

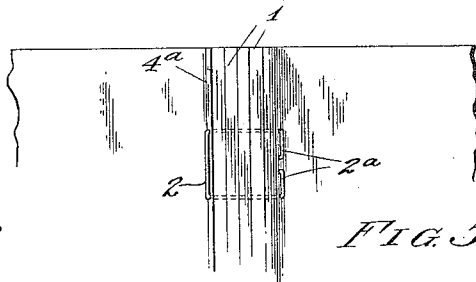
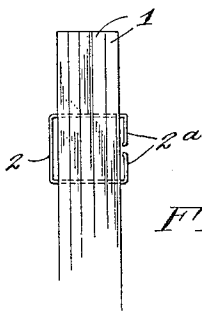
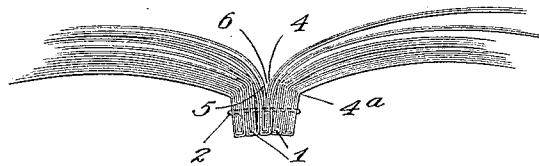
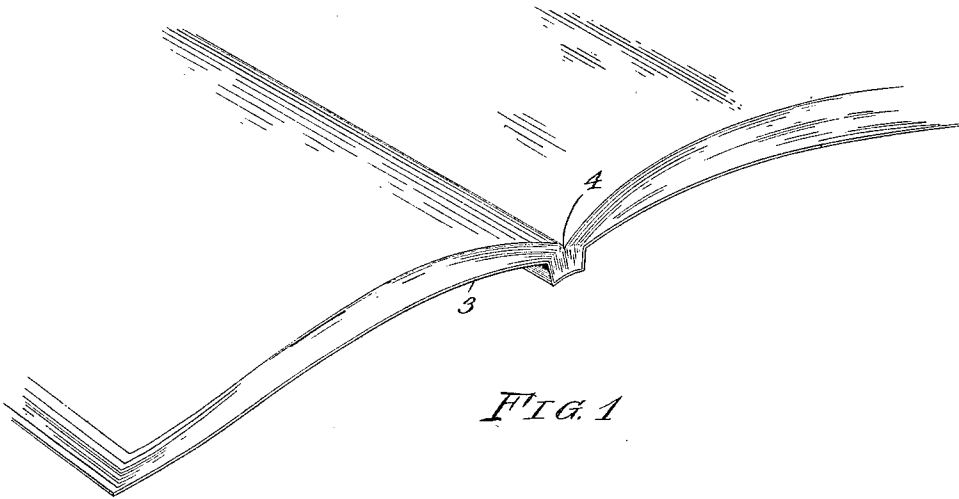
C. W. MEARS.

BOOK.

APPLICATION FILED OCT. 17, 1911.

1,042,707.

Patented Oct. 29, 1912.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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BOOK.

1,042,707.

Specification of Letters Patent.

Patented Oct. 29, 1912.

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To all whom it may concern:

Be it known that I, CHARLES W. MEARS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Books, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to books and to a method of constructing the same whereby strength of binding may be obtained while enabling the book, when opened at any desired place, to remain open in a practically flat position.

Various attempts have been made to produce such flat-opening books but, so far as I am advised, none of these attempts has been successful in connection with a book of the side-stitch construction.

It is the object of the present invention to produce a book which possesses all the advantages of strength and solidity of binding incident to the side-stitch construction and at the same time be capable of the flat-opening feature so desirable to the trade. I accomplish these objects by the construction and manner of forming books shown in the drawings hereof, wherein:

Figure 1 represents a perspective view of a portion of a book constructed in accordance with my invention; Fig. 2 an end elevation of the back portion of such a book, the cover being omitted; Fig. 3 an elevation of a portion of the back of such book; Fig. 4, an end elevation of the back portion of such book showing the same opened; and Fig. 5, an elevation of a portion of the back of the opened book shown in Fig. 4.

In constructing a book in accordance with my invention I provide each leaf with a hinge, which is conveniently formed by flexing the leaf along a line adjacent to the rear edge thereof whereby a hinge effect is produced. These hinges may be conveniently formed by clamping the body of a signature and flexing the back or projecting portions of the plies of the signature by mechanism such as shown, described, and claimed in my Patent No. 1,004,181 issued September 26, 1911. A sufficient number of these signatures to form a book are then assembled and secured by means of side stitches, commercially made of wire which is bent to staple form and forced through the back portions

of the signatures by suitable stitching machinery, as for example that shown in the copending application of Brennan B. West and myself, Serial Number 664,635, filed December 8, 1911, the ends of the staples being bent toward each other to complete and lock the stitch. When the back portions of the leaves are secured by the ordinary commercial machines, the wire loop comprising the stitch compresses the back portions of the leaves, holding them closely and compactly together. When thus constructed, the hinging of the leaves in the manner described allows the book to open flat as compared with other books stitched in like manner. I have found, however, that this result is attained in a much more marked and satisfactory degree by making the wire loops, comprising the side stitches, of greater length than the thickness of the back of the book, thus allowing an opening movement between adjacent leaves from the hinged portions thereof toward the back of the book in addition to the relatively flat opening secured by the hinges. I have also found that the best results in manufacturing thick books are obtained by producing the hinges in such manner that the distance of the hinges in the successive leaves or plies from the outside of the book toward the center of the same, progressively increases.

In the drawings forming a part hereof, there is shown an embodiment of my invention, the parts being designated as follows: 1 denotes a plurality of signatures assembled and connected by means of side stitches. Before so assembling, each signature may be subjected to the action of a suitable machine for flexing the plies thereof to establish definite bending lines or hinges therein. One manner of producing these hinges is shown in my patent No. 1,004,181 referred to hereinbefore. A suitable number of signatures thus treated are assembled side by side, in the customary manner, and are then stitched together, between the hinges and the backs of the signatures, by means of the wire stitches 2. Each of these stitches is longer than the thickness of the assembled signatures, as will be clearly evident from Figs. 2, 3 and 4. The stitch is formed from a wire staple, the ends of which are forced through the back of the book from side to side thereof and are bent toward each other, as shown in 2^a, to form a lock. After the

signatures are so secured, the cover 3 may be applied and may be secured in any ordinary or approved manner, as by means of glue.

A book constructed as described will not only open flat and remain open, on account of the hinging of the individual leaves, as indicated at 4, but this hinge action can be best realized in a construction wherein the leaves of plies 5 are free to separate back of the hinge, as indicated at 6, Fig. 4. Furthermore, in order to secure the best results, the distance of the hinges 4 from the back of the book should increase progressively from each side toward the center, as indicated by the hinged lines 4^a in Fig. 4.

By the invention disclosed herein, I am able to produce a book which will open flat and remain open in this condition and one the leaves whereof will remain securely in place. While the desirability of a flat-opening book has long been recognized by publishers and others skilled in the art, so far as I am aware no one heretofore has produced a book containing such flat opening with a permanent and efficient binding arrangement such as is afforded by the side-stitch construction.

In use, the extra length of the wire staples or stitches is taken up by the paper, so that the ends of the stitches do not protrude to the inconvenience of the reader. Indeed, as soon as the book is made, the tendency of the paper is to take advantage of the space allowed it by the staples or stitches and to expand so that its thickness, in loose condition, is equal to the full length of the stitches or staples. In reading, however, the simple turning of the leaves tends to bring the added length of the staples or stitches into the place where the book is open. A great advantage of my method of making books is the saving of paper which results from the ability to print closer to the inner edges of the leaves with narrower margins than is possible with books of the ordinary side-stitch construction. A still further advantage which flows from the flat-opening feature, is the ability of making any two opposed pages into a "double page spread" without having the unity of the two pages defeated by an intervening gap.

Having thus described my invention, what I claim is:

1. In a book the combination of a plurality of leaves each having a hinge adjacent to the back thereof, and a permanent binding therefor including a plurality of metallic fastening devices extending through the back portions of said leaves from side to side thereof and at the rear of said hinges, said devices being of greater length than the aggregate thickness of said leaves.

2. In a book, the combination of a plurality of leaves each having a hinge adjacent to the back thereof, and a permanent binding including a plurality of metallic fastening devices extending through the back portions of said leaves from side to side thereof at the rear of said hinges and loosely connecting said leaves.

3. In a book, the combination of a plurality of leaves each having a hinge or bending line adjacent to the back thereof, and a permanent binding therefor including means extending through the back portions of said leaves, between the hinges and back edges thereof, and loosely connecting the same.

4. In a book, the combination of a plurality of leaves each having a bending line or hinge spaced from the back edge thereof, the distance of the bending lines or hinges from the back increasing progressively from the sides toward the center of the book, and a permanent binding including wires extending through the back portions of said leaves between the hinges and back edges thereof and loosely connecting the same.

5. In a book, the combination of a plurality of leaves each having a bending line or hinge spaced from the back edge thereof, the distance of the bending lines or hinges from the back increasing progressively from the sides toward the center of the book, and metallic staples extending through the back portions of the leaves, between the hinges and the back edges of said leaves, said staples having their ends bent and being of greater length than the thickness of the book formed by said leaves.

6. In a book, the combination of a plurality of leaves each having a bending line or hinge spaced from the back edge thereof, and metallic staples extending through the back portions of the leaves, between the hinges and the back edges of said leaves, said staples having their ends bent and being of greater length than the aggregate thickness of such back portions of the leaves to permit an opening movement between such back portions of adjacent leaves.

7. In a book, the combination of a plurality of leaves, and metallic staples extending through the back portions of the leaves and having their ends bent, said staples being of greater length than the aggregate thickness of the back portions of the leaves to permit opening movement between the back portions of adjacent leaves.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

CHARLES W. MEARS.

Witnesses:

C. W. CHURCHILL,
W. J. WARD.