May 27, 1924. 1,495,467

J. J. WHITE

BOOK

Filed Aug. 23, 1920

Fig. 1

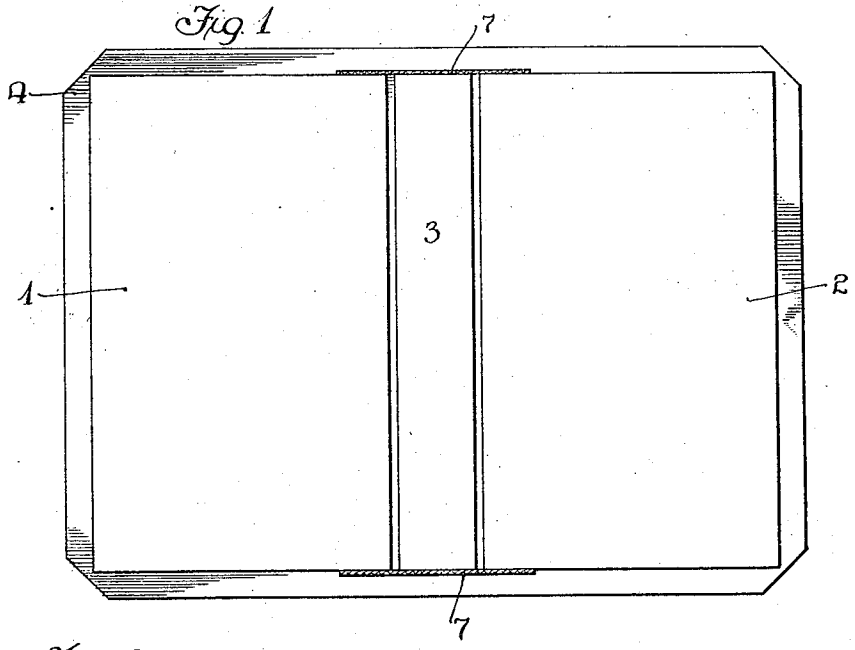



Fig. 3

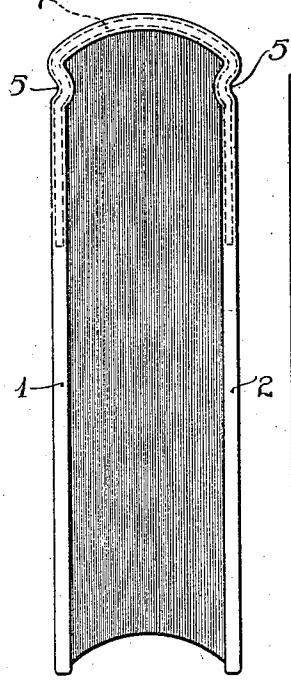
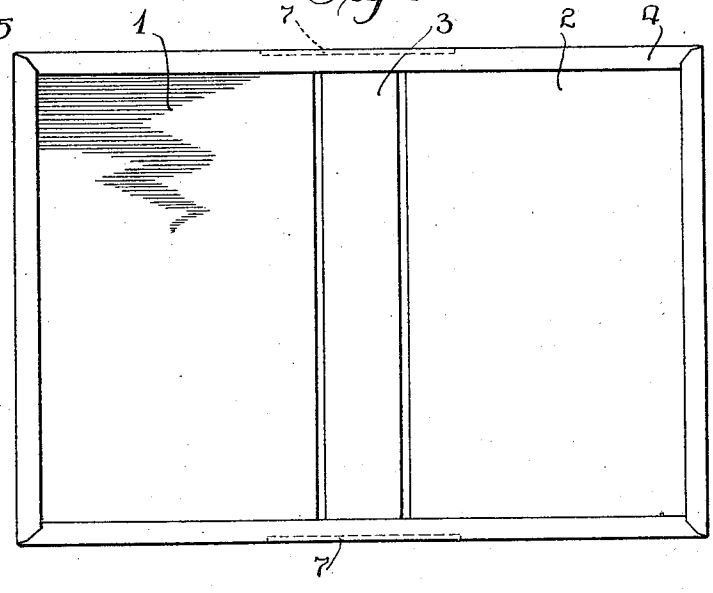



Fig. 2




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# UNITED STATES PATENT OFFICE.

JOSEPH J. WHITE, OF CHICAGO, ILLINOIS.

## BOOK.

Application filed August 23, 1920. Serial No. 405,360.

*To all whom it may concern:*

Be it known that I, JOSEPH J. WHITE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Books, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates generally to books, and has particular reference to improvements in the manufacture of book covers therefor. More specifically, the invention is concerned with the provision of means for reinforcing and strengthening the flexible back of the book cover, and particularly the hinge joints where the flexible back joins with the side portions of the cover. The flexible back of the ordinary book cover is subjected to continual wear from the bending resulting from the opening and closing of the book, and also from the chafing of the unprotected edges of the flexible back resulting from rubbing wear. This wear to which the flexible back is subjected is practically all concentrated along the upper and lower edges of the cover back, and particularly at the hinge joints between the back and the side portions of the cover, where there is a pronounced tendency for the covers of cheaply bound books to tear or break. The difficulty of reinforcing these edges of the cover back is accentuated by the fact that the back of the book cover must necessarily remain flexible and cannot be reinforced by any material which would tend to stiffen the back to any appreciable degree.

According to my invention I reinforce the edges of the flexible back by embodying a flexible reinforcing member in each edge during the process of manufacture of the book cover, and I preferably extend the ends of this reinforcing member into secure attachment with the side boards or side portions of the book cover. This reinforcing member preferably consists of a short section of cord or string, or any other suitable flexible material of such characteristic as will interpose a high factor of strength against tearing and breaking along the edges of the flexible back and at the hinge joints. These reinforcing strings or strips are preferably inserted during the manufacture of the book cover between the outside cover sheet, which is usually composed of fabric or paper, and the top and bottom edges of the stiffening boards employed for stiffening the sides and the back of the book cover. The margins of the cover sheet are folded inwardly over the edges of the stiffening boards and the entire cover sheet is adhesively secured to the stiffening boards, whereby the reinforcing strings or strips are embodied entirely within the upper and lower folded edges of the flexible back, being securely united to the stiffening boards and to the cover sheet by the adhesive employed in securing the cover sheet to the stiffening boards.

The added expense of reinforcing a book cover in this manner is substantially negligible, and for this reason the present invention has particular application to the cheaper grades of covers, which are also the covers which most essentially require reinforcement by reason of their cheaper construction. It is to be understood, of course, that the present method of reinforcing book covers has application to the more expensive grades of covers as well.

In the accompanying drawing wherein I have illustrated a preferred manner of practicing my invention:

Figure 1 is an elevational view of the inner side of a book cover, before the margins of the cover sheet have been folded over;

Figure 2 is a similar view of the book cover after the margins of the cover sheet have been folded over, and

Figure 3 is a plan view on enlarged scale of the assembled book after binding.

The form of cover chosen for illustration comprises the two side cover boards 1 and 2 and the intermediate back stiffening portion 3. The side boards 1 and 2 are constructed of cardboard of a relatively stiff grade, while the back stiffening portion 3 is constructed of a heavy grade of paper or a very light weight of cardboard, the function of the latter being merely to maintain a rounded curvature on the cover back and retain the cover back in shape. The outer cover sheet 4 may consist of fabric or paper; in the form illustrated this cover sheet consists of a durable grade of paper the outer surface of which has been treated so that it will not abrade or tear easily. The inner surface of this cover sheet 4 is preferably coated with an adhesive for securing the cover sheet to the boards 1, 2 and 3, or,

conversely, the boards themselves may be provided with an adhesive coating and the cover sheet thereafter applied to the boards. It will be noted that the inner edges of the two side boards, 1 and 2, are spaced from the edges of the back stiffening portion 3. This spacing is interposed between the boards to provide for the hinge joints 5—5 (Figure 3) which join the side boards with the flexible back and which are formed during the casing-in operation. From the fact that the hinge joints 5 are given no reinforcement by the cover boards 1, 2 and 3, and from the fact that the hinge joints are always subjected to a flexing stress every time the book covers are opened it will be apparent that the hinge joints are susceptible to tearing and breaking.

As I have hereinbefore described, I propose to remedy this difficulty by inserting a short length of cotton string, hard twisted cord or the like, designated 7, along the upper and lower edges of the cover boards 1, 2 and 3, before the margins of the cover sheet 4 have been folded over and adhesively secured to the cover boards. The reinforcing sections of string 7 are placed along the edges of the cover boards with the string sufficiently taut to prevent sagging and with the ends of the string sections extending equidistantly along the edges of each of the two side boards 1 and 2. The next succeeding cover-making operation is to fold the margins of the cover sheet 4 inwardly and adhesively secure them along the inner edges of the cover boards as shown in Figure 2. The folding of the cover sheet margins and attaching of the same to the cover boards entirely encloses the reinforcing sections of string 7—7 and adhesively unites these sections of reinforcing string with the edges of the cover boards 1, 2 and 3 and with the inner fold of the cover sheet 4. The sections of string 7—7 have very little thickness and merge into the upper and lower edges of the cover without producing any noticeable ridges or raised spots. The completed book cover is then bound to the book proper in a so-called "casing-in" machine, wherein the flexible back is rounded and the hinge joints 5—5 are formed in the cover, as shown in Figure 3.

The efficacy of this reinforcement of the flexible cover back will be apparent from the fact that any tendency of the upper or lower edge of the cover back to break or tear is resisted by the tensile strength of the string or cord, which is ample to withstand any ordinary tearing stress to which the cover may be subjected. The string serves as a cushion for these edges of the cover back and of the side covers to prevent surface wearing when moved across the table in engaging relation. The frequent bending of the string at the hinge joints 5—5 produces an almost negligible wear on the string reinforcements and consequently the durability of the hinge joints against ordinary wear is greatly increased. Although I have specifically referred to the use of string or cord as the preferred reinforcing material, it will be obvious that other materials having analogous characteristics may be employed, such as a short section of tape folded over the edges of the cover boards, the margins of the cover sheet being in turn folded over the tape.

I claim:

1. In a book cover, the combination of a side cover board, a back stiffening member, a cover sheet secured to said cover board and said stiffening member, said cover sheet forming a flexible hinge joint between said side cover board and said back stiffening member, and a reinforcing member lying across said hinge joint and entirely beyond the ends of said cover board and said back stiffening member, said cover sheet being folded over said reinforcing member.

2. In a book cover, the combination of a side cover board, a back stiffening member, a cover sheet secured to said cover board and said stiffening member, said cover sheet forming a flexible hinge joint between said side cover board and said back stiffening member, and a section of string extending across said hinge joint at the ends of said cover board and said back stiffening member, said cover sheet being folded over said section of string.

3. In a book cover, the combination of a pair of side cover boards, a back stiffening member, an outer cover sheet secured to said cover boards and said stiffening member, said cover sheet forming flexible hinge joints between said side cover boards and said back stiffening member, and a section of string extending across said hinge joints at one end of said book cover, said cover sheet being folded over said section of string whereby said cover sheet is reinforced and given greater tensile strength at said hinge joints.

4. In a book cover, the combination of a pair of side cover boards, a back stiffening member, an outer cover sheet secured to said cover boards and said stiffening member and having a margin folded over on the inside of said cover boards and said stiffening member, and sections of reinforcing string extended along the contiguous edges at the top and bottom of said side cover boards and said stiffening member, said sections of reinforcing string being enclosed in the folded margins of said cover sheet.

In witness whereof I hereunto subscribe my name this 13th day of August, 1920.

JOSEPH J. WHITE.