

July 22, 1941.

S. L. GUNDELL

2,250,018

BINDING

Filed March 23, 1940

Fig. 1.

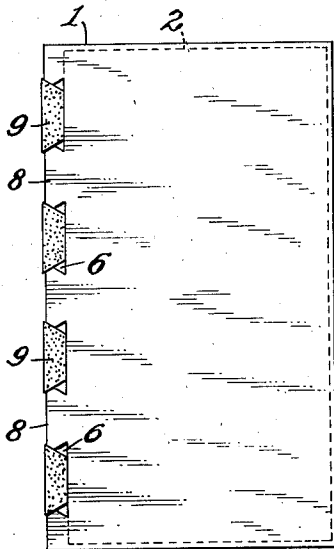


Fig. 2.

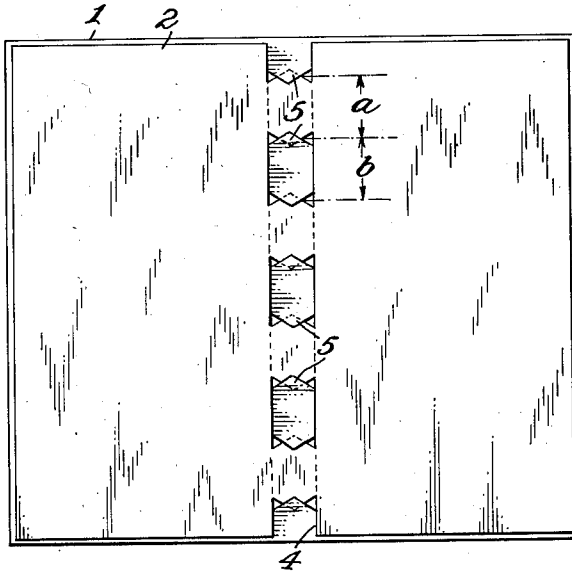


Fig. 3.

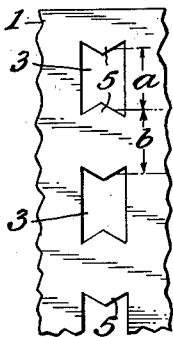


Fig. 5.

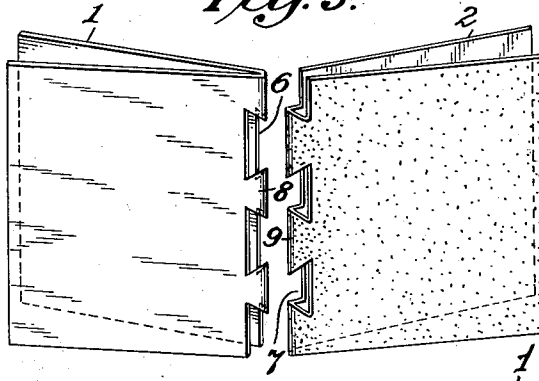


Fig. 4.

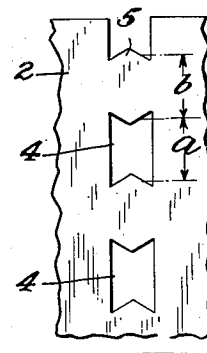


Fig. 6.

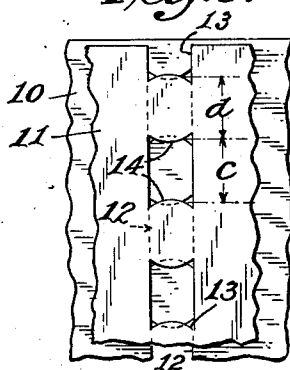
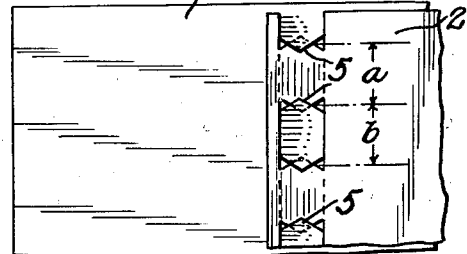


Fig. 7.



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2,250,018

BINDING

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Application March 23, 1940, Serial No. 325,558

4 Claims. (Cl. 281-21)

The invention relates to the binding of pamphlets, brochures, books and the like.

Pamphlets and small booklets of various kinds are commonly bound with wire staples or thread, the double leaves being arranged in a pack, stitched together along the fold line, folded and trimmed. The present invention is concerned with the binding of booklets in the manner stated as a "signature" or single unit of nested double leaves. It is an object of my invention to provide a method of binding pamphlets and the like in accordance with which the leaves are fastened together without the use of staples, stitching, rings, glue, or any other attaching devices or adhesive means.

Another object of my invention is to provide a self-binding method which results in a bound unit of improved appearance.

A further object is to provide a self-bound booklet in which the binding portions are visible both from the inside and outside of the booklet, lending themselves to decorative treatment.

A further object is to provide an article of the class described in which the pages can be readily assembled into bound form without the use of auxiliary fastening means, and as readily separated again.

Other objects and advantages of my invention will appear as the description proceeds. In the drawing:

Fig. 1 is a front view of a booklet made in accordance with the invention, and Fig. 2 is a face view of the inside pages of the same booklet with the booklet lying open.

Fig. 3 is a detail view of the binding portion of the cover or one of the double leaves of the same booklet, and Fig. 4 is a similar detail view of a page adapted to interlock with the cover or page of Fig. 3.

Fig. 5 is a perspective view of two complementary double page units in process of assembly.

Fig. 6 is a detail view illustrating a modified form of binding. The binding portions of two complementary units are shown in superimposed relationship, lying flat, and prior to assembly.

Fig. 7 is a detail view illustrating a further embodiment of the invention.

The invention, in its general aspects, consists in punching openings or notches along the fold lines of the leaves which are to be joined together, and then interlocking the notches of the several leaves to hold them in assembled relationship without the use of adhesives, stitching, or other attaching means. The drawing shows certain preferred forms of notching, or dovetailing, and

illustrative methods of interlocking the notched sheets to form a booklet or the like. For simplicity of illustration, the booklets shown consist simply of a cover sheet with a single four-page insert formed as one folded double leaf. It will be understood, however, that the number of pages can be increased as desired.

The booklet shown in Figs. 1 to 4 is made by punching openings along the fold lines of two double leaves or sheets 1 and 2. The openings 3 of the sheet 1 are offset with respect to the openings 4 of the sheet 2 so that, when assembled, the edges of the sheets will be substantially in alignment. As shown, the periphery of these openings has re-entrant angles at the ends thereof, forming portions 5 which will be referred to herein as re-entrant portions. Thus the openings 3 and 4 are shorter at the fold line than at a point removed therefrom so that, when the sheets are folded, there are produced a series of undercut notches 6 and 7 (Fig. 5), and complementary undercut segments 8 and 9 therebetween.

The openings 3 and 4 are of such a size, and are so spaced, that the notches and segments can be interlocked, as clearly shown in Figs. 1 and 2. This may be accomplished, for example, by making the average length a of each opening substantially equal to the average distance b between them. However, it will be understood that, if desired, the sheets can be notched only at intervals. Thus the dimension a of sheet 1 might be increased so long as the dimension b of sheet 2 is correspondingly increased. In other words, the dimensions a of one sheet (or set of sheets) should be substantially equal to the dimensions b of the other sheet (or set of sheets), so that the notches and segments are complementary. It will be understood that the size or spacing of the segments and notches, as well as the shape thereof, are subject to considerable variation, so long as the notches of one sheet (or set of sheets) are complementary to the segments of the other sheet (or set of sheets) as explained above.

When there are to be more than two complementary double-fold sections, the intermediate sheet or sheets may be punched to correspond with the punching of either one of the sheets 1 and 2, or some of them may be made to correspond with one of these sheets and the remainder with the other. In the latter arrangement there will be two sets of nested double-fold leaves or sections, the notches of one set being arranged to interlock with the segments of the other set. Again, the intermediate sheets can be made with

rectangular openings, or with other forms of openings which need not have the re-entrant portions 5 previously described. In this event, the interlock between the sheets 1 and 2 also serves to "bind in" the intermediate sheets although the intermediate sheets themselves may have no undercut notches or segments.

It will also be understood that the invention is applicable to the binding together of single leaves as well as double ones, or to the binding of leaves some of which may be single and others double. The single leaves may be of exactly the same form as the double insofar as concerns the arrangement and construction of the notches along the folded binding edge. This is illustrated in Fig. 7 wherein the sheet 2' constitutes a single leaf secured to the double leaf 1, the manner of joining the leaves being exactly the same as has been described hereinabove.

One of the advantages of my invention is that it results in the production of a booklet having a distinctive appearance due to the fact that portions of the inside sheets project through the cover along the binding edge. This distinctive appearance becomes quite striking when the cover sheet and filler sheets are made of contrasting or blending colors. The effect is simulated in the drawings by stippling one of the sheets. Compare Figs. 1 and 5. A greater number of colors can be used, if desired. Thus, the third leaf from the front can be made of a color, shade or tint, which is different than those of the first two leaves. Then, by cutting off or omitting one or more of the segments 9 of the second leaf, the corresponding segment or segments of the third leaf will appear at the outside binding edge of the booklet. The contrasting or blending colors, and the effects which can be obtained by combining sheets of different materials or of different shades or tints, are of considerable value in connection with certain types of books such as catalogs, and salesman's display books. The invention is applicable to the binding of many other types of books as well, including various forms of pamphlets, advertising brochures, handbooks, photograph albums, prospectuses, etc. Many different materials may be employed for the covers and inserts. For example, these may be made of paper, cardboard, or plastics or synthetic resins such as Celluloid and Cellophane. The covers may be opaque or transparent. Many other variations in material and arrangement will suggest themselves to advertisers and book binders.

Fig. 6 illustrates a modified form of punching in which the sheets 10 and 11 are provided with openings 12 and 13, respectively, arranged along the fold line, as before, but in which the form of the openings themselves is modified. The arcuate ends of these openings form re-entrant portions 14 which have a function similar to that of the re-entrant portions 5 of the embodiment previously described. The sheets, when folded, have undercut notches and undercut segments along the folded edge. The average length c of the openings in the one sheet (or set of sheets) preferably is substantially equal to the average length d of the segments of the other sheet (or set of sheets).

The drawing illustrates two alternative meth-

ods of bringing the leaves or sections into interlocking relation. In accordance with the method indicated in Fig. 5 the section 1 (which may consist of a single folded sheet or a nest of several sheets) is folded inside out as shown. The section 2 (which likewise may consist of a single folded sheet or a nest of several sheets) is folded inside in. Then the notches and segments of the section 1 are interlocked with the notches and segments of the section 2, and the sheets turned so that all are inside in. This locks all of the sheets together, as clearly shown in Figs. 1 and 2. In accordance with the method indicated in Fig. 6 the sheets 10 and 11 (there may be several of each) are stacked together with their fold lines in proper alignment and with the pages lying open. In this position, as shown in Fig. 6, the re-entrant portions 14 of the openings in the sheet or sheets 11 overlie the re-entrant portions of the openings of the sheet or sheets 10. The overlapping portions are then interlocked by tucking them through the openings, and the binding may be completed by folding the sheets into book form.

It will be understood that the form of the undercut notches and segments might be varied somewhat from those forms shown in the drawing; also that there could be some variation in the manner of manipulating the sheets during assembly. For example, mechanical means may be devised for assisting in the interlocking of the undercut segments, or for performing the entire operation automatically. The terms and expressions which I have employed are used as terms of description and not of limitation, and I have no intention of excluding such equivalents of the invention set forth, or of portions thereof, as fall within the purview of the claims.

1. A booklet comprising a plurality of sheets having folded binding edges at least two of which sheets are each provided with undercut segments arranged along the fold line thereof, the undercut segments of one sheet being arranged in interlocking relation to the undercut segments of another sheet.

2. A booklet comprising two or more doubled-leaf sections, each of said sections having a series of openings arranged along the fold line thereof, said openings being shorter at the fold line than at a point removed from the fold line to form locking segments, and the projections of one section being interlocked with the openings of another section.

3. A booklet comprising two or more doubled-leaf sections, each of said sections having a series of openings arranged along the fold line thereof, the average length of said openings being substantially equal to the average distance between them, and the projections of one section being interlocked with the openings of another section.

4. A booklet comprising a plurality of doubled-leaf sections at least two of which have a series of openings arranged along a fold line, the average length of said openings being substantially equal to the average distance between them, and the ends of the openings having re-entrant portions so that the length of the openings at the fold line is less than the distance between the openings as measured along the fold line.

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