as each aperture 14 is provided with a slit, it is not necessary that one side member 23 of the ladder-like retaining member 21 be divided into sections similar to the portions 13' of the retaining member 11.

In assembling the latter construction, the cross members or rungs 22 are inserted into the apertures 14 by passing them through the slits or cuts 17, each cross member being bent or twisted slightly during the insertion thereof into its respective aperture. The slits 17 are extremely narrow and while they permit passing through of the cross members 22 when the retaining member is in a flat position, they would not allow undesired repassing of the cross members after they have been formed into apparent rings, in the completed binding.

During the engaging of the leaves and retaining means, the two covers are positioned adjacent one another so that when the outer cover is rotated about into its normal position, the cross members 22 will extend around the adjacent edge of the leaves, as shown in Fig. 8, with the portions 23 adjacent one another similar to the first construction.

While we have shown the retaining member as an element separate from the covers, if desired, one of the side members 13 or 23 could be extended to form one of the cover leaves or could be secured to one of the cover leaves, such a construction being merely a matter of choice.

It will be noted from the above description that in both constructions, the ring-like shape of the cross members is formed subsequent to the assembly of the leaves and retaining member so that the cross members are engaged while substantially flat, thereby preventing injury to the same, and also safely allowing some flexing of the members if necessary. Likewise, by providing a ladder-like retaining member, a very strong binding is produced, free from weakened and small delicate elements, etc., thereby eliminating the comparatively weak comb-like structures previously used, thus ideally adapting itself to be made from paper and other materials which do not ordinarily favorably lend themselves to the preformed constructions old in the art. As the device is not preformed, any cuts made in the leaves or retaining members would at the most be not greater than the thickness of the paper or other material used, in contrast to the old constructions where a paper retaining member would be injured and torn if the slots were not constructed relatively larger. This construction would be objectionable as the increase in the size of the slots would decrease the effectiveness of the locking action between the leaves and retaining member. However, by constructing the retaining member as a flat ladder-like structure, and assembling the device while in an unformed state, no distorting or forcing of the retaining member is necessary so that injury thereto is substantially eliminated.

Having thus described our invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of our invention; hence, we do not wish to be understood as limiting ourselves to the exact form, construction, arrangement and combination of parts herein shown and described or uses mentioned.

What we claim as new and desire to secure by Letters Patent is:

1. In a device of the kind described, a plurality of leaves having apertures adjacent one end thereof, a flexible ladder-like retaining member having a plurality of cross members connected at their respective ends by laterally extending portions, and a plurality of cuts in said leaves communicating with said apertures providing means for inserting said cross members in said apertures to lock said sheets and retaining member to one another, said cross members extending through the apertures in said leaves, around the adjacent ends thereof, through the apertures in at least one other leaf with the lateral portions of said ladder-like retaining member adjacent one another, said cross members forming substantially complete flexible rings.

2. In a device of the kind described, a plurality of leaves having apertures adjacent one end thereof, a ladder-like retaining member having a plurality of cross members connected at their respective ends by laterally extending portions, and a plurality of cuts in said leaves connecting adjacent apertures, the combined span of the apertures and cuts connecting the same being of a size to allow passage of a laterally extending portion of said retaining member through said leaves.

3. In a device of the kind described, a plurality of leaves having apertures adjacent one end thereof, a flat ladder-like retaining member hav-

ing a plurality of cross members connected at their respective ends by laterally extending side portions, and a plurality of cuts in said leaves connecting adjacent apertures, the combined span of the apertures and cuts connecting the same being of a size to allow passage of a laterally extending portion of said retaining member through said leaves, to lock said sheets and retaining member to one another, said cross members extending through the apertures in said leaves, around the adjacent ends thereof, through the apertures in at least one other leaf with the lateral side portions of said ladder-like retaining member adjacent one another.

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